EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR COMMUNICATION
DIRECTORATE-GENERAL INFORMATICS

AMENDMENT N° 1 To
Memorandum of Understanding (MoU) DIGIT-00928-00

On Data Analytics – Prototype about
Internal virtual assistant for social media communicators
and mythbusters – Phase II

BETWEEN
THE DIRECTORATE-GENERAL FOR COMMUNICATION (DG COMM)
OF THE EUROPEAN COMMISSION

AND

THE DIRECTORATE-GENERAL FOR INFORMATICS OF THE EUROPEAN
COMMISSION (DIGIT)

The Directorate-General for Communication, hereinafter "DG COMM", represented by
[in her capacity as Director-General DG COMM

and

the Directorate-General for Informatics, hereinafter "DG DIGIT", represented by
[in his capacity as Director-General DG DIGIT

(herinafter jointly referred to as 'the parties')

HAVE AGREED as follows:

PREAMBLE

On 10/12/2020, DG COMM A (the client), and DG DIGIT (the service provider) signed
the MoU DIGIT-00928-00 – Ares(2020)7492893.

This is the first Amendment to the above mentioned MoU.

ARTICLE 1 - SUBJECT

Article 3.2 – SERVICE – Work Packages is replaced by the following:

WP1 – Performance improvements:
• Implement architectural and infrastructural changes to support up to 200
users:

MOU DIGIT-00928-01.
- Identify bottlenecks
- Improve graph algorithms
- Improve Deep Learning NLP algorithms
- Evaluate change of Graph DB
- Evaluate work impact on accuracy only with keyword search
- Review architecture to assure scalability;
  - Build metric for measurement of accuracy and performance and register base line:
    - scripting for extraction from DB;
    - scripting for measurement and statistics;
  - Identify bottlenecks:
    - use metric for performance to identify bottlenecks;
  - Assure Scalability:
    - address identified bottlenecks;
    - redesign Architecture to assure scalability;
  - Chatbot Performance Scaling.

WP2 – Automated addition of data from various sources:
- Automated injection into knowledge graph of new data from multiple sources / formats:
  - EC internal:
    - Press Corner portal sources - Question Answer, FAQ and daily news (midday briefing) – summarisation, topic identification
    - EDCC sources of question-answers: Reference replies, briefings, historical replies
    - Speech-to-text transcription of COMM-SPP press conferences (Midday briefing, College read-outs, Technical briefings); speeches, statements and interviews of the President (EN,FR,DE)
    - Sharepoint sources from SPP
  - Tweets:
    - Adapt scripts to inject tweets;
    - Adapt Schema Knowledge graph;
  - For each new source of data:
    - define and implement approach for data extraction;
    - edit graph schema if needed;
    - adapt scripts for injection;

  - Extending UI for Injection and Graph Management:
    - Add languages (EN,FR,DE) into knowledge graph
    - Traceable knowledge – feeding of briefings, reference replies
    - Curation of information from various sources
    - Lifespan

WP3 – Implement feedback monitoring tool:
- Integrate user satisfaction feedback on question reply:
  - change schema DB and injection scripts;
  - adapt API;
  - adapt Assistant;
  - adapt Chatbot;
- Evaluate and Integrate feedback form:
  - define approach;
  - integrate back office front and back end if needed;
WP4 – Actively learning component for chatbot:
- Define active learning approach
- Define metric for improvement tracking
- Implement continuous learning lifecycle
- Evaluate and implement Graph DL for active learning.

WP5 – Text-generative bot:
- Evaluate and implement generative approaches:
  - define approach;
  - define metric for validation;
  - change back and front end;

WP6 – Additional knowledge graph learning:
- Facts knowledge graph (semantic db):
  - define and implement schema;
- Query layer for content validation:
  - experimental approach for fact checking and content validation;
  - expose as API to other layers;
- Experiments on trending and “hot” topics:
  - machine learning model for the determination of trending topics and lifespan of “hot” topics.

Article 3.2 – SERVICE – Deliverables is replaced by the following:

D1: Implement performance and accuracy improvements
D2: Additional data from various sources automatically ingested
D3: Implement feedback monitoring tool
D4: Apply active learning component in knowledge graph
D5: Text generation bot component supplies new answers
D6: Additional knowledge graph learning algorithms

Article 5 – BUDGETARY RESOURCES is replaced by the following:

DG COMM will provide the total budgetary resources required for the development of the prototype as described under section 3.

The total amount is € 206 607.90. This amount will cover all direct and indirect costs incurred in the further development of the prototype. DG COMM will provide new budgetary resources of € 110 000.00, and unspent appropriations of € 56 607.90 were provided through the total amount of resources of € 157 384.90 in MoU DIGIT-00928-00 in 2020.

**Budgetary transfer overview table**

<table>
<thead>
<tr>
<th>Budgetary year</th>
<th>Amount (€)</th>
<th>Transfer status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 for the prototype phase 1</td>
<td>144 000.00</td>
<td>Done in 2019</td>
</tr>
<tr>
<td>2020 for the prototype phase 2</td>
<td>131 384.90</td>
<td>Done in 2020</td>
</tr>
</tbody>
</table>

MoU DIGIT-00928-01
Any unspent appropriations at the end of the project will be used by DG DIGIT in the next phase of implementation, subject to the signature of an Amendment or of a new Memorandum of Understanding.

ARTICLE 2

All the other clauses of the MoU DIGIT-00928-00 that are not amended, replaced or cancelled by the present amendment, remain unchanged and continue to apply.

ARTICLE 3

The present amendment forms an integral part of the MoU DIGIT-00928-00 and enters into force on the date of the last signature.

For DG COMM

Qualified electronic signature by: [Redacted]
Date: 2021-12-10 19:01:02 +01:00

Director-General DG COMM

For DG DIGIT

Qualified electronic signature by: [Redacted]
Date: 2021-12-08 11:20:12 +01:00

Director-General DG DIGIT