Universidade de Aveiro
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Comunicação mutimédia de inovação de ciência e tecnologia em contexto empresarial

Multimedia communication of science and technology innovation in an enterprise context

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Dissertação apresentada à Universidade de Aveiro para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Comunicação Multimédia, realizada sob a orientação científica do Doutor Jorge Ferraz de Abreu, Professor Associado com Agregação do Departamento de Comunicação e Arte da Universidade de Aveiro, e sob a coorientação do Engenheiro Alexandre Ulisses, Chief Innovation Officer na Mog Technologies.

o júri

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palavras-chave

Comunicação de ciência; Comunicação de tecnologia, Multimédia; Comunicação de inovação

resumo

A necessidade de comunicar ciência e tecnologia é cada vez maior.
Em projetos de Investigação e Desenvolvimento, que incluem a criação de novas tecnologias e paradigmas, a disseminação adequada de conteúdos representativos desempenha um papel fundamental para estabelecer essas tecnologias junto dos seus públicos-alvo, incluindo a comunidade científica e parceiros de projeto.

No âmbito desta dissertação, foram produzidos artefactos multimédia para a comunicação de conteúdos científicos e tecnológicos complexos.
Isto foi feito no contexto da empresa MOG Technologies, e partindo da sua necessidade de comunicar com parceiros, clientes e outros intervenientes, as características dos seus serviços e produtos baseados em inovação.
Os artefactos multimédia produzidos foram vídeos e eventos de broadcasting.
Foi também criado e implementado um plano de disseminação nas redes sociais.

O desafio de obter estes resultados concretos é apoiado pelo conhecimento e compreensão dos projetos, produtos e públicos-alvo da MOG e pelo enquadramento teórico de comunicação de ciência e tecnologia usando multimédia.

Os artefactos foram implementados e utilizados, obtendo-se um bom feedback.

keywords

Science communication; Technology communication; Multimedia; Innovation communication.

abstract

The need to communicate science and technology is increasing.
In Research and Development (R&D) projects, which encompass the creation of novel technologies and paradigms, the adequate dissemination of representative content plays a pivotal role to establish such technologies within their target audiences, including the scientific community and project partners.

Within the scope of this dissertation, multimedia artifacts were produced for the communication of complex scientific and technological content.
This was made in the context of the MOG Technologies company, and its need to communicate with partners, clients, and other stakeholders, the characteristics of their innovation-based services and products.
The produced multimedia artifacts were videos and broadcast events. A social media dissemination plan was also created and implemented.

The challenge of these concrete outputs was supported by the knowledge and understanding of the MOG projects, products, and target audiences, and by the theoretical framework of science and technology communication using multimedia.

The artifacts were implemented and used, obtaining good feedback.

Table of Contents

Table Index

Figure Index

1. INTRODUCTION

The present dissertation focuses on the development of multimedia artifacts to support the dissemination of the research activities of an enterprise (MOG technologies[1]). Videos and broadcast events share with clients, partners, and stakeholders what Mog Technologies has to offer.

These artifacts aim to share complex scientific and technological accomplishments in an efficient, accessible, and straightforward way, thus improving how Mog Technologies communicates.

The main task is the development of content for communication and dissemination for a variety of national and international projects, products, and services of the company. This work also encompasses the planning and release of the produced content on different social media platforms, the identification of requirements and target audiences, and the interaction with partners.

Despite the short duration of a master's dissertation, all the artifacts produced have been implemented and the totality of the content developed is currently being used by Mog Technologies.

1.1. RESEARCH CONTEXT

Mog Technologies is a company that provides digital media technology. It focuses on creating innovative solutions mainly for the Media and Entertainment sectors.

The majority of the content was produced for the Research and Development Department, whereas broadcasting events, called MogDirect, were developed as a joint collaboration between several departments, namely the Pre-Sales, Sales, and Marketing and Communication departments.

These dissemination artifacts are used mostly to communicate with specific publics, namely clients and partners of the enterprise.

The target audience of MogDirect initiative are potential and existing Mog clients and resellers of Mog's products and services. The target audience of the content produced for the Research and Development Department ranges from scientific research entities, stakeholders and clients.

These audiences entail between them a big difference in scientific and technological knowledge. Because of this, the artifacts created in this

[1] https://www.mog-technologies.com/

dissertation present different levels of content complexity adapted to the specific public they are catered to.

The main focus of the work concerned the DataCloud project, which is being developed under the Research and Development Department. DataCloud is a consortium project that counts with 11 partners, being MOG Technologies one of them.

DataCloud and the other innovation projects for which artifacts were produced, are described in Section 3.

1.2. GOALS AND PURPOSES

The goal of this project is to develop a group of multimedia artifacts that are created following the theoretical framework described In this document These multimedia products aim to be effective communication instruments.

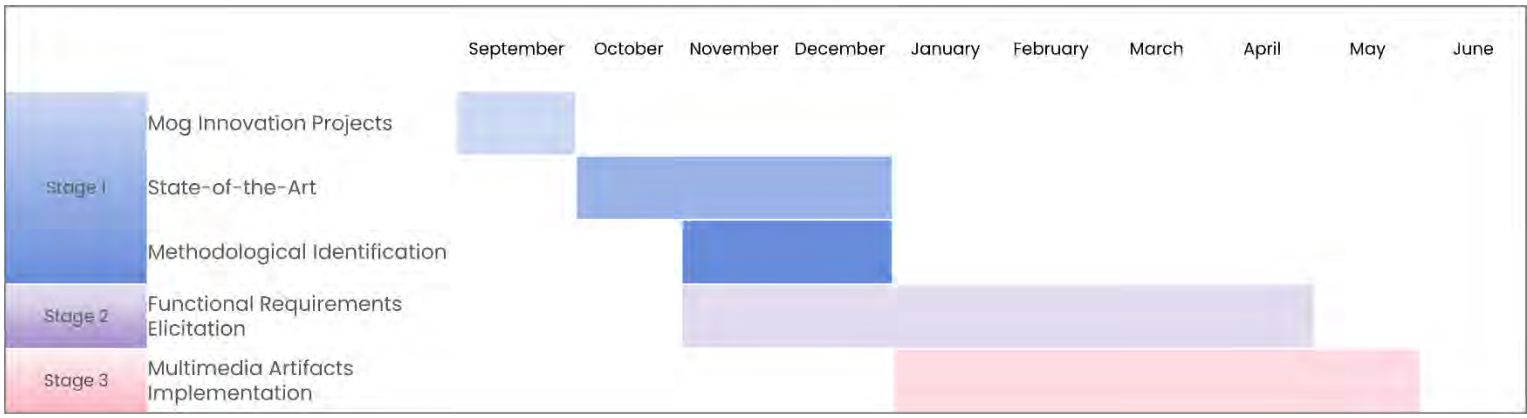
This dissertation was led by objectives and, since it was developed in an enterprise context, the objectives are aligned with the enterprise ones. The general objective is to develop science and technology communication using multimedia tools that are functional, effective, and of quality. The specific objectives are:

- Production of multimedia communication content for the DataCloud project, developed under the Research and Development Department;
- Planning and execution of a dissemination strategy, for social media platforms, of multimedia products from the DataCloud project;
- Production of multimedia communication content for other projects developed under the Research and Development Department;
- Co-creation of MogDirect, a new broadcasting model for the communication of products and services;
- Planning and technically supporting the MogDirect instalments.

1.3. DISSERTATION DEVELOPMENT PROCESS

The process of development of this dissertation was divided into 3 main stages. A chronogram was also created to represent the several stages in the time frame available to develop the project.

A **contingency plan** that focused on the covid 19 pandemic and time constraints that could happen was also defined. There was, however, no need for any of those measures to be implemented.



STAGE 1

1.1 – MOG INNOVATION PROJECTS

Stage one started with the familiarization with the Mog innovation projects. This occurred so there could be a better understanding of the way the innovation projects are developed and how the communication is made. This phase occurred in September.

1.2 – STATE-OF-THE-ART

After having an idea of what the Mog company works with and what the DataCloud, specifically, entails, the state-of-the-art research was started. This research was developed throughout October, November, and the beginning of December.

1.3 - METHODOLOGICAL IDENTIFICATION

The Methodological identification was developed during November and December, together with some state-of-the-art research.

STAGE 2 - FUNCTIONAL REQUIREMENTS ELICITATION

Critical analysis and visual identity definition were made having the MOG and DataCloud visual guidelines as a base and developing it to the specific multimedia formats that were to be produced. This definition of the visual identity also considers the conclusions from the previous phase related to the effectiveness of different visual strategies. This stage was developed from the end of November until the end of April.

STAGE 3 - ARTIFACTS IMPLEMENTATION

In this phase, the knowledge from the previous phases was connected and used to create multimedia prototypes/artifacts. The development of the prototypes had permanent feedback from participants. The time between the development of a product and the correspondent feedback was almost immediate. This helped to develop products with quality at a fast pace.

Conceptualization of the communication artifacts occurred after the product prototypes have been approved by the Mog responsible so the finalizations can be implemented. This phase occurred from January until the end of May.

1.4. MOG TECHNOLOGIES PROJECTS

In this section, a brief framing is made of the projects for which content was produced. Since this master's dissertation is connected mainly to the DataCloud project, a more in-depth framing will be made not only of the project but also of its dissemination plan and how it has been developed over the last year, before the beginning of this dissertation.

A set of projects that are similar to DataCloud, were identified by Mog participants. For each of these projects, a table was developed encompassing the platforms used for each project dissemination, along with identification of relevant KPIs. These tables are included in this document's attachments.

1.4.1. DATACLOUD

> "DataCloud develops novel methods to support the complete lifecycle of Big Data pipelines processing, enabling their discovery, definition, model-based analysis and optimization, simulation, deployment, adaptive run-time and monitoring on top of decentralized heterogeneous infrastructures on the Computing Continuum." [2]
>
> (https://datacloudproject.eu/project/about-the-project)

For the DataCloud project, a communication strategy was developed. This entailed not only the production of the multimedia products for the communication but also the previous research that ensured that the products were relevant and achieved the goals of the company within the scope of the master's dissertation. The developed multimedia content aims to allow for good and effective communication of science and technological innovation.

DataCloud is a European project focused on the computer continuum of big data. The project counts with 11 partners that deliver 6 tools and 5 business cases. One of these business cases, called MogSports, is developed by Mog. MogSports is a decentralized crowdsourced live sports broadcasting tool.

DataCloud received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 101016835.

Mog is responsible for the dissemination of the DataCloud project during its lifespan. During the development of this dissertation, the project was in its 2nd year.

This dissertation enabled the development of 1 business case video, 1 project video, and 15 video teasers for the DataCloud Project, as well as a dissemination plan and its implementation.

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[2] *DataCloud | Enabling the big data pipeline lifecycle on the computing continuum*. (n.d.). Data Cloud Project. Retrieved December 5, 2021, from https://datacloudproject.eu/project/about-the-project

In Table 1, it is possible to see the targets and achievements of the DataCloud project in its 1st year. For this dissertation, the relevant aspects to consider are the media materials and social media. The other elements are not related to the dissertation. This table regards the year before the dissertation, which was much relevant to the work developed and, thus, is presented.

Table 1: 1st Year Achievements based on the KPIs target for the communication activities (taken from DataCloud deliverable 7)

Activity	1st Year Target (M1-M12)	1st Year Achievements	End of the Project (M36)
Website	-	1474	3000 visitors per year
Press Releases	1	2	3 per country; 5 BC press releases
Factsheets	3	3	3 per year
Media Materials	1 project video; 1 toolbox video; 5 BC videos	1 project video; 5 BC videos	3 project videos; 3 toolbo videos; 15 BC videos
Stakeholders Meetings	1	1	2 per partner
Social Media	20 posts	32posts	20 posts per year; 500 followers
Blog Posts	11	11	1 per partner per year
Interest Groups	6 (>20 members)	-	6 (>20 members)
Public Events	10 presentations/ tutorials	-	10 presentations/ tutorial
Interviews	-	-	5 project interviews; 5 BC interviews

Table 2: DataCloud 2nd Year Dissemination Plan

Activities	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
Press releases												
Factsheets												
Project Videos												
Toolbox Video												
BC Videos												
Stakeholders Meetings												
Social Media	30 social media posts											
Blog Posts												
Interest Groups	3 (> 20 members)											
Public Events	5 presentations or tutorials											
Interviews												

Table 2 is the dissemination plan for the 2nd year of the DataCloud Project. In the context of this dissertation, it was developed 1 project video, 1

business case video, 16 social media posts – on twitter, and 15 teaser videos – published in the consortium's YouTube channel.

1.4.2. ARTICONF

According to Articonf's website (https://articonf.eu/) "ARTICONF addresses issues of trust, time-criticality and democratisation for a new generation of federated infrastructure, to fulfil the privacy, robustness, and autonomy related promises that proprietary social media platforms have failed to deliver so far."

Articonf counts with 4 use cases. One of them, "Crowd Journalism", is developed by Mog Technologies. The dissemination content developed for Articonf was all made in the context of MogPlay, the name of the crowd journalism product. MogPlay is a mobile app that captures and streams video. It has a marketplace and an interface for the video's live watching.

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825134, the ARTICONF Project.

1.4.3. CINED

Cined is a tool to help increase cinema literacy in European youth. This project has a collection of film, didactic and interactive content to help disseminate European cinema in schooling contexts. Cined was developed with the help of teachers, cultural mediators, and cinema professionals.

Mog Technologies is one of the project's 14 partners, giving support in the development of the website and didactic content.

This project received funding from Creative Europe / MEDIA programme of the European Union, "Support for film education".

1.4.4. TRUE

TRUE project aims to develop a platform that allows youngsters to write news articles in Portuguese, based on the credibility of news sources, as well as the identification and contextualization of key topics, under the scope of school newspapers initiatives. This platform provides templates and a

sophisticated analysis of the credibility of information sources, which helps the students to write in a more enlightened way.

Mog Technologies teams up with a prestigious Portuguese newspaper and university to develop this project.

This project received funding from the funding programme “Portugal 2020”, action “Projetos de I&DT Empresas em Copromoção” with the reference nr 46923.

1.4.5. VALENCE & VAPOR

VALENCE aims at creating a novel technology-based system that will support advertising in a new and more effective way by using networking technology to detect user’s location, and for the first time, being able to stream NIVA adverts (Native In-Video Advertising material) that reinforces or is appropriate to the location. The deliverable at the end of the project was a novel platform for advertisers, program rights holders, distributors, and cloud/network providers.

E-VALENCE received funding from “Portugal 2020” programme, action ”Eurostars”, with the reference number: E!10891.

VAPOR360 aims at using NIVA technology in 360° video advertising, by placing/embedding brands/products in a VR setting depending on the user’s preferences and/or location. This type of experience will increase the effectiveness and potential of the advertising content by overcoming the limitations that still exist in the traditional advertising paradigm.

This project received funding from the ”Portugal 2020” programme, action” Projectos de I&D Industrial à Escala Europeia”, with the reference nr: 46084.

1.4.6. MAP

The MAP Project aims to build a new B2B marketplace between content creators (indie film-makers) and distributors (i.e., “Over-the-top” channels). The innovative aspect of this project is the use of Blockchain and Smart Contracts to automate media licenses. With low-cost automated licensing, there is no need to pay high fees to third-party mediators to license content. Removing costs and complexity of the traditional process will attract indie film-makers, who previously would not have access to simple, low-cost

licensing mechanisms, and channels to acquire content from these independent film-makers.

Mog Technologies develops this project along with MetFilm Production.

Map received funding from the funding programme “EIT Digital”, action “Projetos de I&D em Copromoção”, with the reference nr 21113.

1.5. MAIN CONTRIBUTIONS

In the context of this dissertation, a variety of content was produced.

As has been stated before, DataCloud was the main focus of the developed work. For this project, the author produced:

- 1 marketing video;
- 1 business case video;
- 6 logos and icons for the project´s tools;
- 15 video teasers;
- 16 tweeter publications;
- Social media dissemination plan - that was also carried out.

For the Research and Development Department, other than the DataCloud content, it was produced 1 flag video for the department, 1 pilot video and 2 audit videos.

MogDirect, a broadcasting event, was co-created by the author. A set of visual content was developed for the initiative. Technical planning and execution of the existing instalments were secured by the author.

1.6. DOCUMENT’S ORGANIZATION

The present dissertation is organized in 4 main parts.

In this introduction an overview of the context, goals, process and main contributions has been presented. Next, theoretical framework and methodology provide a context for the developed work. After, the artifact development chapter presents a description and results of the produced content. In the end, the conclusion wraps up the document

2. THEORETICAL FRAMEWORK

The Theoretical Framework of this dissertation was developed from the analysis of relevant literature connected with communication of science, communication of technology, communication, and storytelling.

From the reading of this literature, relevant themes were identified and explored. During this process, the understanding was that this dissertation would produce content for the general public. Because of specificities related to the enterprise nature of this dissertation, the content ended up having a shift in goal, and was created mostly for specific publics. Since during the theoretical framework development phase, the idea was to disseminate science to a broader audience, the themes reflect that. Most of these themes are still relevant after this shift in the audience but the author thought it was necessary to mention this, having in mind that some of the focus of this chapter is on the dissemination of science to a broader audience.

The main themes deemed relevant for this dissertation were New Media, Engagement, and Technical Elements.

Most of the content that was developed in this dissertation was done in the context of big projects of investigation and development, therefore it was considered relevant to make a brief analysis of what other similar projects do in terms of communication and dissemination. The projects mentioned here were identified by the participants from Mog. The analysis focuses on the technical aspects of the content and on the dissemination strategies – what social media is used, what type of content is published on each platform, etc.

A table matrix was developed with a brief commentary about what some of the read literature said about selected themes. With this table, it is possible to see quickly what each piece of literature defends in the topics identified. This table does not show complex ideas, due to the nature and objective of a table like this. The theoretical development of these themes is found in each of the themes' chapters. Some of the identified themes in the table do not have a specific chapter or sub-chapter dedicated to them. This happens because some themes were not deemed to have enough relevance to this specific dissertation.

Table 3: Matrix Table

Table 3 was created over several weeks. During this time, multiple texts about topics related to this master's dissertation were read. Recurring themes and the different points of view and opinions about each of them were identified. During this process, it became clear which themes were relevant for this dissertation, and which weren't.

For this table, general themes and topics that didn't contribute to this specific work were cut out. The main topics identified are: communication to a general public, process/functioning of science, trust, engagement, framing, storytelling, personification, images vs text, documentary/short film, animation, user-generated content vs professionally generated content, traditional media, and new media.

For each of these topics, the texts that had more relevant information were identified, and a brief compilation was made with the main statements about the topic. This way, the information became more organized and easier to relate to one another. For sake of simplicity, not all the texts are represented here, only the ones that were deemed more relevant.

2.1. NEW MEDIA

> "Once out of formal schooling, nonexpert audiences get the majority of their scientific information from mass media content." (Dahlstrom, M. F., 2014)

Media has an ever-changing dynamic and because of that, the communication that occurs using media tools needs to change as well. New media brings democratization of what can be said and who can say it. Even though this brings a lot of advantages, it also creates new challenges for science communication. New media presents a mixture of reliable data and personal opinions that are often hard to distinguish from each other. Because of this, communication that uses all types of Media, but especially New Media, needs to use tools that allow for quality scientific information to be distinguished from the rest of the communication.

New media is an umbrella term that contains social media, websites, podcasts, YouTube videos, etc. According to the New Media Institute (https://nmi.cool/about/), new media is "a catchall term used to define all that is related to the internet and the interplay between technology, images, and sound."

Media has many challenges that can affect the quality of science communication. When the public has access to a lot of different opinions regarding the same scientific topic, the trust they have in the information generated by the media decreases.

The media is blamed for creating and enabling fear in laypeople regarding science and scientists. (Communicating science - A scientist's survival kit, 2006) However, the media can also be a great ally in helping the creation of a good relationship between scientists and society. Media, especially new media, makes it easier for scientists to communicate directly with communities, thus creating a stronger relationship that benefits all parties involved.

Media messages usually have what is called "media logic": familiar and predictable forms that attract the target audience's attention. (Dahlstrom, M. F., 2014) Even though this "media logic" helps audiences to pay attention and interact with science stories, it also has some negative aspects. To fit this pre-

defined form, the stories a lot of times must be slightly changed, with some aspects omitted and others emphasized to an extreme.

> "The narrative worlds presented in entertainment media are systematically skewed and individuals who are exposed to larger amounts of this stories internalise and share the beliefs and values portrayed." (Dahlstrom, M. F., 2014)

New media gives audiences a bigger power for them to choose what type of information interests them and makes it easier for the audience to choose what they want to believe and to ignore different opinions. (Dahlstrom, M. F., 2014)

The use of technology and new media has not a simple outcome of democratization of knowledge. (Trench, B. 2008) Even though information is available, not all individuals have the same tools to find it and understand it. People with more science knowledge can identify and understand scientific information in a better way than people with less science education. Because of this, scientific information that is available in the media, has an effect of distancing the difference between science knowledge of the people that already had more scientific information vs the people that had less.

In order to be able to create a science video that works online and in the new media, there can be a juxtaposition of qualities found in user-generated content, and of strategies from the advertising and marketing industry. (Finkler, W., & Leon, B., 2019)

Table 4: Theoretical Framework | New Media

Title	Year	New Media
EU communicating science	2006	Good to communicate niche topics
What's next for science communication? Promising directions and lingering distractions	2009	Good for reaching non-traditional audiences
A Good Story Well Told: Storytelling Components That Impact Science Video Popularity on YouTube	2020	Tremendous potential of online videos for public communication
Using narratives and storytelling to communicate science with nonexpert audiences	2014	New media is changing how science is communicated to non experts; internet can influence perceived quality of the science information itself
Audiovisual Science Communication on TV and YouTube. How Recipients Understand and Evaluate Science Videos	2020	Internet has changed the role of science journalists as gatekeepers because a lot of these platforms are based on participatory culture
Supporting quality in science communication: insights from the QUEST project	2021	Users tend to segregate in echo chambers
Engaged Science: Strategies, Opportunities and Benefits	2020	Online tools help to engage in a more direct communication with the public, are more flexible in tone and organization of the content and are usually free to use
Title	Year	New Media

2.2. NARRATIVE

Considering the bibliography analysed, it becomes clear that narrative is something that must be present in science communication videos. In order to create a story that the audience wants to hear, there needs to be a narrative that interests them. (Sullivan, W. J., Strathdee, S. A., & Hotez, P. J., 2021)

Narratives follow a structure of cause-and-effect relationships that take place in a particular time period and that impact particular characters. (Dahlstrom, M. F., 2014) The narrative can be developed in many different ways, but it must always include the main elements of the science that one wants to communicate, so that these are well inserted in the narrative. This storytelling tool should get the audience's attention and use terminology that they know. One must avoid overly scientific terms; if there is a need to use them, their meaning must be explained in advance.

Narratives should always follow storytelling strategies. They must have characters and follow a structure that is captivating to the audience. The structure should create some emotional response in the audience. This strategy is a proven way to build empathy and interest.

According to Dahlstrom, M. F. (2014), when using logical-scientific communication, deductive reasoning is being used, whereas when using narrative, the reasoning that is being used is inductive. With a communication that is based on narrative, the audience is being shown an example, clearly representing the message that is being transmitted. This way of passing on information is, generally, more efficient.

> "Narratives are often associated with increased recall, ease of comprehension, and shorter reading times." (Dahlstrom, M. F., 2014, page 2)

Dahlstrom, M. F. (2014) defends that it is difficult to counter claims made with narrative. This happens mainly because when telling an information by means of a narrative, this information is often transmitted without valid, logical arguments. If there is no argument, it is very difficult to logically analyse the presented problem, whereas it is easier to believe it.

Usually, narratives are not completely scientifically accurate. When creating a narrative to convey a scientific information, some realism is often put apart to create a more compelling story. This creates problems when conveying scientific information. There needs to be a balance between the level of accuracy and the level of engagement of a narrative.

Positive emotions have a good impact on an individual's thought-action repertoire and negative emotions decrease the virality of videos. Because of this, it is good to create a narrative such that negative moments are followed by solutions or different, happier points of view. (Finkler, W., & Leon, B., 2019)

2.3. ENGAGEMENT

According to dictionary.com, to engage is to "occupy the attention or efforts of a person". Engagement is very important because when the audience is engaged, they end up interiorizing better the message that is being transmitted. One wants the audience to be engaged because, without it, communication will not be fruitful.

"The more entertaining a video is rated, the stronger the belief that the content presented is correct and the stronger the trust in the authors. This corresponds to "illusion of understanding" or "easiness effect" – simplification prompts the recipients to access the content easier and more trustable and to overrate their epistemic competence." (Boy, B., Bucher, H. J., & Christ, K. (2020)

For a piece of communication to have credibility, it needs to be believable, providing support of why it is a fact and having a sense of authority. Credibility is also related to likability. (Finkler, W., & Leon, B., 2019)

There are a lot of different tools used to create engagement. Here, the most relevant ones are mentioned - framing, narrative, storytelling, and personification.

Table 5: Matrix Table | Engagement

Title	Year	Engagement
What's next for science communication? Promising directions and lingering distractions	2009	Should occur early and impact decisions
Typologies of the Popular Science Web Video	2015	Necessary to communicate with audiences
Supporting quality in science communication: insights from the QUEST project	2021	Communication needs to interact with audiences
Engaged Science: Strategies, Opportunities and Benefits	2020	"Engagement improves understanding of the scientific process and enhances inclusivity of the policymaking process."
Title	Year	Engagement

2.3.1. FRAMING

Framing is indispensable to convey any type of science information. While making science communication, framing can be used to make sure that what one is saying is aligned to what the audience wants to hear.

"Frames" are storylines that give to the audience a context of the problems, explaining what is at stake in a societal debate and why it matters. Framing research explains how, in society, science-related issues are presented in politically strategic ways, how these issues are covered by the media, and how diverse publics understand, and participate in these debates. (Nisbet, M. C., & Scheufele, D. A., 2009)

"Framing theory suggests that how something is presented to the audience (called "the frame") influences the choices people make about how to process that information" (Framing Theory. (n.d.), 2021)

"Framing" is a valuable tool when communicating with people who are not part of the scientific community. Within framing is the use of narratives to communicate scientific concepts. One way to get people interested in what one has to say is to explain the story, rather than simply telling it. If one explains to the audience the motivations of the characters in our narrative, one will be able to captivate the audience more easily.

If a communicator is talking about topics that are very far from the daily reality of most people, it is a good idea to try to connect these to something that the audience can understand. In other words, the themes must be related to something that the public knows and is familiar with.

Successful framing suggests that there is a link between two concepts or things. To make sense of political issues, citizens use the frames available in media coverage as resources, but integrate these "packages" with the frames forged by way of personal experience or conversations with others. One of these packages might gain influence because it resonates with popular culture or a series of events, fits with media routines or practices, or is sponsored by elites.

Social movements use frames to connect groups and mobilize supporters. (Nisbet, M. C., & Scheufele, D. A., 2009) In this way, people can identify with the stories and understand that the "movement" will benefit them.

"It is a mistake to believe there could be "unframed" information." (Nisbet, M. C., & Scheufele, D. A., 2009)

Table 6: Matrix Table | Framing

Title	Year	Framing
EU communicating science	2006	There is a need to tell what we want to transmit in a way that is related to something the audience thinks is interesting in a way that tells a story
What's next for science communication? Promising directions and lingering distractions	2009	Should suggest a linkage between two concepts or things; bottom-up alternative frames may be gaining greater influence; there cannot be "unframed" information
Using narratives and storytelling to communicate science with nonexpert audiences	2014	Media uses narratives to tell scientific discoveries, framing the matter
Uniting science and stories: Perspectives on the value of storytelling for communicating science	2018	Scientists need to communicate in a way that interests the general public
Opinion: Finding the plot in science storytelling in hopes of enhancing science communication	2017	Storitelling and narrative can help communicate science to non-experts, within the wider context of framing. "Science breakthroughs that resonate with nonexperts despite lack of direct application do so because they engross our imagination and prompt emotion."
Title	Year	Framing

2.3.2. STORYTELLING

Storytelling and framing are often connected when talking about science communication. This happens because for framing to happen storytelling tools are usually used. But storytelling isn't just this. Studies (Cormick, C., 2019) prove that the way we tell information changes how our

brain reacts to it and telling information using storytelling techniques helps with attention, understanding and memory of the information received.

To communicate with the general public, we must do more than use a simple language. Telling stories that explain science in a factual but engaging way is a great tool to convey science. (Communicating science - A scientist's survival kit., 2006)

> "There is a strong indication that storytelling may play a critical role in successful video making and is also seen as an important ingredient of engaging science communication." (Huang, T., & Grant, W. J., 2020, page 2)

According to Huang, T., & Grant, W. J. (2020), popular science YouTube videos use complex storytelling structures. This means that audiences prefer to see content that is presented in a storytelling capacity. This is another indication that one should use storytelling tools to communicate information.

Storytelling seems to make information more persuasive. (Huang, T., & Grant, W. J., 2020) If the goal is to make people believe in what one is saying, all of the necessary tools should be used in order to make that happen.

There is a clear connection between being able to tell a well-constructed story and the ability of that story to persuade the listeners. (Green, S. J., Grorud-Colvert, K., & Mannix, H., 2018)

According to ElShafie, S. J. (2018), the essential elements of a story are: a protagonist, an obstacle, stakes, inciting incident and broad theme.

When creating a protagonist, there should be a character that the audience likes. For this to happen, the protagonist should have good qualities that make him likeable, but also some flaws, to make him more down to earth. If the protagonist is not human, for example, if it is a particle, negative and positive characteristics should also be presented.

The obstacle or obstacles are absolutely necessary in the story. An obstacle is what makes the story go forward. Obstacles don't need to be always external. Some obstacles can be created by the own main character.

Stakes make the story more gripping. When the audience sees the possibility of consequences if the protagonist fails, there is usually a bigger engagement in the narrative we are telling.

An incident is usually used to start the story. It is something that creates the need for change or discovery.

A broad theme is important so that the audience can still understand and empathise with the story even if it is not something that they have personally experienced. This means the story will be relevant to a bigger audience.

Table 7: Matrix Table | Storytelling

Title	Year	Storytelling
A Good Story Well Told: Storytelling Components That Impact Science Video Popularity on YouTube	2020	Ingredient of engaging science communication to non expert audiences; popular videos use complex storytelling structures; can enhance persuasion
Using narratives and storytelling to communicate science with nonexpert audiences	2014	The challenge for science communicators is to decide when and how narratives can effectively and appropriately help them communicate to nonexperts about science
Audiovisual Science Communication on TV and YouTube. How Recipients Understand and Evaluate Science Videos	2020	Youtubers present their content in a informative and entertaining way
Typologies of the Popular Science Web Video	2015	Most of the videos had narration model in the first person
Uniting science and stories: Perspectives on the value of storytelling for communicating science	2018	There is a link between a strategically constructed story and its ability to persuade its listener
Opinion: Finding the plot in science storytelling in hopes of enhancing science communication	2017	Storitelling and narrative can help communicate science to non-experts, within the wider context of framing. “Science breakthroughs that resonate with nonexperts despite lack of direct application do
Lights, camera, science: The utility and growing popularity of film festivals at scientific meetings	2014	Scientific storytellin through filmmaking
Title	Year	Storytelling

2.3.3. PERSONIFICATION

When the issues are very comprehensive, a personification strategy can be used, that is, representing the theme starting from a very well-defined person or group of people (or characters). This can be done by humanizing some element of the investigation and exploring the theme from this point onwards or by identifying a person who was somehow impacted by the theme and demonstrating these implications always in relation to that person.

Personification is often used to transmit abstract concepts. This can happen by telling a story through a particular individual or a well-defined group. (Dahlstrom, M. F., 2014) This helps to tell a story because it can be used to exemplify a problem and to create empathy.

According to Dahlstrom, M. F. (2014), When what we want to transmit is far from human scale, it is more difficult to convey that information to our audience. Whenever possible, personification should be used to help close this understanding gap.

Moreover, users favour the use of first-person narrative when viewing science stories. (Huang, T., & Grant, W. J., 2020).

Some practical examples of personification can be to tell a story through the point of view of the person presenting the idea. If a scientist is presenting their investigation, it can be a good idea to make themselves the main character of the story and tell it through their own point of view, showing the difficulties and successes of the journey, instead of only presenting the final conclusions. Another way to present science can be to personify some element of the research. A marine biologist can make a certain species of sea plant that they are studying their main character and tell the story and the scientific developments through the point of view of that character. This helps the audience to not only have more interest about what is being told but to also understand it better.

Table 8: Matrix Table | Personification

Title	Year	Personification
A Good Story Well Told: Storytelling Components That Impact Science Video Popularity on YouTube	2020	Use of first-person narratives
Using narratives and storytelling to communicate science with nonexpert audiences	2014	News media personify abstract concepts for dramatic storytelling; for the audience, personification allows a greater chance of identification and empathy
Typologies of the Popular Science Web Video	2015	Use of first-person narratives
Title	Year	Personification

2.4.TECHNICAL ELEMENTS

To make a successful multimedia piece of science communication, there is a set of technical elements that need to be taken into account. If the multimedia element does not have good technical quality, the content will not be able to have as good a dissemination, and as much of an impact, as it could have.

2.4.1. USER GENERATED CONTENT VS PROFESSIONAL GENERATED CONTENT

According to Munoz Morcillo, J., Czurda, K., & Robertson-von Trotha, C. Y. (2016), user generated content is more popular than professionally generated content. When talking about science related topics, amateur's channels are more popular than professional content from commercial media organizers. Amateur's channels have more views and are more subscribed than the professional ones. (Boy, B., Bucher, H. J., & Christ, K., 2020)

> "Youtubers are among the most successful producers of science videos because they use all resources for promotion which are typical for YouTube: they explicitly address their audience, apply typical styles of audio-visual online pieces, and interact with their viewers parasocially in their videos and the comment section." (Boy, B., Bucher, H. J., & Christ, K., 2020, page 6)

Munoz Morcillo, J., Czurda, K., & Robertson-von Trotha, C. Y. (2016), advocate that the production of scientific videos for the web is becoming more specialized. Technical elements such as the use of tripods, animations, manual white balance, and use of special effects, show that the creation of science web videos is becoming more professional even when created by individuals that are not professionals in the scientific nor in the communication areas.

There is a democratization of filmmaking that comes from the easily available, and user-friendly, gear and software necessary for video creation. (Finkler, W., & Leon, B., 2019) Most scientists and science communicators lack the know-how to make effective science communication videos, (Olson, R., 2009) and, thus, user generated content is often more popular. Even if they do

not have as good information as scientists, they can frame it better and create a multimedia artifact with more quality, which will appeal to a wider audience.

Table 9: Matrix Table | U.G.C. vs P.G.C.

		Technical Elements
Title	Year	User generated content vs Professionally G.C.
A Good Story Well Told: Storytelling Components That Impact Science Video Popularity on YouTube	2020	UGC is more popular then PGC
Audiovisual Science Communication on TV and YouTube. How Recipients Understand and Evaluate Science Videos	2020	Amateur's channels generate more views and are more subscribed than channels with professional content from commercial media organizations; a professionalization of user generated content has taken place
Typologies of the Popular Science Web Video	2015	Most videos are user generated with a growing level of professionalism
Title	Year	User generated content vs Professionally G.C.

2.4.2. ANIMATION AND GRAPHICS

The use of animations to demonstrate scientific and innovative concepts increases the levels of perception and retention of concepts by the audience. Thus, it makes sense to represent parts of narratives with animations for better understanding by the audience.

Animation and graphics work as a translation tool between the scientific world and the language most people understand.

According to Boy, B., Bucher, H. J., & Christ, K. (2020), animated videos convey complex and abstract facts. Animation can help the representation of things that are impossible or not easy to visualize and, therefore, helps the audience understand complex matters. Maybe because of this, animation is one of the most popular genres being used in web communication videos.

Table 10: Matrix Table | Technical Elements

		Technical Elements
Title	Year	Animation and Graphics
Audiovisual Science Communication on TV and YouTube. How Recipients Understand and Evaluate Science Videos	2020	Animated videos are well-suited for conveying complex and abstract facts
Typologies of the Popular Science Web Video	2015	Animation is one of the most popular genres
Title	Year	Animation and Graphics

2.4.3. VOICE OVER

Voice over is a good tool to help the audience retain information better than if it is only presented in written form. The use of audio messages in science videos can help keep the audience interest in what is being transmitted.

> "It has been proposed that voiceover is the foundation of any digital story." (Huang, T., & Grant, W. J., 2020, page 4)

With the help of a video narration, it is easier to transmit a bigger amount of information while still keeping a video visually interesting. With video narration, it is possible to have only a small amount of text written on the screen or no text at all.

2.4.3.1. ACCESSIBILITY

Audio description is a tool used to make visual content reachable to an audience with visual impairments. This tool consists in creating an audio that describes what is occurring in the image.

Narration of videos helps with the understanding and retaining of information for everybody, but it can also fulfil the purpose of making the videos more accessible. If, in a video, the most important information is described audibly, this video becomes more accessible to people with visual impairments. This type of narrations are not audio descriptions, because that would imply that all (or most) of the visual information was narrated, but it can still make a video more accessible to the visually impaired community.

2.4.4. OTHER ELEMENTS

If multiple videos are produced to be placed on a dissemination platform, it is useful for the presenter/narrator to be the same. This helps the audience to empathize with whoever is delivering the messages and, in addition to helping with understanding and interest, it increases the likelihood that the audience that has seen some of the videos will see the others.

In the case of communication of innovation carried out by a company, the type of communication used is “strategic”. This type of communication implies that what is being communicated is not being done with the intention of helping society and in particular democracy, but rather to “strategically” support a company. When making this type of communication, it is necessary to pay attention to how public opinion will be affected by what we are transmitting. When communicating strategically, it is often possible to emphasize certain elements and omit others, but the impact that this decision will have on the audience, in terms of the public perception of a certain subject, should not be completely ignored. In other words, one should not distort reality to sell an idea. In addition to being morally wrong, it also creates the possibility that the public will perceive that they are being deceived, which will make them no longer trust in that source of information

The use of a tripod for real images is extremely common in scientific web videos. The most common shots are the medium close-up and extreme close-up. Special effects are used in a big quantity of popular science videos. (Munoz Morcillo, J., Czurda, K., & Robertson-von Trotha, C. Y., 2016)

Video titles are an important tool for their dissemination and for attracting the attention of the audience. These should reflect a problematic (or theme) that will be addressed in the video. If it presents itself in the form of an unusual question or statement, it is more likely to captivate viewers. If the titles have relevant keywords, it is also likely that more audiences will discover the video from web searches.

Video duration is very important, videos shouldn't be so long as to make the audience lose interest, but not too short that can't tell a story. The ideal time for science communication videos is 3 to 7 minutes of length. A popular science video on YouTube is likely to have 12 minutes. (Huang, T., & Grant, W. J., 2020)

Table 11: Matrix Table | Other elements

		Other elements					
Title	Year	Communicating to a broad audience	Process / Functioning of Science	Trust	Images vs Text	Documentary Short Film	Traditional media
EU communicating science	2006	Adapt communication depending of the public	It works best to explain how science works and the process behind it when the science itself is weird and complex to the audience	Communication channels need to be created and maintained open	Images are good to transmit complex ideas; they should have good quality		Reaches a big audience; should be of general interest
What's next for science communication? Promising directions and lingering distractions	2009	Based on data - what do people want to know	Explaining them make the public more easily believe in what we are communicating	Scientists need to take into account other forms of knowledge (knowledge of the population); do scientists have a history of being trustworthy?		Strategy to boost public interest; screenings increase public turn out and help framing and might bridge polarized views	
The case for a 'deficit model' of science communication	2005	The dialog from science communication must be solidly based on facts		To create trust there is a need for openness and dialog			
Using narratives and storytelling to communicate science with nonexpert audiences	2014	The underlying goal is for persuasion or comprehension?		There should be an effort to understand the expectations of the audiences regarding how science communication should be transmitted to them and it needs to be respected to keep trust			Nonexpert audiences get most of their scientific information from mass media content
Typologies of the Popular Science Web Video	2015			Necessary to communicate with audiences		Documentary is one of the most popular genres	
Supporting quality in science communication: insights from the QUEST project	2021			abstract			
An Empirical and Conceptual Note on Science Communication's Role in Society	2021	There are different roles of science communication in society					
Uniting science and stories: Perspectives on the value of storytelling for communicating science	2018	Scientists need to fulfill the social contract that scientists have of explaining their findings to society					
Opinion: Finding the plot in science storytelling in hopes of enhancing science communication	2017	There is a growing demand for researchers to communicate their findings not just within their field but to general audiences as well					
Lights, camera, science: The utility and growing popularity of film festivals at scientific meetings	2014	Short films can increase the reach of the investigation and the public interest in the matter				Scientific torytelling through filmmaking	
Engaged Science: Strategies, Opportunities and Benefits	2020	There is a need of scientists to be engaged in public debates and to inform society of the themes that they study					Working with journalists can be a very good opportunity to reach a wider audience.
Title	Year	Communicating to a broad audience	Process / Functioning of Science	Trust	Images vs Text	Documentary Short Film	Traditional Media

2.5. METHODOLOGY

Development research is the approach framing this work. An object was defined as a solution to a problem – multimedia artifacts to disseminate innovation projects from Mog Technologies. The specific situation was studied, and tests were made. The conceptualization of the artifacts was conducted and then they were implemented. According to Richey et al., 1996, this has all the elements of development research. The main purpose of this dissertation was to create a set of multimedia products organized as communication tools for the DataCloud project and other innovation projects developed by the Mog company.

The research was organised in a way ensuring that the creation of these tools is made with a good theoretical background supporting them. Thus, the artifacts were developed with the theoretical base, relating to the specific situation.

The methodology is qualitative. Using this method, it is possible to develop a product using data from previous investigations and to integrate feedback from participants as it becomes available. The methodology of the investigation coincides with the production methodology of the artifacts. The design of the research is convergent.

The process of this investigation is abductive, starting with the need for a video/artifact. When this happens, the main information that has to be disseminated is identified. After the general visual identity is chosen, tests are made to particular elements to see how the visual identity works best for the specific artifact that is being developed. Once the content and the visual parts are defined, tests are made to understand what is the best way to communicate the information. This Is validated by the participants as many times as needed.

This study has transversal participants. These participants are Mog Technologies collaborators. They act as participants throughout the development process This ensures that the products that are being developed are adapted to the needs of the company and are up to date as science communication artifacts.

3. ARTIFACT DEVELOPMENT

The artifact development was the focus of this dissertation. The artifacts were developed mainly for the department of innovation and funding and had mostly a video format. 21 videos were developed, 16 social media posts were made, a set of 6 icons was created and two live broadcast sessions were prepared and carried out.

These artifacts were used for commercial and investigation purposes, to disseminate the project's findings, to establish partnerships for new pilots, to be presented in project reviews, to act as a proof of the projects result, to work as script or tutorials, to disseminate specific projects in their social media platforms, and to sell the company's products and services.

These videos were presented in brokerage sessions by innovation managers at "DataWeek2022 – Towards an innovative, trusted, and fair European Data Economy" – organized by Big Data Value Association and EUHUBS4DATA. This brokerage event took place between the 24th of May and the 3rd of June and meetings took place between the 1st and 3rd of June.

All the artifacts developed during this dissertation have some unifying objectives and main goals. They must be simple, but interesting. The information must not be presented in a confusing way. It should be easily understandable and appealing to the audience. To create enticing content, there was an effort to create new ways of transmitting information, with the means possible, with the tools available, and taking into account the existent time constraints.

The videos were developed in Adobe Premiere, while the most technically complex elements were developed in Adobe After Effects and then imported to Premiere.

The Storyboards were mostly developed in Adobe InDesign. This makes it possible for the Storyboards to be in constant evolution and adjustment, depending on the type of material there is available to edit versus what was planned, for example, amongst other unexpected changes. With this approach for the development of the Storyboards, they can be kept up to date and avoid being past the point of relevance.

The MogDirect visual elements were developed in Adobe Illustrator and Adobe InDesign. OBS and Mam4Pro, together with Microsoft Teams, assured the broadcasting itself.

For each artifact, a brief commentary about its main purpose is made. The task of the evaluation of the impact of these artifacts is a difficult one. Videos were produced for stakeholders, reviews, partner companies, and possible future clients. Even though some of what was produced was published online,

what is important is not how many views it got but how the stakeholders, reviews responsible, and specific collaborators of the project thought about it and were influenced by it. This means that simple KPIs are not enough, relevant, or representative of the impact the artifact has had. Because the main audience is often the client, it is not possible to ask for interviews or questionnaires about the content. When feedback was freely given, it was noted and added to this dissertation. Other feedback came in the form of project reviews being successful and funding from the European Commission being granted based on artifacts that were produced in this dissertation's context.

All the developed videos can be seen by following this link: https://youtube.com/playlist?list=PLpQpAlZhIhnI3zG7BLJRSt6WO_W8S_v2F.

3.1 VISUAL IDENTITY

The Visual Identity is an important part of the development of any communication artifact.

The Visual Identities guide the visual elaboration of all the artifacts produced. While some projects have a more well-defined and rigid visual identity, others have no visual guides associated. In these cases, the Mog visual identity prevails. This happens because all the projects that don't have a visual identity are presented to partners through Mog. Having this in consideration they have the same identity as Mog Technologies.

The Visual Identity of Mog and DataCloud, were already defined when the work of this dissertation started. Therefore, it was necessary to develop content that respected these identities but still presented some visual innovation.

In this section, a brief exposure of the DataCloud and Mog Technologies' visual identities is presented. In the attachments, the complete information is available in the form of the Mog's Brand Guideline and DataCloud Visual Guide.

DataCloud's style is based upon these characteristics: clean, safe, technological, and modern. The goal of this style is to differentiate DataCloud from other projects and to ensure a good project visibility. The chosen typography for this project is Aileron. The main colours are: #00ffff and #00a4ff.

Figure 2: DataCloud Logo Light Version.

Mog main font is Poppins. Its main colours are: #00b5e6, #9cdbf8, #9097a0, #ccd5dd, #006aff, #1fceff, #3f37c9.

For the artifacts developed under Mog's visual identity, Poppins is the font used in all the artifacts, taking advantage of the whole variations of the

font. The lettering usually appears in black or in the main Mog blue – #00B536. These are the two main colours also used in the backgrounds and in other graphic elements. The simplicity of the identity transmitted, with mostly only one font and a very reduced colour scheme, makes Mog communication content easily identifiable. It also makes the content easier to understand because there is little changing visual information that the audience needs to process while also paying attention to the message being transmitted.

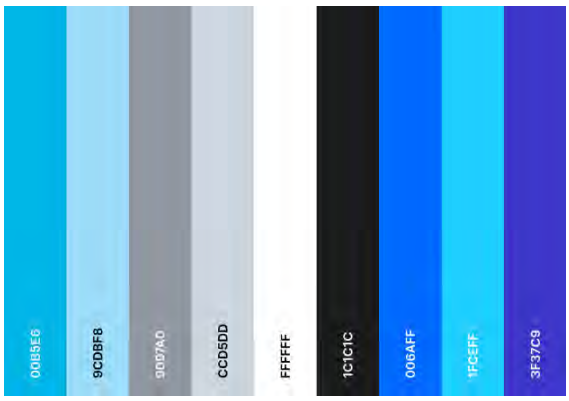


Figure 3: Colors from Mog - Made using Coolors

3.2 VIDEO 01 – MOG INNOVATION PROJECTS

This video is a “flag” video that has a commercial and investigation purpose. With this artifact, the company can show their portfolio as a I&D entity, with the goal of enrolling in new national and international partnerships.

This video is a tool to show the innovation projects from Mog in a simple and easy way.

The video is divided into six parts - each corresponds to a project. The projects that are presented in this video are: “Mog Play”, “Valence & Vapor”, “Cined”, “Map”, “True” and “MogSports”. These projects were the ones chosen by the enterprise to disseminate.

This video was developed for the department of communication and development. It has been used ever since in brookers events. The video has been presented in a ESMAD presentation in the context of the seminary “A utilização de IA em projetos na área dos Media” that took place on the May 18th, 2022.

Information about the projects was acquired through initial meetings and subsequent inquiries with Mog collaborators. Information was also obtained from the project’s websites, social networks, and from other relevant places.

Images were taken from several places, ranging from screen recordings, image banks, product demonstrations, etc.

The video starts with a black background, lettering identifying the company and “Digital Media”, the enterprise wordmark. The type of font used is Poppins because that is the main font of the company. The colour of the letters is the main colour of Mog - #00B5E6. To preserve a solid visual identity, throughout the videos from Mog, the lettering will always be similar.

The image we see here was made using After Effects. “MOG” is written with a letter size of 65 px, with Poppins SemiBold, with 3 px of “fill over stroke” and with 88 distance between characters.

“TECHNOLOGIES” is written with Poppins Light, size 65 px also with 3px of fill over stroke and with a 23 distance between characters.

“DIGITAL MEDIA” is written in Poppins Light, 65 px of size, 3 px fill over stroke and 239 distance between characters.

Figure 4: Title Video 01

The rest of the lettering was made using premiere.

The titles of the different projects are written with Poppins SemiBold, font size 100, fill colour #00B5E6 and shadow colour #4F4F4F. The text is always in the centre of the frame.

The rest of the text in the video is Poppins SemiBold, with the same fill colour of #00B5E6. This text is also centred and with a black background, with no shadow. The size of the font changes depending on the quantity of text presented.

In the end of the video, the MOG logo is presented with a black background.

Figure 5: End of Video 01

For this video, images from demos were used as much as possible, to be able to better represent and explain the product.

3.2.1 MOG PLAY

This section of the video starts with the message “Crowd Journalism Platform for real time news videos selection and watching”.

After, there is a video obtained in Switzerland, at an altitude marathon, that served as a demo for Mog Play. Because the video has very low quality, having it occupying the whole screen was not an option. Having the video in a very small format in the middle of the screen was also not very appealing. Even though the videos from this marathon all have this problem, it was very important to have them in this video. The solution was to have the same video playing 3 times simultaneously, but with the 3 videos appearing at different times. This creates a dynamic feeling, while still showing the important images.

Figure 6: Same Video Appearing Simultaneously on the Screen

Next, there is the lettering: “Videos Marketplace with blockchain infrastructure”, followed by a screen recording of the MogPlay website, showing the marketplace feature. This screen recording also had a low image quality. Because of this, the author picked the degrade of colours used in the background of the website to create some sort of background for this content as well. The screen recording shows the process of buying the video from the marathon shown previously, to keep the same theme and coherence.

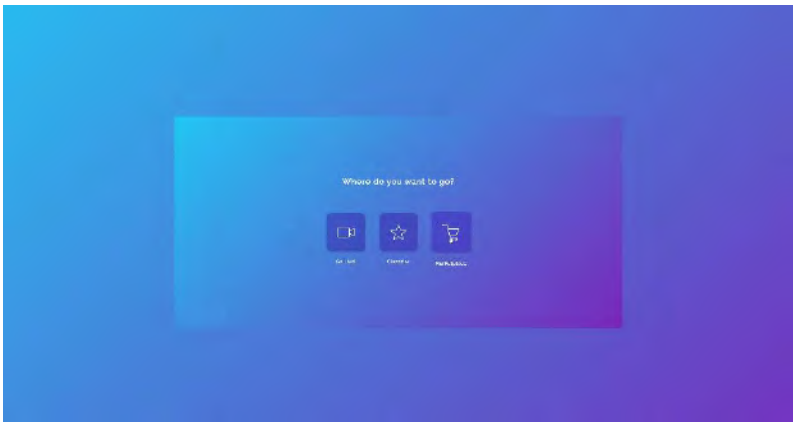


Figure 7: Screen Record from MogPlay Initial Menu

In the end of this section, there is the message: “Dozens of Videos Supported Simultaneously”. Because this is the last message before the changing of project, there is a fade out and not a clean-cut transition to the next frame.

3.2.2 VALENCE & VAPOR

Valence and Vapor are two different projects with the same theme. Both provide near native advertisement for video. While Valence does that to 2D videos, Vapor does the same to 3D content. Because of this, it made sense to include both these projects in the same section of the video.

For these projects, images work better to explain this concept than words, so this section contains more images than text. The author only included messages that thought were absolutely necessary, the first is “Near Native in Video Advertisement in 2D and 3D video” and the second is “Advertisement changes with user location”.

Afterwards, the author coordinated the video demos from both projects, in a way that makes it possible to have a video running with the campaigns changing. The author did this for the 2D and 3D demos and edited them all together so the audience can see the video running with different advertising campaigns, as if they were changing locations. The final transition before the next section of the video is a fade out.

Figure 8: Example of Near Native Advertisement - Valence

3.2.3 CINED

CINED is a platform for cinema education. The most relevant aspect of this project is the platform itself, so this section of the video is mainly screen recording. The messages are “A digital platform for cinema and education”, “A collection of European films for young people aged 6 to 19 and beyond”, “Interactive sharing space” and “A network of 13 partners in 11 European countries”. These messages appear in between screen recordings of the main features of the CINED website, like the extensive collection of films and the interactive sharing space.

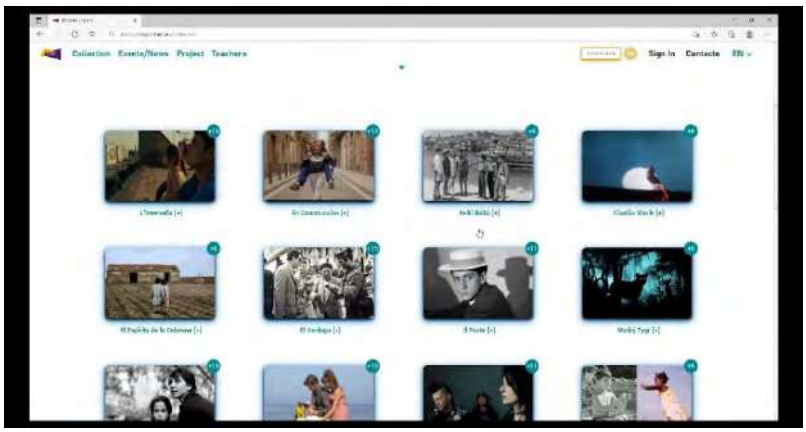


Figure 9: Film Collection Available at the Cined Website

3.2.4 MAP

The Map project is an innovative platform that works as a film marketplace – blockchain powered. The platform is also the most important

feature of the project. Because of this, this section of the video contains mostly screen recordings of the website and key messages. The screen recordings show the most important aspects of this project, like the collections that can be licensed, the process of adding a film, and choosing all the specifications to create a license.

The text messages in MAP are: “A film marketplace (blockchain powered)”, “License entire collections at once” and “Easily add films and create your licenses”.

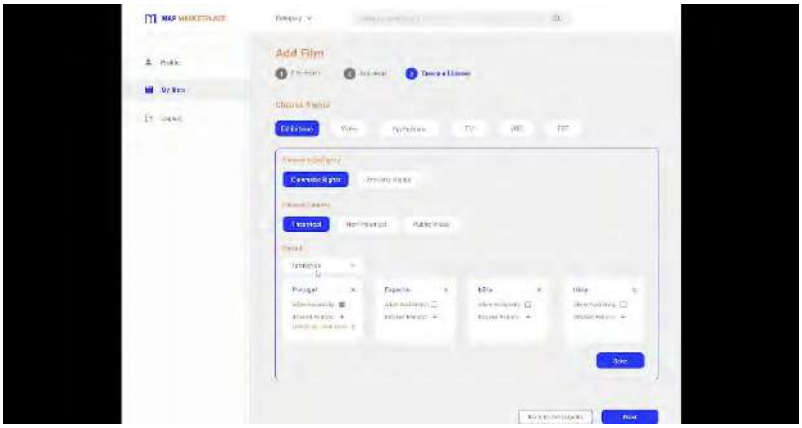


Figure 10: Creation of Film License - MAP website

3.2.5 TRUE

At the time of the development of this video, the TRUE project was still in an initial phase, so it did not have any type of website or platform. Because of this, the only things that could be shared were the project’s ideas. Hence, image banks were used in order to have ways to visually represent what the project entails.

The messages used were: “Writing tool for school papers”, “Content management system”, “Machine learning”, “Helps to increase critical thought in children” and “Helps to prevent fake news”.

The images used show children and young adults in different school scenarios, reading, writing, and discussing ideas.

3.2.6 MOG SPORTS

The final project presented in this video is MOG Sports. This project has a lot of visual appeal. If represented visually, the core idea of the project becomes very clear. At the time of the development of this video, the project

was not yet developed. Even though there weren't any visual representations of the project, it was clear that the comprehension of Mog Sports would benefit greatly from it, so it was developed a representation of what the project will do, using special effects. Every player was manually tracked in the selected part of a football game, simulating manually what the project will do with AI. The tracking of 3 football fields, using the same technique in Adobe After Effects, was also done.

The messages in this section of the video were: "Decentralised Crowdsourced Live Sport Broadcasting", "Player Detection", "Field Detection", "AI Algorithms for Adaptative Monitoring", "Enhanced Audience Engagement".

Figure 11: Simulation of Player Detection

3.2.7 STORYBOARD

Figure 12: Part 1 of 8 of Video 01 Storyboard

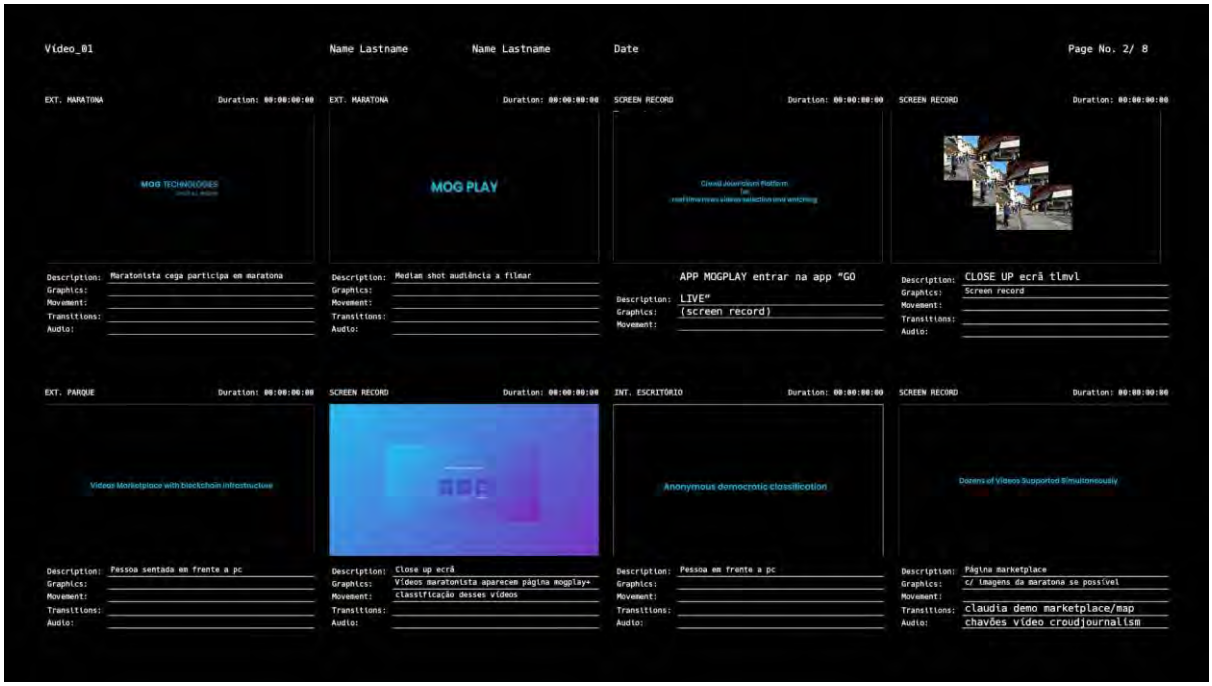


Figure 13: Part 2 of 8 of Video 01 Storyboard

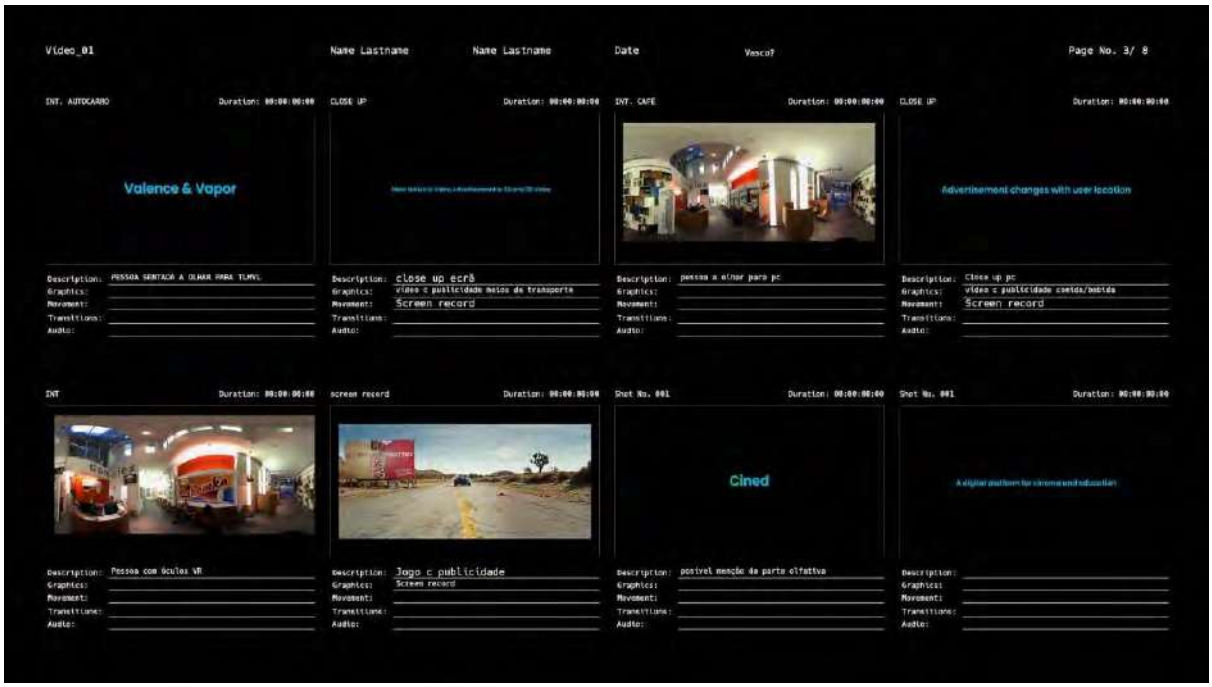


Figure 14: Part 3 of 8 of Video 01 Storyboard

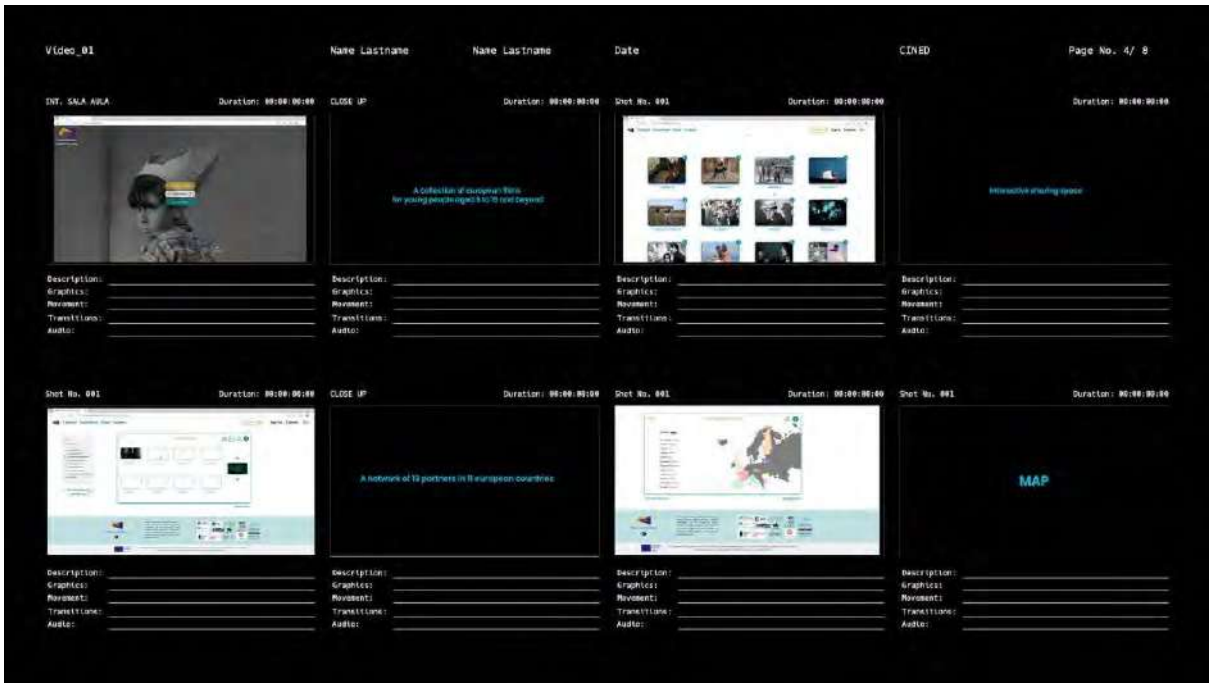


Figure 15: Part 4 of 8 of Video 01 Storyboard

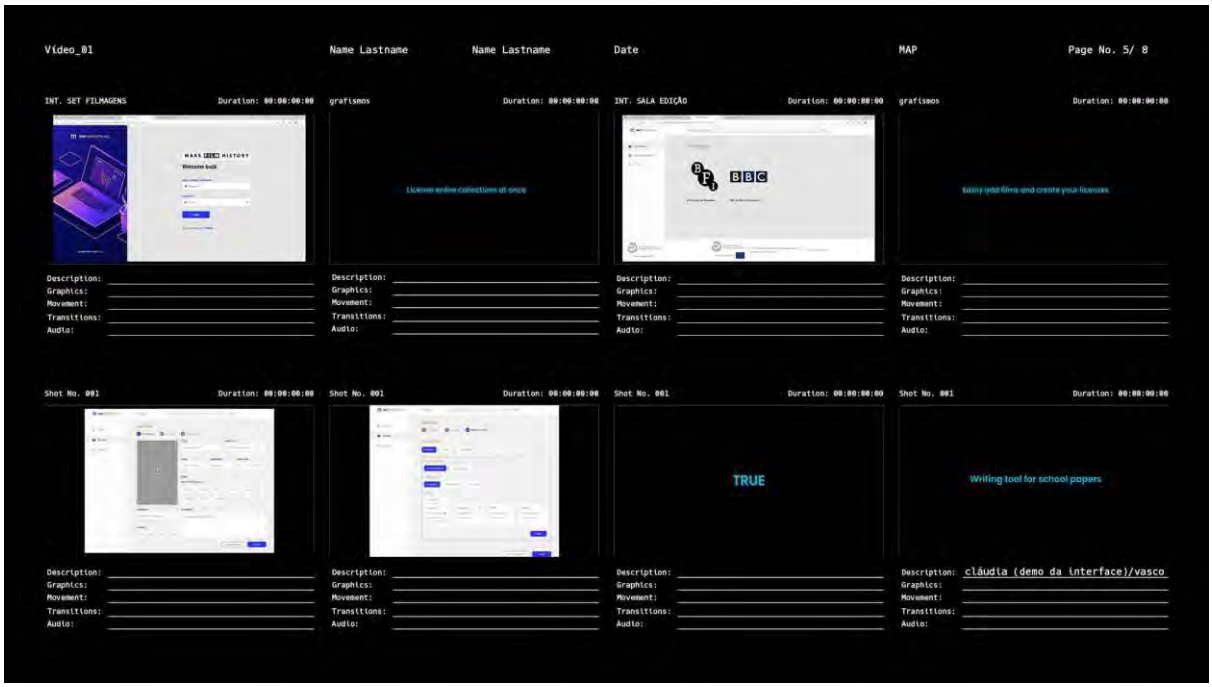


Figure 16: Part 5 of 8 of Video 01 Storyboard

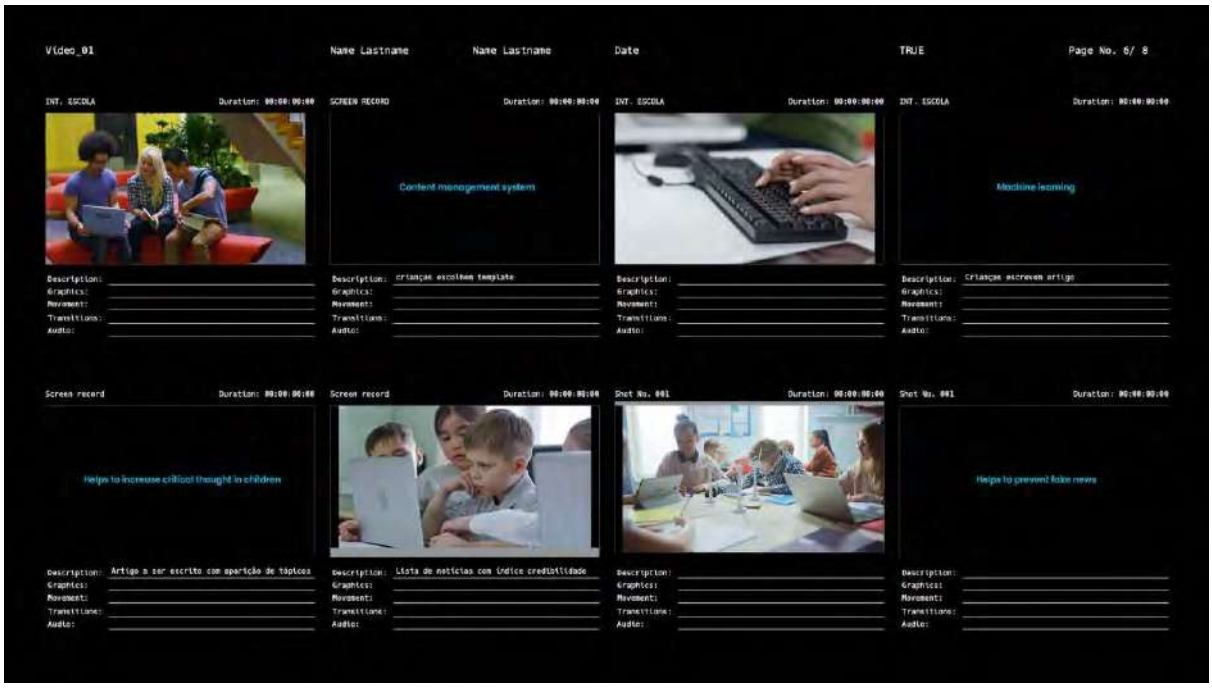


Figure 17: Part 6 of 8 of Video 01 StoryBoard

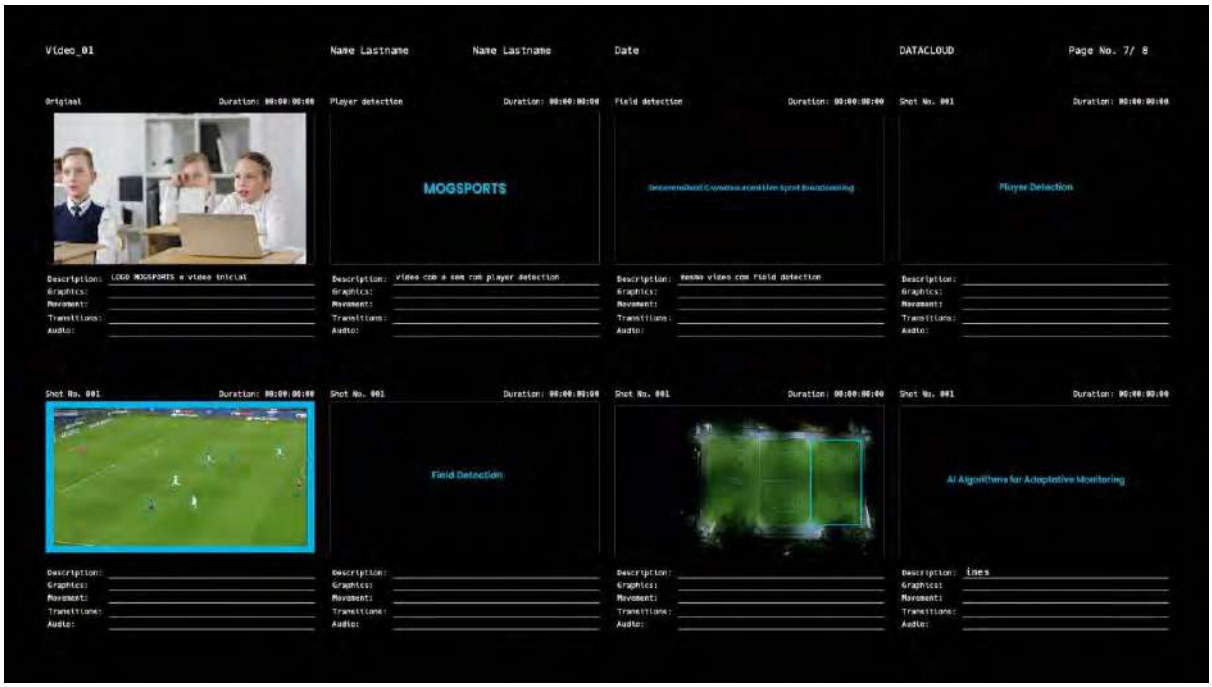


Figure 18: Part 7 of 8 of Video 01 StoryBoard

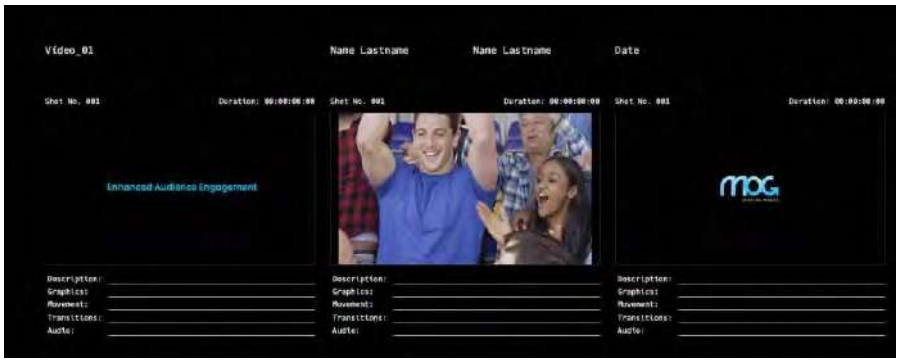


Figure 19: Part 8 of 8 of Video 01 Storyboard

3.3 VIDEO 02 – JUMP AROUND

This video is part of the Articonf project. It has been shown to Articonf partners in consortium meetings, namely a Budapest consortium meeting that took place from April 26th to 28th, 2022. The video was shown in a presentation on April 27th. Members from the scientific and business background were attending.

The main purpose of this video was to validate funds from the European Commission. This artifact is part of the dissemination strategy for this project which has had specific funds allocated. This video has been sent to the European Commission for the validation of the developed content.

This video has also been used to establish partnerships to develop new pilots as it gives the company credibility for the development of new pilot partnerships. It was used to foment a new partnership with Coliseu do Porto where a new pilot will take place.

Finally, this video will also be included in the project final audit that will take place on the September 14th, 2022. The video has been previously sent to the European Commission and will be discussed in the previously mentioned date.

This video is a Mog Play video, showing a demo made during a festival called “Jump Around” at Super Bock Arena in Porto. This is a Hip-Hop festival, with four different elements: Graffiti/Writing, B-boying, DJing and MCing that took place on the November 26th, 2021.

This video was very challenging to do. The available images were videos taken with phones in a dark arena without stabilization by tripod (handheld), that were then transmitted through mobile data to Mog Play. This final format of the videos were the ones available to work with. Because of this, there was a very large amount of videos with extremely low quality.

Besides the images captured in the pilot, some images from screen recording were also used to show the product’s interface.

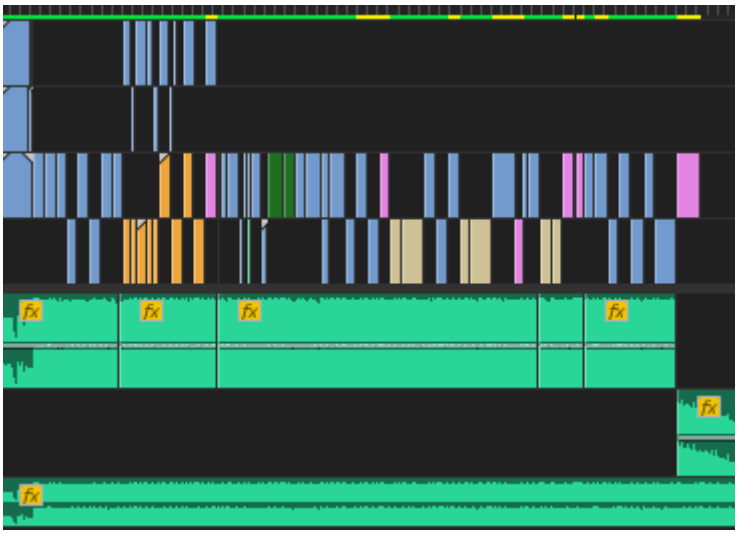


Figure 20: Adobe Premiere workspace

The lettering of Figure 22 was developed to respect and improve the previous Mog Play lettering (Figure 21).

Figure 21: Previous Design for MogPlay

The objective was to respect this previous design while also improving it and making it more relevant to the context at which it is going to be used.

Figure 22: New Design for MogPlay

The images appearing in the word “PLAY” are parts of videos from the recordings at Jump Around Festival. This way, the audience can understand that there is a coherence in terms of themes and visual identity. That is very important because the videos have low quality, and the graphics have high quality. With this design, it is possible to have these two visual identities together with harmony. This way, a unified visual identity was created for the video. The images that appear in “PLAY” change with the rhythm of the music used in the video.

To make the video more dynamic and have the videos with their maximum size without distortion, the author placed 5 videos playing at the same time. This occurs several times during the video.

Figure 23: Video frame from Video 02 - 5 videos Layout

This video had to be shown in a big format because here we can see a person filming the event with the MogPlay app. In this case, the advantage of

having the video occupying the whole screen outweighs the fact that it has bad quality, because there was no other way to show a person filming with the app this specific event.

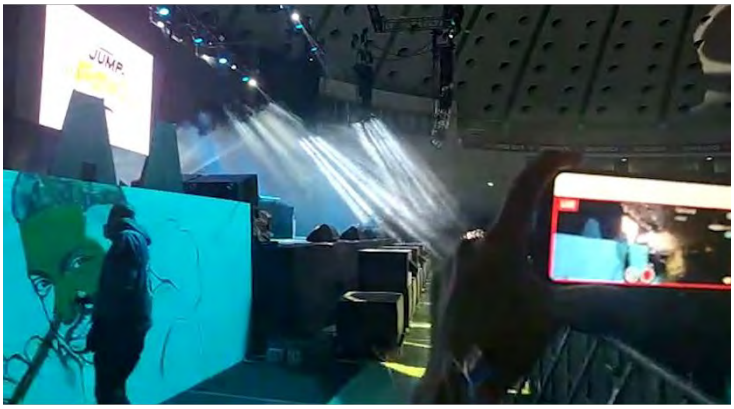


Figure 24: Video frame from Video 02 - Phone Using Mog Play App

This is a vertical video, this way of presenting it, three times simultaneously, side-by-side, worked very well. It created an interesting effect.

Figure 25: Same vertical Video 3 Times Side-By-Side

Or this part of the video, a recording was multiplied by three and presented at the same time but with a slightly overlay.

Figure 26: Same video playing 3 times with a slight overlay

Live from MogPlay app. This is a simulation of the live. Because the video had bad quality, it could not occupy much space in the screen, the solution that worked better was to duplicate the image and have a bigger but less opaque version of the video playing behind the main video.

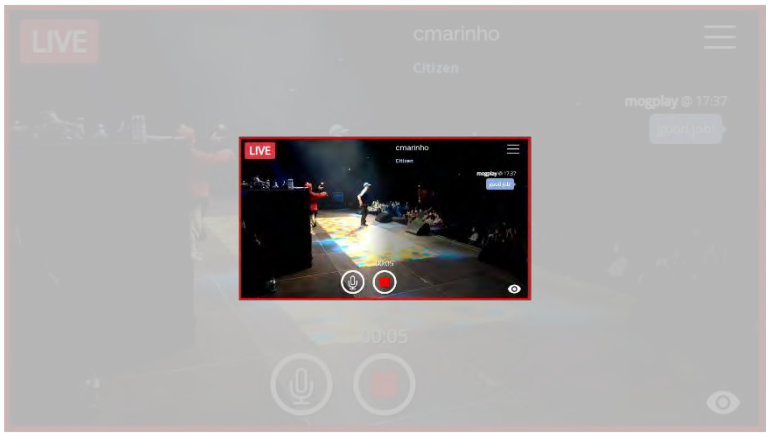


Figure 27: Simulation of Live Transmission Using MogPlay

Screen record from MogPlay, selecting a range to then create an event.

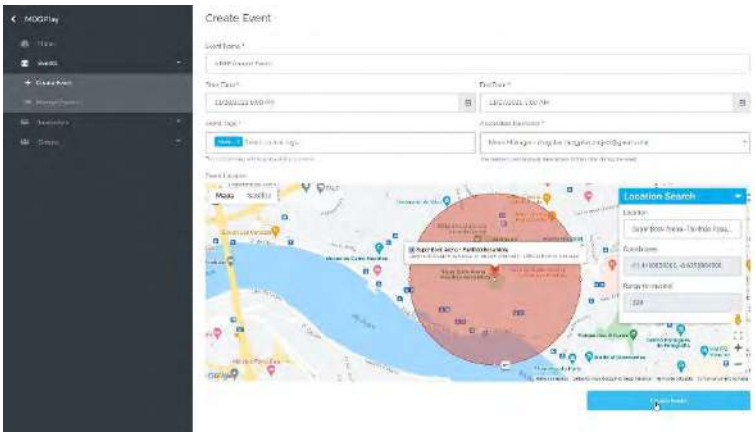


Figure 28: Creation of Event at MogPlay

Screen record of mog play + streaming that occurs.

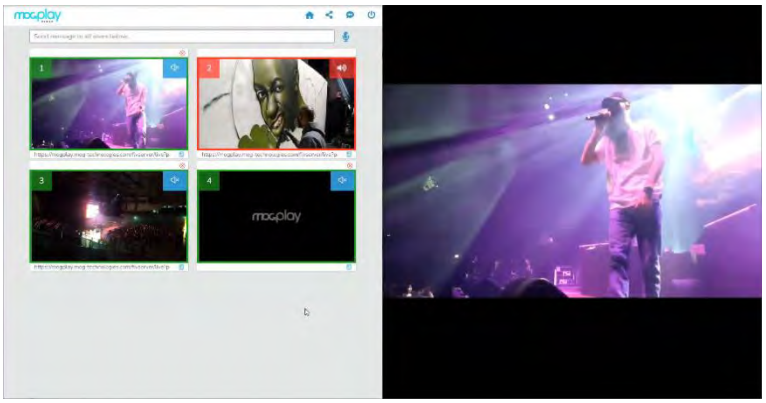


Figure 29: MogPlay Streaming Editing and Output

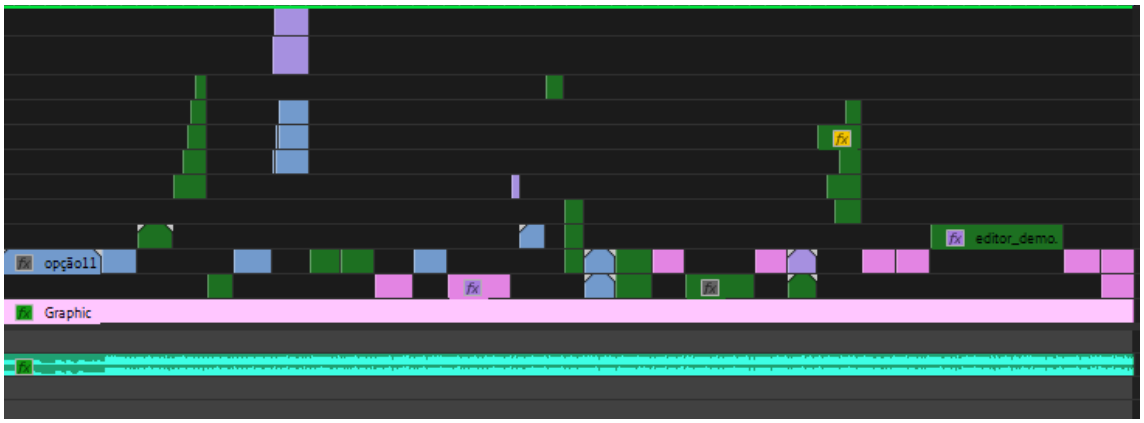


Figure 30: Adobe Premiere workspace

3.3.1 STORYBOARD

Figure 31: Part 1 of 3 of Video 02 Storyboard

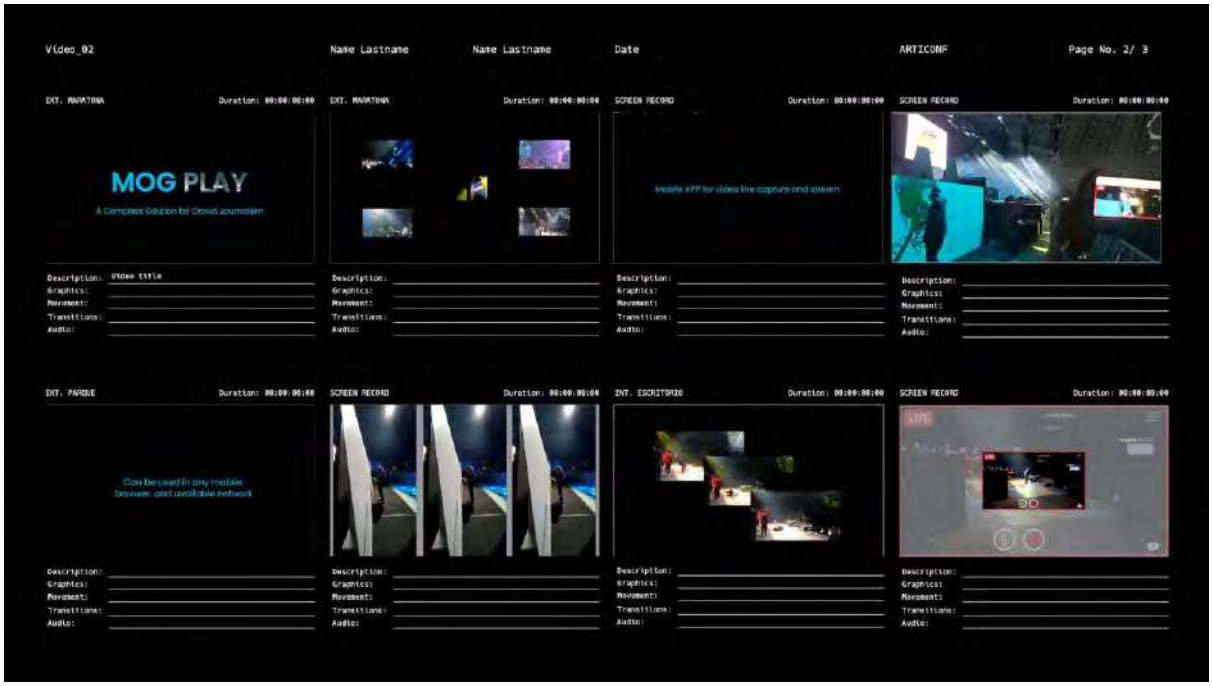


Figure 32: Part 2 of 3 of Video 02 StoryBoard

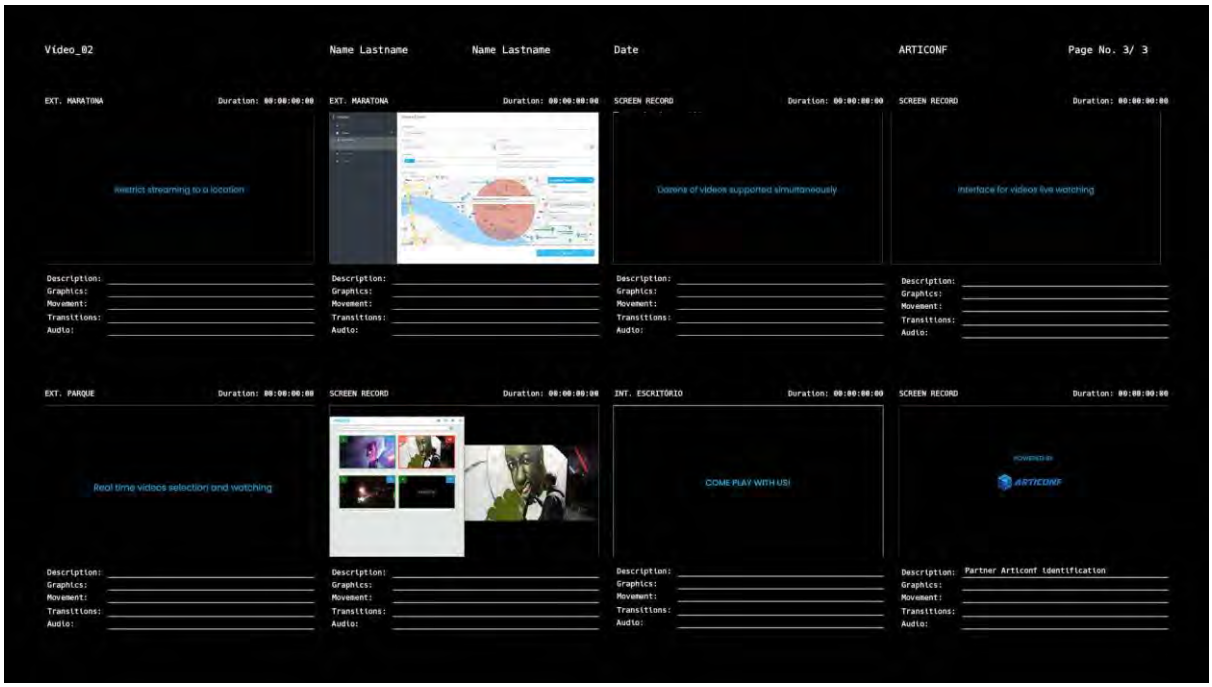


Figure 33: Part 3 of 3 of Video 02 Storyboard

3.4 VIDEO 03 – VAPOR 360

This video has a business and technical purpose. It will be used as a concrete proof of result for audits as it can work as a script or tutorial on how to reactivate this system. It works as a demonstrative video that shows step-by-step how the Vapor 360 system works and will be used to show potential clients how easy and intuitive it is.

Since this video, about the project Vapor 360, is developed for an audit it is focused on technical details more than being visually appealing, trying to maintain some sort of appeal and being able to hold the interest of the ones seeing it. The level of technicality is not extremely deep. The objective is to show the several steps needed to use Vapor 360. There is not a logo developed for this project, so the font Poppins Regular was used with a discreet, grey shadow.

This product can be used in VOD or LIVE. Because of this, the author divided the video into two main parts – Video on Demand and Live. Each of these parts have subdivisions. To make the organization of this video clearer, a "divider" with the name of the sections of the video, and an indication of the sections subdivisions, were created. Having this information in the "divider" was a suggestion taken from one of the meetings with Mog collaborators.

Because the name of the project is "Vapor 360" and the project focuses on 360 and immersive video, the author wanted to represent this in a way that was both legible, visually interesting but also had some connection to the 360 theme. The found solution was to create a circle around the title of the video section with the names of the subsections - the topics. This text rotates and the different topics change colour to guide the eye to a certain part of the text when they are in a part of the circle that makes it easier to read.

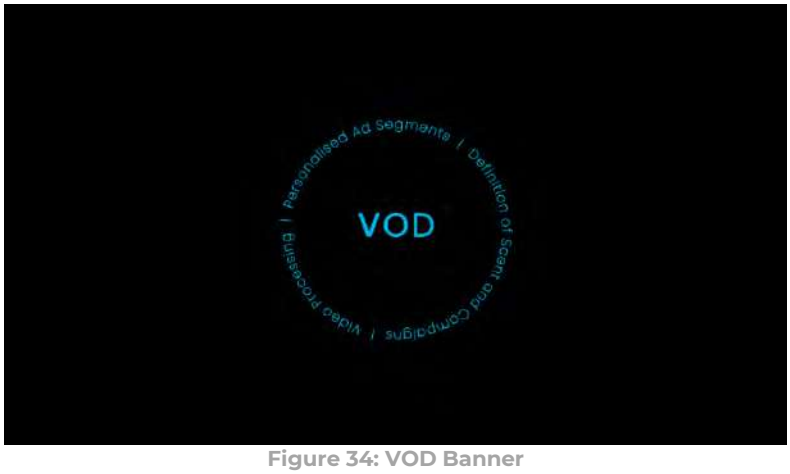


Figure 34: VOD Banner

These elements were developed in Adobe After Effects. The letters have a Poppins font.

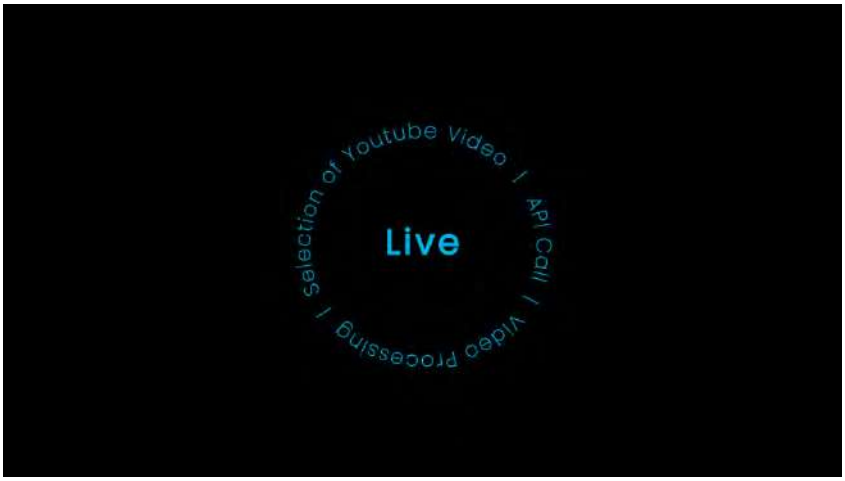


Figure 35: LIVE Banner

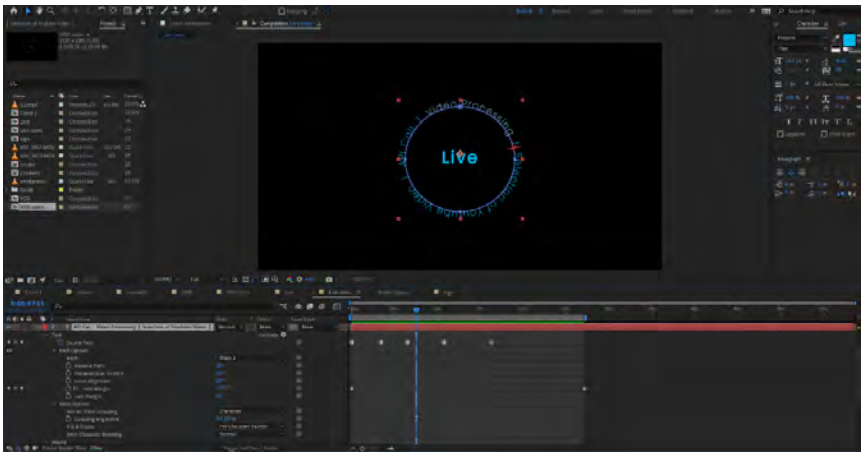
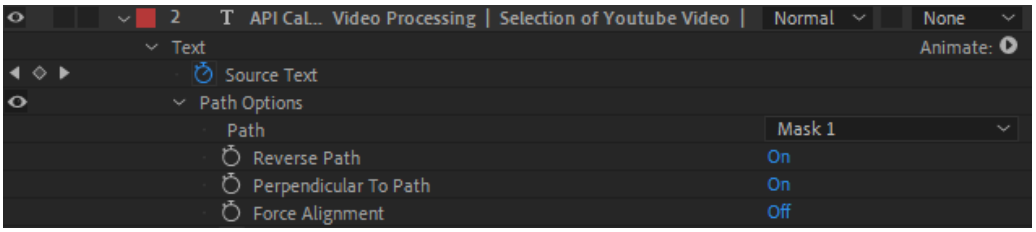


Figure 36: AfterEffects Workspace

To create these banners, a mask was created with a circular shape. The size and placement of this shape took into account the text in the middle, “Live” or “VOD”. A text layer was created with the different steps of “Live” and



“VOD”. In path options, the mask previously made was selected.

Figure 37: AfterEffects workspace | Selection of text path

Different character spacing and sizes were tested for each of the banners to create a seamless circle, without being perceptible where the text starts and ends.

The “First margin” was adjusted to create a circular movement, making the text circle around the central lettering.

To help the legibility of the text, the colours of the lettering change for each subdivision, to guide the eye for that specific part of the text. The text then comes back to the initial colour, and the next element changes colour. The colour changes were timed in a way that allows the audience to comfortably read each subdivision.

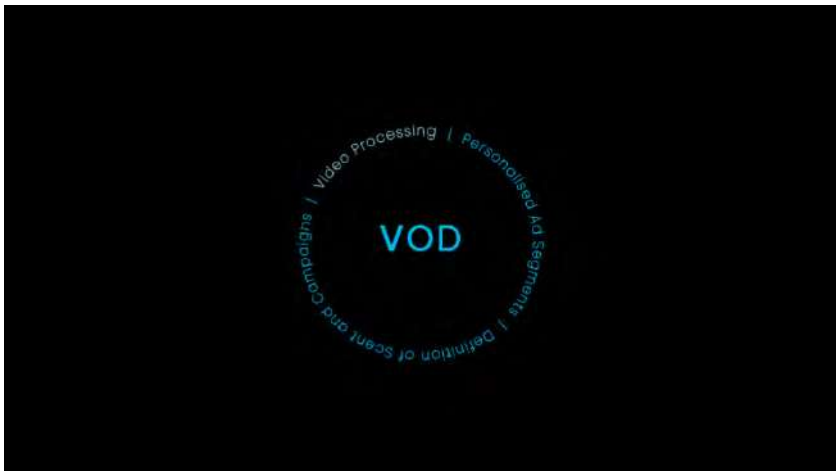


Figure 38: Different Colour in lettering

Figure 39: AfterEffects workspace | Source Text

In Figure 39, the functionality “Source Text” was used to change the colour of the text through the animation.

Because the text from “VOD” is more extensive than the one from “Live”, the size of the text is bigger in “Live”. This way, the two circles have the same size and keep a visual continuity throughout the video.

To represent that the video presents different campaigns depending on the user location, a side-by-side view was created. This view simulates two people that are watching the same exact video but in different cities – Porto and London. Because of this, the advertisement campaign is not the same.

Figure 40: Still from video

The smell machine does not release enough smoke to be visually identifiable. To represent the smell being released, the author used Adobe After Effects to simulate the smoke coming out of the smell machine. The smoke can be seen coming out of one of the 4 places from where the smell can come out, depending on the chosen scent. To create this illusion, masks and opacity were used to overlay smoke coming out of the machine in a realistic and perceptible way. The lights in the machine were also simulated.

Figure 41: Simulation of Smell being Released

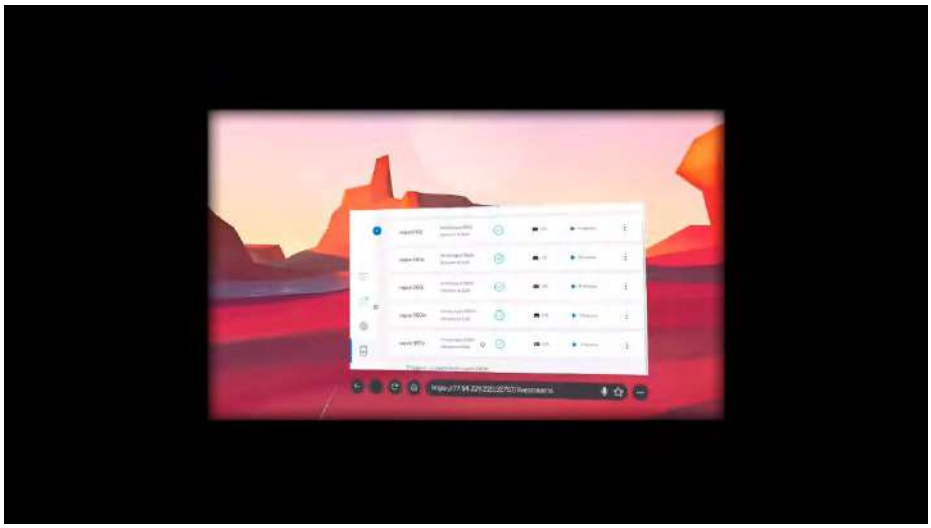


Figure 42: Selection of Youtube Video for Streaming

Here, we can see the moment a person chooses which video to watch live on YouTube, with 360 glasses. The interface we see is the one presented in the glasses, that was passed on directly to the computer.

In the end of the video, the mog logo is shown. This logo is the version to be used with a dark background. It also has the wordmark “Digital Media”.

Figure 43: Mog Logo

3.4.1 VIDEO 3.1 – 5.1

This video was developed for the deliverable “Olfactory System Demonstration”. This deliverable was essential to the correct official ending of the project and respective financing process.

The part 5.1 of the project is the one connected to the smell. A video was developed only about this part. This video has mainly segments of the Vapor 360 video, with some additions.

Figure 44: Still from Video

Figure 45: Simulation of Smell Being Released

The lights of the smell machine were simulated in Adobe After Effects because at the time of filming the close up of the machine, it was not working.

Figure 46: Simulated lights in Smell Machine

3.4.2 STORYBOARD

Figure 47: Part 1 of 4 of Video 03 StoryBoard

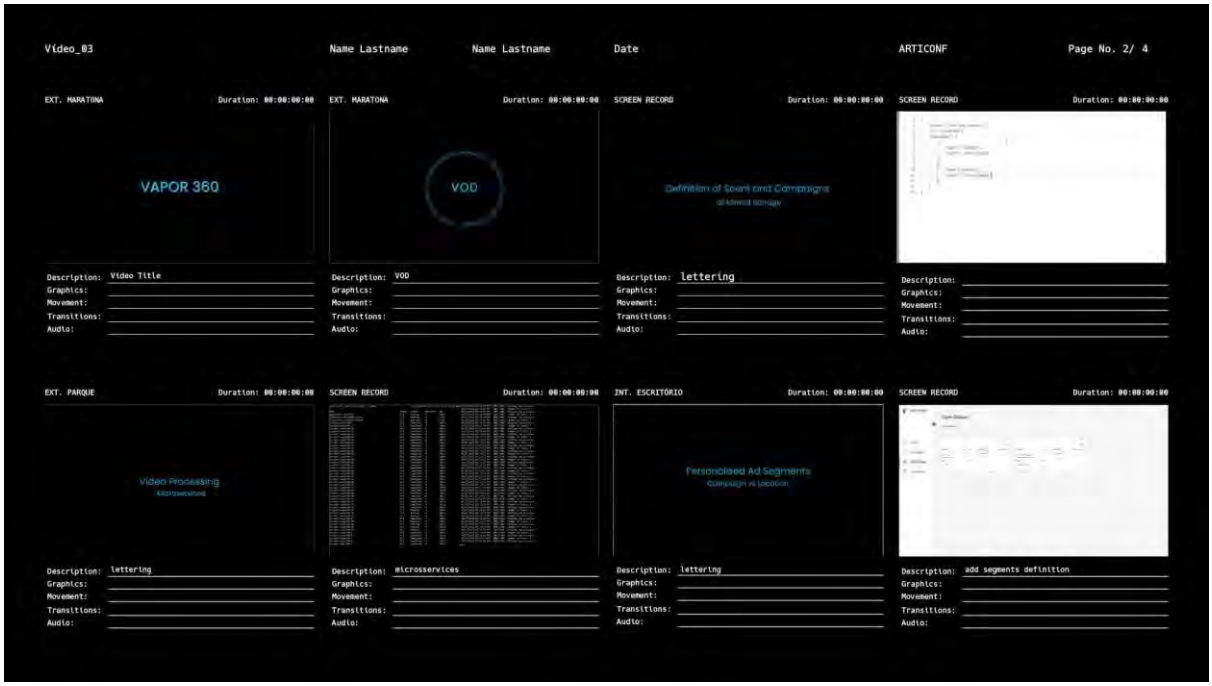


Figure 48: Part 2 of 4 of Video 03 StoryBoard

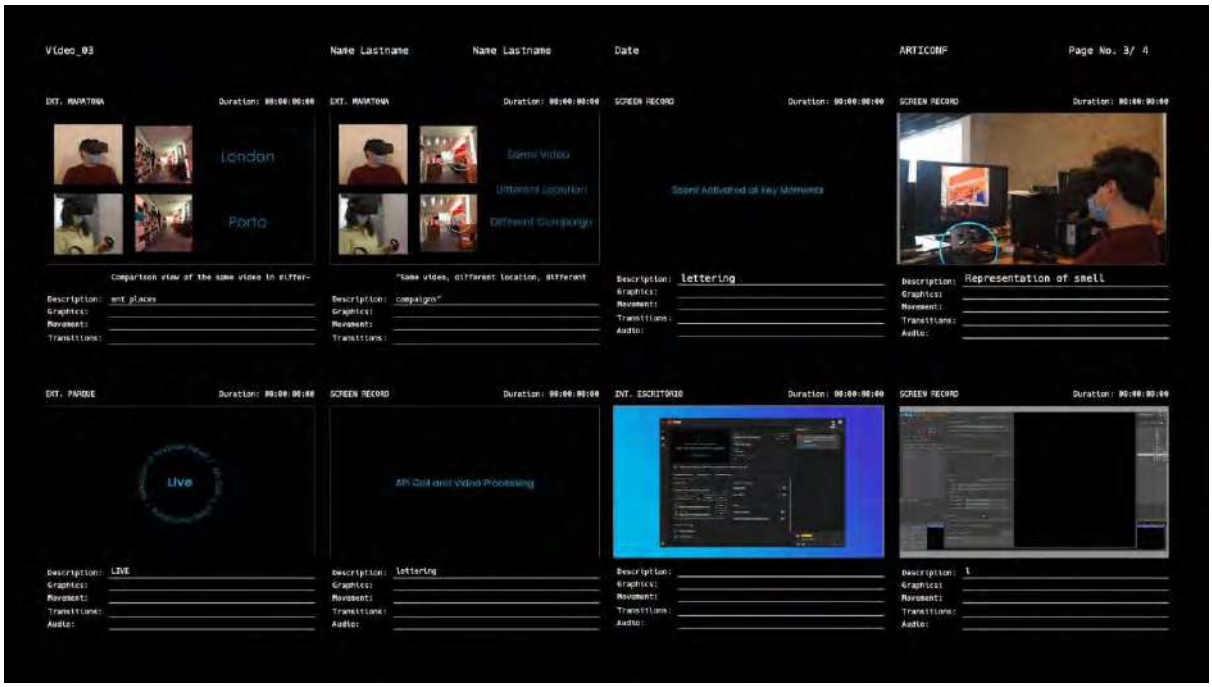


Figure 49: Part 3 of 4 of Video 03 StoryBoard

Figure 50: Part 4 of 4 of Video 03 Storyboard

3.5 DATACLOUD LOGOS

Icons were developed for the elements of the Toolbox, which are presented in teasers 4 to 9. An identifiable icon was created for each element of the toolbox to make identifying and distinguishing each of them easier. This was a challenging task due to the complexity of the concepts - reflecting them in simple icons, all different but visually connected.

Even though these icons were developed for the video teasers, they have been shared with the consortium partners by their request so these icons and logos can be used in different contexts.

The icons were created using Adobe Illustrator, having the DataCloud logo as a base.

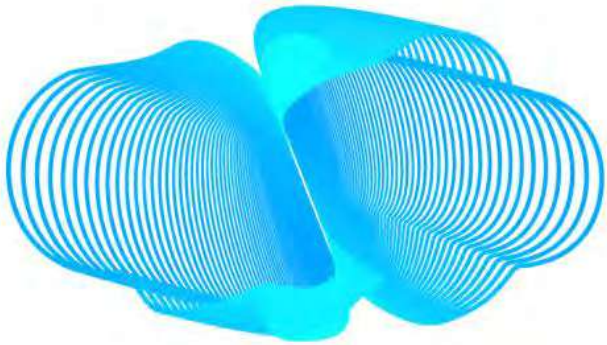


Figure 51: Icon DataCloud

This meant that visually, it would be easier to maintain a coherence of the DataCloud's visual identity.

Adobe Illustrator was used to create the icons. The original Illustrator document with the DataCloud logo and icon was made available and the subsequent icons were developed from there.

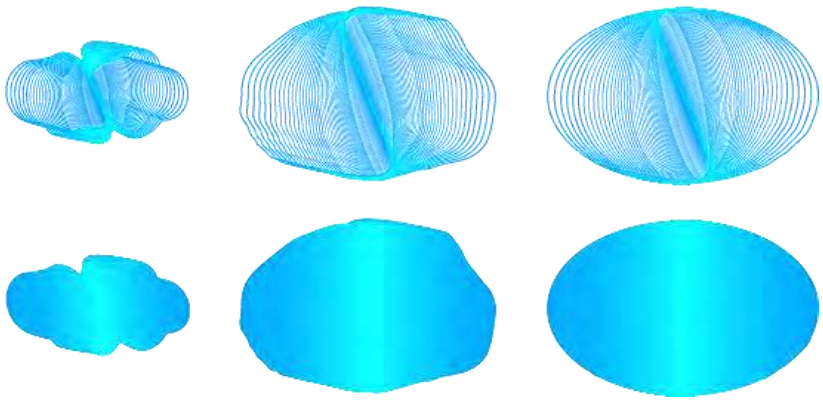


Figure 52: Simplification of the original icon's shape

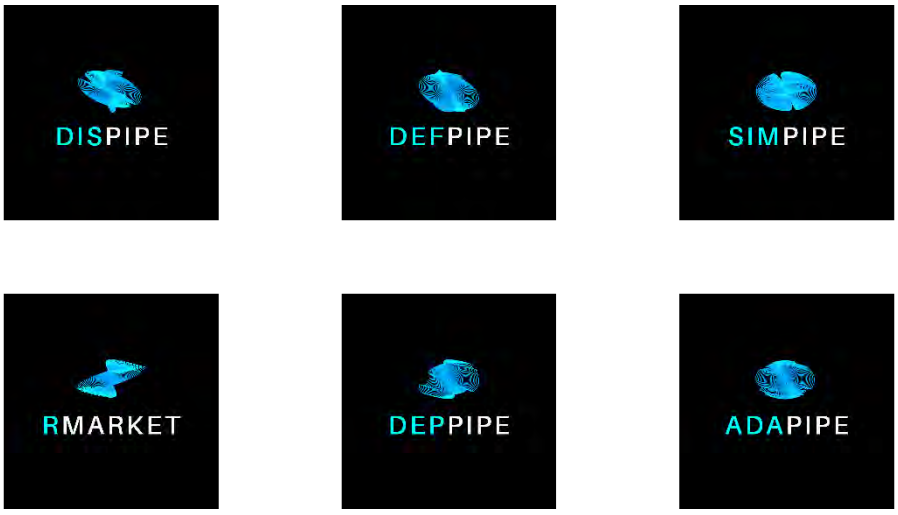


Figure 53: Export from the AI workplace

Figure 54: Icons Presented in Sequence

To create the icons, a simplification of the DataCloud's icon shape was made. This way, there was a base from which to create the new icons. Extensive testing was made, until the participants validated this set of icons. After they were validated, the icons were inserted into the logos, with the wordmarks of each tool.

These icons and logos were presented in a consortium meeting that took place in Oslo. The feedback from partners was extremely positive, as the logos give each element a sense of self and of unity inside the DataCloud project.

3.6 TEASERS DATACLOUD

The DataCloud Project has several social media platforms. These platforms have the intent to disseminate and communicate the project as a whole, the several toolboxes and business cases and keep the public and partners up to date about the evolution of the project. These teasers were disseminated in the DataCloud social media platforms – Twitter, Youtube, and some social media accounts from the consortium partners.

To help with this communication, several video "teasers" were created. According to https://www.dictionary.com/browse/teaser (14/03/2022), a teaser is:

- "Also called tease, teaser ad . a short, impressionistic image, promotional video, or audio spot that reveals very little about the product or company being advertised and is presented to generate interest in advance of the primary advertising campaign.
- Also called **teaser trailer, trailer tease** . a short, edited promotional video to generate interest in an upcoming film and announce its release date: a teaser is a forerunner to full-length trailers for the film that feature highlights and are shown closer to the film's distribution date."

This designation of teaser was chosen to characterise these videos because of their short nature. The main objective of these videos is for them to inform and disseminate the consortium in a quick way.

There are two "general" teasers that tackle the project as a whole, explaining the general project ideas and objectives. There is a teaser that presents the several existing toolboxes. Then, for each toolbox, there is a specific teaser. For each Business Case there is also a teaser.

The dissemination plan of these teasers was developed, with calendarization and all relevant social media information. A document was made with this dissemination plan.

Figure 55: Teasers Dissemination Plan Document

The teasers were disseminated in a sequential order that shows the different aspects of the consortium. Starting with general information, and then focussing on more specific characteristics.

In Figure 55, it is possible to see in blue the days in which a teaser was published.

When each teaser was published, an accompanied tweet was made in the DataCloud official twitter account to help disseminate the video with the consortium partners and stakeholders.

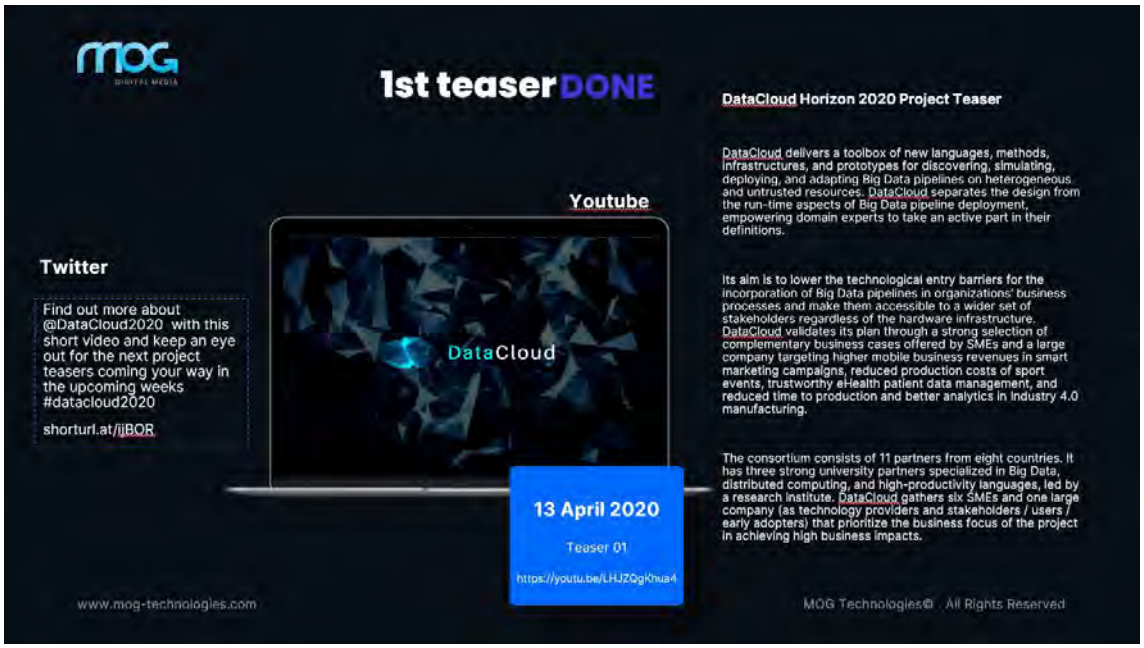


Figure 56: Teaser's Dissemination Plan Document | Layout

Here is a deconstruction of the information presented in the document created to assist the teasers dissemination plan.

Figure 57: Teaser's Dissemination Plan Document | Twitter

Figure 57 shows the content of the tweet that accompanies the publication of the video in the Youtube channel of the DataCloud project.

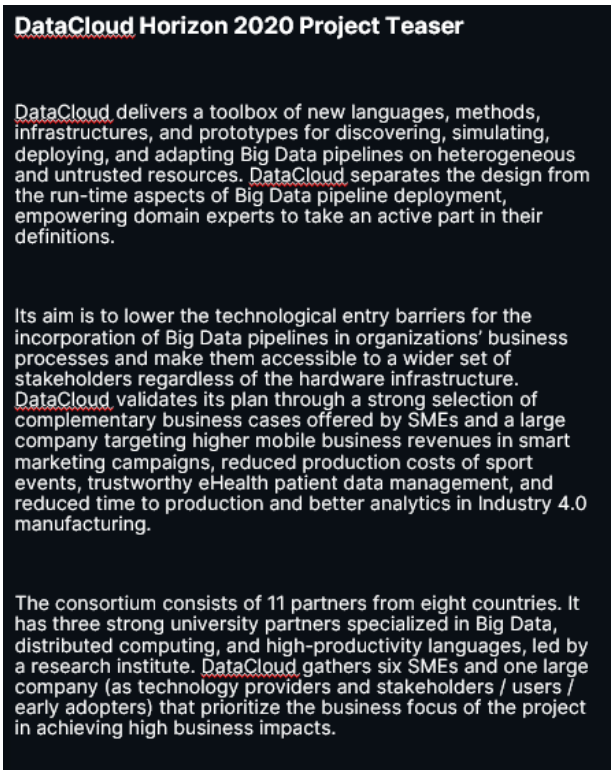


Figure 58: Teaser's Dissemination Plan Document | Youtube Title and Description

Figure 58 shows the Teaser title when it is published in the YouTube channel and the description.

Figure 59: Teaser's Dissemination Plan Document | Key Information

In the blue square, represented in Figure 59, the date that the teaser is presented, the number of the teaser and its full YouTube link is presented. This information was chosen as relevant, so it was deemed important to have it in a well-defined place in the document.

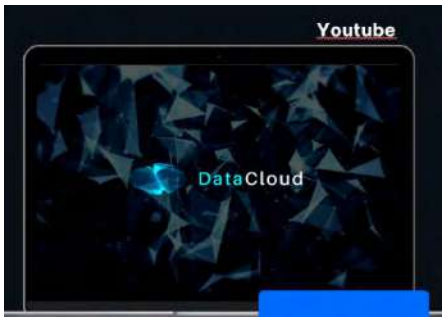


Figure 60: Teaser's Dissemination Plan Document | Youtube Thumbnail

The document also has the thumbnail image defined to appear in each YouTube video, as shown in Figure 60.

During the publication of the teasers, notes were put beside the number of the teaser to easily see if it had already been published and if it had any of the content scheduled.

With this layout it is possible to easily see all the relevant information to publish the video.

For these videos, scheduling was often done. Using YouTube and twitter tools to schedule content, it was possible to prepare in advance all the aspects of the dissemination of this content and have it ready to go live without direct action at the time of publishing.

The first part of the YouTube description is the same in all the teasers. These paragraphs give a general idea of the DataCloud consortium. The final part of the description changes, to describe each element that is being presented. The texts were taken directly from DataCloud's website.

The information that appears in these videos is taken from the DataCloud website (https://datacloudproject.eu/ – consulted throughout the month of October 2021 until May 2022)

The slight changes of phrases and vocabulary that occur are necessary to adapt the text from the website to text that is presented in video format. These changes are reviewed by Mog Collaborators to ensure that the technical aspects are correctly presented. Even with this support, this was a very complex task. Mainly because the information is extremely technical and it is very difficult to understand, explain, and transmit – even more if the goal is to do this with few and simple phrases. The bigger obstacle to creating these videos is the big technical complexity of what needs to be explained. The information is presented on the website, from where it is being taken, in long, complex phrases. Because of this, it is very difficult to have the information transmitted in a comprehensive way in video format.

To create an uniformized image, the teasers have the same beginning and end.

Figure 61: Beginning of the DataCloud Teasers

Figure 62: Ending of the DataCloud Teasers

The initial logo was chosen because it is simple and presents the project. This way, the audience can clearly understand what the video is about. The logo chosen to appear at the end of the teasers has text and stays in the video for a longer period of time, compared to the first one, so the audience can read what it says. The video begins and ends with logos because, as social media is where they are going to be published, often the audience does not see the whole video. The most important aspect of these videos is dissemination, so even if the audience doesn't see the video until the end, or if just starts paying attention to it when it is already in the middle, it is important that they can easily know what the video is about – the DataCloud project.

The music used in these videos is also the same. It is adjusted for different lengths of videos and for different timings. The sound is edited in Adobe After Effects.

The length of these videos varies between 15 and 30 seconds, approximately.

Another challenging characteristic of the development of these videos is that the majority of them are focused on text. Having a video made exclusively of text is very complex because of the lack of visual appeal. To make the videos more interesting, animations with the letters and graphics were developed.

These animations are focused mainly on transitions between the text, having few extra graphic elements. The objective was to create a more interesting visual experience while keeping the message as the most important aspect. Because the messages being transmitted are very complex, there is a big risk in separating them too much from each other during the videos or giving too much visual information, which could distract from the text itself.

The teasers started by having black background and lettering with the blue logo colour or white (to highlight themain words). To create visual appeal, character animation was then developed. After some testing, the author concluded that the teasers needed to be more dynamic. The animation of the text was not enough. To create this dynamism, the author searched for animations to use as background in several websites and made tests. An animation from the Pixabay website was selected. The tool “time remapping” was used in Adobe After Effects to create a bigger moving motion when the letters change. After the editing of the teasers, Mog collaborators suggested the development of simple icons to represent each element of the Toolbox. The toolbox has very complex concepts so there needed to be a phase of understanding better what each element means, what they do and how they do it. Afterwards, the author identified ways to represent these complex concepts in simple visual forms. To create the icons, Adobe Illustrator was used. The development process of the icons is described in the previous chapter of this document.

The information presented in the teasers about the elements of the Toolbox was compiled and revised with the contribution of a participant from Mog.

Initial background tests were conducted. The first ideas were based on the animation of lines, keeping a black background. Figures 63 and 64 are examples of these initial tests. These animations had good feedback from participants but were abandoned because other tests, with a different approach, were deemed more in line with the visual Identity of DataCloud Project.

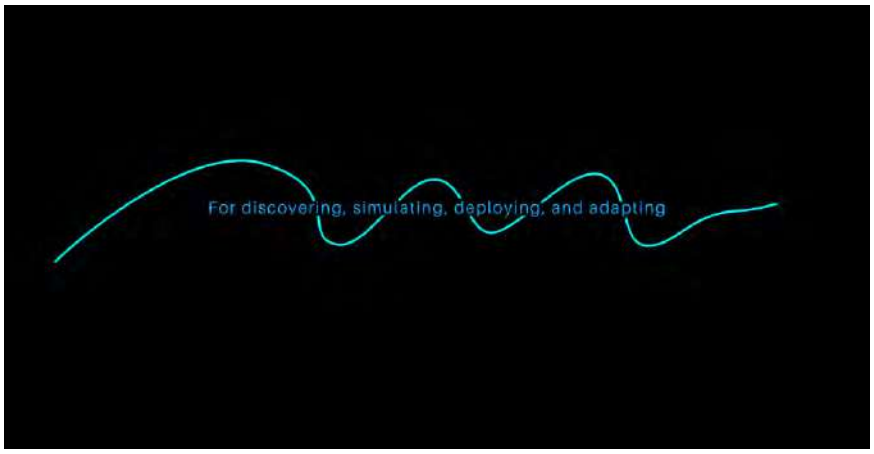


Figure 63: Testing the Use of a Line

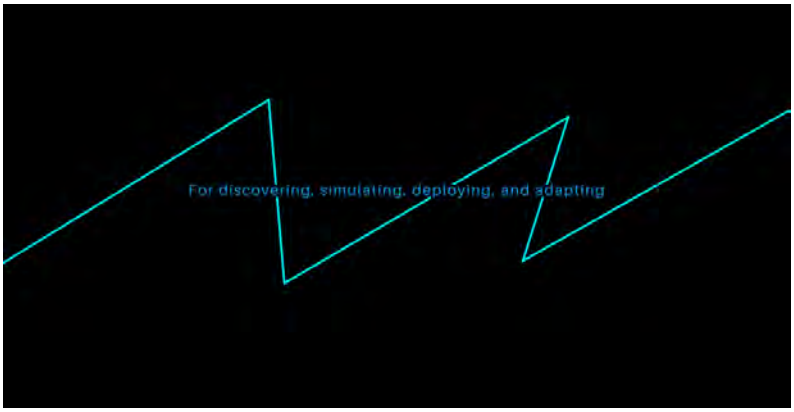


Figure 64: Testing Sharper Angles

In parallel with the previously discussed animations, an alternative approach was also being developed. This visual approach ended up being the chosen one for the DataCloud teasers. The chosen approach was using an animated background and animated lettering.

Having an animated background creates a more dynamic video. To choose the background animation, a search was conducted at the Pixabay website with the words: abstract, digital, computer, web, cyber. Several animations were identified, and tests were made in Adobe After Effects, using the text animations that had been developed. The animation “abstract” has a colour scheme similar to the DataCloud one. Because of this, it made sense to make the letters have the same colour. This way, the visual information is reduced. The colour of the letters vs the background animation creates a problem. Because the animation has a lot of different colours, ranging from

dark to light ones, there is a difficulty in identifying a good colour for the text, in order for it to have a good legibility. Several options were tested. The first one was the style that was animated previously for the black background. The beginning of the sentence was in DataCloud's blue, and the changing words appeared in white. Full black and white was tested but was not easily readable. Shadows were also tested. Even though these made possible a better legibility, they were not visually appealing. After this, another option was tested. A solid was created with a black, translucid colour, and was positioned behind the phrase. When compared to the previous tests, this was the option that had a better legibility vs visual appealing look balance. But it was not yet a good enough solution.

Figure 65: Legibility Test 01

The best solution was to go back to the shadows but make them with a larger size so the shadow was changed to a size of 7 px (Figure 66).

Figure 66: Legibility Test 02

The discussed animated background was used in almost all of the teaser. Teasers number 3 and number 10 are exceptions and will now be discussed.

Teaser 3 presents the toolbox of the DataCloud project. The animation used in a part of this video had been previously done by a Mog collaborator and used in a dissemination video. It was suggested that this animation would be used in this video.

The style (colours, font, etc) of the animation doesn't match the exact visual identity that is being followed but it has some of the elements from the DataCloud project. Because of this, it was possible to include it in this teaser.

For this video, the inclusion of the icons had an increased level of difficulty. Having no access to the workplace of the animation that had previously been made, the only available thing was the video itself. So, the already made icons were edited on top of the video. This was made using masks to cover up the previous information and animating the icons and positioning them in a way that seems native to the video.

Teaser 10 presents the five business cases that exist. The goal of this teaser is to list the business cases, each one of them will be explained in separate videos.

In this teaser, stock images are used because of the very diverse nature of the several Business Cases. Images can help the audience understand quickly the general theme of the business case this way.

To develop this video, the first task was to understand what was the best visual division of the screen in order to make this information as interesting as possible. To get to this final design, several different options were tested.

After this design was chosen, the animation of the graphic elements was made. Tests were conducted on the type of animation that worked best. The next step was to identify stock videos that transmitted the right information for each business case. The videos were taken from the Pixabay website and Adobe Stock. For the search, several keywords were used: marketing, technology, medicine, health, factory, production, and sport.

When the videos were selected, several ways to present them were tested. The one chosen was an oval shape. With all the images chosen, the animation of the graphic elements and the transitions were perfected.

The next stage was to colour correct the videos. The blue tint was chosen to make the images work best with the general visual theme of the DataCloud project and to minimise the style differences between them.

Figure 67: Still from teaser 10

3.7 VIDEO 04 - DATACLOUD BUSINESS CASE VIDEO

Mog is responsible for the development of the Business Cases from the DataCloud project. This Business Case is known as MogSports. MogSports is an automatic live sports content annotation tool.

This video's objective is to communicate what the business case entails. Because not all of the proposed characteristics are yet developed, this video shows technology that exists and technology that doesn't exist but has to show them all as already implemented. In order to show technology that doesn't exist, it is necessary to simulate it. The simulations were developed mainly in Adobe After Effects.

Since this pipeline is presently in development, this video could not be finished. The technical elements are still being created so this video is completely created except for the parts that present the elements of the pipeline that are still in development. As was previously stated, the elements that are not completed at the time of the video publication, will be simulated but the goal is to be able to have as many of the developments shown in the video. Because of this, the video will only be finished very close to the publication date in order to accommodate as many of the developed technical elements as possible. As is shown in the DataCloud 2nd Year Dissemination Plan, presented previously in this document, this video will be published on DataCloud's YouTube channel in August 2022.

In this video, one of the challenges was to understand what the information means and how it can be shown visually. The pipeline of the business case was the starting point to understand what content the video should have.

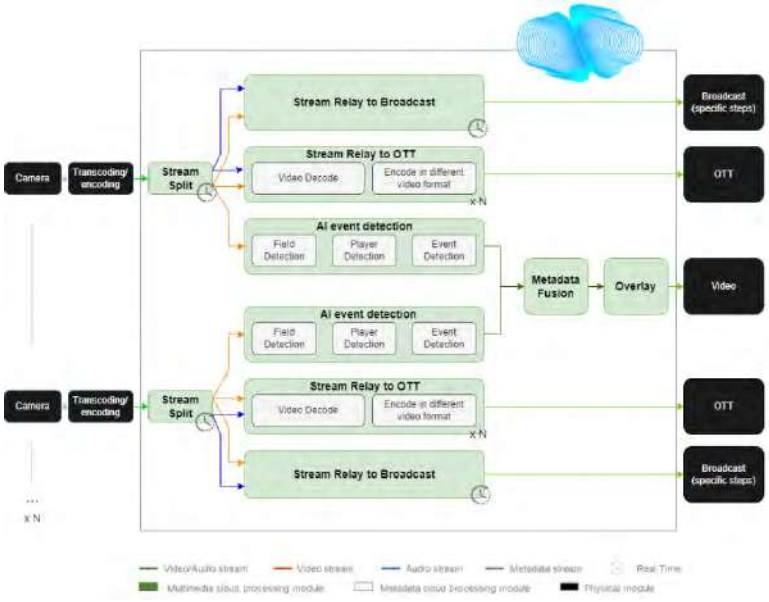


Figure 68: MogSports Pipeline

In this pipeline, it is possible to see what is being developed in the business case and how the different elements are related to each other. This pipeline was used as a starting point to organize the information that is presented in the video. The importance of the elements was identified, followed by the definition of the visual representation of each element. This business case has a lot of potential for visual representation.

Voice over was used in this video. The idea of having voice over in the videos was always entertaining because, as discussed previously in this document, it has a positive impact in the understanding of the messages being transmitted.

The voice over text is the following:

“MogSports is an AI enhanced business case from the DataCloud horizon 2020 Project.

Its main objective is to present itself as a new product with aim to lower production costs, enhance audience engagement-and-experience in decentralised crowdsourced live sport broadcasting.

MogSports automatically annotates large quantities of media data from various sources combined with AI algorithms for adaptive monitoring and runtime operation.

With the efficiency of its business case in mind, a stream split is performed to enable streaming in real time to broadcast or OTT, all whilst supporting a wide range of different video formats.

The implementation of new AI technology makes it possible to perform field detection -, player detection – and event detection.

Finally, metadata fusion and graphical overlays are performed enhancing all ingested media.

MogSports – Automatic Live Sports Content Annotation”

A video capture was also made for this business case. This meant that, for this artifact, stock footage, animations, graphisms and captured images were used.

The video was organised considering the several technical elements.

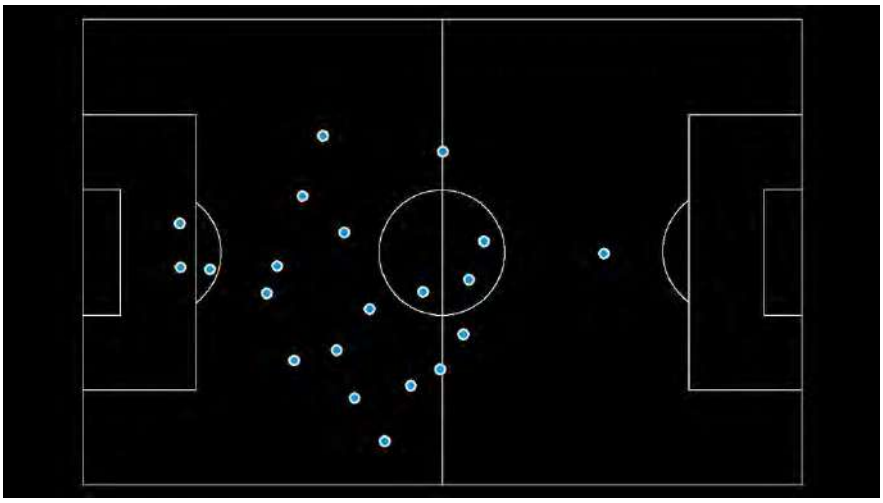


Figure 69: Players Metadata Fusion

3.7.1 VIDEO CAPTURE

For this video, footage was collected from the Aveiro Municipal Football Stadium. Training sessions and official games were filmed to be processed for the development and test of the features shown in this video.

The author assisted in the definition and implementation of the acquisition protocol of the business case. Different cameras were tested to understand the impact of different hardware in the players detection algorithm – YOLOV5. With less definition, player overlapping occurs. Different meteorological situations were also tested, changing image saturation to understand the best way to get good results.

The processing and synchronization of the acquired datasets, which is fundamental for the metadata fusion module, was also developed in this dissertation.

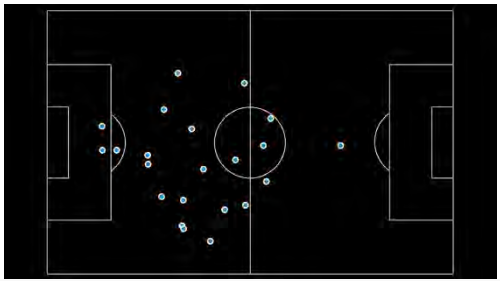
Table 12: Technical specifications of material used for image capture

	Practice	Game
Cameras	Canon 600D Canon 700D	Canon 250D Canon 700D
Filming Rate (Frames-per-second)	30fps	30fps
Filming Time	30 minutes (several small videos recorded, to test different camera specifications)	Full game time 90 min – divided in 20 min videos due to camera specifications

Figure 70: Comparison view from the two cameras during the practice

3.7.2 STORYBOARD

Audio	Visual
MogSports is an AI enhanced business case from the DataCloud horizon 2020 Project.	
Its main objective is to present itself as a new product with aim to lower production costs, enhance audience engagement-and-experience in decentralised crowdsourced live sport broadcasting.	
MogSports automatically annotates large quantities of media data from various sources combined with AI algorithms for adaptive monitoring and runtime operation.	
With the efficiency of its business case in mind, a stream split is performed to enable streaming in real time to broadcast or OTT, all whilst supporting a wide range of different video formats.	
The implementation of new AI technology makes it possible to perform field detection, player detection – and event detection.	

Finally, metadata fusion and graphical overlays are performed enhancing all ingested media.	
MogSports – Automatic Live Sports Content Annotation	

3.8 VIDEO 05 – DATACLOUD PROJECT

The DataCloud Project has the goal of publishing a general video about the consortium each year. At present, the project has been going on for 1.5 years. This video was developed as part of the dissemination efforts for the project and has also been used by Mog project managers in brokerage meetings.

Developing this video was a challenge for various reasons.

The fact that the video is not technical, but a marketing one, means there should be no discussion of specificities and technical aspects of the work that is being developed. It should be a marketing video that caters to the general public. Because a video like this has already been developed for the first year, the challenge was to make this one relevant, while containing similar content.

Figure 71: Text Animation

One thing that was considered relevant for this video was having narration. This way, the video could contain the necessary information without too much text written on the screen. Because of the use of narration, the only text on the screen are the main ideas or the main concepts that are being explained.

To maintain a fast rhythm, animations were developed, and the use of stock footage was also central to the development of the video.

Another challenge was to create a marketing video with a very broad and technical starting point.

The first step in the development of this video was to see the video made in the previous year and understand what type of information should

appear in the video. Then, with the general idea of the amount and type of information that the video should communicate, several different information schemes were made. When the cadence of the video and the order of information was defined, a more specific structure of the video was developed.

The voice over text is as follows:

“DataCloud is a European project that focuses on the computer continuum of Big Data.

But what is big data? Big data refers to data sets that are too large or complex to be dealt with by traditional data-processing application software. This creates a big amount of unfulfilled potential in the form of Dark Data. Dark Data is data that is collected but not turned into value. DataCloud actively works to prevent that.

The overall vision of the DataCloud project is the creation of a novel paradigm for Big Data pipeline processing over heterogeneous resources encompassing the Computing Continuum, covering the complete lifecycle of managing Big Data pipelines.

DataCloud has a diverse and relevant toolbox set that discovers, defines, simulates, deploys, and adapts Big Data Pipelines.

DataCloud plan is validated through its Business Cases: Smart Mobile Marketing Campaigns, Automatic Live Sports Content Annotation, Digital Health System, Predicting Deformations in Ceramics and Analytics of Manufacturing Assets.

This consortium counts with 11 partners from 8 countries with the common goal of lowering the technological entry barriers for the incorporation of big data pipelines in businesses in an accessible way.”

For this visual part, stock images were selected, and graphics and animations were developed. The stock images were taken from the Envato website and animations were made using Adobe After Effects and Adobe Premiere. Background music was also chosen from the Envato website.

With the background music selected, the video was assembled. The animations were made taking the music into account. After the narration was recorded, it was edited into the video, making the necessary alterations.

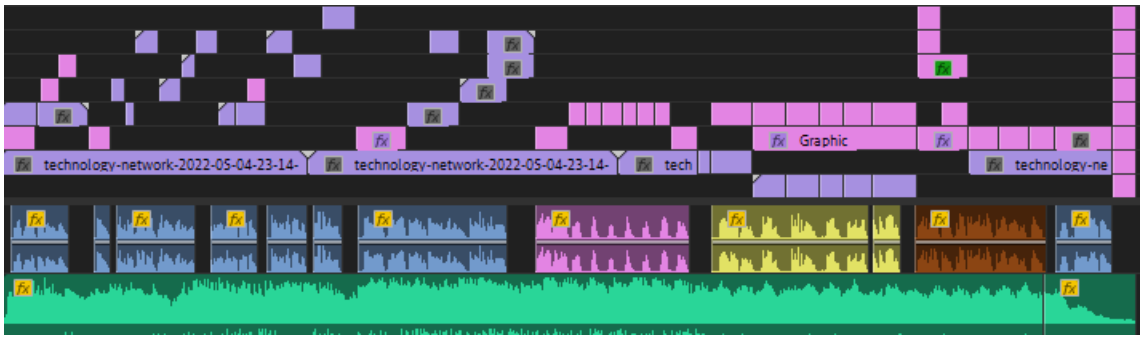


Figure 72: Adobe Premiere workspace

For this video, a short animation was developed. The name “DataCloud” comes from the junction of “Big Data” and “Cloud Computing”. The author thought it would be interesting to show the origin of this name in a visual way. With Adobe AfterEffects, an animation was developed that starts with the DataCloud icon, transitions into the DataCloud Logo and then the word “Big” appears besides “Data” and the word “Computing” appears after “Cloud”. The size and position of the lettering “Big” and “Computing” was thoroughly tested. The use of different colours and of all caps was also tested. In the end, the author, and participants, deemed this the most balanced design.

Figure 73: Still from Animation

“Cloud Computing” disappears, while the voice off focuses on big data. When the voice off focuses on cloud computing the “Big Data” lettering disappears. In the end of the animation, all the lettering is visible again.

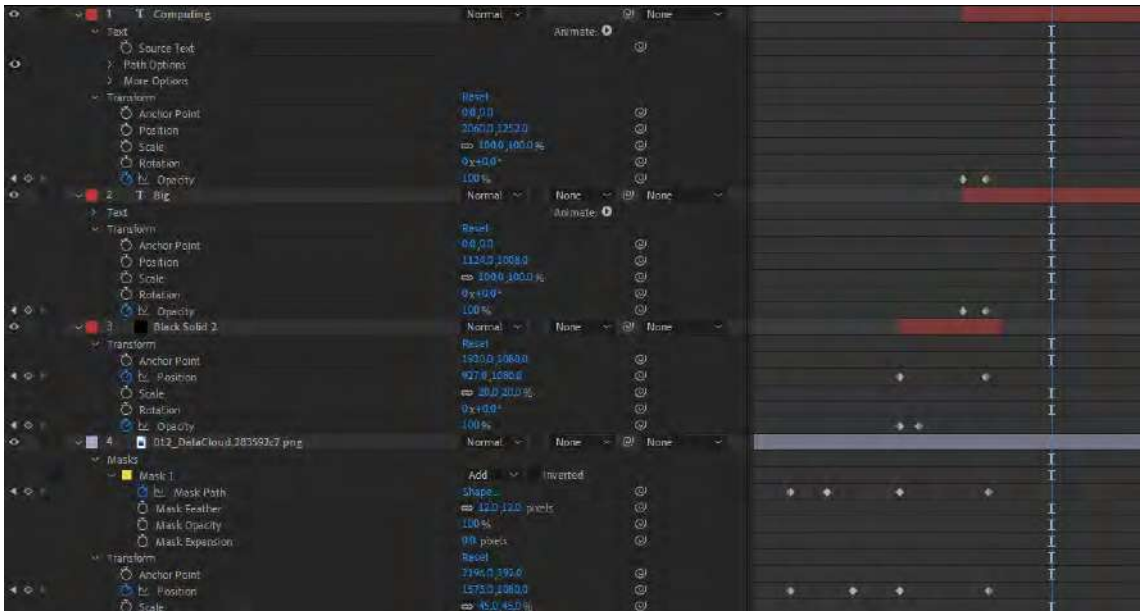


Figure 74: AfterEffects workspace | Beginning of animation

For this animation opacity, mask animation and position animation were used.

The video takes advantage of mostly stock images. These images were taken from the Envato website. The search keywords used were: technology, data, big data, science, information, cloud, sports, marketing, hospital, factory, ceramics and production.

The music used in the background was also taken from the Envato website. The search word used was: corporate.

Besides stock footage and animation done by the author, the logos that were described previously in this document were also used in this video.

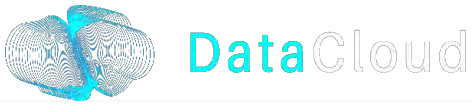
Figure 75: Use of developed logo in video

The video was sent to the participants for validation and was approved to be published on DataCloud's YouTube channel. The use of voice over and the marketeer tone of the video was very appreciated by participants.

3.8.1 STORYBOARD

Due to having narration, the storyboard for this video was made in a different way from some of the other ones developed for the first videos. Because narration must be accounted for in the planning stage of this video, a table storyboard was developed. With this type of storyboard, it is possible to connect the audio and the visual aspects of the artifact in a practical way.

Table 13: Video 05 Storyboard

	Audio	**Visual**
	Music (present through the whole video)	Datacloud simple logo 
Intro	DataCloud focuses on the computer continuum of big data	Stock footage Animation of DataCloud being decomposed in “bid data” and “cloud computing”
1 – What is big data?	But what is big data? “Big data refers to data sets that are too large or complex to be dealt with by traditional data-processing application software”	Stock footage “Big Data” lettering
1.1 – challenges of taking advantage of big data	This creates a big amount of unfulfilled potential in the form of Dark Data. Dark Data is data that is collected but not turned into value. DataCloud actively works to prevent that	Stock footage “Dark Data” lettering
2- DataCloud Project	The overall vision of the DataCloud project is the creation of a novel paradigm for Big Data pipeline processing over heterogeneous resources encompassing the Computing Continuum, covering the complete lifecycle of managing Big Data pipelines.	Stock footage “Creation of a novel paradigm” lettering

2.1 Toolbox	DataCloud has a diverse and relevant toolbox set that discovers, defines, simulates, deploys, and adapts Big Data Pipelines	"Toolbox" lettering Icons of toolbox elements 
2.2 Business Cases	DataCloud plan is validated through its Business Cases: - Smart Mobile Marketing Campaigns (SMARK) - Automatic Live Sports Content Annotation (MOGSPORTS) - Digital Health System (TLUHEALTH) - Predicting Deformations in Ceramics (P-DICE) - Analytics of Manufacturing Assets (AMANS)	"Business Cases" lettering Stock footage related to each business cases area of development and "Smark", "MogSports", "TluHealth", "P-Dice" and "Amans" lettering
3	This consortium counts with 11 partners from 8 countries with the common goal of lowering the technological entry barriers for the incorporation of big data pipelines in businesses in an accessible way.	"11 partners form 8 countries" lettering. Image of map "Lowering the technological entry barriers" "Incorporation of big data pipelines"  Logos of partners

		
End	DataCloud – Enabling the big data pipeline lifecycle on the computing continuum	DataCloud LOGO 

3.9 MOGDIRECT

This project was not in the dissertation plan. The opportunity to develop this new project arose and the author thought that it was of extreme relevance for the dissertation's theme. Because of this, the project was developed and included in this dissertation.

Mog Direct is a project that has the objective of making post-covid online presentations more interesting. In a pre-covid era, salespersons went to their clients' (or possible clients) countries to present the products. These trips would be used to transmit technical information but also took advantage of soft skills that would make the buyer more confident in the salesperson, company, and product. With the 2020 pandemic, all trips and travel plans were cancelled. During several months, all communication happened online. Right now, most travel destinations are safe again, but this continued period of online business left some marks and created changes in the sales process.

Figure 76: MogDirect Logo

Closing certain deals would usually take several days, a lot of travel expenses and a group of salespersons dedicated to only one client for some time. With closing sales and making demonstrations online, several of these disadvantages are diminished or even extinct. In some cases, salespeople still travel to their clients' countries but in other cases, it is possible to have this process (or at least part of the process) in an online capacity.

MogDirect takes place in this timeframe, post-covid. It is created with the intent of having the positive aspects of online meetings without losing the positive aspects of having face-to-face interactions.

MogDirect is a live event, broadcasted through a television-like studio. Each event takes approximately 3 hours and has at least one presenter and two technicians that do technical demonstrations. Usually there are elements involved from the presales department, sales department, and development department. The marketing department was also involved in the preparation of the events.

This initiative made clients feel welcomed in our company, the feedback was very positive. It created an environment of information sharing. This initiative was also very well received internally, by company peers. After the sessions, there was positive and direct feedback in the form of emails from the clients with a very positive impression of the initiative.

For this event, visual elements were developed. Countdowns for the breaks, green screen backgrounds and also backgrounds for the studio led wall, that is located behind the presenter. Some of these visual components are specific to each session, with the dates in which the session occurs and reference to the company Mog Direct is being presented to. The still elements were developed in Adobe Indesign. The video elements – countdowns and moving backgrounds, were developed in Adobe Premiere.

Figure 77: MogDirect fisheye camera overlay

As is visible in Figure 77, an overlay was developed for the fisheye camera. A camera with the “fisheye” effect is installed in the ceiling of the studio. This camera captures almost the complete space of the studio and during these sessions it was used during intermissions and as a backup camera. Because of this, the author was asked to develop a still image that could be overlayed with the camera output.

Figure 78: Greenscreen graphic element for Doing Media

Figure 79: Green Screen graphic element for Whash Engineering

Figures 78 and 79 are the still backgrounds developed to be used in the green screen. During the presentations, PowerPoints were used. If the presenters wished, they could do the presentation in front of the green screen and with these developed layouts, the PowerPoints appeared inside the blue rectangle. The inside of the rectangle is transparent, so it is easier to overlay the desired PowerPoint. This way, the presenter would appear with a grey background behind him while the PowerPoint was presented, and the relevant logos and information were also visible.

Figure 80: Still from Countdown layout

The countdown layout shown in Figure 80 was developed in Adobe Premiere. The goal was to have a layout similar to the ones developed for the green screen, to maintain a visual consistency. To create these videos, a grey background was created. The MogDirect logo and the lettering were positioned in the centre of the composition. To create the countdown, a transparent video was added to the Premiere timeline. A field symbol was created in this layer with the format SMPTE. The time code source was defined as the clip and the time display as 24, to be the same as the video. Countdowns were made of 1 minute, 2 minutes, 5 minutes, 10 minutes and 15 minutes.

Figure 81: Still from MogDirect animated led wall background

Figure 81 is an animated background that was developed to be presented in a led wall. This led wall is located in the background of one of the cameras, and it appears behind the presenter. The logo of MogDirect is inverted because the image from this specific camera is transmitted inverted. This way, the logo appears correctly in its final form. Because the led wall is very bright and is placed behind the presenters, several tests were developed to understand what the best colour tones for the led wall in combination with the studio lighting were. A bright background caused too much back light for the presenters. Because of this, a darker background was developed by the author and validated through studio lighting tests.

In technical terms, this initiative was very interesting and complex. The technical elements of the studio were prepared, like lightning, sound, visual aids for presenters, etc. Besides that, the camera work and sound control from the several lapel microphones was done. The transitions between cameras, green screen, countdowns, and other visual effects were also made by the author.

There was a multi-camera set-up, OBS with several scenes, 3 mixed audio channels, use of greenscreen, use of stream deck, and Mog's own software – MAM4Pro. This enabled the author to learn how to use the software of the company.

The two MogDirect that occurred were considered a success and plans are being made to not only keep on doing them but to make them a recurring

occurrence. With this, the goal is to engage with new clients, old clients, and representatives of the Mog products all over the world.

4 CONCLUSION

This dissertation enabled the creation of a complete, useful, practical, and successful portfolio of multimedia artifacts to be used for the dissemination and communication of technological and scientific innovation projects from Mog Technologies enterprise. Furthermore, several initiatives of development and dissemination of media content with a business-oriented perspective were carried out.

All of the initial objectives were achieved with great success and some extra content was developed and produced (MogDirect initiative) and had excellent feedback.

The initial intent of this dissertation was to disseminate content for the general public. Due to the company's ever-changing necessities, this target audience suffered a change to a specific public. The necessary adaptations were made, and useful content was produced for this new target audience.

Content was created in different formats, to cater to a big array of goals. This content made it easier for Mog Technologies to communicate and disseminate their services and products to the intended public in a practical and innovative way. With the developed artifacts, the process of audits, proofs of concept, sales to new and existing clients, communication with partners and stakeholders became an easier and more practical process for the company.

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ATTACHMENTS

							Technical Elements		Other elements						
Title	Year	New Media	Engagement	Framing	Storytelling	Personification	User generated content vs Professionally G. C.	Animation and Graphics	Communicating to a broad audience	Process / Functioning of Science	Trust	Images vs text	Documentary Short Film	Traditional media	Title
EU communicating science	2006	Good for communicate niche topics		There is a need to tell what we want to transmit in a way that is related to something the audience thinks is interesting in a way that tells a story	Works as a memory aide and should captivate the emotions of the audience				Adapt communication depending of the public	It works best to explain how science works and the process behind it when the science itself is weird and complex to the audience	Communication channels need to be created and maintained open	Images are good to transmit complex ideas; they should have good quality		Reaches a big audience; should be of general interest	EU communicating science
What's next for science communication? Promising directions and lingering distractions	2009	Good for reaching non-traditional audiences	Should focus on research and impact decisions	Should suggest a linkage between two concepts or things; bottom-up alternative frames may be gaining greater influence; there cannot be unframed information					Based on data - what do people want to know	Explaining them make the public more easily believe in what we are communicating	Scientists need to take into account other forms of knowledge (knowledge of the population); do scientists have a history of being trustworthy?		Strategy to boost public interest; screenings increase public turnout and help framing and might bridge polarized views		What's next for science communication? Promising directions and lingering distractions
The case for a 'deficit model' of science communication	2005								The dialog from science communication must be a dialog based on facts		To create trust there is a need for openness and dialog				The case for a 'deficit model' of science communication
A Good Story Well Told: Storytelling Components that Impact Science Video Popularity on Youtube	2020	Tremendous potential of online videos for public communication			Ingredient of engaging science communication to non expert audiences; popular videos use complex storytelling structures; can enhance persuasion	Use of first-person narratives	UGC is more popular than PGC								A Good Story Well Told: Storytelling Components that Impact Science Video Popularity on Youtube
Using narratives and storytelling to communicate science with nonexpert audiences	2014	New media is changing how science is communicated to non experts; internet can influence perceived quality of the science information itself		Media uses narratives to tell scientific discoveries, framing the matter	The challenge to science communicators is to decide when and how narratives can effectively and appropriately help them communicate to nonexperts about science	News media personify abstract concepts for dramatic storytelling; for the audience, personification allows a greater chance of identification and empathy			The underlying goal is for persuasion or comprehension?		There should be an effort to understand the expectations of the audiences regarding how science communication should be transmitted to them and it needs to be respected to keep trust			Nonexpert audiences get most of their scientific information from mass media content	Using narratives and storytelling to communicate science with nonexpert audiences
Audiovisual Science Communication on TV and YouTube. How Recipients Understand and Evaluate Science Videos	2020	Internet has changed the role of science journalists as gatekeepers because a lot of these platforms are based on participation culture			Youtubers present their content in a informative and entertaining way		Amateur's channels generate more views and are more subscribed than channels with professional content from commercial media organizations; a professionalization of user generated content has taken place	Animated videos are well-suited for conveying complex and abstract facts							Audiovisual Science Communication on TV and Youtube. How Recipients Understand and Evaluate Science Videos
Typologies of the Popular Science Web Video	2015		Necessary to communicate with audiences		Most of the videos had narration mode in the first person	Use of first-person narratives	Most videos are user generated with a growing level of professionalism	Animation is one of the most popular genres			Necessary to communicate with audiences		Documentary is one of the most popular genres		Typologies of the Popular Science Web Video
Supporting quality in science communication: insights from the QUEST project	2021	Users tend to engage in echo chambers	Communication needs to interact with audiences								abstract				Supporting quality in science communication: insights from the QUEST project
An Empirical and Conceptual Note on Science Communication's Role in Society	2021								There are different roles of science communication in society						An Empirical and Conceptual Note on Science Communication's Role in Society
Uniting science and stories: Perspectives on the value of storytelling for communicating science	2019			Scientists need to communicate in a way that interests the general public	There is a link between a story's graph constructed story and its ability to persuade its listener				Scientists need to fulfill the social contract that scientists have of explaining their findings to society						Uniting science and stories: Perspectives on the value of storytelling for communicating science
Opinion: Finding the plot in science storytelling in hopes of enhancing science communication	2017			Storytelling and narrative can help communicate science to non-experts, within the wider context of framing. "Science breakthroughs that resonate with nonexperts despite lack of direct application do so because they engross our imagination and prompt emotion."	Storytelling and narrative can help communicate science to non-experts, within the wider context of framing. "Science breakthroughs that resonate with nonexperts despite lack of direct application do so because they engross our imagination and prompt emotion."				There is a growing demand for researchers to communicate their findings not just within their field but to general audiences as well						Opinion: Finding the plot in science storytelling in hopes of enhancing science communication
Lights, camera, science: the utility and growing popularity of film festivals at scientific meetings	2014				Scientific storytelling through filmmaking		PGC		Short films can increase the reach of the investigation and the public interest in the matter				Scientific storytelling through filmmaking		Lights, camera, science: the utility and growing popularity of film festivals at scientific meetings
Engaged Science: Strategies, Opportunities and Benefits	2020	Online tools help to engage in a more direct communication with the public, are more flexible in time and organization of the content and are usually free to use	"Engagement improves understanding of the scientific process and enhances inclusivity of the policymaking process."				PGC		There is a need of scientists to be engaged in public debates and to inform society of the themes that they study					Working with journalists can be a very good opportunity to reach a wider audience.	Engaged Science: Strategies, Opportunities and Benefits
Title	Year	New Media	Engagement	Framing	Storytelling	Personification	User generated content vs Professionally G.C.	Animation and Graphics	Communicating to a broad audience	Process / Functioning of Science	Trust	Images vs text	Documentary Short Film	Traditional Media	Title

Here, tables are presented showing key features in the dissemination efforts of European projects, similar to the DataCloud Project.

3.4.1.1 RAINBOW

"The vision of RAINBOW is to design and develop an open and trusted fog computing platform that facilitates the deployment and management of scalable, heterogeneous, and secure IoT services and cross-cloud applications (i.e., microservices). RAINBOW falls within the bigger vision of delivering a platform enabling users to remotely control the infrastructure that is running, potentially, on hundreds of edge devices (e.g., wearables), thousands of fog nodes in a factory building or flying in the sky (e.g., drones), and millions of vehicles travelling in a certain area or across Europe." (https://rainbow-h2020.eu/concept-and-objectives/)

Website	https://rainbow-h2020.eu/	Has a blog
Twitter	https://twitter.com/RainbowH2020	108 followers
Facebook	https://www.facebook.com/RainbowProjectH2020	147 followers
Youtube	https://www.youtube.com/channel/UCRcOGrINaV9wWh6Bih11-KA/videos	1 subscriber; 1 video – 39 views
Linkedin	https://www.linkedin.com/company/rainbow-project-h2020	
Instagram	https://www.instagram.com/rainbow.2020.eu/	7 followers; 5 publications; mean of

		5 likes per publication
ResearchGate	https://www.researchgate.net/project/RAINBOW-An-open-trusted-and-secure-fog-computing-platform	Followers: 13 Reads: 59

3.4.1.2 PHYSICS

"PHYSICS's vision is to address the aforementioned challenges and empower application developers, platform owners and infrastructure providers (e.g. Cloud, Edge etc). For the former, the goal is to ease application development and maximize productivity through the reuse of ready-made and abstracted programming flows while incorporating the FaaS approach in their application structure, based on user friendly function flow programming tools (e.g. Node-RED)" (https://physics-faas.eu/the-project/)

Website	https://physics-faas.eu/	Has a blog
Linkedin	https://www.linkedin.com/company/physicsh2020/	
Twitter	https://twitter.com/H2020Physics	92 followers

3.4.1.3 UNICORE

"UNICORE is creating a common code base and toolkit for deployment of applications to secure and reliable execution environments. The UNICORE project is developing tools to enable lightweight VM development to be as easy as compiling an app for an existing OS, thus unleashing the use of next generation of cloud computing services and technologies. With UNICORE toolchains for unikernels, software developers will be able to easily build and quickly deploy lightweight virtual machines starting from existing applications." (https://unicore-project.eu/whats-unicore-about/)

Website	https://unicore-project.eu/	
Twitter	https://twitter.com/unicore_project	161 followers
Linkedin		
Slideshare	https://www.slideshare.net/UNICORE_project/	

Zenodo	https://zenodo.org/communities/h2020-unicore-eu?page=1&size=20	
Youtube	https://www.youtube.com/channel/UCcYdu2ikMYlKoV9LRJBiOhQ	12 subscribers 9 videos; mean of 10 views per video

3.4.1.4 SMARTCLIDE

"The main objective of SmartCLIDE is to propose a radically new smart cloud-native development environment, based on the coding-by-demonstration principle, that will support creators of cloud services in the discovery, creation, composition, testing, and deployment of full-stack data-centered services and applications in the cloud. SmartCLIDE will provide high levels of abstraction at all stages (development, testing, deployment, and run-time) as well as self-discovery of IaaS and SaaS Services." (https://smartclide.eu/about-the-project/)

Website	https://smartclide.eu/	
Twitter	https://twitter.com/SmartCLIDE	85 followers
Linkedin	https://www.linkedin.com/company/smartclide/	

3.4.1.5 MORPHEMIC/MELODIC

"MORPHEMIC is a unique way of adapting and optimizing Cloud computing applications. The project is an extension of MELODIC which is a multi-cloud platform developed in the H2020 project. MELODIC is the simplest and easiest way to use Cross-Cloud." (https://www.morphemic.cloud/)

Website	https://www.morphemic.cloud/	
Facebook	https://www.facebook.com/MorphemicProject/	31 followers
Twitter	https://twitter.com/_morphemic_/	87 followers

Linkedin	https://www.linkedin.com/showcase/morphemic-project	

3.4.1.6 FOGPROTECT

“FogProject is a H2020 project aiming to deliver new and advanced architectures, technologies and methodologies to ensure the protection of sensitive data in the computing continuum, from cloud datacentres through fog nodes to end devices” (https://fogprotect.eu/)

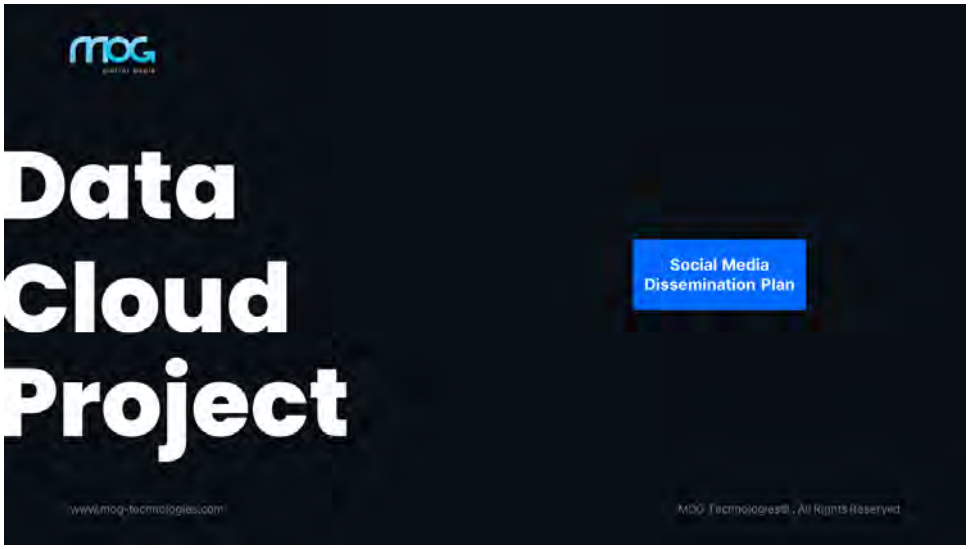
Website	https://fogprotect.eu/	
Facebook	https://www.facebook.com/fogprotectH2020/	11likes/12followers
Twitter	https://twitter.com/FogprotectH2020/	50 followers
Linkedin	https://www.linkedin.com/showcase/fogprotect-h2020/	
YouTube	FogProtect - YouTube	7 views 3 videos

3.4.1.7 SODALITE

“SODALITE vision is to support Digital Transformation of European Industry through increasing design and runtime effectiveness of software-defined infrastructures, to ensure high-performance execution over dynamic heterogeneous execution environments; increasing simplicity of modelling applications and infrastructures, to improve manageability, collaboration, and time to market.” (https://www.sodalite.eu/)

Website	https://www.sodalite.eu/	Has a blog
Linkedin	https://www.linkedin.com/company/sodalite-eu/	
Twitter	https://twitter.com/SODALITESW	253 followers

Dockerhub	https://hub.docker.com/u/sodaliteh2020	
Github	https://github.com/SODALITE-EU	
Youtube	https://www.youtube.com/channel/UCrArVp55GaJs78jFt1lUfFg	24 subscribers 12 videos ~50 views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Teaser 02 – General teaser 18 april
Teaser 03 – TOOLBOX 20 April
Teaser 04 – DIS-PIPE 22 april
Teaser 05 – DEF-PIPE 27 april
Teaser 06 – SIM-PIPE 29 april
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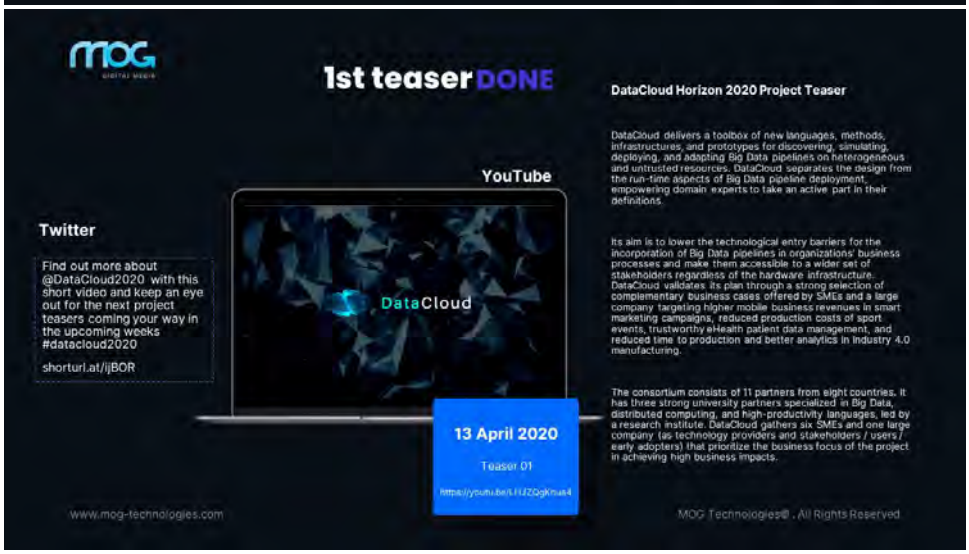
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DataCloud Horizon 2020 Project Teaser
DataCloud delivers a toolbox of new languages, methods, infrastructures, and prototypes for discovering, simulating, deploying, and adapting Big Data pipelines on heterogeneous and untrusted resources. DataCloud separates the design from the run-time aspects of Big Data pipeline deployment, empowering domain experts to take an active part in their definitions.
Its aim is to lower the technological entry barriers for the incorporation of Big Data pipelines in organizations' business processes and make them accessible to a wider set of stakeholders regardless of the hardware infrastructure. DataCloud validates its plan through a strong selection of complementary business cases offered by SMEs and a large company targeting higher mobile business revenues in smart marketing campaigns, reduced production costs of sport events, trustworthy eHealth patient data management, and reduced time to production and better analytics in Industry 4.0 manufacturing.
The consortium consists of 11 partners from eight countries. It has three strong university partners specialized in Big Data, distributed computing, and high-productivity languages, led by a research institute. DataCloud gathers six SMEs and one large company (as technology providers and stakeholders / users / early adopters) that prioritize the business focus of the project in achieving high business impacts.
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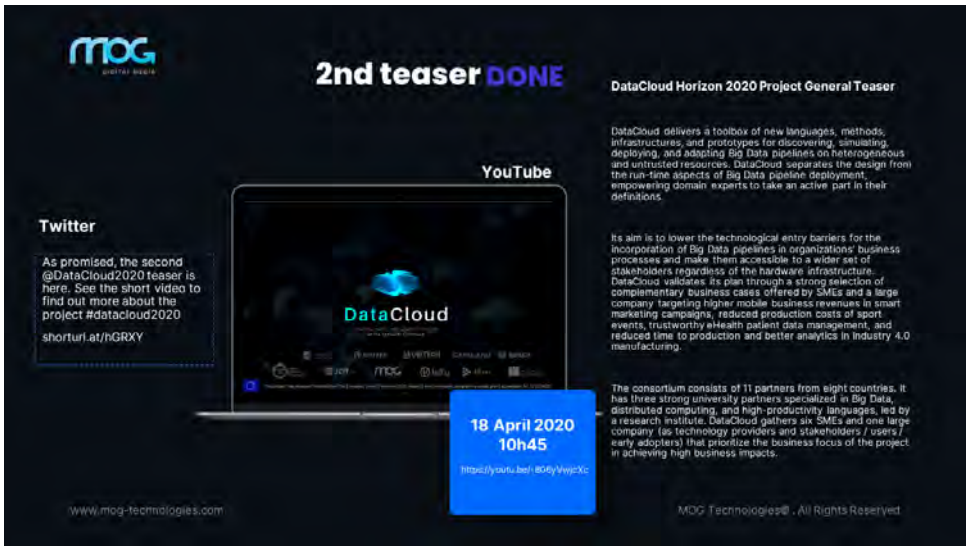
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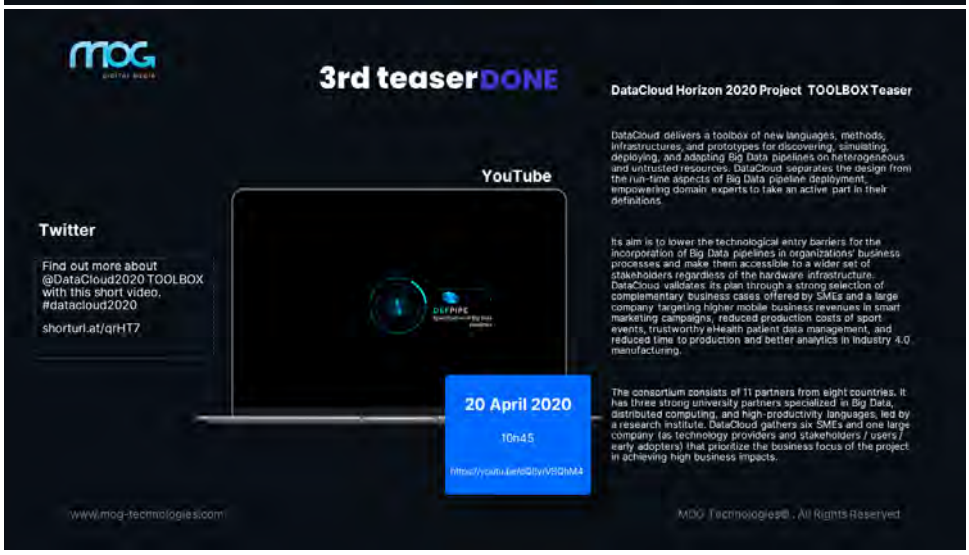
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shorturl.at/qrHT7
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The consortium consists of 11 partners from eight countries. It has three strong university partners specialized in Big Data, distributed computing, and high-productivity languages, led by a research institute. DataCloud gathers six SMEs and one large company (as technology providers and stakeholders / users / early adopters) that prioritize the business focus of the project in achieving high business impacts.
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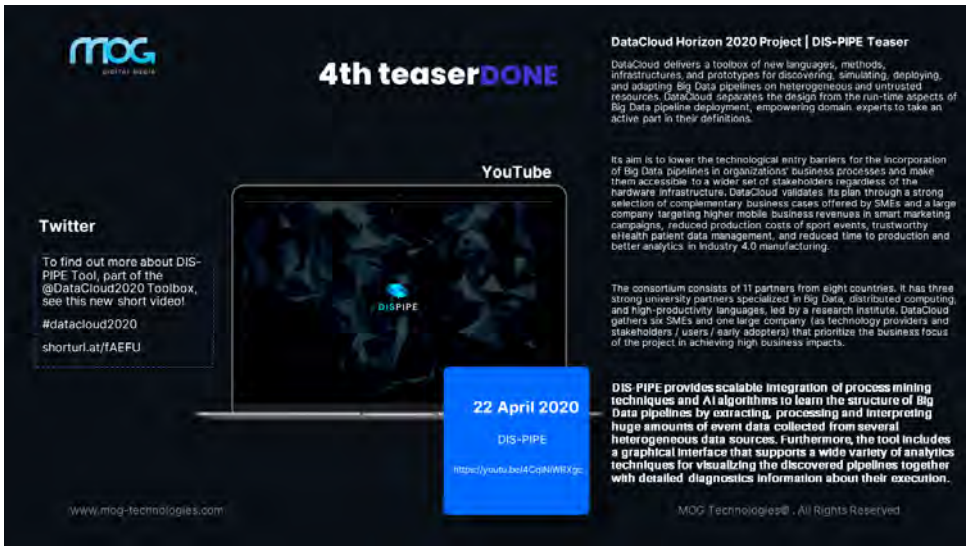
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DataCloud delivers a toolbox of new languages, methods, infrastructures, and prototypes for discovering, simulating, deploying, and adapting Big Data pipelines on heterogeneous and untrusted resources. DataCloud separates the design from the run-time aspects of Big Data pipeline deployment, empowering domain experts to take an active part in their definitions.
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To find out more about DIS-PIPE Tool, part of the @DataCloud2020 Toolbox, see this new short video!
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DIS-PIPE
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DIS-PIPE provides scalable integration of process mining techniques and AI algorithms to learn the structure of Big Data pipelines by extracting, processing and interpreting huge amounts of event data collected from several heterogeneous data sources. Furthermore, the tool includes a graphical interface that supports a wide variety of analytics techniques for visualizing the discovered pipelines together with detailed diagnostics information about their execution.
22 April 2020
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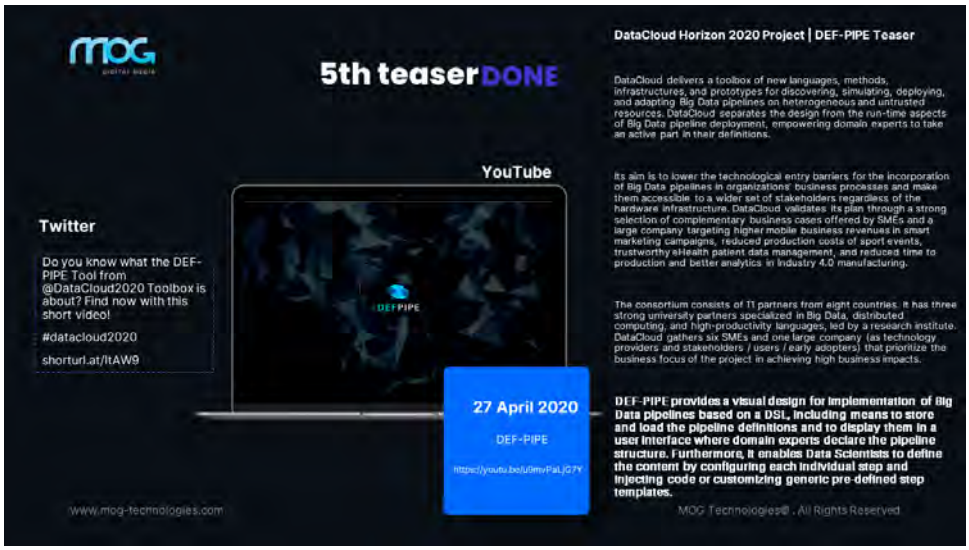
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DEF-PIPE provides a visual design for implementation of Big Data pipelines based on a DSL, including means to store and load the pipeline definitions and to display them in a user interface where domain experts declare the pipeline structure. Furthermore, it enables Data Scientists to define the content by configuring each individual step and injecting code or customizing generic pre-defined step templates.
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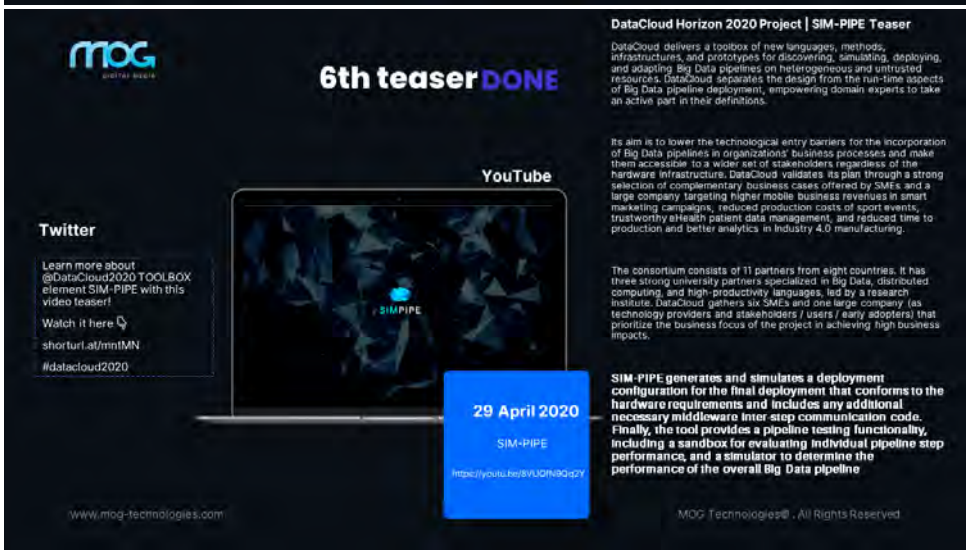
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SIM-PIPE generates and simulates a deployment configuration for the final deployment that conforms to the hardware requirements and includes any additional necessary middleware inter-step communication code. Finally, the tool provides a pipeline testing functionality, including a sandbox for evaluating individual pipeline step performance, and a simulator to determine the performance of the overall Big Data pipeline
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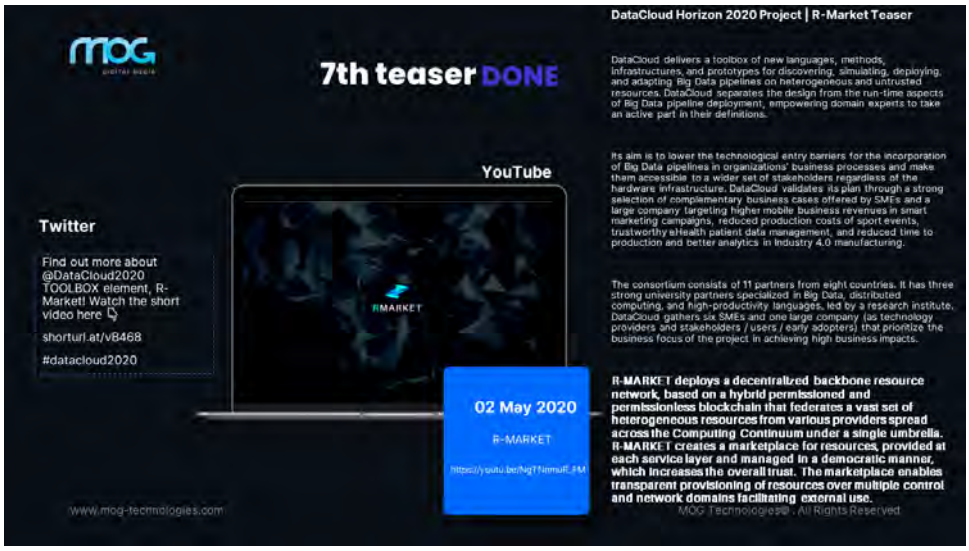
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R-MARKET deploys a decentralized backbone resource network, based on a hybrid permissioned and permissionless blockchain that federates a vast set of heterogeneous resources from various providers spread across the Computing Continuum under a single umbrella. R-MARKET creates a marketplace for resources, provided at each service layer and managed in a democratic manner, which increases the overall trust. The marketplace enables transparent provisioning of resources over multiple control and network domains facilitating external use.
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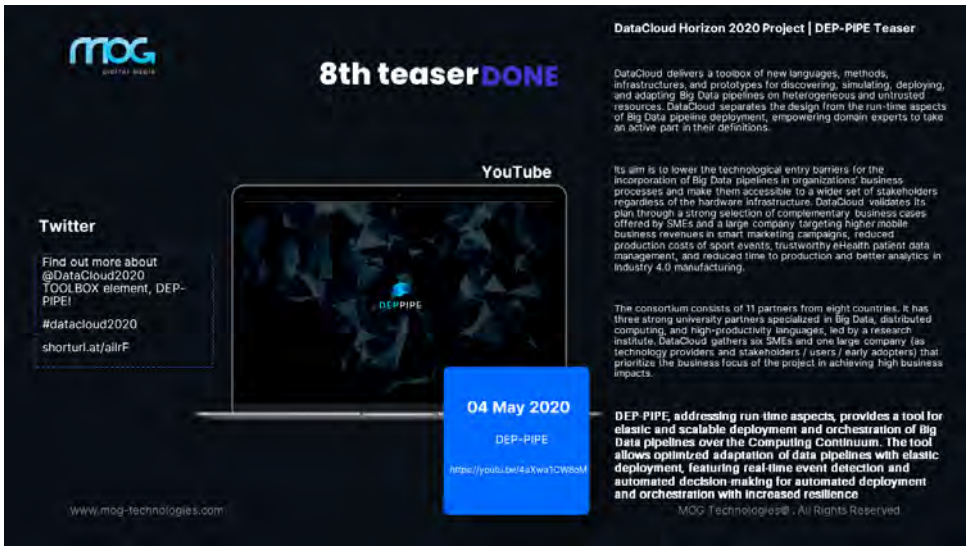
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DEP-PIPE, addressing run-time aspects, provides a tool for elastic and scalable deployment and orchestration of Big Data pipelines over the Computing Continuum. The tool allows optimized adaptation of data pipelines with elastic deployment, featuring real-time event detection and automated decision-making for automated deployment and orchestration with increased resilience
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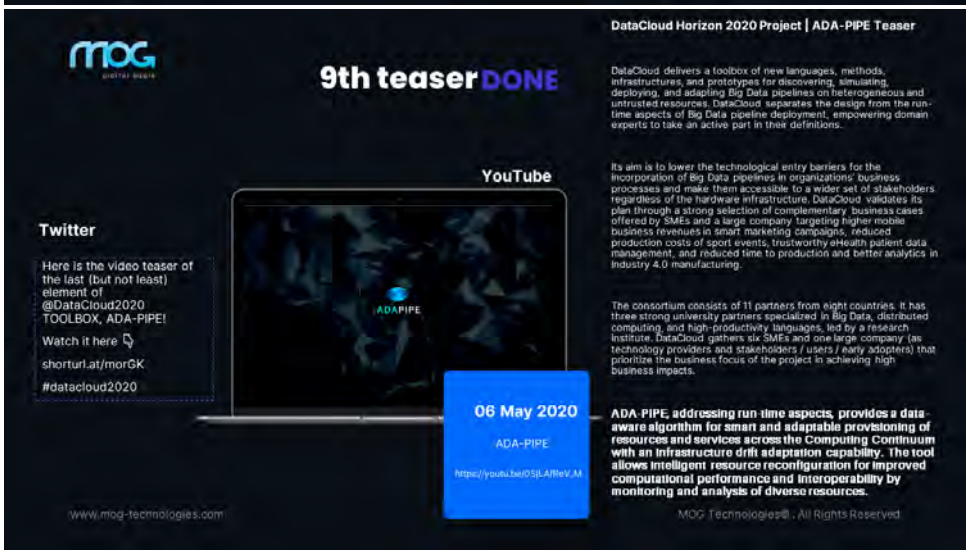
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ADA-PIPE, addressing run-time aspects, provides a data-aware algorithm for smart and adaptable provisioning of resources and services across the Computing Continuum with an infrastructure drift adaptation capability. The tool allows intelligent resource reconfiguration for improved computational performance and interoperability by monitoring and analysis of diverse resources.
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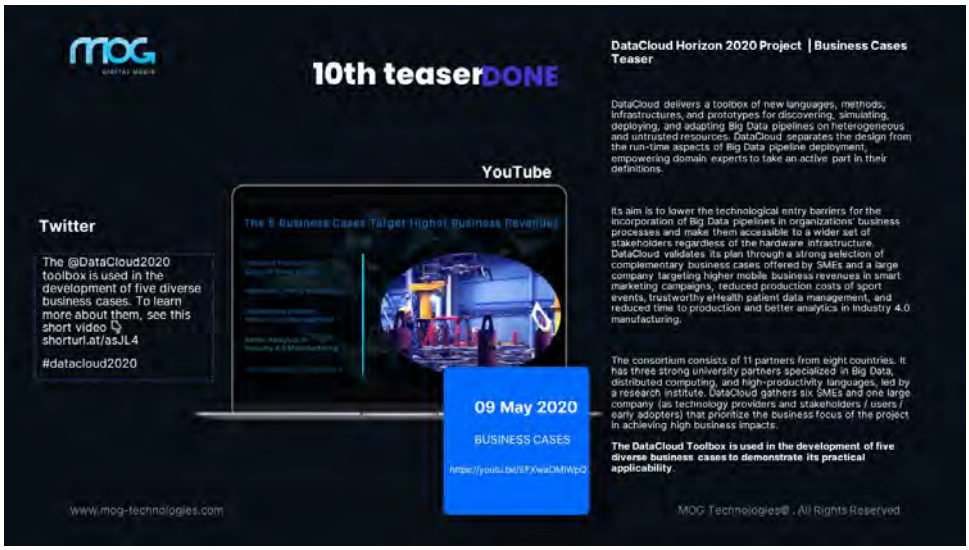
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BUSINESS CASES
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The DataCloud Toolbox is used in the development of five diverse business cases to demonstrate its practical applicability.
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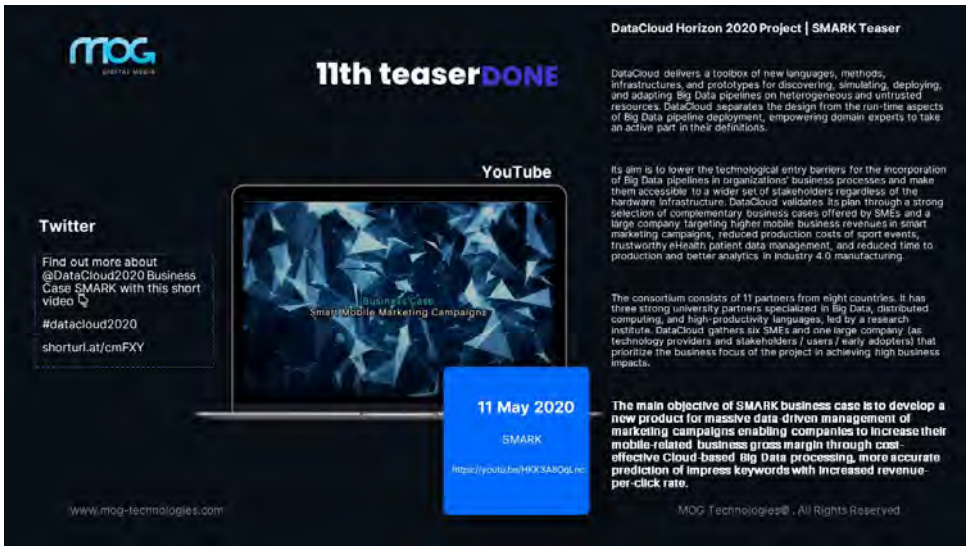
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Business Case
Smart Mobile Marketing Campaigns
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The main objective of SMARK business case is to develop a new product for massive data-driven management of marketing campaigns enabling companies to increase their mobile-related business gross margin through cost-effective Cloud-based Big Data processing, more accurate prediction of impress keywords with increased revenue-per-click rate.
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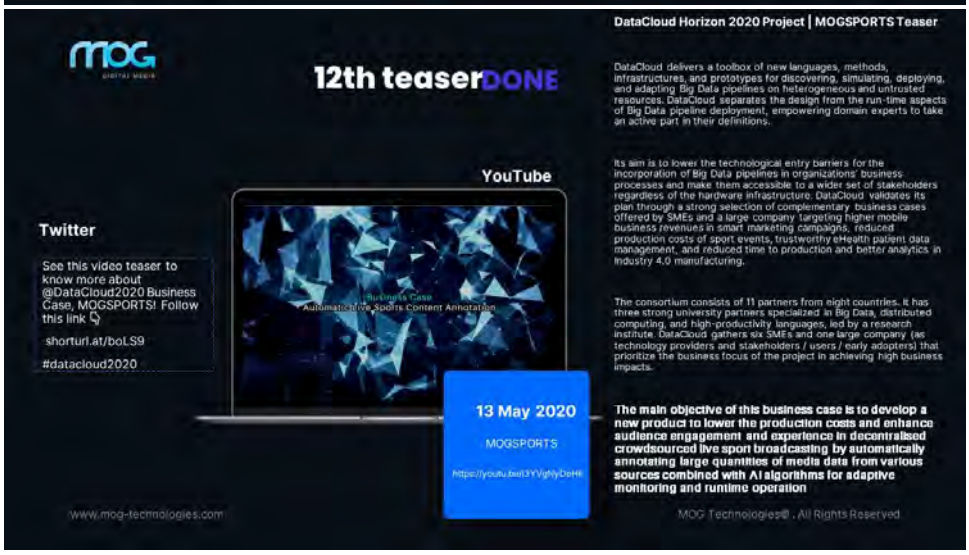
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Business Case
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The main objective of this business case is to develop a new product to lower the production costs and enhance audience engagement and experience in decentralized crowdsourced live sport broadcasting by automatically annotating large quantities of media data from various sources combined with AI algorithms for adaptive monitoring and runtime operation
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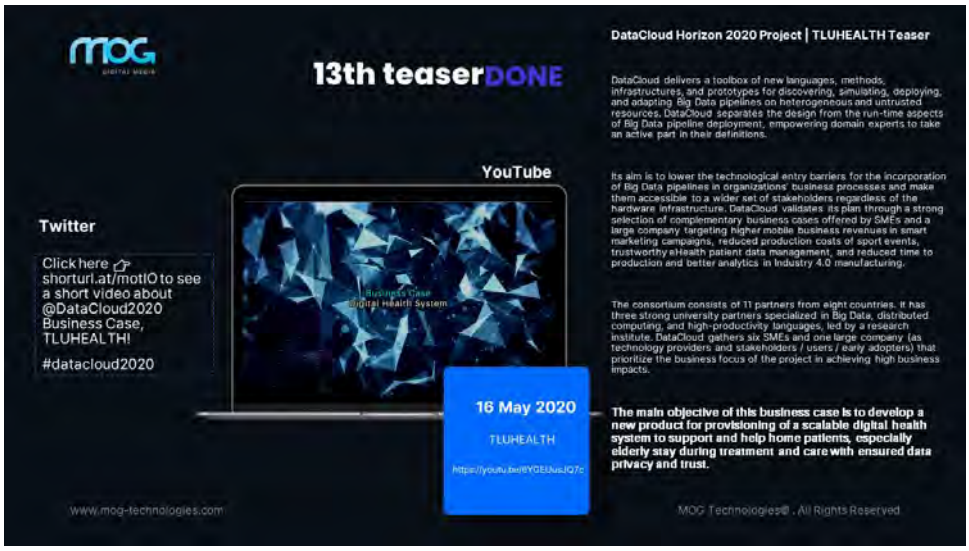
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The main objective of this business case is to develop a new product for provisioning of a scalable digital health system to support and help home patients, especially elderly stay during treatment and care with ensured data privacy and trust.
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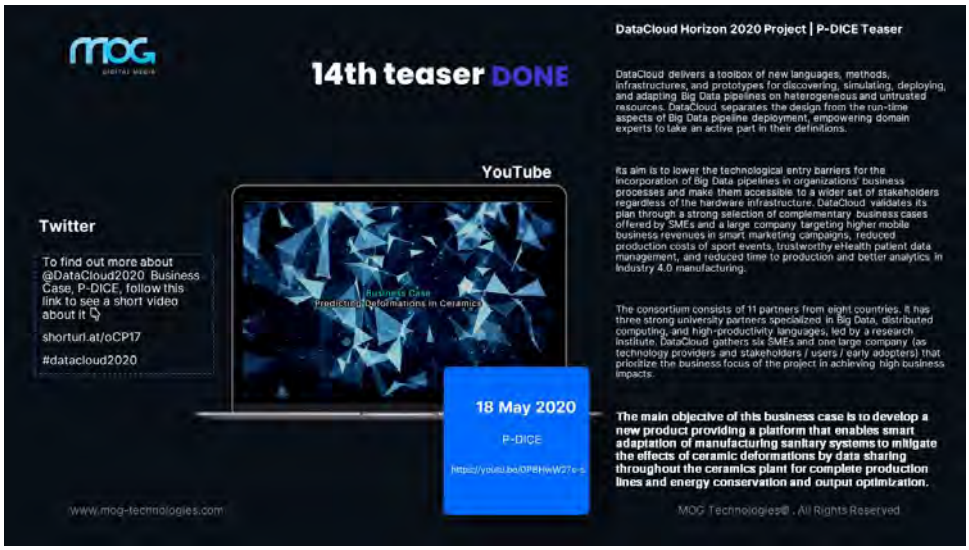
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Business Case
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The main objective of this business case is to develop a new product providing a platform that enables smart adaptation of manufacturing sanitary systems to mitigate the effects of ceramic deformations by data sharing throughout the ceramics plant for complete production lines and energy conservation and output optimization.
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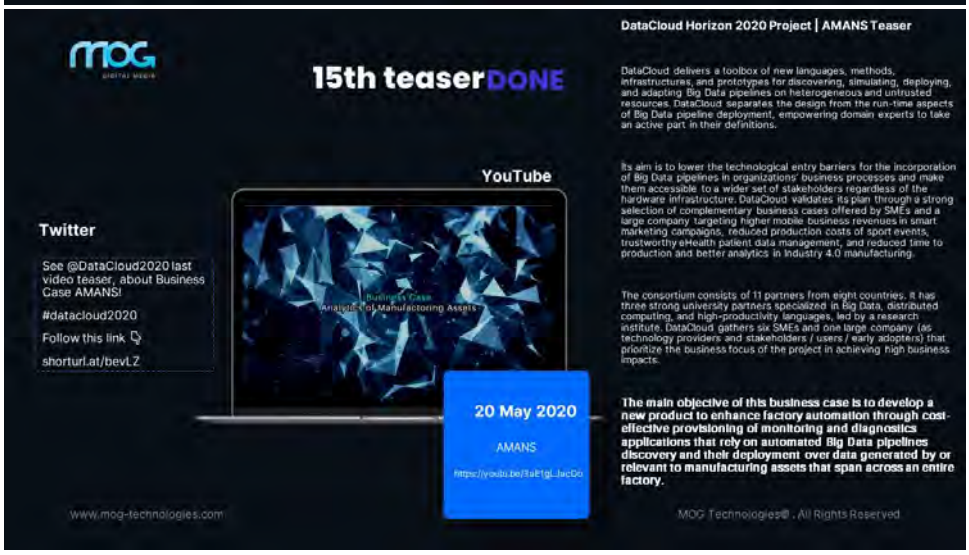
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The main objective of this business case is to develop a new product to enhance factory automation through cost-effective provisioning of monitoring and diagnostics applications that rely on automated Big Data pipelines discovery and their deployment over data generated by or relevant to manufacturing assets that span across an entire factory.
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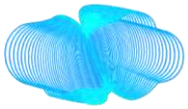

DataCloud

ENABLING THE BIG DATA PIPELINE LIFECYCLE ON THE COMPUTING CONTINUUM

D7.2: REPORT ON ECOSYSTEM BUILDING, EXPLOITATION, AND DISSEMINATION V1

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V0.1	17.11.2021	Communication and dissemination sections.	Helena (MOG)
V0.2	07.12.2021	Exploitation section.	ALL partners
V0.3	10.12.2021	Edition and formatting.	Fernando Perales (JOT)
V0.4	17.12.2021	Improvements based on internal review.	Helena Guedes (MOG) Fernando Perales (JOT)
V1.0	22.12.2021	Final formatting and layout.	Brian Elvesæter (SI) Dumitru Roman (SI)

DISCLAIMER

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EXECUTIVE SUMMARY

This document describes the dissemination, communication and exploitation strategies and first year reporting on the knowledge created in the DataCloud project.

The document includes:

- An initial overview of the key project stakeholders and their categorization in different groups.
- Relevant communication strategies, objectives, KPIs and activities necessary to achieve them namely:
- The visual identity of the project.
- Associated communication materials such as presentation and report templates.

It describes how the project is using its online presence to strengthen its visibility among the stakeholders, namely through the website dynamics and social media channels.

The detailed communication plan and report for the first year of the project.

An outline of the initial exploitation strategy for the different project assets and innovations.

The dissemination strategy and report for the first year indicating how the activities are being implemented to reach the proposed objectives.

The design, creation and management of a specific reporting tool that aggregates all the information regarding the different communication and dissemination activities.

This deliverable is a living document that the consortium will revise and extend in the upcoming deliverable D7.3, based on the project's progress and developments.

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TABLE OF CONTENTS

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LIST OF FIGURES

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ABBREVIATIONS

IP	Internet Protocol
PR	Press Release
TCP	Transmission Control Protocol

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1 INTRODUCTION

The aim of dissemination is to raise awareness and understanding so that action can be taken. Dissemination is the sharing of innovative findings with a specific audience who can benefit from them. By enabling this kind of ongoing uptake of results, the project can improve its focus and increase its value during its lifecycle and beyond it.

These are some of he main goals of the dissemination and communication activities throughout the project:

- Inform the project stakeholders about the partners' activities, objectives and progress of the DataCloud project;
- Raise awareness about Big Data pipelines in the Cloud and the project findings among the project stakeholders and the general public;
- Increase access to information regarding potential applications of the toolbox;
- Achieve full compliance with new legislation;
- Influence decision-making and decision-makers themselves;
- Obtain relevant feedback from target stakeholders;
- Transfer knowledge and exchange information related to the project data and aims;
- Liaise with other EU-funded projects in networking activities to create synergies between their results and innovations.

It is important to note that this deliverable indicates relevant KPIs to achieve those goals, how these KPI's are distributed throughout the project duration and the KPI target for the first year of the project. This deliverable focuses essentially on reporting the communication and dissemination activities accomplished and KPI's statues for the first year of the project.

Communication of the DataCloud project's progress and outcomes through appropriate channels will be critical for optimizing the project's impact. The dissemination and communication practices are geared towards maximizing outreach and exploitation. Furthermore, communication would include interaction with key stakeholder groups such as data providers or business experts, allowing for new alliances and client identification.

According to the European Commission, **dissemination** means "sharing research results with potential users - peers in the research field, industry, other commercial players and policymakers". On the other hand, **communication** means "taking strategic and targeted measures for promoting the action itself and its results/success to a multitude of audiences, including the media and the public, and possibly engaging in a two-way exchange". Finally, **exploitation** means "the utilisation of results in further research activities other than those covered by the action concerned, in developing, creating and marketing a product or process, in creating and providing a service or in standardisation activities".

DataCloud has ambitious dissemination and communication plans that aim at creating broad awareness of the project vision to several relevant communities and stakeholders and at stimulating their wide uptake both by scientific and industrial stakeholders. In addition, the project aims at informing the general public about the possibilities that DataCloud technologies will bring with respect to novel data science and cloud computing applications. Effective

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dissemination and communication mean that the project has a clear common message that is shaped according to the target groups that are relevant for each one of its activities. The different dissemination and communication activities will contribute to the build-up of a holistic ecosystem that will gather stakeholders and partners to create added value to the project results.

Given that Task T7.4 “Strategy and business development” only starts in M6, which is the deadline for this deliverable, the exploitation plan will be focused on the market status, competitors and SWOT analysis of the developed services. This will be updated regularly in the upcoming deliverables of WP7, including business model canvas and commercialization plans.

This document is structured as follows:

- Section 2 identifies the key stakeholders of the DataCloud project as these are the main recipients of the dissemination, communication and exploitation strategies and messages. They are also the main beneficiaries of the project, so it is important to target the right messages to the right group.
- Section 3 describes the project’s communication plan defining the encompassing strategy, goals, and activities, namely for the project visual identity, communication materials and web presence. It also focuses on the main achievements throughout the first year of the project (from M1 to M12).
- Section 4 explains the project’s dissemination strategy, goals and activities and first year achievements
- Section 5 describes the reporting tool that was created specifically for gathering the information regarding the different communication and dissemination activities that were performed by the consortium. This tool facilitates the project reporting and at the same time makes it easier to manage the project goals and KPIs in each phase of its development and therefore to access the impact of the activities on the project’s stakeholders.
- Section 6 describes an initial exploitation strategy defined by the consortium both at toolkit level and services being developed in the use cases. This represents the starting point of the exploitation strategy, having the initial description of the market evolution, main competitors and main differentiation aspects through the SWOT tables.
- Section 7 concludes this deliverable.

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2 KEY STAKEHOLDERS´ INDENTIFICATION

Following the growth of technological developments, amount of data generated, and computational and Cloud Computing power, novel Big Data challenges are raised. In particular, Internet of Things (IoT) technologies are producing continuously massive amounts of data, enabled by Cloud, Fog and Edge Infrastructures, without value being extracted from it. Big Data pipelines are essential for leveraging this Dark Data, but tapping its potential requires going beyond the current approaches and frameworks for Big Data processing. Additionally, despite the capacity of the Computing Continuum of supporting Big Data pipelines, efficient management of heterogeneous and untrusted resources strategy is still lacking. With this background in mind, the DataCloud project aims to create a novel paradigm for Big Data pipelines, addressing the mentioned issues, and covering the complete lifecycle of managing Big Data pipelines on the Computing Continuum.

The **DataCloud Toolbox** arises with a set of tools that enable to discover, process, manage and optimize Big Data pipelines on heterogeneous and distributed data environments. This software toolbox comprises six tools, that can be used individually or combined, to fulfil the user needs, as follows:

- **DIS-PIPE** enables to discover Big Data pipelines from various data sources, featuring the use of AI-based and process-mining algorithms using data-driven discovery approaches for learning their structure.
- **DEF-PIPE** provides functionalities for the visual design and implementation of Big Data pipelines based on a domain-specific language, including means to store and load the pipeline definitions and to display them in a user interface. Domain experts can declare the pipeline structure and data scientists customize processing steps.
- **SIM-PIPE** provides a simulation framework for Big Data pipelines, in conformity with hardware requirements and middleware inter-step communication code, enabling pipeline testing and performance evaluation.
- **R-MARKET** deploys a decentralized backbone resource network, based on a hybrid permissioned and permissionless blockchain that federates a vast set of heterogeneous resources, ensuring privacy and security of data and pipelines executions. This tool creates a marketplace for resources with increased transparency and trust.
- **DEP-PIPE** enables elastic, scalable and resilient deployment and orchestration of Big Data pipelines over the Computing Continuum, taking into account run-time aspects and QoS.
- **ADA-PIPE** provides a data-aware algorithm for smart and adaptable provisioning of resources and services across the Computing Continuum with an infrastructure drift adaptation capability.

A correct and adequate identification and segmentation of stakeholders is critical to align requirements and functionalities with real-world needs, to optimize the message and adjust communication actions to reach the maximum of prospective stakeholders, and ultimately, to maximize the mutual benefit retrieved from the DataCloud toolbox deployment. Better stakeholder identification leads to improved development and deployment strategies.

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Considering the multidisciplinary sectors which currently generate data and desire to implement Dig Data pipelines to enhance systems and business' performances, segmenting these stakeholders' target groups can also enable to better fulfil their needs.

Also, topics such as Big Data, Cloud and Computing Continuum and Machine Learning algorithms are attracting more attention from technological, social, ethical, and economic fields. Therefore, as new concerns are raised and performance requirements established, these need to be further addressed and considered in the scope of the DataCloud stakeholder engagement plan.

Additionally, different stakeholders have different expectations, needs and objectives when using tools from the toolbox, for which accurate identification and definition of stakeholder groups can be determinant to increase the benefit and profit gained from the toolbox usage.

In this sense, the stakeholders have been divided into four groups, according to their role regarding the DataCloud project and respective toolbox:

- **Developers**: This group comprises stakeholders that are involved in the development of the tools and/or responsible for their maintenance. Due to the goals of the toolbox, it mostly includes personnel with a technical background in software development, along with data scientists and engineers. These stakeholders can be found both in academia and industry. Cloud providers are also crucial stakeholders in this group. The technical profiles involved in this stakeholder's group are responsible for devising the toolbox and ensuring its functioning through each tool lifecycle and operation. This group includes the stakeholders which will ensure the continuity of the results of the DataCloud project and enable the toolbox to be broadly exploited and disseminated in the future.
- **Explorers**: This group includes stakeholders who can explore the tools included in the DataCloud toolbox, individually or combined, to improve operation and business. These stakeholders benefit from the devised tools by being able to use them in their context of operation. This group includes both stakeholders that use the toolbox to enhance their business as well as stakeholders which develop solutions and services based on the toolbox. Due to the broad prospective fields of operation of the DataCloud toolbox, this group can include a wide variety of stakeholders and sectors, being the Business Cases considered in the project examples of the diversity of prospective Explorer stakeholders.
- **End-users**: This group refers to the stakeholders who, with different levels of awareness, use the output of the DataCloud toolbox in a variety of contexts. After other stakeholders being responsible for the development of the tools and their respective exploitation, these stakeholders interact with an altered/improved service or product according to the usage of the associated tool. This interaction may be free of charge or paid, according to the business model built upon the toolbox usage by Developers/Explorers stakeholders.
- **Enablers/Promoters**: This stakeholder's group focuses on facilitating and promoting the usage of the DataCloud toolbox, by increasing visibility, disseminating, and promoting its benefits. Stakeholders in this group do not directly use or benefit from the toolbox but contribute to regulate it and increase awareness amongst other identified and prospective stakeholders.

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A systematic view of the stakeholders' groups and their respective characteristics is provided in Table 1, along with concrete examples, considering the target groups defined in the project proposal.

Table 1: Stakeholders groups, characteristics, and examples

Stakeholder groups	Characteristics	Stakeholders Target Groups Examples *	Examples
Developers	Stakeholders focused on devising and maintaining the DataCloud Toolbox	Data Scientists DevOps/DataOps Resource providers	Research scientists/academics Cloud computing suppliers Data scientists DevOps/DataOps
Explorers	Stakeholders exploring, exploiting, and using tools from the toolbox in their business context	Data/ ICT Industries Business experts Resource providers Entrepreneurs	Marketing companies Media Groups (broadcasters) Manufacturing industries Quality Assurance departments
End Users	Stakeholders which interact with enhanced systems and performance due to the DataCloud toolbox	Data Scientists Entrepreneurs Society at large	Citizens Sports fans Health patients Elderly community Manufacturing operators
Enablers	Stakeholders that facilitate, disseminate, regulate and increase the DataCloud toolbox visibility	Policy makers	Media, Press Standardization entities National authorities EU technology platforms Other EU projects Technology transfer and innovation networks NGOs connected with Big-Data usage

**According to the target groups identified in DataCloud Proposal*

Additionally, the connection established between the DataCloud toolbox and each stakeholder group is illustrated in Figure 1. Each group relies on and contributes to a specific flow of the usage of the toolbox, being this flow further explained in this figure. Whereas Developers are intrinsically connected with the toolbox operation and maintenance, Explorers resort to its functioning to benefit and improve their Big Data systems. The DataCloud Business Cases verify the wide range of possible explorers for the toolbox, being this a contextualized exploration. The end-users establish an indirect relation with the toolbox, interacting and experiencing enhanced systems that are exploited by the previous stakeholder group. Enabler's interaction can occur at each stage of the presented flow, with new actions towards the toolbox dissemination.

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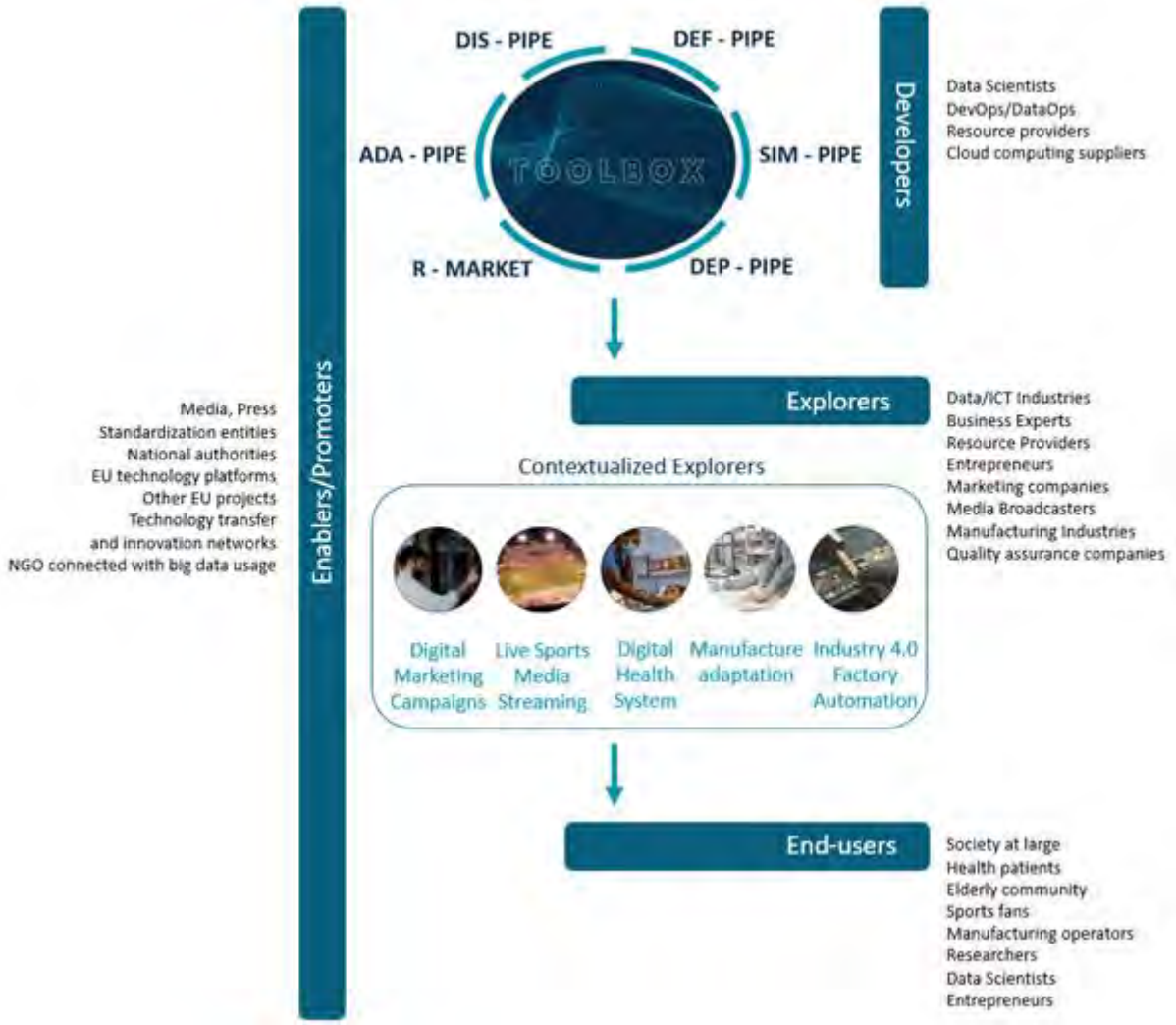

Figure 1: The Datacloud toolbox and relation with identified stakeholders' groups

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3 COMMUNICATION

3.1 STRATEGY AND GOALS

Communication plays a vital role in the continuous success of the DataCloud project, both during its execution and after its closure. The communication plan includes the methodology, instruments, and the strategic temporal alignment for releasing information and project updates, in order to optimize the content and maximize the audience it reaches. Effectively defining the communication strategy and goals enables the efficient collection of information regarding project developments and fosters its organization into deliverables, reports and external releases. The main output of this plan will be an ecosystem that brings together the project stakeholders and project partners under the same umbrella in which the project offers results that fill the gaps needed by the stakeholders.

Within the scope of this deliverable, communication strategy and goals refer to outside of the project team communication. The internal communication plan includes defined communication channels and quarterly reporting systems, considered in the Project Management Work Package.

The external communication actions have been divided by the consortium in a variety of activity categories. The communication strategy comprises both push and pull communication techniques, not overloading the groups beyond the framework of the project, whilst simultaneously providing continuously novel and relevant information for interested stakeholders. In fact, the defined communication strategy aims to generate stakeholders' interaction, enabling new alliances and stakeholder and client identification. The communication strategy aims to provide the right information, in the right channel to the right audience, enhancing the need for adequate stakeholders' identification and the importance of defining a variety of communication categories.

Overall, the communication strategy aims to fulfil the following goals:

- Raise awareness on Big Data pipelines and Cloud;
- Promote conversation and explore market positioning regarding these subjects;
- Increase project visibility, impact, and sustainability after closure;
- Promote transparency and align expectations with the stakeholders;
- Reach a wider range of stakeholders in various sectors;
- Communicate project breakthroughs, milestones and achievements.

In order to ensure an effective and successful communication strategy, the consortium defined each partners' involvement in different activity categories. Such definition relied on each partner's business strengths, market positioning and DataCloud work packages responsibility, and intended to maximize the message excellence and diversity of stakeholders reached. The geographical disposition of the eleven involved partners is also an advantage since it enables a broader information distribution, locally and globally. The distribution of partners involved in Communication activities is provided in Table 2, along with the KPIs defined for the project at the end of the first year, and at closure.

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Table 2: Involvement of DataCloud partners in communication activities, and 1st year and closure communication KPIs

Activity	SI	URO	AAU	KTH	IEX	UBI	JOT	MOG	CER	TEL	BOS	1ST Year Target	End of the Project
Web Presence	X				X	X	X	X	X	X	X	-	3000 visitors per year
Press Releases	X	X	X	X	X	X	X	X	X	X	X	1	3 per country; 5 BC press releases
Story Factsheets	X					X	X	X	X	X	X	3	3 per year
Media Materials	X	X	X	X			X	X				1 project video; 1 toolbox video; 5 BC videos	3 project videos;3 toolbox videos; 15 BC videos
Stakeholders Meetings	X	X	X	X	X	X	X	X	X	X	X	1	2 per partner
Social Media	X	X	X	X	X	X	X	X	X	X	X	20 posts	20 posts per year; 500 followers
Blog Posts	X	X	X	X	X	X	X	X	X	X		11	1 per month
Interest Groups	X	X	X	X	X	X	X	X	X	X	X	6 (>20 members)	6 (>20 members)
Public Events	X	X	X	X	X	X	X	X	X	X	X	10 presentations/ tutorials	10 presentations/ tutorials
Interviews	X	X	X	X				X	X	X	X	-	6 project interviews; 5 BC interviews

To better fulfil the first-year communication KPIs, the communication plan includes the definition of each partners' associated actions in the timeline illustrated in Figure 2.

The first-year achievements for each communication activity type are discussed in section 3.2.

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Figure 2: Communication actions to be carried out by each partner throughout Year 1 (M1-M12).

3.2 1ST YEAR ACHIEVEMENTS

Throughout the first year of DataCloud, to which this deliverable refers to, practically all actions were successfully carried out by the partners. The first-year achievements are presented on Table 3, in terms of the KPI's planned for the several communication activities for the first year and until the end of the project.

Table 3: 1st Year achievements based on the KPI's target for the communication activities.

Activity	1st Year Target (M1-M12)	1st Year Achievements	End of the Project (M36)
Website	-	1474	3000 visitors per year
Press Releases	1	2	3 per country; 5 BC press releases
Factsheets	3	3	3 per year
Media Materials	1 project video; 1 toolbox video; 5 BC videos	1 project video; 5 BC videos	3 project videos; 3 toolbox videos; 15 BC videos
Stakeholders Meetings	1	1	2 per partner
Social Media	20 posts	32posts	20 posts per year; 500 followers
Blog Posts	11	11	1 per partner per year
Interest Groups	6 (>20 members)	-	6 (>20 members)
Public Events	10 presentations/ tutorials	-	10 presentations/ tutorials
Interviews	-	-	5 project interviews; 5 BC interviews

A more detailed description of the first-year achievements for each activity is presented as follows:

- **Web Presence**: the DataCloud website and social media presence will be further described and discussed in detail in Section 3.6. In terms of KPI's, no target has been

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defined for the first year but there is a strong commitment by the consortium to increase the project's visibility via web presence in year two and beyond.

- **Press releases**: shortly after the project kick-off, the consortium issued a press release about DataCloud, its scope and main goals, to be published by the partners and media press. Another press release is due to be issued in the beginning of year two.
- **Factsheets**: the first-year target for this activity was achieved, with three factsheets by SINTEF, UBITECH and JOT made available on the project's website (https://datacloudproject.eu/resources/others) as shown in Figure 3.

Figure 3: Resources Page with the Factsheets.

- **Media Materials**: the first-year target for media materials was also achieved, with one project video produced by MOG, five business case videos by each one of the partners who are working on business cases (Tellu, Bosch, MOG, JOT and Ceramica Catalano) and one video by SINTEF about the DataCloud toolbox, all made available on DataCloud's YouTube channel (https://www.youtube.com/channel/UCVUkE2oBHCgTGB3QypNOPYw) as shown in Figure 4.

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Figure 4: YouTube Channel with media materials.

- **Stakeholders Meetings**: in June 2021 (M6) SINTEF held a meeting with internal SINTEF members and related project stakeholders to present DataCloud's perspective about data pipelines. With this meeting, the first-year target was achieved, and further meetings are being planned for year two and beyond.
- **Blog Posts**: every month except one, each of the 11 DataCloud partners was assigned a blog article to be posted on the project website (https://datacloudproject.eu/whats-new/blog/) – as show in Figure 5 – and Twitter. This target was achieved successfully, with all the partners writing blog content about project related topics throughout the first year. The first-year plan for blog posts will be replicated in year two.

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Figure 5: "What's New" Page with the blog posts.

- **Social Media**: the DataCloud web presence in terms of the website and social media will be further described and discussed in detail in Section 3.6.

  In terms of social media, as further described in Section 3.6.2, the DataCloud Twitter account has now 73 followers and 32 posted tweets; the DataCloud YouTube channel features 6 uploaded videos, having reached 323 views throughout the first year.

- **Interest Groups: the KPIs for year one were incorrectly estimated for the first year as the project was just starting. The KPIs for year two are estimated to be half of the total project target value.**

- **Public Events: the KPIs for year one were incorrectly estimated for the first year as the project was just starting. The KPIs for year two are estimated to be half of the total project target value.**

- **Interviews**: no interviews were planned for year one, however the consortium has defined a plan for year two including interviews, which is presented in section 3.3.

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3.3 2ND YEAR PLAN

Table 4 includes a plan which considers the first-year achievements and the KPI's planned to be achieved by throughout the second year (from M13 until M24). The KPI targets for the 3rd year (M25-M36) will be defined in deliverable D7.3.

Table 4: 2nd Year plan based on the KPI's target for the communication activities.

Activity	1st Year Target (M1-M12)	1st Year Achievements	2nd Year Target (M13-M24)	End of the Project (M36)
Web Presence	-	1440	2000	3000 visitors per year
Press Releases	1	2	1 per country	3 per country; 5 BC press releases
Factsheets	3	3	3	3 per year
Media Materials	1 project video; 1 toolbox video; 5 BC videos	1 project video; 1 toolbox video; 5 BC videos	1 project video; 1 toolbox video; 5 BC videos	3 project videos; 3 toolbox videos; 15 BC videos
Stakeholders Meetings	1	1	1 per partner	2 per partner
Social Media	20 posts	32 posts	30 posts	20 posts per year; 500 followers
Blog Posts	11	11	11	1 per partner per year
Interest Groups	6 (>20 members)	-	3	6 (>20 members)
Public Events	10 presentations/ tutorials	-	5	10 presentations/ tutorials
Interviews	-	-	2 project interviews; 3 BC interviews	5 project interviews; 5 BC interviews

Similar to what was done in the first-year communication plan, the second year plan comprises a timeline with the assigned partners' activities from M13 up until M24, as illustrated in Figure 6.

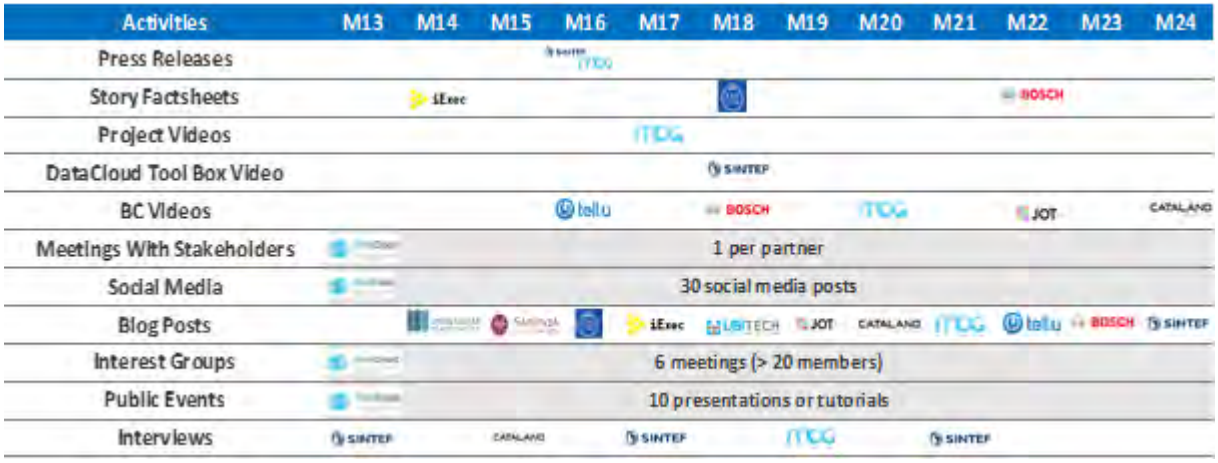

Figure 6: Communication actions to be carried out by each partner during the second year.

The compliance with this plan will be assessed in deliverable D7.3 (M24).

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3.4 VISUAL IDENTITY

3.4.1 Style

Project style serves to differentiate DataCloud's materials from other organizations. Our style is based upon these characteristics: clean, safe, technological, and modern. By applying these characteristics of the project style in the development of content and presentation, the research team will ensure a good project visibility.

CLEAN

- To make we understood easily.
- To communicate our message effectively and directly.

SAFE

- To transmit safety and reliability.
- Immediately associated with professionalism and trust.

TECHNOLOGICAL

- To be noticed by the entire digital community.
- To make technology the centre of the project.
- To be distinct and confident in our communications, keeping a direct relation to the area of interest.

MODERN

- To keep up with changes over time.
- To attract a wide audience.

3.4.2 Logo

The logo is the focal point of DataCloud communications and is the element that represents the project, making it instantly recognizable. This project tool kit presents guidelines for DataCloud's visual identity. Therefore, it is important to use it exactly as specified in this document, adding value to the DataCloud project.

3.4.2.1 Design Process

The logo creation process went through several stages, starting with the sketching of several illustrations using the Adobe Illustrator program (Figure 7, Figure 8). The purpose of these draws was to reflect the overall vision and core of the project.

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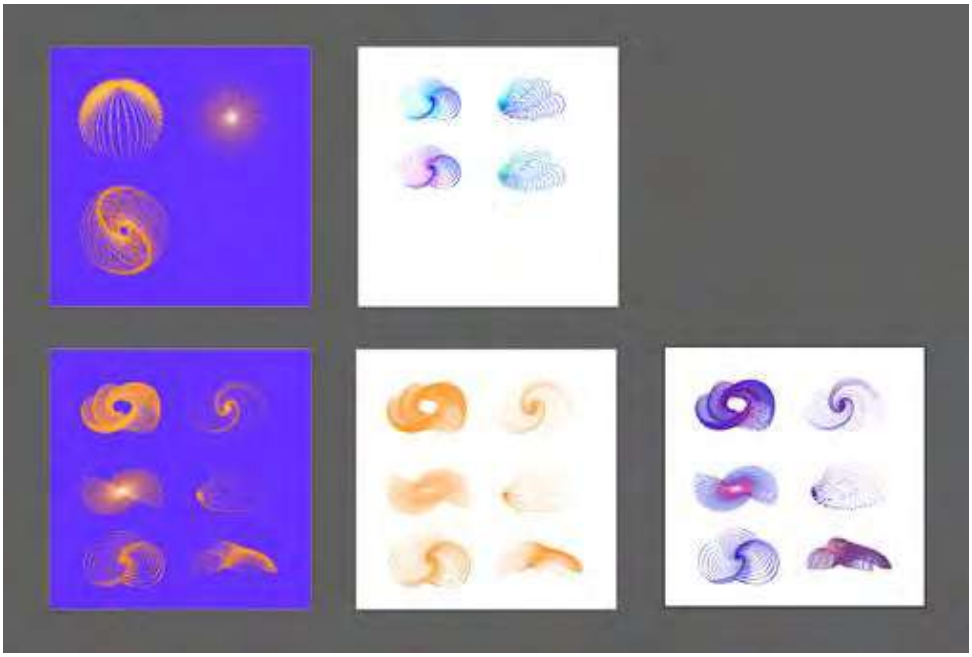

Figure 7: Screenshot of Adobe Illustrator workspace.

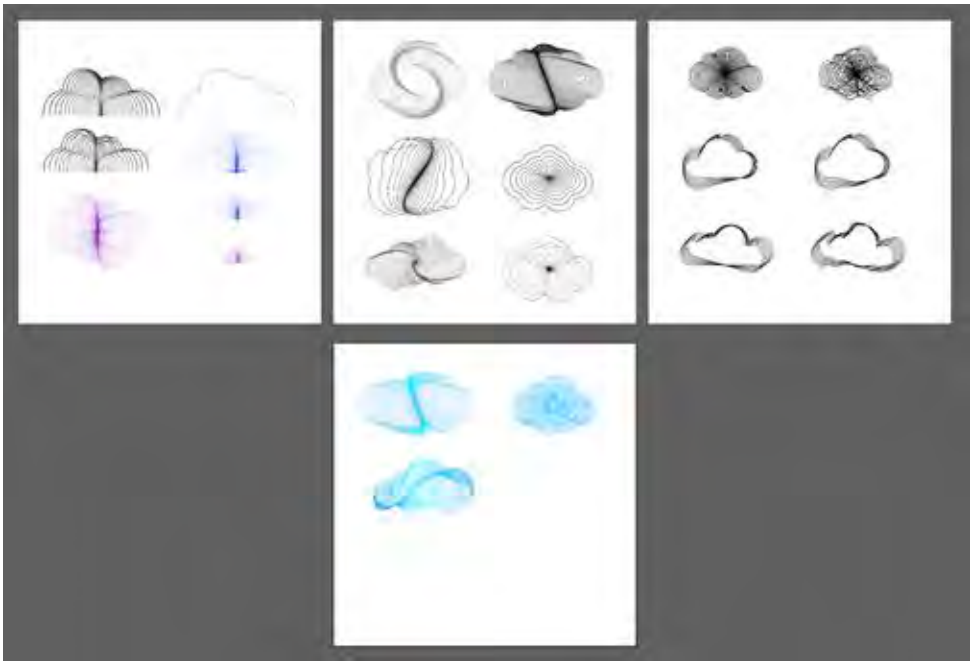

Figure 8: Screenshot of Adobe Illustrator workspace.

We selected the illustrations that pleased us the most. The next phase was to add the typography and try out different approaches and solutions (Figure 9, Figure 10, Figure 11).

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Figure 9: Screenshot of Adobe Illustrator workspace

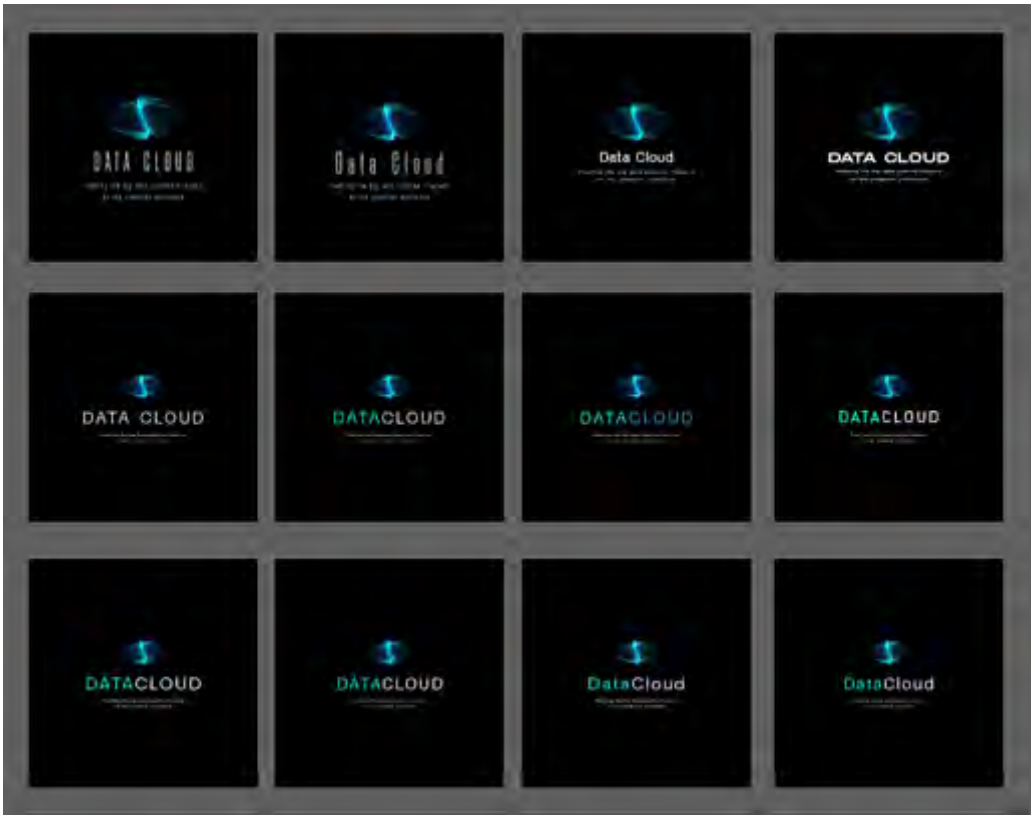

Figure 10: Screenshot of Adobe Illustrator workspace.

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Figure 11: Screenshot of Adobe Illustrator workspace.

After analysing the results, four different combinations were chosen to be presented to the consortium for voting as depicted in Figure 12.

Figure 12: Slide of Visual Identity proposal presentation.

After a voting process in which all the project partners participated, we selected the illustration that would represent the DataCloud project (typography is the same in the two different versions) as presented in Figure 13.

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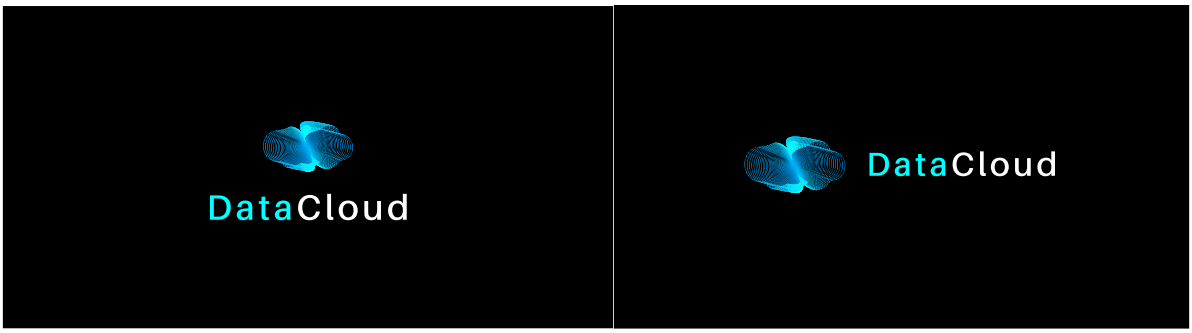

Figure 13: Final logo, in two different versions.

3.4.2.2 Logo Overview

DataCloud's logo has been specially designed to symbolize not only the project name but also what we stand for – enabling the big data pipeline lifecycle on the computing continuum. Two versions of the logo can be used: the first, with the icon on top and the text on the bottom and the second, where the icon is followed by the text horizontally. Each one of these versions has a light and dark options, which should be used depending on its application.

Figure 14: Version 1 with light background

Figure 15: Version 1 with dark background.

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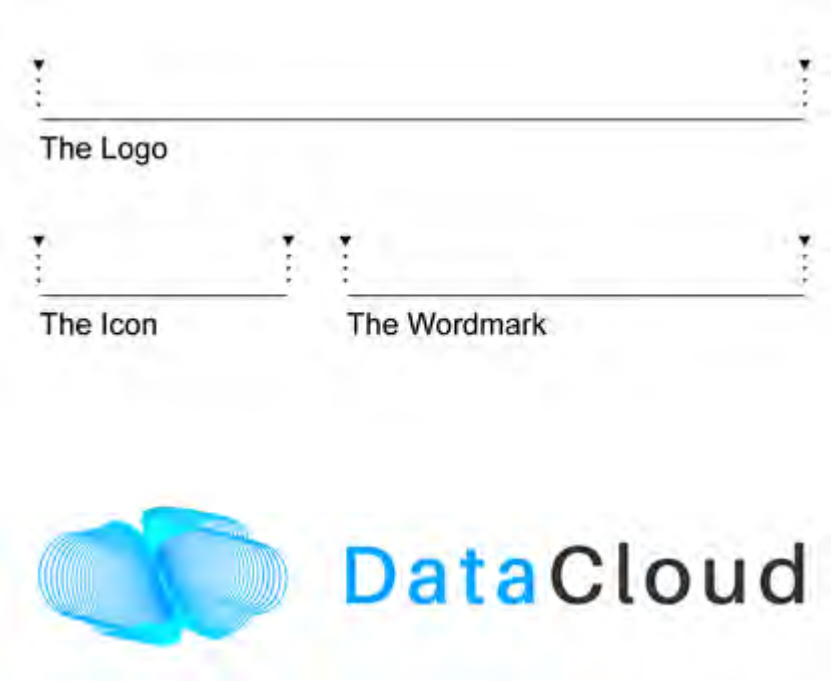

Figure 16: Version 2 with light background.

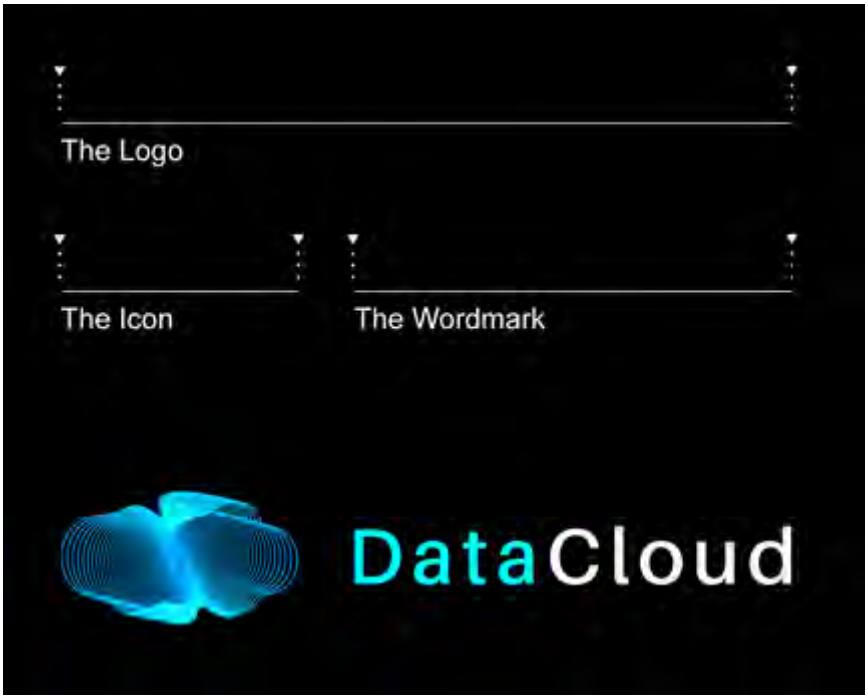

Figure 17: Version 2 with dark background.

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3.4.2.3 Logo Colour Options

The project partners should follow these specifications when creating any design.

Table 5: Design specifications

Black background	White background
The Icon	The Icon
Fluorescent Blue: ➔ Hex: #00ffff ➔ RGB: 0/ 255/ 255 ➔ CMYK: 57/ 9/ 15/ 0	Fluorescent Blue: ➔ Hex: #00ffff ➔ RGB: 0/ 255/ 255 ➔ CMYK: 57/ 9/ 15/ 0
Blue: ➔ Hex: #00a4ff ➔ RGB: 0/ 164/ 255 ➔ CMYK: 71/ 27/ 0/ 0	Blue: ➔ Hex: #00a4ff ➔ RGB: 0/ 164/ 255 ➔ CMYK: 71/ 27/ 0/ 0
The Wordmark	The Wordmark
Fluorescent Blue (word “Data”): ➔ Hex: #00ffff ➔ RGB: 0/ 255/ 255 ➔ CMYK: 57/ 9/ 15/ 0	Blue (word “Data”): ➔ Hex: #00a4ff ➔ RGB: 0/ 164/ 255 ➔ CMYK: 71/ 27/ 0/ 0

3.4.2.4 Typography

Typography is another important element of our project. By controlling the type and alignment styles used, we further strengthen visual distinction. Our font is Aileron - a Sans Serif font that is clear and highly readable. The type of alignment for all our communication elements is left-aligned or justified. The Arial font should be used in cases where Aileron is not available.

The text presented in the logo (DataCloud) has a semi bold weight, while the slogan is represented at a regular weight.

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Figure 18: Typography.

3.4.2.5 Space between the Icon and Woodmark

The Space between the Icon and the Wordmark is equal to the height of the letter "t".

Figure 19: Space between the Icon & Wordmark (1st version of the logo).

In the second version of the logo, the space between the icon and the wordmark is equal to the space before the “d” plus the width of the letter “d”.

Figure 20: Space between the Icon & Wordmark (2nd version of the logo).

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3.5 DOCUMENT TEMPLATES

3.5.1 Deliverable Template

The design of the presentation template has been done using Microsoft Word and the Arial font pre-installed on all partners' computers.

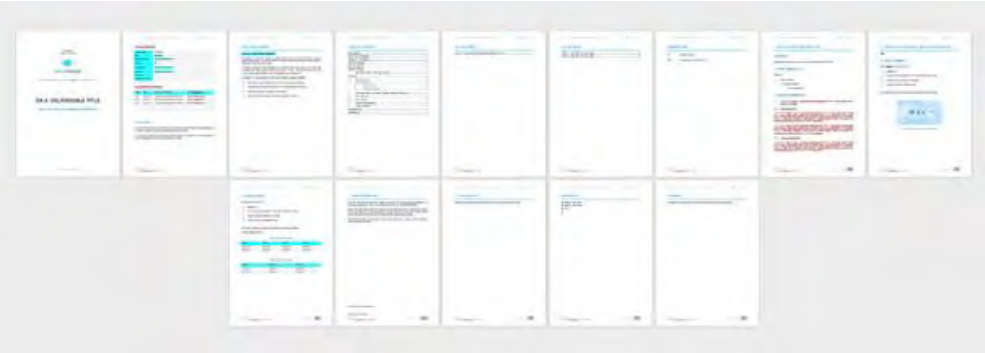

Figure 21: DataCloud deliverable and reporting template.

3.5.2 Presentation Template

The presentation template was created in Power Point and uses Arial fonts and DataCloud branding. This template will act as a source material for partners creating presentations for public dissemination events or during private meetings with stakeholders.

In order to respond to the two versions of the visual identity of DataCloud project – white and black background – 10 pages were created for each version. The existing pages are: title slide, contents, section head, text page, only image, title and points, comparation, text and image, black/white and last page.

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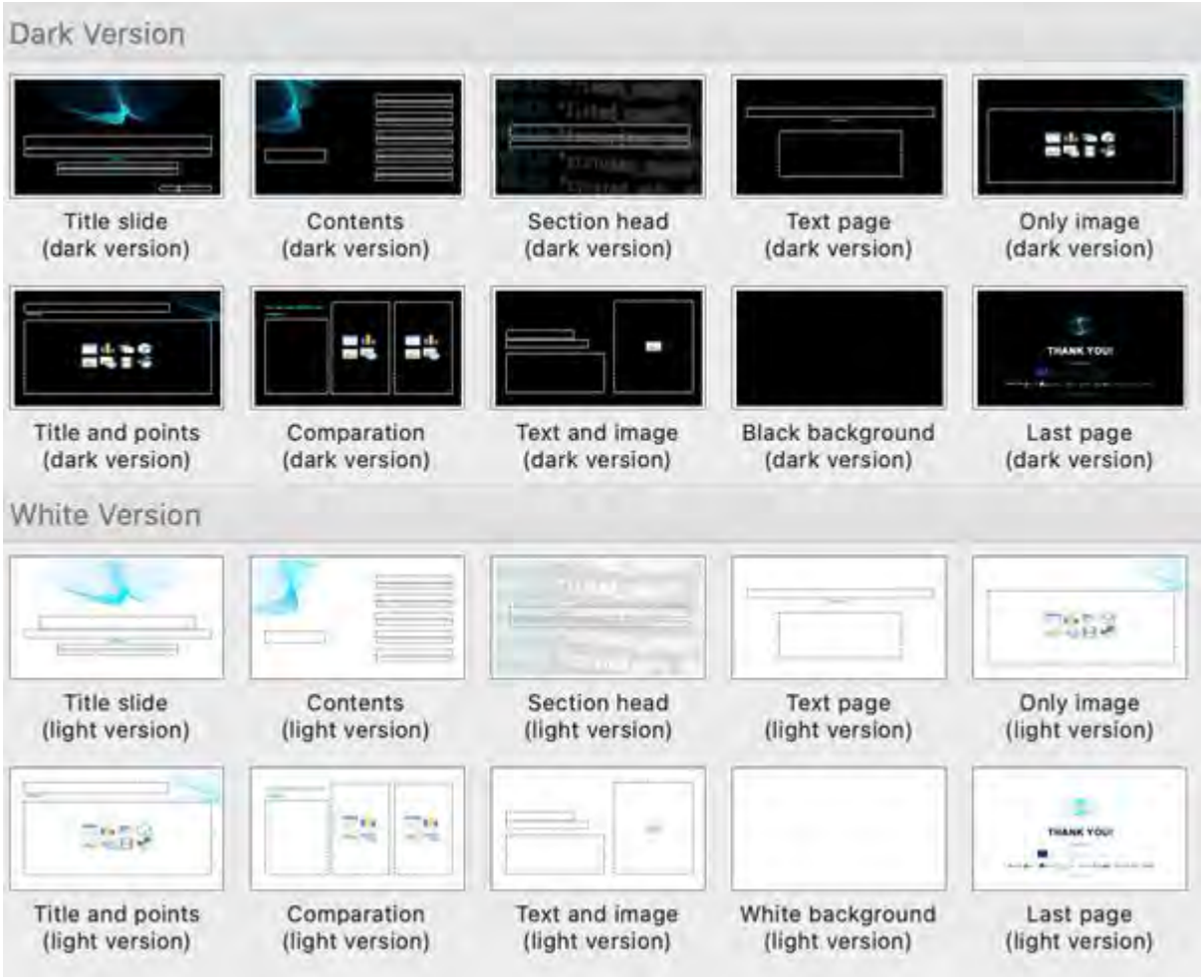

Figure 22: Different pages of the presentation template.

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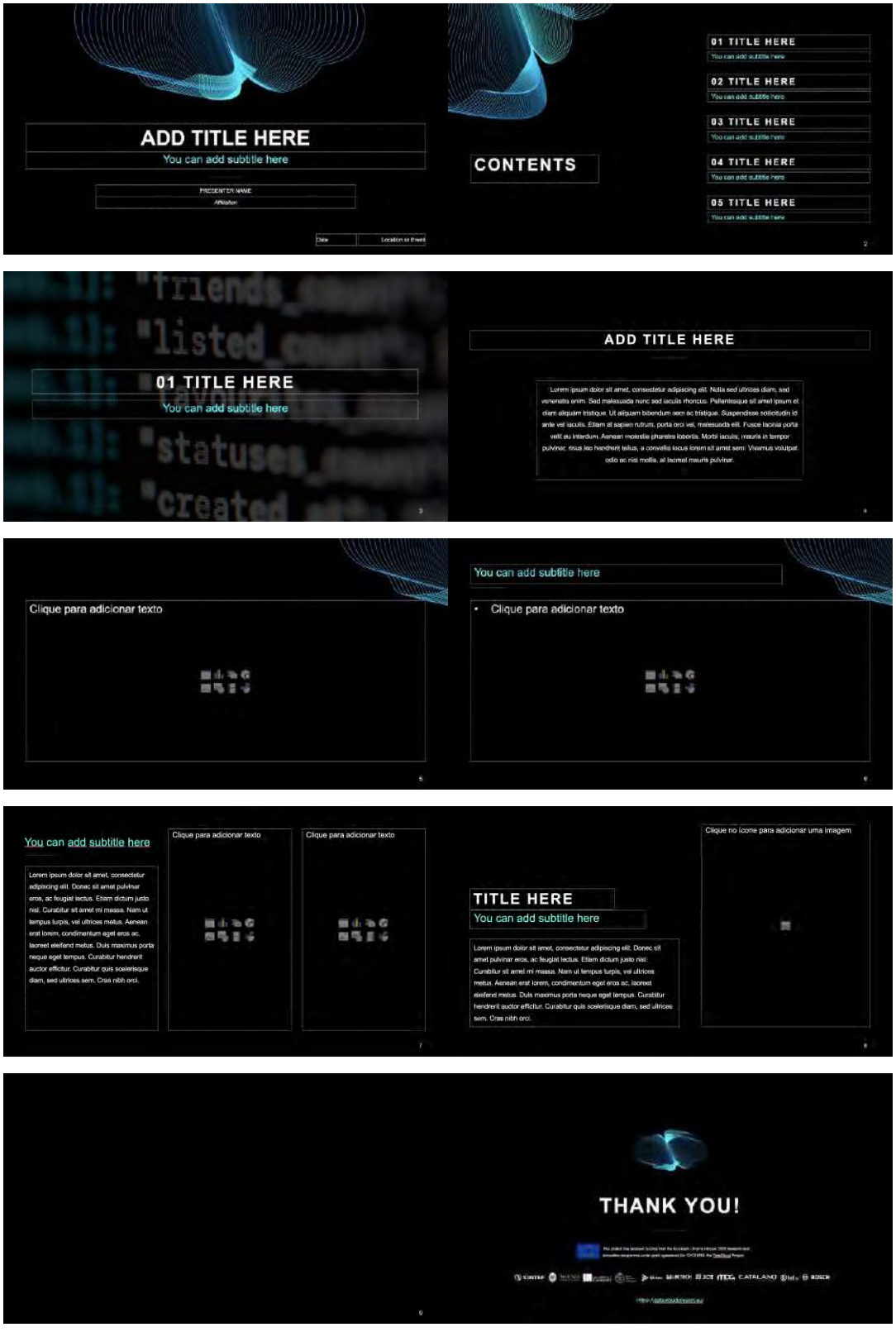

Figure 23: DataCloud presentation template (dark version).

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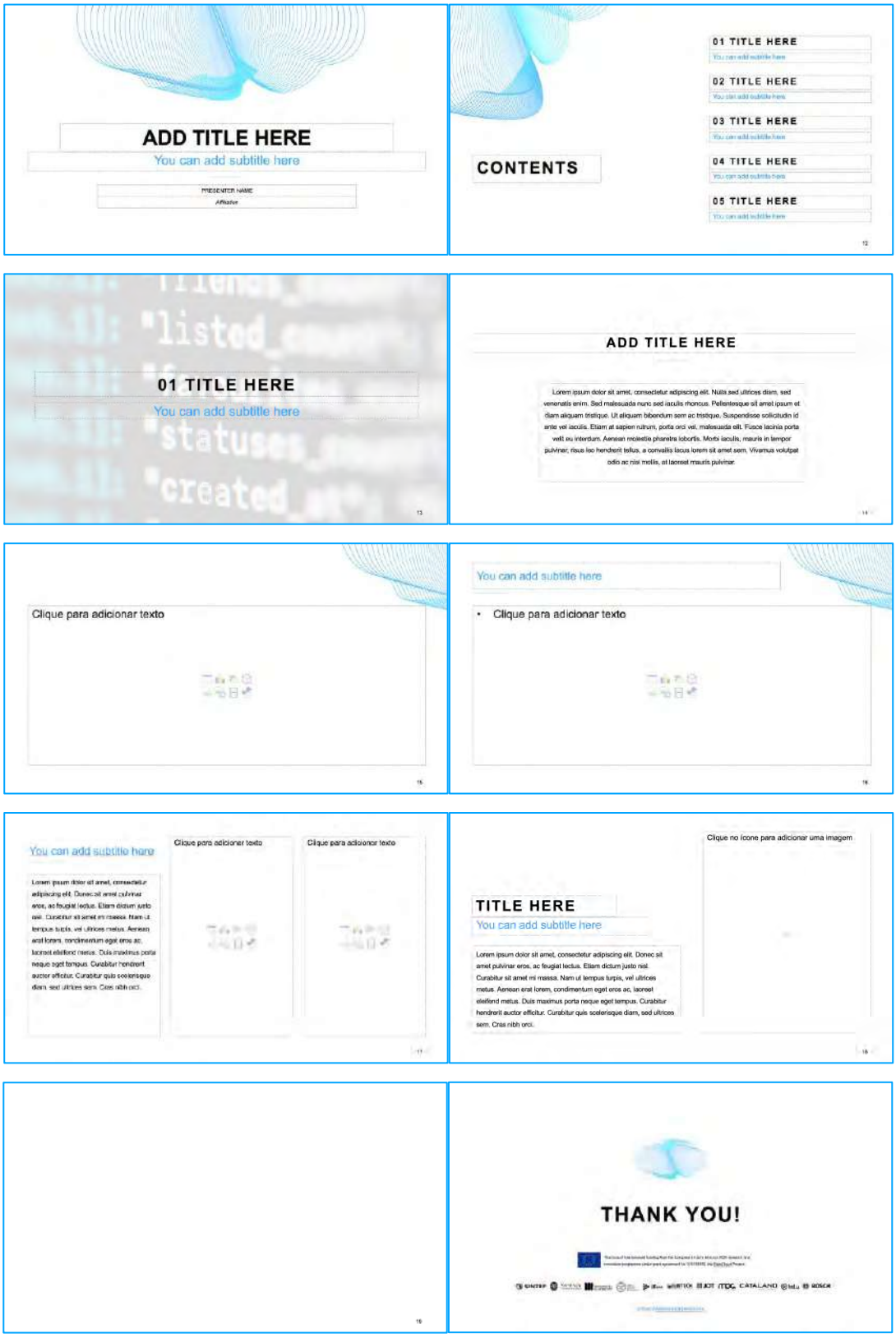

Figure 24: DataCloud presentation template (light version).

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3.6 WEB PRESENCE

The DataCloud web presence comprises its website and social media accounts, developed with the main purpose of enabling wide communication across the relevant project stakeholders.

3.6.1 Website

The DataCloud website is available at *https://datacloudproject.eu* and allows its visitors to visualize and explore a variety of information regarding the DataCloud project, including its objectives, business cases and the main outcome expected from the project, the DataCloud Toolbox. In addition, the website includes a blog that acts as a public dissemination and networking platform for the ongoing project research, where project partners co-create articles about intermediate results and events.

The DataCloud website also features a private area to report the project's activities, which can only be used by the project's participants.This reporting tool is further discussed in Section 5.

In this section, we present the structure and visual presentation of the website as well asthe analytics tools used to track userviews and other , the high-level architecture of the website and technical specifications of the server hosting the web application.

3.6.1.1 Website Structure and Overview

All pages of the website can be accessed via the navigation bar depicted in Figure 25. The navigation bar is included in all the web pages of the website and presents the following options:

Home – This option refers to the Home Page of the DataCloud website. This is the first page the user sees when they enter the website.

Project – Sub-navigation menu linking to pages with the core information about the project. This menu contains three subcategories: *About the Project*, *Toolbox* and *Business Cases*.

What's New – Sub-navigation menu linking to pages with the most recent news, events or blog posts. This menu leads to the following three pages: *News*, *Events* and *Blog*.

Resources – Sub-navigation menu linking to pages with a variety of publicly accessible resources. This menu contains the following subcategories: *Deliverables*, *Journal Articles*, *Conference Papers*, *White Papers*, *Presentation Slides* and *Others*.

Consortium – Sub-navigation menu linking to pages with information about the project's consortium and each of the project partners. Contains the following subcategories: *Who We Are*, *SINTEF AS*, *Sapienza University of Rome*, *University of Klagenfurt*, *Royal Institute of Technology*, *iExec*, *Ubitech*, *JOT Internet Media*, *MOG Technologies*, *Catalano*, *Tellu* and *BOSCH*.

Contacts – This option refers to the Contacts Page of the DataCloud website.

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Figure 25: Website navigation bar.

All web pages of the DataCloud website also contain a footer which features the project's contacts/social media, a brief overview of the project, a list of the project's partners and an acknowledgement to the EU funding. The website footer can be seen in Figure 26.

Figure 26: Website footer.

The DataCloud website is also fully responsive and optimized for devices with small, medium and large screens. Some examples of the website's responsiveness can be seen in Figure 27.

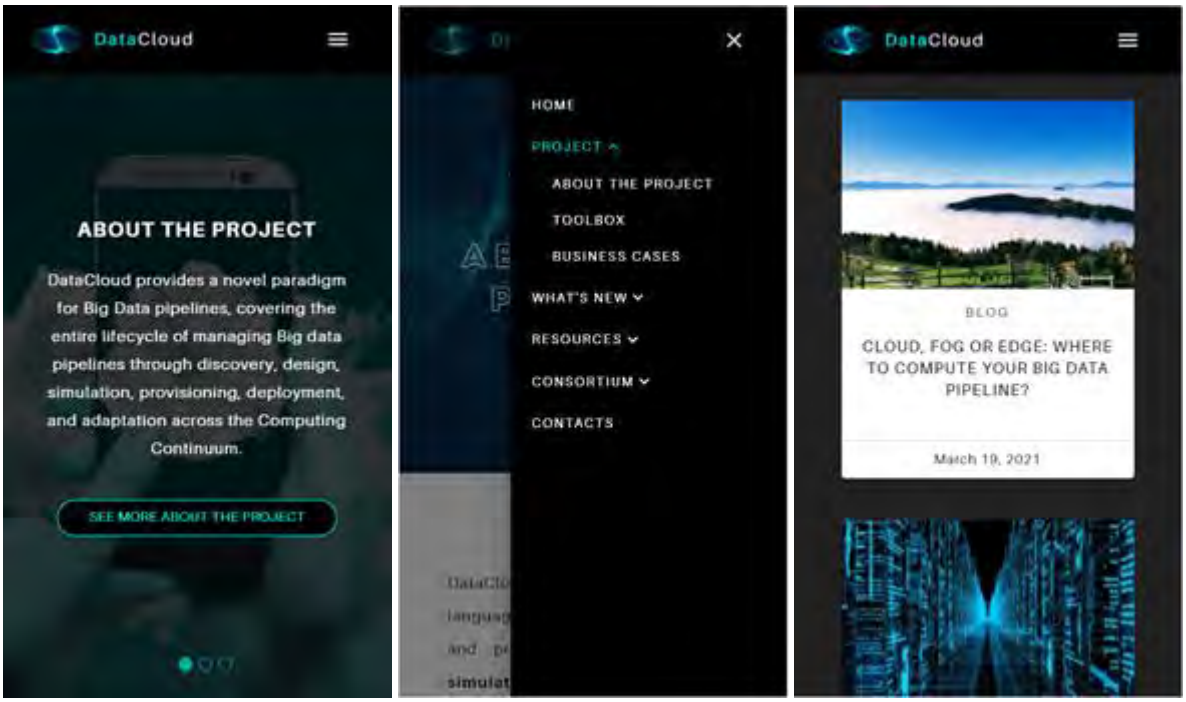

Figure 27: Examples of the website's responsiveness.

Below, we will describe the purpose of the main pages of the website and the functionalities they provide.

3.6.1.1.1 Home Page

The Home Page of the DataCloud Website contains an eye-catching banner with the project's tagline, a section containing an overview of the project, a carousel linking to pages providing more information about the project and the most recent news content on the project's blog. The Home Page of the DataCloud website is represented in Figure 28.

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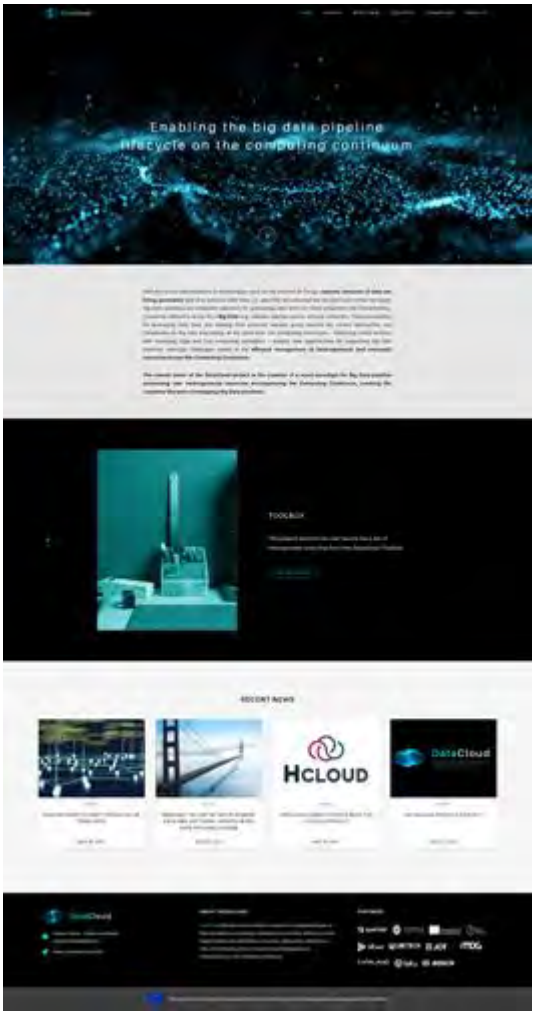

Figure 28: Home Page of the DataCloud website.

In the carousel of the Home Page, each slide provides a brief description of the pages containing the core information about the project. Taking this into account, the topics of the carousel slides are the following: About the Project, Toolbox and Business Cases. Each slide includes a link to the respective page, providing more information on those topics.

Below the carousel, the Home Page contains the four most recent news, blog posts or event articles as a card list. Each article card includes the news image, type (which can be news, events or blog), title and date. If the website user clicks on the article card, they will be redirected to the page that shows the article content in detail.

3.6.1.1.2 Project – About the Project Page

The About the Project Page provides a more detailed description of the DataCloud project and a listing and definition of its objectives.

As seen in Figure 29, the About the Project page contains a section with the project summary below the page header. As for the project objectives, these are listed below the project summary as a card list. Each objective card includes an illustrative image, the objective name and a small description.

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Figure 29: About the Project Page.

3.6.1.1.3 Project – Toolbox Page

The Toolbox page provides a listing and description of the six tools that comprise the DataCloud Toolbox. Each tool is encapsulated in a card containing an illustrative image, the tool name and a small description. Below the tools listing, there is a section that links to the DataCloud Toolbox GitHub page. The Toolbox Page is displayed in Figure 30.

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Figure 30: Toolbox Page.

3.6.1.1.4 Project – Business Cases

The Business Case displays all the DataCloud project's use cases in a card list as depicted in Figure 31. Each business case card contains an illustrative image, the use case name and a short description.

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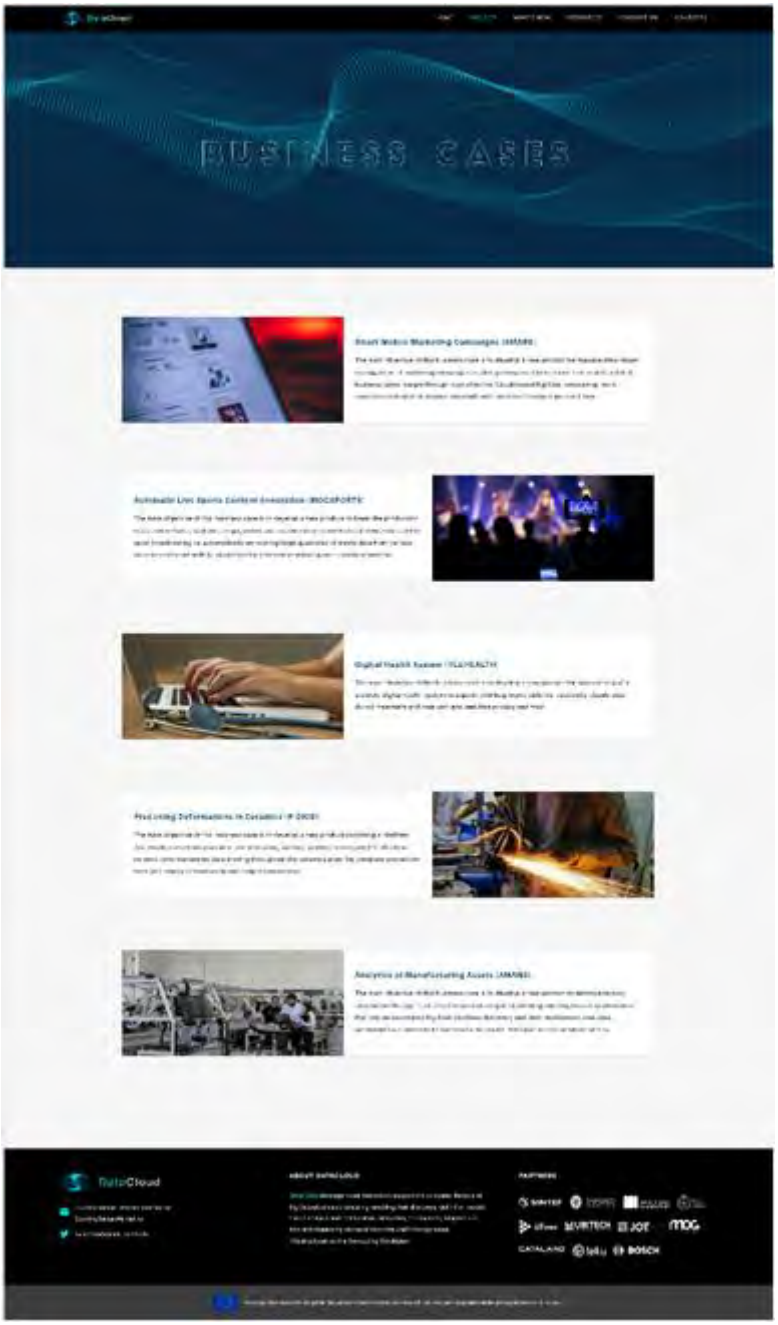

Figure 31: Business Cases Page.

3.6.1.1.5 What's New

The What's New Page lists all news, events and blog entries, functioning as the project's diary. The project's blog will feature press releases, interviews, publications, information about project-related events among others.

This page also enables its users to filter content by type, that is, the user can choose whether they want to show all entries without any filter, only news, only event articles or only blog posts. The content is also paginated, so that only twelve items are shown per page. The What's New Page is presented in Figure 32.

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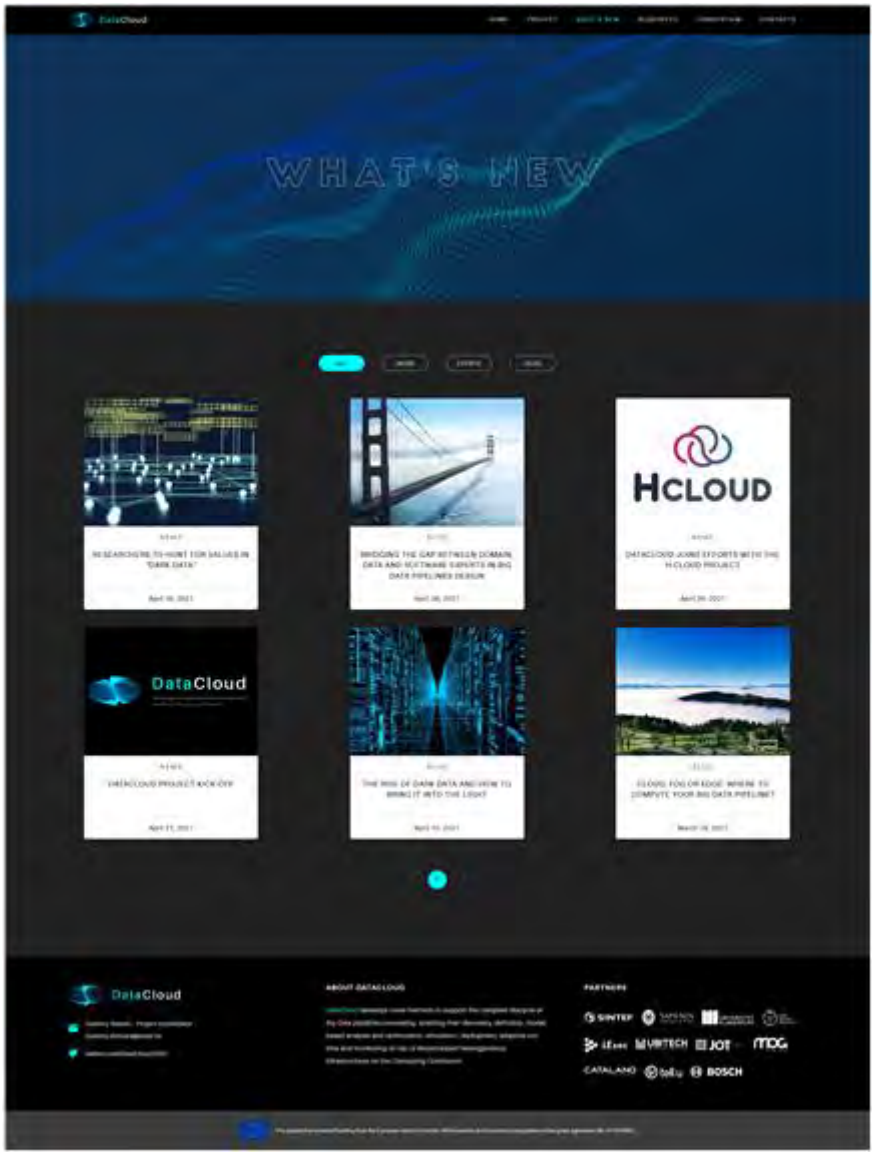

Figure 32: What's New Page.

Each entry card includes an image, type, title and date, similarly to what happens in the Home Page. If the user clicks on the entry card, they will be redirected to the page that shows the article content in detail, such as the one shown in Figure 33.

This page shows the article title, content, files (images, videos and/or PDF files), publishing date and author (if applicable). The article files are shown in a slider, below the article content.

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Figure 33: Article Page.

3.6.1.1.6 Resources

The Resources encompasses a set of web pages of the website that act as a library for publicly disseminated documentation and deliverables of the project, as well as publications or all other files that have a dissemination impact.

The different types of Resources can be accessed from the dropdown menu in the navigation bar as depicted in Figure 34. When the user selects one of the options, they can access the page displaying the resources of the selected type.

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Figure 34: Resources dropdown.

For example, if the user selected the option “Presentation Slides”, they would be redirected to the Presentation Slides page that is depicted in Figure 35. The Presentation Slides page only contains one section that lists all available presentation slides. The content is also paginated, so that twelve items are shown per page.

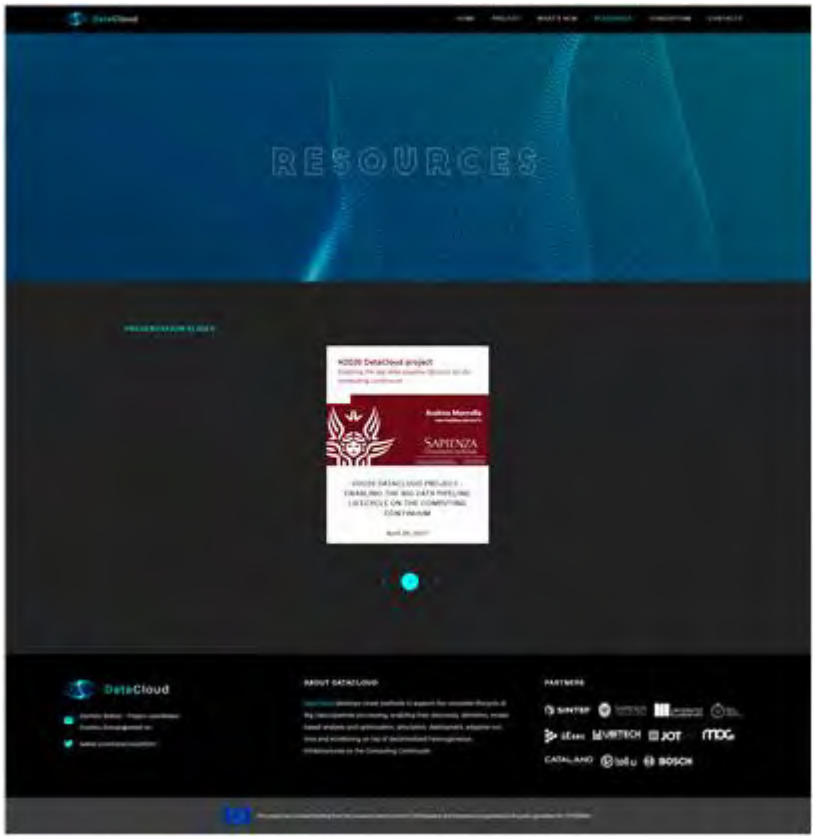

Figure 35: Resources - Presentation Slides Page.

Each resource card includes an image, title and date and if the user clicks on the card, they will be redirected to the page that shows the resource content in detail. The resource page has a very identical design to the article page previously shown in Figure 33 and allows the website visitors to access and download the resources available on the website.

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3.6.1.1.7 Consortium

As previously mentioned, the consortium sub-navigation menu allows users to access the consortium web page (the Who We Are Page) and an individual web page about each of the project partners.

The Who We Are Page includes a brief description of the consortium and a section with an interactive map of Europe and a listing of the partners' logo, as shown in Figure 36. In this interactive map, the partners' locations are displayed and when the user selects one of these locations on the map, the respective partner is highlighted on the right.

Figure 36: Consortium/Who We Are Page.

When the user clicks on one of the partners' logos, they are redirected to the company/organization page identical to the one displayed in Figure 37. This page provides a small text about the company/organization and a short description of its role in the DataCloud Project.

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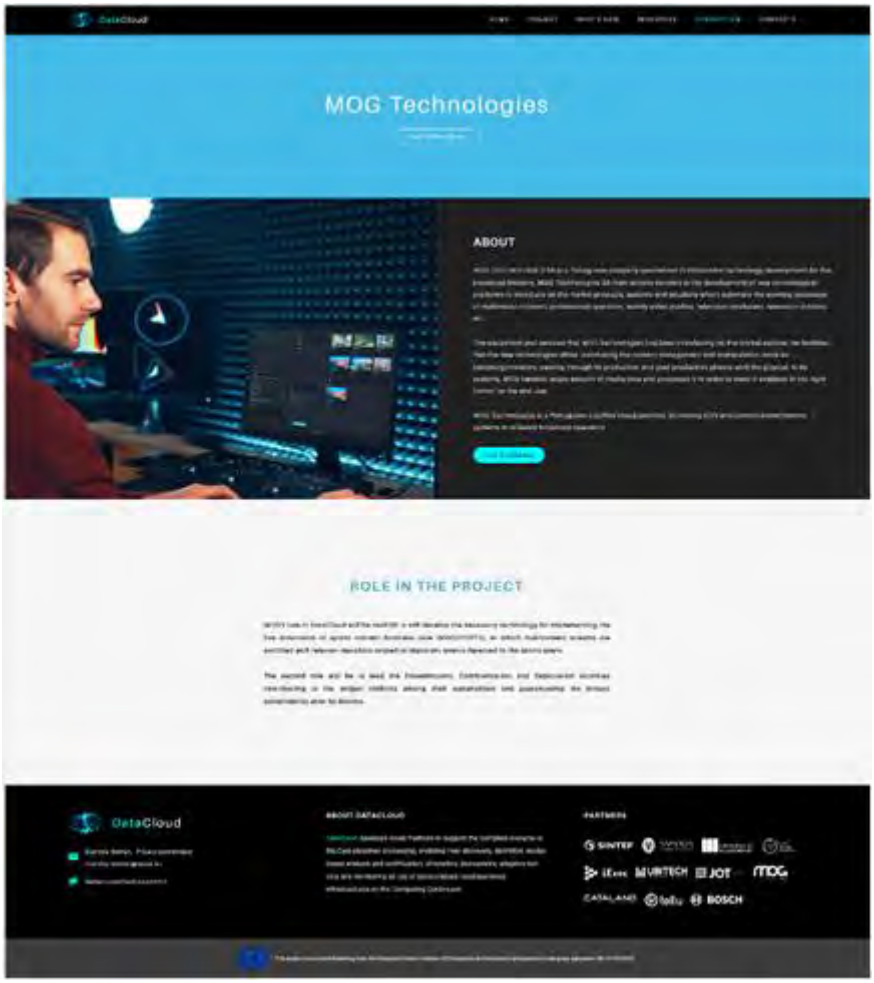

Figure 37: Consortium/MOG Technologies Page.

3.6.1.1.8 Contacts Page

The Contacts page includes the project's contacts/social media and a contact form which the website visitors may use to know more about the project. The Contacts Page can be seen in Figure 38.

In the contact form, the user must provide their first name, their last name, their email and the content of the message they want to send. The users can also optionally provide their phone number. After submitting the form, the user will receive an email confirming that their message was sent successfully.

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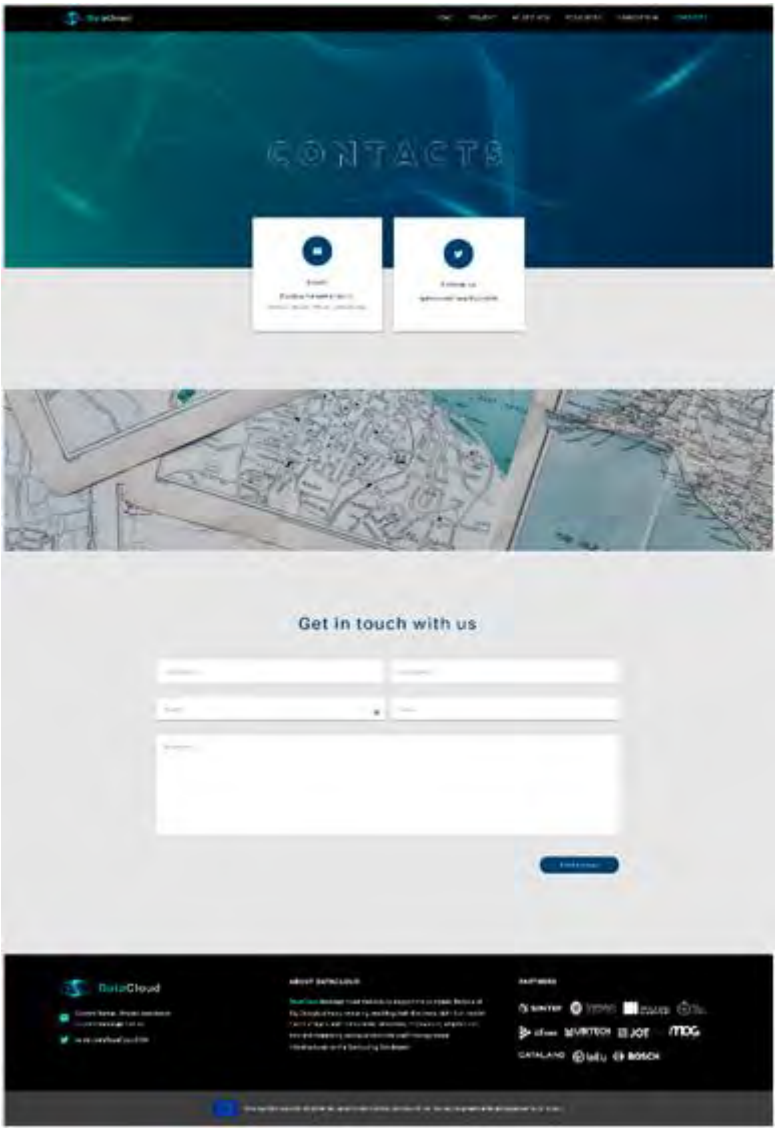

Figure 38: Contacts Page.

3.6.1.2 Website Back-Office CMS

The DataCloud web application includes a back-office CMS that enables the project's participants to insert and manage content in the DataCloud website. In the back-office, users are able to add content and upload files (such as images, PDFs among others) to display on the website.

The back-office CMS has restricted access so that only authorized users are able to access it. The login page of the back-office CMS can be seen in Figure 39.

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Figure 39: Back-Office CMS Login Page.

After authenticating into the CMS, the user has access to the Content Manager for each collection type. For example, if the user wants to insert a new blog post in the DataCloud platform, they need to access the Blog Posts Content Manager on the back-office using the sidebar navigation menu. In the Content Manager interface, they are able to create new content, update or delete existing content. Finally, users are also able to search and/or apply multiple filters to the existing Blog Posts. The Content Manager interface is depicted in Figure 40.

Figure 40: Back-Office CMS Content Manager.

To add new content to the DataCloud website, users can use a WYSIWYG editor that allows them to switch between markdown and preview modes. The back-office also features a draft and publish feature that allows users to craft their content ahead of time before publishing it to the website. The interface that enables users to insert new content in the platform can be seen in Figure 41.

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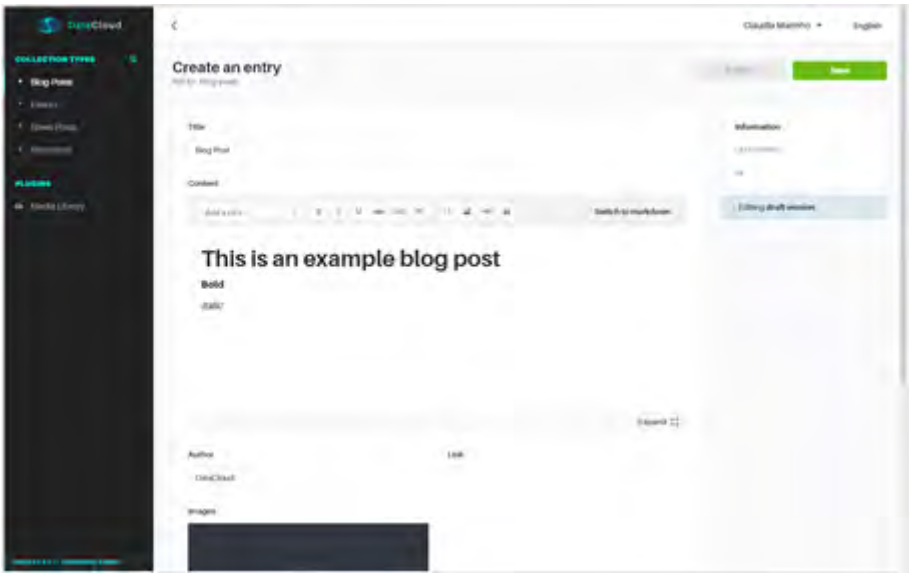

Figure 41: Back-Office CMS Add new content.

Finally, the back-office also features a Media Library that enables users to upload new files and update or delete existing files.

3.6.1.3 Website Analytics

Google Analytics is set up to provide web analytics and reports on the DataCloud website traffic. Google Analytics allows the DataCloud team to track user behaviour on the website gathering data about how long they spend on each page, how many pages they visit, how many users visited the website during a set period of time among others. This allows the discovery of potential problem areas on the website and use that information to improve user experience engaging a larger number of users for longer periods of time. Some of the metrics collected by Google Analytics on the DataCloud website can be seen in Figure 42 and Figure 43.

Figure 42: Google Analytics of https://datacloudproject.eu website.

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Figure 43: Google Analytics showing users by time of day and by device.

3.6.1.4 High-level Architecture

The architecture of the DataCloud website is depicted in Figure 44, which contains a representation of the components that the web application is made of. As depicted in the referred figure, the web app is composed by four components as follows:

- **Front-Office –** the front-office comprises both the website accessible by the public (https://datacloudproject.eu) and the private area used by the project's partners for project reporting (https://datacloudproject.eu/reports). The front-office of the DataCloud web application was implemented using *React*.
- **Back-Office Server –** the back-office server was implemented using *Strapi* framework, an open-source headless CMS. This server provides an API to be used by the front-office of the application.
- **Back-Office CMS –** the back-office CMS was implemented using the *Strapi* framework and enables the project's partners to insert content into the DataCloud website while using a WYSIWYG editor. In this CMS, users are able to insert, update or delete news content, blog posts, events and resources.
- **Database –** the application data is stored in a MongoDB database. The MongoDB database is responsible for storing all data provided by the back-office server.

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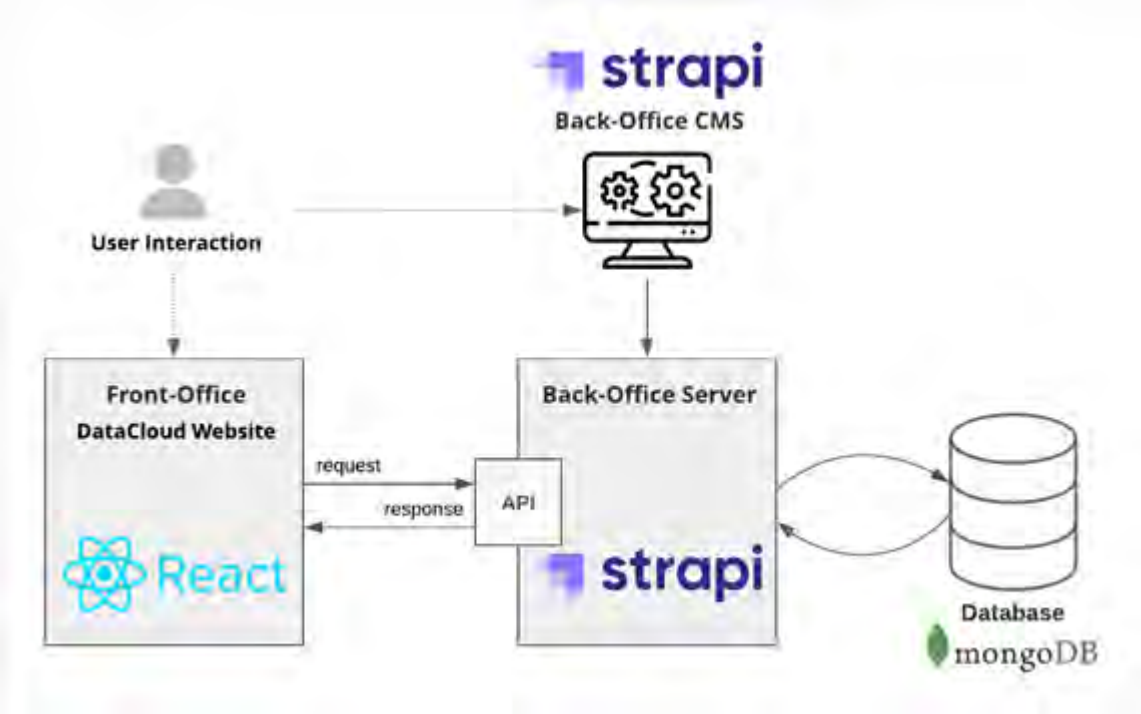

Figure 44: DataCloud Website High-Level Architecture.

3.6.1.5 Technical Specifications

The DataCloud website is hosted on a virtual machine running over Microsoft Azure, which will allow it to scale up and down based on traffic demand and storage requirements. The virtual machine hosting the website currently has following technical specifications:

- **CPU:** Intel Xeon CPU E5-2673 v3 @ 2.40GHz (2 cores);
- **RAM**: 8 GB;
- **Local disk space:** 30 GB;
- **Host OS**: Ubuntu Linux 18.04 LTS;
- **Web Server:** Apache 2.4.

3.6.1.6 1st Year Achievements

According to the results extracted from Google Analytics, a total of 1474 users have visited the DataCloud website throughout the project's first year (between the website launch in M3 and up until M12), amounting to a total of 2957 sessions, 12 583 pageviews and an average duration of approximately 4 minutes per session, as shown in Figure 45.

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Figure 45: DataCloud Website Google Analytics dashboard between March and December 2021 (M3-M12).

3.6.2 Social Media

The participation of the DataCloud project in social media networks is promoted in order to expand the target audience while creating bilateral communication channels. Focus has been provided to the social media channels that the project partners are already using frequently and effectively to connect and engage with their partners/clients and other stakeholders. This will ensure a better visibility as the partners have already well-established social media profiles in these channels. Posts will be circulated to keep the news flowing, and new content will be added on a regular basis. DataCloud uses a variety of social media platforms to promote itself and can take advantage of networking and viral impact, allowing for a significant increase in visibility and awareness. DataCloud has two social media accounts, on Youtube and Twitter.

There is a frequent activation of the project on these social media platforms, with posts being published at optimal times. The content posted covers DataCloud project a very diverse information such as the project blog news, the participation of the project partners in events among many others. It is planned that the channels also share interesting news from across the project fields of expertise. This activity is useful to identify and tag other entities and draw their attention to DataCloud, and in doing so, stimulate the project awareness and interest among its stakeholders.

In order to build up the number of followers of the social media channels, several actions were carried out throughout the first year, such as the strategic following of other accounts, such as

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the ones from other projects and tagging in news publications, potential partners and interested parties.

Following DataCloud's overall contact policy, the social media accounts were initially and primarily used in three separate ways:

- An event-driven communication, in which events such as the start of the project, the launch of the initial website, and other news is communicated to the social media followers.
- An informative communication style, such as introducing the project partners, the project team's goals, and first steps, etc.
- An engagement framework that is closely linked to monitoring activities relating to other projects or interesting events and people operating in the Big Data and Cloud domains.

3.6.2.1 Twitter

Twitter has an advertising audience of 353 million users and it has been the project's most active platform throughout the first year. Followers get updated on the important milestones of the project, such as the developments of the tools and the impact of the business but also new publications or events linked to big data and cloud. Twitter features, such as only allowing succinct texts and a short lifespan of each post, makes this platform the place to quickly react to news or events in the field. Twitter is an informal platform which gives the opportunity for project partners to use a more casual approach to the posts tone and use images and emoticons to highlight an emotion or to simply illustrate a post when no picture was available.

In general, Twitter gives DataCloud the opportunities to interact with other accounts using retweets, likes or replies, and foster networking and synergies with other organizations and projects. Tweets are posted on a weekly base.

It is important to note that besides the non-programmed posting of content, the coordination of WP7 has defined for the first year a set of pre-programmed posts to be published in specific dates in order to keep a certain regularity in the project promotion in the social media channels.

DataCloud twitter account is https://twitter.com/datacloud2020. For each tweet the project partners are advised to mention the project's twitter handle **@DataCloud2020** and use the hashtag **#datacloud2020**.

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Figure 46: Examples of the project tweets

3.6.2.2 Youtube

The creation of video stories and media content plays a special role in attracting more stakeholders to the project and deliver powerful messages. As previously mentioned, several videos were created for the first year in order to demonstrate the technologies developed by the consortium, namely the business case developments, to promote the project, and to register a wide range of other project's events. In this sense, the DataCloud YouTube channel (https://www.youtube.com/watch?v=cTy-t2DJt7k) is be used both as a repository for these videos and as another way of attracting more stakeholders into the project.

3.6.2.3 1st Year Achievements

Twitter: throughout the first year – more precisely between M4 (when the DataCloud Twitter account was created) and M12 – a total of 32 tweets were posted, which surpassed the 20-tweet target initially planned for this period. These tweets have been retweeted 70 times and were liked 147 times. These figures correspond to an average of 4 tweets, 8 retweets and 16 likes per month, which the consortium considers a very positive outcome. The account has now 73 followers, including DataCloud partners, stakeholders, other big data and cloud computing entities and researchers, among other, as shown in Figure 47.

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Figure 47: Example of Tweet Analytics statistics for DataCloud throughout May 2021 (M5)

YouTube: throughout the first year – more precisely between M5 (when the DataCloud Youtube account was created) and M12 – a total of 323 users viewed the DataCloud project video and the 5 business case videos uploaded to the project' channel, amounting to a total watch time of 5 hours, as shown in Figure 48 and Figure 49.

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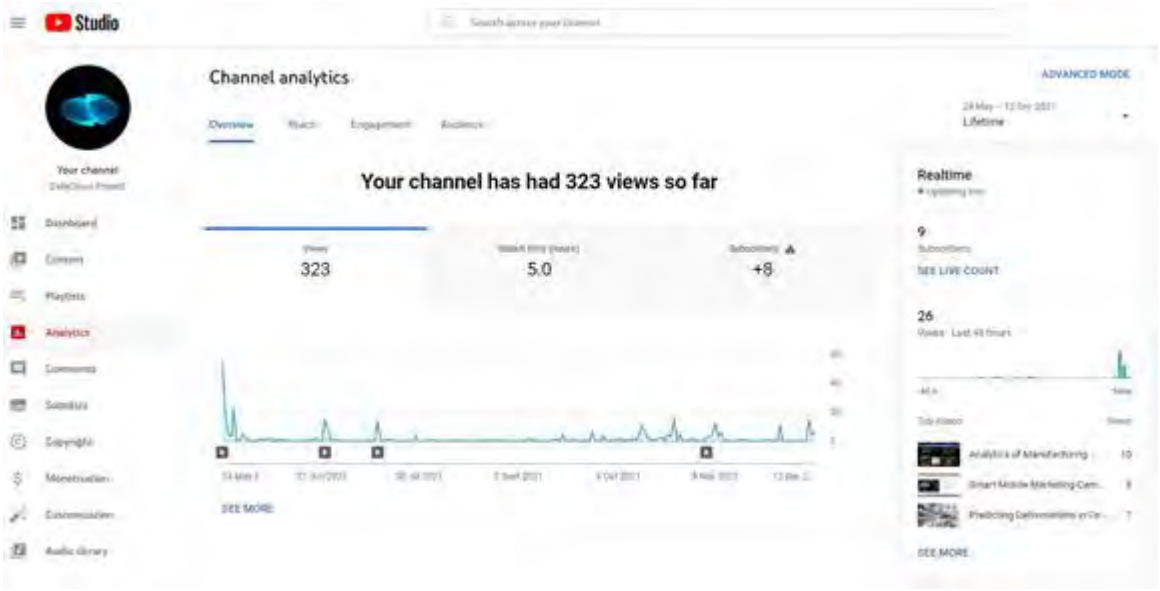

Figure 48: DataCloud's YouTube Analytics dashboard page (1/2)

Figure 49: DataCloud's YouTube Analytics dashboard page (2/2)

3.7 PRESS RELEASES

DataCloud press releases support the communication and dissemination of the project findings by amplifying its news. The primary means of contact with journalists and editors is via press releases. A single press release serves as a news multiplier, spreading project awareness through multiple media and reaching a larger audience. The press releases are the result of a collaborative effort by the project partners and their communication and press offices.

For the first press release (Figure 50), MOG had coordinated with SINTEF communication office the work and outline the first draft, while each partner had the task to spread it through its communication team. The press release described the project vision, objectives and

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consortium composition. It also described the importance of the toolbox and the business cases in the developments that the project will undertake.

MOG and SINTEF will coordinate the work regarding the creation of other press releases that present the project as a whole. Nevertheless, the different project partners are also responsible for disseminating via press releases their own important achievements and findings within the project.

During the project lifetime, at least three press releases will be created describing the project advancements, one for each project year. Five more press releases will be designed and distributed focusing on the business cases. It is expected that the business cases press releases will only be distributed in the project latest phases, namely when the business cases are more developed and take profit of the DataCloud tools, in order to create more impact and visibility among the project stakeholders.

New DataCloud Project to offer innovative solutions to Big Data

DataCloud develops a novel paradigm for Big Data pipelines

Oslo, Norway, 9th of February 2021

Several European organizations, from SMEs to Research Centers, are joining forces to develop new methods and tools for effective and efficient management of Big Data pipelines in the recently started DataCloud project funded by the European Commission under the Horizon 2020 framework programme for Research and Innovation, will run for three years between 2021-2023.

Enabled by emerging technologies such as the Internet of Things, massive amounts of data are being generated nowadays, often becoming Dark Data, i.e. data that are collected but not used and turned into value. Big Data pipelines, composite pipelines for processing data with non-trivial properties and characteristics, commonly referred to as the Vs of Big Data (e.g., volume, velocity, variety, veracity, value, etc.), are essential for leveraging Dark Data, but tapping their potential requires going beyond the current approaches and frameworks for Big Data processing. At the same time, the Computing Continuum — federating Cloud services with emerging Edge and Fog computing paradigms — enables new opportunities for supporting Big Data pipelines, though challenges remain in the efficient management of heterogeneous and untrusted resources across the Computing Continuum.

The overall vision of the DataCloud project is the creation of a novel paradigm for Big Data pipeline processing over heterogeneous resources encompassing the Computing Continuum, covering the complete lifecycle of managing Big Data pipelines.

The main goal of the project is to develop a software toolbox, the DataCloud toolbox, comprising of new languages, methods, infrastructures, and software prototypes for discovering, simulating, deploying, and adapting Big Data pipelines on heterogeneous and untrusted resources.

"Situated at the intersection of Big Data processing, software engineering, and heterogeneous infrastructures (Cloud, Fog, Edge), DataCloud addresses the need to create the technological entry barriers to the incorporation of Big Data pipelines in organizations' business processes and make them accessible to a wider set of stakeholders regardless of the hardware infrastructure." Dumitru Roman, SINTEF (DataCloud project coordinator)

DataCloud is coordinated by SINTEF Digital (Norway), one of Europe's largest independent research organizations. The project partners include companies across Europe, such as Bosch (Germany), dedicated to engineering and electronics, Telio (Norway), provider of welfare technology and digital healthcare solutions; iExec (France), pioneers in Cloud decentralization; Ubitech (Greece) that offers leading edge intelligent technical solutions; 3OT Internet Media (Spain), a digital marketing company; MOG Technologies (Portugal), a worldwide digital media technology provider; and Ceramica Catalano (Italy), a leading company in the ceramics industry. They will have the full support of the research partners that, in addition to SINTEF, include Sapienza University of Rome (Italy), University of Klagenfurt (Austria) and Royal Institute of Technology (Sweden).

The results of the project will be demonstrated in a wide range of business cases including Smart Mobile Marketing Campaigns, Automatic Live Sports Content Annotation, Digital Health Systems, Predicting Deforestation in Germany, and Analytics of Manufacturing Assets.

With a budget of 5M euro, DataCloud is funded by the European Commission under the Horizon 2020 Program and spans on the period January 2021 – December 2023. The Kick-Off meeting was held between 19th and 21st of January 2021, where the team defined joint strategies and started working together in a good spirit to make the project results available to the general public as soon as possible.

Figure 50: Initial DataCloud Press Release

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3.8 VIDEOS

Videos are another valuable tool for showcasing the project's events and achievements to the public. All the videos will be in English and they will be posted on YouTube and other social media platforms such as Twitter, and will summarize:

- an overview of the project;
- demonstrations of the evolution of the tools throughout the project;
- videos promoting the five project business cases in different phases throughout the project.

In order to generate as much coverage of the DataCloud project as possible, the different videos will be distributed and promoted through the project communication channels, such as: the website, social media, partners' websites, etc. In turn, links supporting the video (such as those available through video hosting sites like YouTube) will encourage viewers to visit the DataCloud website and other social media accounts.

Initially, the project started by creating a video that gives the viewers a general overview of the project, namely its objectives and main challenges briefly explaining the different tools and the use cases that will be used to validate them. The video includes an outline presentation of the project consortium.

This first promotional video is available in the DataCloud YouTube channel and can be directly accessed via the following link: https://www.youtube.com/watch?v=cTy-t2DJt7k

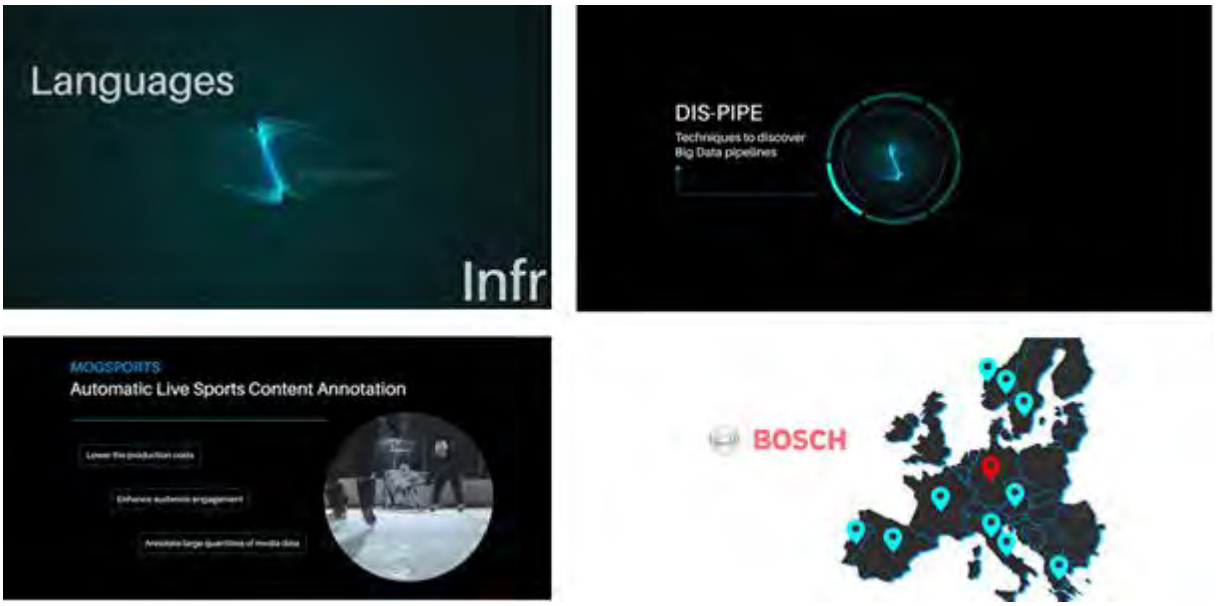

Figure 51: Promotional video screenshots.

MOG will create the three promotional videos, one for each year of the project. Three other videos reflecting the toolbox evolution will be created by the project technical partners at the same rate. Finally, each business case partner will create one video demonstrating the use case in each year of the project lifetime.

In total, at least 21 videos will be tentatively created to promote the project developments. All project partners are motivated to promote the DataCloud videos in any relevant activities and

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events in which they participate throughout the project lifetime. As previously mentioned on Section 3.2, so far DataCloud has released one project video produced by MOG, and five business case videos by each one of the partners who are working on business cases (Tellu, Bosch, MOG, JOT and Ceramica Catalano), all made available on DataCloud's YouTube channel (https://www.youtube.com/channel/UCVUkE2oBHCgTGB3QypNOPYw). A DataCloud toolbox video by SINTEF was planned for the first year its release was postponed to the beginning of year two.

3.9 BLOG POSTS

As mentioned previously, the website is a key communication tool for the DataCloud project. The website will host a short monthly blog written regularly by the project partners in a rotating way and potentially by other relevant stakeholders on an occasional basis. These blogs feature simple themes derived from the project core research geared toward the general public with no specialized training. To make these blogs more accessible to the general public and to allow consistent use of these blog themes through various media outlets or venues when communicating with the general public, each project partner can choose a subject related to their research that can appeal to audiences outside of the academia or their own business for their blog. This relatively simple can be use as appropriate not only as the substance of the partners' blogs, but also on social media, and when giving public talks in conferences and events, in order to build social media followers and general interest and awareness. The design of the blog posts ensures that readers can observe the corresponding ideas in motion long before they appear in print or scientific publication. Continuous publishing and research 'out in the open' may not be for everyone but leads to diverse outcomes and new learnings. Blog posts submitted no later than the 20th day of the given month undergo a review from a Quality Assurance (QA) team from MOG.

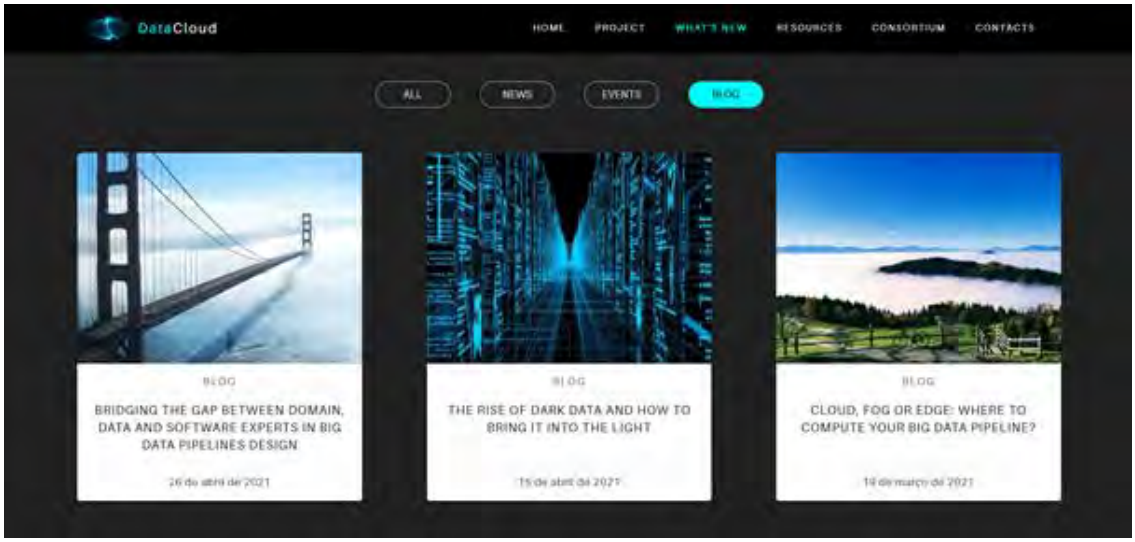

Figure 52: DataCloud blogs

Besides the blogs, which is a lengthier text in which the authors attempt to develop a given research thematic so that it can be understood by the general public, the website also incorporates the possibility to add news, which are shorter and more focused than the blogs and refer to new and relevant information that can be quickly and easily consumed by the general public.

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Brand Guidelines

IDENTITY MANUAL

An Overview

This Document communicates the brand identity of MOG Technolgies. Clearly articulating the mission, values and persona for the design and all subsequent brand artifacts.

00.
Index

01.

Who we Are

01. Who we are

Our Vision

MOG Technologies will change the way modern communities inspire their members' actions by delivering relevant, immersive and interactive multi-content digital experiences.

Our Mission

Build next generation of digital media technology that propels the communities' engagement ecosystem.

01. Who we are

Our Values

Excellency: Our customers' success is our success. It makes us want to accompany them closely, to make sure they meet their goals with the best-tailored solutions.

Technological Innovation: Enabling our customers to take advantage of innovative solutions, that reduce the stress of their daily tasks and improve the quality of the product, as well as the quality of life of its members.

People's Talent: By providing conditions for people to fulfil their dreams, we achieve excellence in services and technology.

02.

Brand Concept

02. Brand Concept

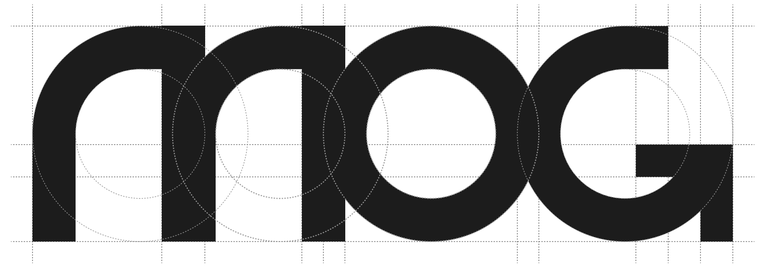
MOG's brand identity intends to accurately represent the company mission and quality policy, enhancing its innovation and professionalism.

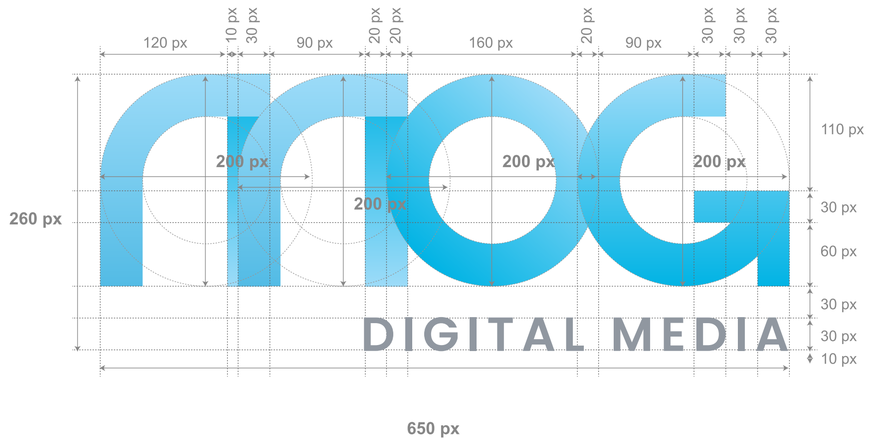
Building Gateways to Success!

MOG has wrapped all of the formats in its former logo and has focused on the leverage of its main strengths. The lettering is now formed by interconected circles, which intends to reflect the company flexibility and interoperability. The letters fill-in the harmonized curves that are made with accurate and coeherent measures.

Dynamism and Evolution

The sublte arrow represented at the end of the curving letters is a symbol of dynamism, movement and evolution. Its direction intends to show the positive and forward direction that MOG is taking in the broadcast industry.





02. Brand Concept

The brand consists of two essential elements which, in their combination, intend to convey values to which the company is identified, namely:

- Logo;
- Signature.

For an efficient communication it is important to use MOG's image according to certain standards that allow a coherent visual identity.

The logo, lettering, signature, design or the combination of these elements are components of MOG's company. These components are aggregated and cannot be produced for use separately, independently of its dimension and application. These elements must always hold the exact position and size relationships shown throughout this guide.

03.

Signature Configuration

03. Signature Configuration

The goal of our corporate signature is to actively and consistently express MOG's identity through all of our visual communications (internal and external) - advertising, printing, electronic materials, signage, etc.

The signature may appear on the right side of the logo. However, this is only allowed when there is a lack of vertical space in the graphic layout.

Preferred Signature - Vertical:
Use it wherever space permits, as consistency builds brand recognition.

Alternative Signature - Horizontal:
In situations with limited vertical space, use the horizontal signature.
Otherwise, always use the preferred signature.

04.
Colors

04. Colors

The signature colours are an important factor helping achieve recognition, coeherency and memorability of the brand. This way, colour requires a consistent application to reinforce the corporate identity.

In this section you will find the references for the different colour applications. Please refer to them whenever you represent MOG's logo.

Logo Colors

#00b5e6
RGB (0, 181, 230)
CMYK (71%, 7%, 2%, 0%)
Pantone (306)

#9cdbf8
RGB (157, 22, 246)
CMYK (35%, 0%, 0%, 0%)
Pantone (424)

#9097a0
RGB (114, 151, 160)
CMYK (46%, 33%, 28%, 9%)
Pantone (2717)

#CCD5DD
RGB (204, 213, 221)
CMYK (24%, 13%, 11%, 0%)
Pantone (657 C)

#FFFFFF
RGB (255, 255, 255)
CMYK (0%, 0%, 0%, 0%)

#1C1C1C
RGB (28, 28, 28)
CMYK (76%, 66%, 60%, 81%)

Complementary Brand Colors

#006aff
RGB (0, 106, 255)
CMYK (84%, 60%, 0%, 0%)
Pantone (2173 C)

#1fceff
RGB (31, 206, 255)
CMYK (64%, 0%, 0%, 0%)
Pantone (3545 C)

#3F37C9
RGB (63, 55, 201)
CMYK (88%, 78%, 0%, 0%)
Pantone (2369 C)

05.

Background Application

05. Background Application

Polychromatic & Monochromatic Logo Version

MOG's brand identity intends to accurately represent the company mission and quality policy, enhancing its innovation and professionalism.
When used in a white background, the logo should be in its original colours (Original Version).

When used in a black background, the logo should be in its original colours with the signature in a lighter colour (Alternative Version).

Whenever is not possible to use the Polychromatic Version of the logo, it should be used the Monochromatic Version displayed on the side.

There should always be enough contrast between the logo and any background upon which it appears, ensuring its visibility and legibility.

Whenever the background doesn't provide the sufficient contrast to the great visibility of the logo, it should be used the Alternative Version.

White Background - Original Version

Black Background - Alternative Version

Monochromatic Version

05. Background Application

Black and White Logo Version

For Black & White supports, the logo should be presented in high contrast.

Black and White Positive

Black and White Negative

05. Background Application

Colored Background

05. Background Application

Photographic Background

Polychromatic Backgrounds

Monochromatic Backgrounds

06.

Typeface

06. Typeface - Primary

Poppins

Poppins is a Free Typeface, and is used on Titles and Headlines.

ExtraBold . *ExtraBold Italic* . Bold . *Bold Italic* .

Semi-bold . *Semi-bold Italic* . Medium .

***Medium-Italic* .** *Italic* . Regular . Light . *Light Italic* .

Extra-light . *Extra-light Italic* . Thin . *Thin Italic*

Poppins Bold

ABCDEFGHIJLMNOPQRSTUVXYZ

abcdefghijlmnopqrstuvxyz

123456789

Poppins Semi-Bold

ABCDEFGHIJLMNOPQRSTUVXYZ
abcdefghijlmnopqrstuvxyz

123456789

Poppins Regular

ABCDEFGHIJLMNOPQRSTUVXYZ
abcdefghijlmnopqrstuvxyz

123456789

06. Typeface - Secondary

Inter

Inter is a Free Typeface used for body, text documents, technical documentation, etc.

Black . ExtraBold . SemiBold . Medium . Regular .

Light . Thin . ExtraLight

Inter Bold

ABCDEFGHIJLMNOPQRSTUVXYZ

abcdefghijlmnopqrstuvxyz

123456789

Inter Semi-Bold

ABCDEFGHIJLMNOPQRSTUVXYZ
abcdefghijlmnopqrstuvxyz

123456789

Inter Regular

ABCDEFGHIJLMNOPQRSTUVXYZ
abcdefghijlmnopqrstuvxyz

123456789

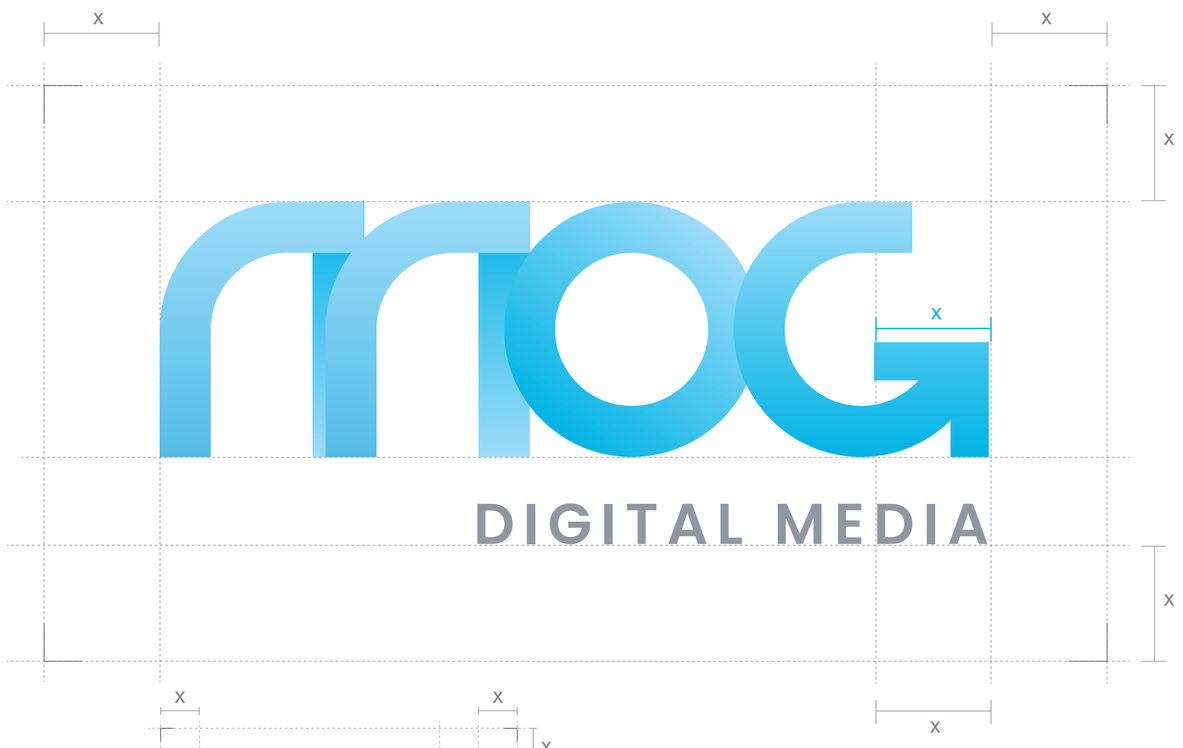
07.
Protection Area

07. Protection Area

A minimum area must be respected for logo protection. Any other elements that don't belong to the visual identity of the logo should not interfere in this area.

The protection area should be the minimum amount of clear space around the logo. This will keep the logo free of any outside elements like text, images or headlines and preserve its integrity and legibility.

The protected area should be adjusted proportionally according to the size used. Normally, it is acceptable to allow more clear space.



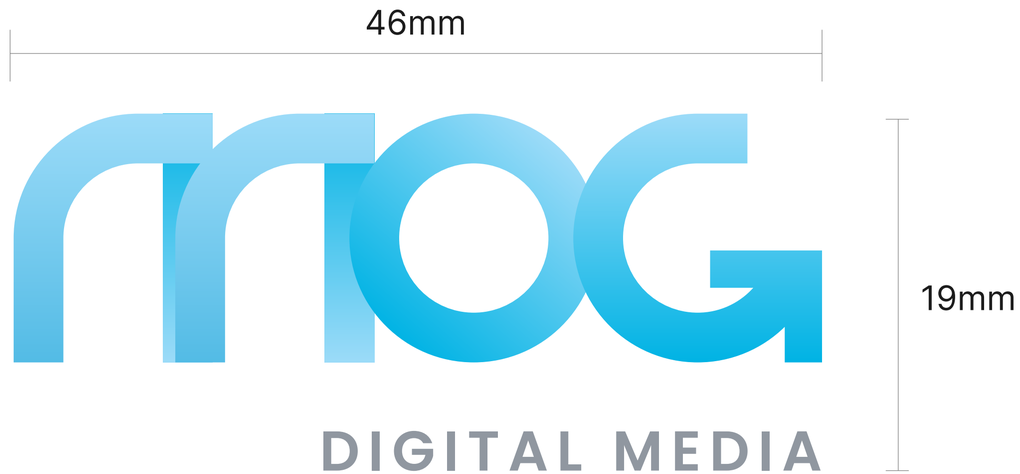
The "x" represents the width of the "G" leg. The minimum protection area should always be equal to this size.

08.

Minimum Size

08. Minimum Size

In order to ensure the readability of the brand, it should never have a size less than 46mm width and 19mm height.



09.

Wrong Usage

09. Wrong Usage

It is always important to maintain a coherent and consistent approach in the representation and implementation of MOG's brand. Therefore, there are some examples of applications not allowed presented here.
Please follow the guidelines established in this manual.

Do not use just one color.

Do not use outline.

Do not deformed the brand.

Do not apply textures or effects.

Do not change the typography.

Do not use dimensions lower than stipulated.

Do not use incorrect colours.

Do not chage the position of each element.

10.

Brand Application

10. Brand Application

01. A4 Letter

02 . DL Letter

03 . Business Cards

04 . Wallpaper

10. Brand Application

05. Pen

06. Lanyard

07. a Folder

08. Notebook

10. Brand Application

09. Clothing

09

Thank you!

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