



1ST INTERIM PERIODIC REPORT

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ABBREVIATIONS

ABBREVIATION	DESCRIPTION
H2020	Horizon 2020
EC	European Commission
WP	Work Package
EU	European Union

EXECUTIVE SUMMARY

This deliverable aims at presenting all the project activities carried out in the first 9 months, providing an intermediate term report on the technical and scientific status of the FANDANGO project.

The document is articulated in 3 main sections:

The first section - is dedicated to the explanation of the FANDANGO objectives to be reached in the first 9 months.

The second section - illustrates the main activities and results in each task and work package, including also deviations and/or failure to achieve objectives, the status of the deliverables and milestones and a statement on the use of resources for each partner.

The third section - Project Management during the period – refers to project management activities done in this reporting period that are not included into the WP1 description of the previous section.

1. PROJECT OBJECTIVES FOR THE PERIOD

The following paragraphs report on all FANDANGO objectives, highlighting the progress achieved during the first nine months of research activities. In this respect two aspects stand out:

- almost all smart objectives have shown satisfactory perspectives, albeit further investigation is needed for some;
- an iterative prototyping methodology in carrying out research and development activities has been deemed more efficient and has thus been adopted.

PROGRESS TOWARD REACHING THE SO

Let us begin by reminding that the overall project Smart Objectives in the DoA were stated as follows:

- SO1: To provide tools to ingest cross-domain and cross-lingual data sources of different nature to the FANDANGO Platform.
- SO2: To provide higher level automatic decision making for fake news detection.
- SO3: To provide state of the art algorithms for fake news related feature extraction.
- SO4: To be able to back-trace the propagation of the potential fake news, determining the original sources and the diffusion points for source scoring regarding fakeness distribution.
- SO5: To test and validate FANDANGO through large scale pilots.
- SO6: To enable media company to implement a long-term strategy to fight fake news and misinformation creating value by increasing their trust.

All these SMART objectives were strictly linked to the general overarching objective of fighting the fake news phenomenon and increasing the level of thrust that the professional user, the citizen, and the society as a whole, can place on news.

More specifically:

SO1 will be carried out along the lines foreseen in the DoA. In fact, FANDANGO will develop techniques to ingest data from different sources. To that aim a first set of tools, models and conventions has been defined, is being deployed and will be tested.

As far as SO2 is concerned, the end-user themselves asked (while carrying out T2.3) for a slight recalibration of emphasis. In fact, they stated a strong preference in favour of receiving high level decision making support for fake news detection, while deemphasizing fully automated system decision making.

In fact, given the unavoidable statistical nature of the possible inferences, professional journalists deem that a support in their decision-making process is more effective and reliable than any attempt to reach a fully automated answer. They want the human expert to be able to keep the last judgement.

Switching our attentions to SO3, i.e. to the state of the art algorithms for fake news related feature extraction that FANDANGO will propose, the first nine months confirmed the approach of providing a set of independent tools able to process different data and features to compute different fakeness indicators (scores). Such scores will be computed from raw data coming from a variety of sources and will require different processing chains.

Let's now briefly analyse SO4. SO4 will have to deal with the ability to back-trace the propagation of the potential fake news, determining the original sources and the diffusion points for source scoring

regarding fakeness distribution. The recent coming into force of the new EU GDPR somewhat affected SO4 progress. The SO4, in fact, was the SO more significantly impacted by the new GDPR. We will expand on SO4 progress on further reports.

Moving on to SO5, i.e. to test and validate FANDANGO through large scale pilots, we deem that it will be likely fully met, since all partners are regularly preparing for the foreseen pilots to assess FANDANGO benefits and usability of results. Finally, regarding SO6, (i.e. enabling media companies the possibility to implement a long-term strategy to fight fake news and misinformation), we are confident that it will be fully met too. In fact, SO6 is strictly linked with the positive outcome of SO2 and SO3. As already stated in the DoA when the consortium will successfully reach SO2, it will be enough to give general suggestions on how to integrate FANDANGO results into real news related workflows, dedicating adequate professional resources to it, to ensure that O6 will be reached too.

The first nine months of project activity confirmed that the overarching objective could be pursued by pursuing the six above identified SMART objectives. All in all, the progress toward reaching the FANDANGO SMART objectives is generally satisfactory and in line with foreseen schedule, as it is more in detail discussed in the following paragraphs.

From a project management perspective, this period of research activities made also clear that due to the very challenging level of all SO, the FANDANGO scientific management would benefit from an iterative prototyping research and development approach. Thus, in addition to perfecting all the deliverables foreseen in the DoA, the consortium will commit to developing also a certain number of incremental prototypes of the overall FANDANGO system.

Such an approach has the relevant advantage of allowing a more focused scientific risk management and a more pragmatic technical evaluation of the big data approach potential taken in terms of all the relevant aspects to be dealt with in FANDANGO.

The first two prototypes have seen some work carried on them in the first 9 months, and have been identified by the version numbers FANDANGO 0.1 and FANDANGO 0.2 respectively.

2. WORK PROGRESS AND ACHIEVEMENTS

WP1 - PROJECT MANAGEMENT

Planned Objectives

The main objectives of WP1 are:

- To provide overall project management and coordination;
- To ensure the quality management and assurance;
- To maintain the information flow between partners;
- To provide administrative and financial control according to the work plan;
- To coordinate the dissemination and promotion activities and to present them to the EC.

A summary of progress towards objectives and details for each task

T1.1 Project management (M1-M36 - Lead ENG).

This task has provided support for strategic management including: a) monitoring of achievements and state of the S&T activities through monthly teleconferences, where all WP leaders presented and discussed the advancement of work and the scientific results achieved; b) Managing and monitoring that all Consortium agreement rules were applied.

The project coordinator did not encounter any difficulties in coordinating project partners. All partners were co-operative and facilitated internal collaboration.

Several meetings were held:

- Kick-Off meeting, Brussels, 18th - 19th January 2018,
- Project Plenary Meeting, Rome, 18th - 20th April 2018,
- Project Plenary Meeting, Dublin, 17th - 18th July 2018.

Several mailing lists were to facilitate partner communication:

- FANDANGO general mailing list, with all people involved in the FANDANGO activities;
- WPs specific mailing lists.

T1.2 Quality assurance (M1-M36 - Lead. ENG, Partic. LVT).

ENG and LVT monitored all project activities to ensure their timely on schedule execution. All deliverables due in this period (M1-M9) were submitted in time, with the exception of the ones related to data privacy, data gathering and data processing, that were strongly affected by GDPR issues and were finalised and submitted only after Consortium agreed (in mid-July) to opt out from the Open Research Data Pilot, due to privacy and data protection concerns.

All partners are actively involved in project activities and strongly motivated to reach the expected objectives. All project activities were performed smoothly and with no major problems, since the majority of the FANDANGO partners have long experienced in European projects.

T1.3 Administrative and Financial coordination (M1-M36 - Lead. ENG).

This task provided support for Financial and Project Administration.

The First Interim Progress Report (this deliverable) was produced. It contains a management-level overview of the activities carried out, a description of progress toward the scientific and technological objectives, a description of progress toward the milestones and deliverables foreseen, and identification of problems encountered and actions taken to correct them.

The first Financial Report will be produced in due time, containing a summary cost statement prepared by each participant and a cost certificate per participant, a management-level justification prepared by each participant about its overall costs incurred, linking these costs to the resources spent and the activities carried out by the specific participant.

Highlight clearly significant results

D1.1 Management Website, where all partners can share working documents. The Web Site facilitates the monitoring of activities and boosts collaboration among partners.

D1.2 Data Management Plan. This deliverable presents the plan for FANDANGO data management was submitted 1 month behind schedule because the new European GDPR presented implications that needed to be analysed in order to be sure that FANDANGO would comply with all the new rules.

D1.3 Quality Plan, where all quality procedures to be adopted during the project lifetime have been defined.

D1.4 Interim Progress Report (this document). It contains a management-level overview of the activities carried out, a description of progress toward the scientific and technological objectives, a description of progress toward the milestones and deliverables foreseen, and identification of problems encountered during the project and actions taken to correct them.

Deviations and/or Failure to achieve objectives (if applicable)

The main difference (deviation) in the planned work foreseen in the DoA was the need for the consortium to ask for an ORDP opt-out. The need to opt-out arose from data privacy and data protection concerns.

The FANDANGO project heavily relies on big data analysis, gathering information from data silos, websites and social networks. After GDPR came into force, some partners raised legal concerns about data gathering and processing that sparked an intense debate about it. During the Dublin Plenary Meeting (mid July), all partners recognised that in order to have significant research results FANDANGO needs to deal with personal data that cannot be provided to the scientific community as open research data and agreed to opt out of Open Research Data Pilot, due to privacy and data protection concerns.

Submission delay due to GDPR issue.

All deliverables due in this reporting period (M1-M9) were submitted in time, with the exception of the deliverables strictly related to data privacy, data gathering and data processing, that were strongly affected by the new GDPR and were finalised and submitted after Consortium agreed (in mid-July) to opt out of Open Research Data Pilot.

<i>Deliverables:</i>		
D1.1 Management Website (ENG)		Delivered M3
D1.2 Data Management Plan (ENG)		Delivered M7
D1.3 Quality Plan (ENG)		Delivered M6
D1.4 1st Progress Report (ENG)		Delivered M9
D1.5 2nd Progress Report (ENG)		Due M27
<i>Milestones:</i>		
MS1 Project initiation completed		Achieved
MS2 First pilot implemented		Due M12
MS5 Project Completed		Due M36
<i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	<ul style="list-style-type: none"> • Definition of all management procedure and setup of all management tools, as described in D1.1 - Management Website. • Definition of quality assurance procedures and contribution to D1.3 - Quality Plan. • Management and quality assurance activities. • GDPR and ORDP issues management. 	8.5
LVT	Support to the project quality assurance and preparation of the D1.3 - Quality Plan.	1.54

WP2 - DATA ACCESS, INTEROPERABILITY AND USER REQUIREMENTS

Planned Objectives

The overall WP2 goal is to collect data and set the data model for data interoperability between different data silos. In this WP, technical requirements will be also defined.

For this reason, WP2 will pursue the following specific objectives:

- Create an inventory of available data sources and the associated access rights,
- Develop means to exchange data within and outside the consortium,
- ~~Compose the FANDANGO Data Management Plan~~ (Deleted because there was a material error in the DoA: the DMP pertains and was actually delivered in WP1),
- Identify standardized data models for each of the different data sources,
- Define and prepare the user and system requirements document.

A summary of progress towards objectives and details for each task

T2.1 Data lake integration plan and design (M1-M6 – Lead. Sindice, Partic. LvT, VRT, CERTH, CIVIO, ANSA, UPM).

This task was successfully completed, despite a small delay due to GDPR considerations related to data collection.

In order to design a data lake integration plan that would fit the project needs, extensive collaboration between the partners was required. FANDANGO's plenary meetings and multiple online conferences played an important role in ensuring that the plan was in line with the designed data life cycle and supported by the underlying technologies.

Since this subject will evolve as the project progresses, complementary definitions will also be defined in T2.2. Nonetheless, the current outcome is a solid plan that will lead the development of the FANDANGO platform through clear practices for data manipulation and overall visibility of data flows across data silos.

T2.2 Data Interoperability and data model design (M1-M12 – Lead Sindice, Partic. LvT, VRT, CERTH, CIVIO, ANSA, UPM).

The creation of the data interoperability and data model design is currently underway and on track to be finished by M12.

Clear progress has been made for it. The topics already addressed are:

- dataset description: short dataset profile, summary and origin;
- standards and metadata: formats used;
- data sharing: access policies including restrictions on use.

They were prioritized as they are crucial for the technical design aspects of the solution and initial prototyping.

T2.3 User and system requirements (M1-M18 – Lead LvT, Partic. All).

The definition of user and system requirements progressed substantially as that was required to

support other tasks in this work package, like T2.1 and T2.2, as well as tasks from other WPs like T1.2 and T5.1.

Multiple sessions involved technical partners and users were organized to identify the necessary requirements, ensuring that big data aspects of the solution are properly designed to support end-user functionality essential to the use cases.

Highlight clearly significant results

D2.1 Data lake integration plan. This deliverable describes how the FANDANGO project manages data throughout its life cycle. It was submitted one month behind schedule due to GDPR considerations needed to ensure that FANDANGO is compliant with the new regulation.

D2.2 Data Interoperability and data model design. Initial definitions for dataset description, standards, metadata and data sharing was defined to support the early design of a first pilot.

D2.3 User Requirements. Core user requirements regarding the classification of articles and topics, as well as current methodologies used to analyse them, were outlined to provide a clearer direction to further implementation of FANDANGO.

D2.4 Technical requirements. A technical viability analysis was carried out on some of the most important user requirements. An initial technical demo was shown to users to support the decision making and an initial wireframe was created for the User Interface.

Deviations and/or Failure to achieve objectives (if applicable)

D2.1 was submitted one month behind schedule due to GDPR considerations that were required due the recent implementation of the regulation within the EU. The end result was not affected nor the delay impacted other tasks.

Deliverables:

D2.1 Data lake integration plan (Sindice)	Delivered M7
D2.2 Data Interoperability and data model design (Sindice)	Due M12
D2.3 User Requirements (CIVIO)	Due M12
D2.4 Technical requirements (platform and service requirements) (LIVETECH)	Due M18

Milestones:

MS1 Project initiation completed	Achieved
MS2 First pilot implemented	Due M12
MS3 First pilot validated	Due M24

A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1

<i>(Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	ENG contributed to define a suitable solution to handle different data format in the FANDANGO platform. Since ENG leads the definition of the platform supporting the FANDANGO prototype, ENG also contributed to the definition of the system requirements in order to fulfil the user and technical partners' needs.	3
CERTH	Contributions in the data lake integration plan and design as well as the data interoperability, user and system requirements.	1.38
LVT	Live Tech's contributed by analysing the technical requirements expressed by the users to proposal final User interface and take place of the system requirements definition.	17.21
ANSA	<p>Provided a list of selected European Data Silos to be used with the Pilot on European Context and Elections, with special regard to the May 2019 European Elections (2.1).</p> <p>Access to ANSA news flow was made available (2.2).</p> <p>User Requirements have been formulated after internal survey and inquiry and also through 10 interviews with selected journalists and also compiled into the Trello application (2.3).</p>	4
VRT	<ul style="list-style-type: none"> Organised and coordinated user insight sessions with the user partners Conducted contextual inquiries with 5 journalists who are experts in disinformation, internally at VRT Gathered and analysed insight results Reported and presented the results to consortium partners 	1.74
CIVIO	Research and definition of user and system requirements	8
UPM	UPM was involved in the initial definition of FANDANGO inputs. The sessions held in Rome were useful for the coordination among partners about a holistic view of what "fake news" actually means, as well as the initial selection of the most relevant features for its detection. UPM collaborated with end users to create the dataset	3

	that is being used as a starting pool of both “fake” and “reliable” data sources.	
SINDICE	<ul style="list-style-type: none">● Coordination of activities across partners for the tasks of WP2.● Creation of data lake integration plan.● Research and implementation of dataset definitions, standards and metadata for T2.2.● Contributions to user and system requirements.● Collaboration on the creation of the technical prototype of FANDANGO 0.1 to support requirement definitions.	10

WP3 - DATA GATHERING AND PRE-PROCESSING FOR DATA LAKE POPULATION

Planned Objectives

This WP will deal with the data gathering process from the different sources identified in FANDANGO and develop the necessary components to organise such data following a multi-domain and multi-lingual approach.

This WP will have as main activities:

- the data model design, to allow suitable data storage for Big Data analysis,
- the flexible data gathering mechanisms development,
- the data pre-processing to homogenise as much as possible the unstructured and structured data, and elaborate the basis of the evaluation of the processes.

A summary of progress towards objectives and details for each task

Task 3.1: Data model design and data lake conventions (M6 – M18 - Lead ENG. Partic. UPM, CERTH, LvT).

In task 5.1 Engineering proposed the open source HortonWorks middleware as the basic reference architecture for the FANDANGO platform, and more specifically for the FANDANGO Data Lake storage. Such a system has to provide Big Data oriented storage capabilities (including software for secure storage), suitable ingestion technologies, plus other software components to crawl and pre-process the raw data, preparing queries and other advanced methods. In 3.1, and in particular in a plenary session held in Rome in April, ENG led a preliminary effort for data lake conventions/choices and related data model design. The research carried out so far has been focused on data ingestion and initial pre-processing. In particular individual task leaders choose (among the HortonWorks middleware architectural modules) the ones that they would need to carry out their processing pipelines and sketched the related data interconnections.

Task 3.2: Data shippers for flexible data gathering (M6-M18 – Lead CERTH, , Partic. LvT, VRT, CIVIO, UPM).

The involved partners designed and developed crawling software for both fake and reliable Internet sites as well as for European open data portals. The software is developed in python Scrapy library and will be integrated with the rest of the platform through NIFI and apache kafka message queue engine.

Task 3.3: Data pre-processing (M6-M24 – Lead UPM, Partic. LvT, VRT, CERTH, CIVIO).

The involved partners identified the proper pre-processing tools to be included in FANDANGO in order to adapt the data to Machine and Deep Learning models. Since the sources types are different (text, images, metadata), the set of pre-processing tools must adapt to them, properly feeding the FANDANGO processing pipeline.

Task 3.4: Data gathering and ground truth building (M12-M30 – Lead LvT, Partic. VRT, CIVIO, ANSA).

VRT, CIVIO and ANSA provided numerous sources useful to build the FANDANGO ground truth, necessary to train the different Machine Learning and Deep Learning models dealt with in WP4. Moreover, a set of labels was defined to classify the sources. These labels will be crucial to assess

the quality of the different models implemented.		
<i>Highlight clearly significant results</i>		
<p>D3.1 Data model and components. Initial draft of FANDANGO technical requirements.</p> <p>D3.2 Lightweight data shipping components development. A monitoring-driven tool for data crawling.</p> <p>D3.3 Pre-processing set of tools. An initial set of tools for data pre-processing.</p> <p>D3.4 Ground truth development for FANDANGO system assessment. A labelled general-purpose dataset for fake news detection in the targeted countries (Spain, Italy and Belgium) was established.</p>		
<i>Deviations and/or Failure to achieve objectives (if applicable)</i>		
No deviations in WP3.		
<i>Deliverables:</i>		
D3.1 Data model and components		Due M18
D3.2 Lightweight data shipping components development		Due M24
D3.3 Pre-processing set of tools		Due M24
D3.4 Ground truth development for FANDANGO system assessment		Due M24
<i>Milestones:</i>		
MS3 First pilot validated		Due M24
<i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	ENG configured the tool for data ingestion for a first, preliminary prototype (FANDANGO 0.1). In addition, ENG defined together with the other partners, solutions to effectively store binary files in the data lake. Finally, ENG is defining the data life cycle for the data stored in the	2.8

	data lake.	
CERTH	CERTH put effort mainly in Task 3.2 for the design and development of crawling services for the collection of data from fake and true sites and European data portals.	2.6
LVT	Research and study of papers about text classifier for fakeness and its state of art. Checking and validation of data available on siren server. Definition and testing of a NLP pipeline to pre-process data. Build of the first fake/real news classifier with a dataset created ad hoc for the testing. Evaluating different approach for feature selection for the final classifier.	7.8
ANSA	Compiled a list of 'good' (trustworthy), with special attention to the Fact-Checkers, and 'bad' (fake) news websites for the Ground truth building. Also, Fake news cases have been collected for further study and methodology evaluation (3.4). Fact-Checkers sites and IFCN association have also been contacted for further possible utilization.	2
VRT	No effort spent in the period.	0
CIVIO	No effort spent in the period.	0
UPM	Initial requirements definition of the pre-processing (i.e. cleaning, organisation) tasks for the rest of technical modules. State-of-the-art definition in data analysis. Participation in the FANDANGO architecture. Inclusion of the processing modules and modules for source credibility definition. Also related to WP5.	4

WP4 - FAKE NEWS IDENTIFIERS, MACHINE LEARNING AND DATA ANALYTICS

Planned Objectives

The WP4 is responsible for providing processing and analytics methods to identify fake news and the scoring of posts. Different data types will be considered such as text, social graphs, images and videos.

In detail, WP4 will work on:

- Spatio-temporal analysis and contextualization of news posts
- Multilingual solutions for analyzing misleading messages
- Detection of forgery on images and videos
- Evaluation and scoring of credibility of the news sources through profiling
- -Machine learning approaches to automatically weigh and score fakeness of news posts.

A summary of progress towards objectives and details for each task

T4.1 Spatio-temporal analytics and out of context fakeness markers (M6-M24 – Lead CERTH, Partic. Sindice, UPM).

State of the art of different methodologies for fakeness markers was performed. A list of datasets that can be used to train deep learning models was compiled. Moreover, a first approach on out of context markers is under development.

T4.2 Multilingual text analytics for misleading messages detection (M6-M24 – Lead LvT, Partic. Sindice, UPM).

To analyze the multilingual news it has been evaluating the benefits and costs for two different approaches. The first approach is based on the use of machine translation systems to translate the news in English and thus to use only an English model to check the fakeness. Second one is based on the creation of a machine learning model for each language.

T4.3 Copy-move detection on audio-visual content (M6-M24 – Lead CERTH, Partic. Sindice).

A research on scientific literature on copy-move was performed. A new synthetic dataset was created based on different rules that emerged from existing copy-move research; we plan to use this dataset to enrich the deep learning models we are creating. Moreover, CERTH investigated other types of visual attacks such as deep fakes and face forensics (<https://arxiv.org/abs/1803.09179>) datasets.

T4.4 Source credibility scoring, profiling and social graph analytics (M1-M29 – Lead UPM, Partic. ENG, CERTH, LvT, Sindice).

The involved partners, with the contribution of CERTH, are working to provide a state of the arts social graph methods based on deep learning. CERTH, moreover, is investigating a novel idea based on the Graph Convolutional Network model to provide node embeddings for very large interaction graphs. UPM worked in this task to determine a set of metrics to measure the credibility of a specific source based on the relationships that each of the nodes (authors, articles, newspaper) have in a given social-graph.

T4.5 Machine learnable scoring for fake news decision making (M6-M24 – Lead CERTH, Partic.

ENG, LvT, Siren, UPM).		
A literature review is started with focus on DL based fusion and on the explanatory aspects of the provided classifiers.		
<i>Highlight clearly significant results</i>		
Literature review of DL methods for markers, visual attacks and graph embeddings. Design of novel methodologies was started and some initial datasets were selected to develop and evaluate the methodologies that will be delivered in WP4.		
<i>Deviations and/or Failure to achieve objectives (if applicable)</i>		
No deviations in WP4		
<i>Deliverables:</i>		
D4.1 Spatio-temporal analytics and out of context fakeness markers prototypes		Due M19
D4.2 Multilingual text analytics for misleading messages detection prototypes		Due M19
D4.3 Multilingual text analytics for misleading messages detection prototypes		Due M19
D4.4 Source credibility scoring, profiling and social graph analytics prototypes		Due M19
D4.5 Machine learnable scoring for fake news decision making prototypes		Due M22
D4.6 Software updates of the modules and prototypes		Due M29
<i>Milestones:</i>		
MS3 First pilot validated		24
MS4 Finishing of the second round of pilots		36
<i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	No activities performed by ENG in WP4 until M9.	0

LVT	Research of machine translation systems open source offline. Research of reliable sources of fake/no-fake in each language.	8.2
CERTH	CERTH worked on a literature review and on the development of state of the art methods based on deep learning for fakeness and out of context markers, on the creation of a synthetic dataset, graph embedding approach as well as copy move detection in videos.	3.2
UPM	UPM has worked on the technology selection for the user-needs in social graph analysis. The technology was chosen and the state-of-art techniques for metrics definition in fake news has been done. Currently UPM is collaborating with SINDICE in the ontology creation for fake news environment.	4.1
SINDICE	SINDICE (Siren) has done research and development to enhance its search and graph analysis platform to allow better visual representation of concepts as well as dynamic and exploratory user interactions to navigate across different datasets and data sources.	3.9

WP5 - THE FANDANGO SOFTWARE STACK

Planned Objectives

The main WP5 objectives are:

- To design the reference architecture of the platform;
- To define system interfaces that will be used by the FANDANGO layers;
- To setup the tools;
- To support the internal development.

A summary of progress towards objectives and details for each task

Task 5.1 Reference architecture (M1-M12 – Lead ENG)

In Task 5.1 Engineering as task leader in coordination with all the partners, defined the overall FANDANGO reference architecture. The main choice was to rely on the HortonWorks Big Data oriented Open Source middleware. While refinements about some specific choices are still being carried out, the choice already provided a solid guidance for FANDANGO development and application architectures.

This HortonWorks based FANDANGO architecture contains distributed data sources and parallel processing tools able to handle both structured and unstructured data.

Engineering also set up an operating first version of the overall platform, deploying a relevant subset of tools to allow all partners to start developing the algorithms in a shared environment.

The reference architecture is being refined by leveraging

- face to face discussions during project meetings
- regularly scheduled call conferences
- specific requests from partners

T5.2 FANDANGO platform setup (M12-M30 – Lead ENG)

T5.2 was not started yet, according to the foreseen schedule.

T5.3 System and user interfaces implementation (M12-M30)

T5.3 start was anticipated according to accommodate a iterative research approach. As a result, the User Interface design for FANDANGO 0.x prototypes was begun and still is ongoing.

Highlight clearly significant results

Definition of FANDANGO 0.1 and FANDANGO 0.2 prototypes

Setup of FANDANGO 0.1 prototype and FANDANGO 0.2 prototype (ongoing)

User Interface design for FANDANGO 0.x prototypes (ongoing)

Deviations and/or Failure to achieve objectives (if applicable)

No deviations or failures were incurred until M9.

Deliverables:

D5.1 FANDANGO Reference Architecture description	Due M12	
D5.2 System and user Interfaces prototypes	Due M19	
D5.3 FANDANGO platform setup defining process	Due M30	
<i>Milestones:</i>		
N/A		
<i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	<ul style="list-style-type: none"> ● analyzed requirements ● defined the basic architecture ● defined solutions to handle specific data formats ● deployed tools for Prototype 0.1 ● defined & deployed components for Prototype 0.2 	9.3
CERTH	Contributions in the FANDANGO reference architecture for the integration of the WP4 modules	1.7
LVT	Contributions in the FANDANGO reference architecture for the integration of the WP4 modules and development of the first sketch User Interface base on user requirement.	5.6
VRT	No P/M spent	0
UPM	No P/M spent	0
SINDICE	Contributions to FANDANGO's reference architecture, implementation of the very first preliminary FANDANGO prototype (0.1) and the design for a more evolved prototype (0.2)	2.8

WP6 - BIG DATA VALUE VALIDATION THROUGH PILOTING

Planned Objectives

The main WP6 objectives are:

- Validating the FANDANGO solution within three use-cases: climate, immigration and European context
- Planning the pilot activities
 - Creating a validation panel
- Organising structured evaluation rounds
- Executing the pilot activities in two major iterations
- Validating the pilot activities, including fake news classification output, scalability, operability/maintainability, performance and user acceptance testing.

A summary of progress towards objectives and details for each task

T6.1 Pilot planning (M1-M12 – Lead VRT, Partic. ENG, LvT, Sindice, CERTH, CIVIO, ANSA)

VRT consulted with other user partners about the setup of the pilots. They are in the process of drafting a PEEP. After the FANDANGO software delivery, pilot scope and execution plans will be further refined. A composition for a user panel has been defined and is to be confirmed upon completion of the PEEP.

T6.2 First pilot iteration (M12-M24 – Lead Siren, Partic. ENG, LvT, VRT, CERTH, CIVIO, ANSA)

T6.2 was not started yet, according to the foreseen schedule.

T6.3 Second pilot iteration (M24-M36 – Lead VRT, Partic. ENG, LvT, Sindice, CERTH, CIVIO, ANSA)

T6.3 was not started yet, according to the foreseen schedule.

T6.4 Pilot Validation (M12-M36 – Lead ANSA, Partic. ENG, LvT, VRT, CERTH, CIVIO, Sindice)

T6.4 was not started yet, according to the foreseen schedule.

Highlight clearly significant results

No significant results were scheduled until M12.

Deviations and/or Failure to achieve objectives (if applicable)

No deviations or failures were incurred until M9.

Deliverables:

D6.1 Pilots execution and evaluation plans

Due M12

D6.2 First iteration piloting and validation report

Due M12

D6.3 : Second iteration piloting and validation report		Due M36
<i>Milestones:</i>		
MS2 First pilot implemented		Due M12
MS3 First pilot validated		Due M24
MS4 Finishing of the second round of pilots		Due M36
<p><i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i></p>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	Collaboration in the pilot planning, design and technical validation of early stage prototype.	1
LVT	Collaboration in the pilot planning, design and technical validation of early stage prototype.	2.3
VRT	Drafted the PEEP and consulted with other user partners about the execution.	0.5
CERTH	No P/M spent	0
UPM	No P/M spent	0
SINDICE	Collaboration in the pilot planning, design and technical validation of early stage prototype.	3.7
CIVIO	No P/M spent	0
ANSA	Made a first draft of the plan for the European Context and Elections User Pilot (User Requirements and Internal organization) and its validation, with particular attention to the (M17) 2019 European Elections (6.1).	1

WP7 - DISSEMINATION AND DATA COMMUNITY

Planned Objectives

The main objectives of this work package are:

- To provide the project with the tools and channels for the dissemination of the activities within the project;
- To make the FANDANGO technologies and findings available and attractive to relevant stakeholders, while promoting a multi- disciplinary vision of data-driven news verification according to the work plan;
- To ensure that benefits and advantages of the FANDANGO platform are explained correctly along with the use of the tools;
- To identify relevant websites and social networks of third parties where it might be interesting to include project awareness through project references, publications and/or press releases, and to ensure presence in social networks to increase awareness about FANDANGO facts and findings.
- To support project coordinator on the dissemination and promotion activities and to present the project to the EC;
- To ensure impact of the project and to measure it.

A summary of progress towards objectives and details for each task

Task 7.1 – Dissemination Activities (M1-M36 – Lead CIVIO, Partic. All)

CIVIO has developed and implemented a dedicated project website (M3) and since then this is the main dissemination point of the project. For now, it hosts articles and reports about fake news, academic papers and other initiatives fighting against fake news but it is ready to host databases, tools and connected to the social networks created by the project. The content is suggested by the partners and a regular provision of updates and regular contributions are scheduled in the dissemination plan.

The Dissemination Plan of the project has been developed (M9), providing a concrete roadmap for the consortium to reach the objectives of the work package. The Plan addresses the various recipients of dissemination activities: journalists, media companies, data producers, the overall news and information consumption ecosystem and media consumers. A dissemination tracker has been set up [here](#).

The Plan has identified suitable dissemination opportunities and specify a strategy to make best use of potential dissemination activities and the appropriately target the different audiences. The plan has been presented and will be discussed in Naples Consortium Meeting (October 29th, 30th and 31st) across all consortium members to be executed.

Social Media. FANDANGO project has set up one Facebook and one Twitter social media accounts in order to disseminate the project results but also to listen to the feedback from producers and users. These social network channels will be used to spread corrections and fact-checks, leveraging when possible the viral nature of the networks. Both accounts will be launched one month before the ICT Proposers Network where the project has already [an offline session scheduled](#), as part of the Dissemination Plan, to engage the community around the project.

Task 7.2 – FANDANGO data community building (M3-M36 – CIVIO, Partic. All).

The FANDANGO project is working for defining the publication standards of the project and developing a taxonomy for the different data collected to make them available to others. Open standards and open licenses will be used to distribute the publicly available results, the tools' source code and the gathered data sets.

The project web is the base of platform promotion and engagement for stakeholders and focus groups,

that will be complemented with workshops once the tools are available.

FANDANGO is also leveraging existing networks and communities whenever possible. We have recently participated in a NLP conference [TEXTAV '18](#) in London, reaching relevant stakeholders and potential users. Additionally, FANDANGO participated in the [Global Fact-Checking Summit](#) in Rome (June 18) and will take part in [ICT Proposers Day 2018](#), as mentioned above.

FANDANGO was also invited to participate to at [Adria Information Disorder AI Tools 2018 Workshop](#) held on June 29-30, 2018, in Koper, Slovenia. organized by [COMPACT European project](#).

Highlight clearly significant results

D7.1: Development of project website [M 3] - Delivered

A platform for ongoing public engagement, including areas for news releases, project reports and technical documentation. It will include links to tools and source code created by the project, as well as datasets.

D7.2: Dissemination Plan [M 9] - Delivered

A description of the dissemination strategies and activities to be followed by the FANDANGO partners, as well as KPIs and metrics to be monitored. A [Dissemination Tracker](#), to be used internally to monitor impact, has also been created.

Deviations and/or Failure to achieve objectives (if applicable)

No deviations or failures were incurred until M9.

Deliverables:

D7.1 Development of project website	Delivered M3
D7.2 Dissemination Plan	Delivered M9
D7.3 Impact Report	Due M36

Milestones:

MS1 Project initiation completed (D.7.1 Development of the project website)	Achieved M6
MS2 First pilot implemented (D.7.2 Dissemination Plan)	Due M12
MS5 Project completed	Due M36

A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);

Involved partners	Activities description and deviation	Actual mm(M1-M9)
ENG	Contributions and reviews to the WP deliverables.	0.5

LVT	No P/M spent	0
VRT	No P/M spent	0
CERTH	No P/M spent	0
SINDICE	Reporting of activities and follow-up of published content.	0.6
CIVIO	Project website, Dissemination Plan, community engagement	4
UPM	Activities of dissemination and promotion of FANDANGO project within the Research Community. Initial contact with news agency in Spain.	0.4
ANSA	No P/M spent	0

WP8 - REPLICABILITY AND BUSINESS

Planned Objectives

The overall objective of this WP is to maximize the project's impact and the commercialization of FANDANGO results.

- Assess the perception of stakeholders (right holders and producers, media distributors, broadcasters, regulators, etc.) offerings strategies and their requirements.
- Analyse the competing offerings by Big Data vendors, with a focus on media and fake news
- Analyse the business opportunities to optimise costs or generate new revenues through scenarios and simulated business models of application areas, taking into account new consumption trends
- Plan a market replication process in order to increase the distribution of the project.

This WP also gathers all activities around dissemination of the results and development of the exploitation strategy with a sound and innovative business model approach.

A summary of progress towards objectives and details for each task

T8.1 Innovation strategy (M1-M12 – Lead CIVIO, Partic. ENG, LvT, VRT, CERTH, Siren, ANSA).

As part of the overall business strategy, a specific innovation strategy Will be defined for the FANDANGO solutions. Innovation Will be described in terms of desirable future state for the FANDANGO services marketing. The main goal Will be to break away from the competition, to beat them and create new spaces. The strategy will be adaptive and conceived to evolve over time according to reference domain dynamic changes. This task will be continuously monitored by the innovation Management Board (IMB).

The Innovation strategy is being established. The IMB is going to be in place and run also having the role to approve stakeholders engagement. Exploitation profiles for all partners collected as well using a wiki approach and it is hosted in the same platform.

Task 8.2 Market and application areas business requirements (M9-M24 – Lead LvT, Partic. ENG, Siren, VRT, CERTH, CIVIO, ANSA)

T8.2 was just started at M9, according to the foreseen schedule. No significant results have been achieved so far.

T8.3 Bussines model and exploitation plan (M12-M36 – Lead. LvT, Partic. ENG, LvT, VRT, CERTH, CIVIO, ANSA)

T8.3 was not started yet, according to the foreseen schedule.

T8.4 Replicability (M24-M36 – Lead Siren, Partic. ENG, LvT, VRT, CERTH, CIVIO, ANSA).

T8.4 was not started yet, according to the foreseen schedule.

Highlight clearly significant results

WP8 decided to activate an intense use of FANDANGO management platform provided by ENG and almost all activities in the WP are managed through the platform:

- a) the wiki tool has been established and populated by all partners,
- b) the Exploitation profile in a wiki approach so to be updated while new services are going to be identified has been activated,
- c) a shared space to collect views from each country is in place
- d) engaged stakeholders, have been interview to have a better view of their attitude and role in

the future project exploitation.		
<i>Deviations and/or Failure to achieve objectives (if applicable)</i>		
Minor deviations have been identified reflecting some delay in planned activities. Those deviations are not expected to affect deliverables release date.		
<i>Deliverables:</i>		
D8.1 Market Analysis and preliminary business requirement		Due M15
D8.2 Application areas business requirements and preliminary exploitation plan		Due M24
D8.3 Final Exploitation plan and technology uptake from FANDANGO		Due M36
D8.4 Report replicability of the solution		Due M36
<i>Milestones:</i>		
MS3 First pilot validated		Due M24
MS5 Project completed		Due M36
<i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm(M1-M9)</i>
ENG	No P/M spent	0
LVT	Contribution to the Innovation Strategy definition, with a particular focus on the Market Positioning and Competitor Analysis. Supporting in Stakeholders engagement.	3.5
VRT	No P/M spent	0
CERTH	No P/M spent	0
UPM	No P/M spent	0
SINDICE	Collaboration on preliminary requirements and early analysis of cross-market applicability of the methods and technologies being developed for FANDANGO to ensure that proposed designs do support replicability.	1.8
CIVIO	Research for defining Innovation strategy	1
ANSA	No P/M spent	0

WP9 - ETHICS REQUIREMENTS

<i>Planned Objectives</i>		
The objective of this WP is to ensure compliance with the 'ethics requirements' defined in the Ethics Review Process.		
<i>A summary of progress towards objectives and details for each task</i>		
<p>The 'ethics requirements' that the project must comply with were translated in procedure included as deliverables D9.1 and D9.2 in this work package.</p> <p>The procedure described there to comply with all relevant ethics requirements will be followed until the end of the FANDANGO project.</p>		
<i>Highlight clearly significant results</i>		
<p>D9.1 H - Requirement No. 1</p> <p>D9.2 POPD - Requirement No. 2</p>		
<i>Deviations and/or Failure to achieve objectives (if applicable)</i>		
No deviations nor failure.		
<i>Deliverables:</i>		
D9.1		M6
D9.2		M6
<i>Milestones:</i>		
<i>A statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Activities);</i>		
<i>Involved partners</i>	<i>Activities description and deviation</i>	<i>Actual mm (M1-M9)</i>
ENG	Engineering is carrying out WP9 activities with no additional effort placed on the FANDANGO budget.	0

3. PROJECT MANAGEMENT DURING THE PERIOD

3.1 CONSORTIUM MANAGEMENT TASKS AND ACHIEVEMENTS

Consortium management presented no specific challenge in the period.

3.2 PROBLEMS OCCURRED AND ACTUAL OR ENVISAGED SOLUTIONS

No major problems happened in the period. However, it is to be noticed that the new GDPR rules came into legal force, and that fact raised some concern and caution in the leverage that FANDANGO can put on the use of social shared personal data.

3.3 CHANGES IN THE CONSORTIUM, IF ANY

No changes in the consortium management happened in the period.

3.4 LIST OF PROJECT MEETINGS, DATES AND VENUES

Name of the event	Place and date	Short description of the meeting
Kick-off meeting	Brussels, 18th - 19th of January 2018	Kick-off of the FANDANGO project.
Project Meeting Plenary	Rome, 18th - 20th of April 2018	Collaboration sessions with all FANDANGO partners to discuss review of WPs, discuss key project points and plan the next project activities.
Project Meeting Plenary	Dublin, 17th - 18th of July 2018	Collaboration sessions with all FANDANGO partners to discuss review of WPs, discuss key project points and plan the next iteration of activities. Prototype 0.1 was demonstrated in this session.

3.5 PROJECT PLANNING AND STATUS

The project is proceeding according to schedule and foreseen scientific and technical objectives.

3.6 IMPACT OF DEVIATIONS FROM THE PLANNED MILESTONES AND DELIVERABLES

No significant deviations regarding the planned milestones and deliverables happened in the period.

3.7 CHANGES IN THE LEGAL STATUS OF ANY OF THE BENEFICIARIES

No changes to the legal status of any of the beneficiaries happened in the period.