

27 July 2021

# *The use of AI in evidence management: EFSA's vision*

*Webinar*

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Time (CET)	Agenda
11.00 - 11.10	<b>Introduction to SPIDO</b> <i>Claudia Heppner, SPIDO project manager</i>
11.10 - 11.25	<b>Roadmap for actions on artificial intelligence for evidence management in risk assessment</b> <i>Didier Verloo, Head of the Assessment and Methodological Support Unit, EFSA</i>
11.25 - 11.40	<b>The survey: rationale and next steps</b> <i>Christina Orphanidou, PwC EU Services EESV</i>
11.40 - 11.55	<b>Q&amp;A</b>
11.55 - 12.00	<b>Closing</b>


# Some quick rules to make the most of this webinar

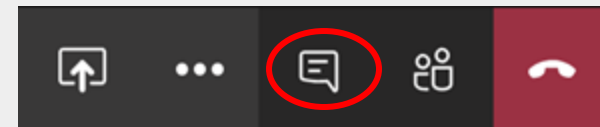


## KEY RULES

Please make sure to **mute your microphone** during the whole webinar to ensure a seamless experience.

In order to post questions, please use the "Chat" panel. You should take the following steps:

1. Click on the **Chat icon** to open the panel 
2. Enter your question in the chat text box and then press **Enter**



*Questions will be collected throughout the webinar and answered in the dedicated Q&A session*

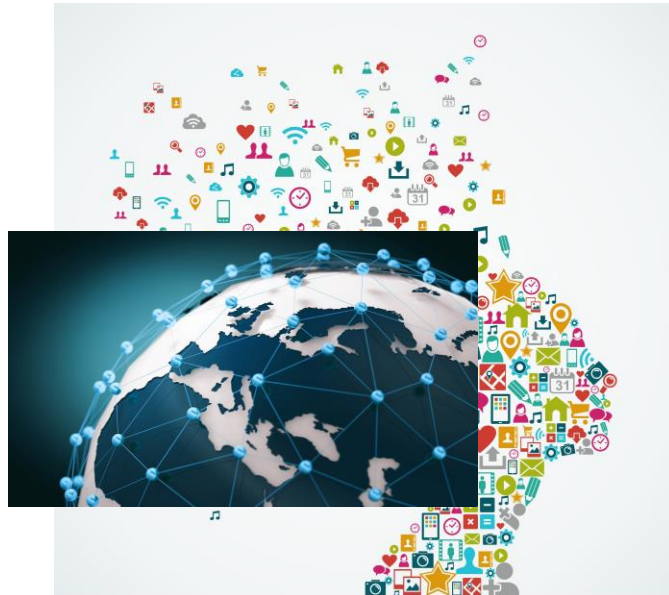
*The webinar is recorded*

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# Science Studies and Project Identification & Development Office (SPIDO)

**Claudia Heppner**  
Project manager

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### Transparency Regulation (EU) 2019/1381 (Art. 32d)

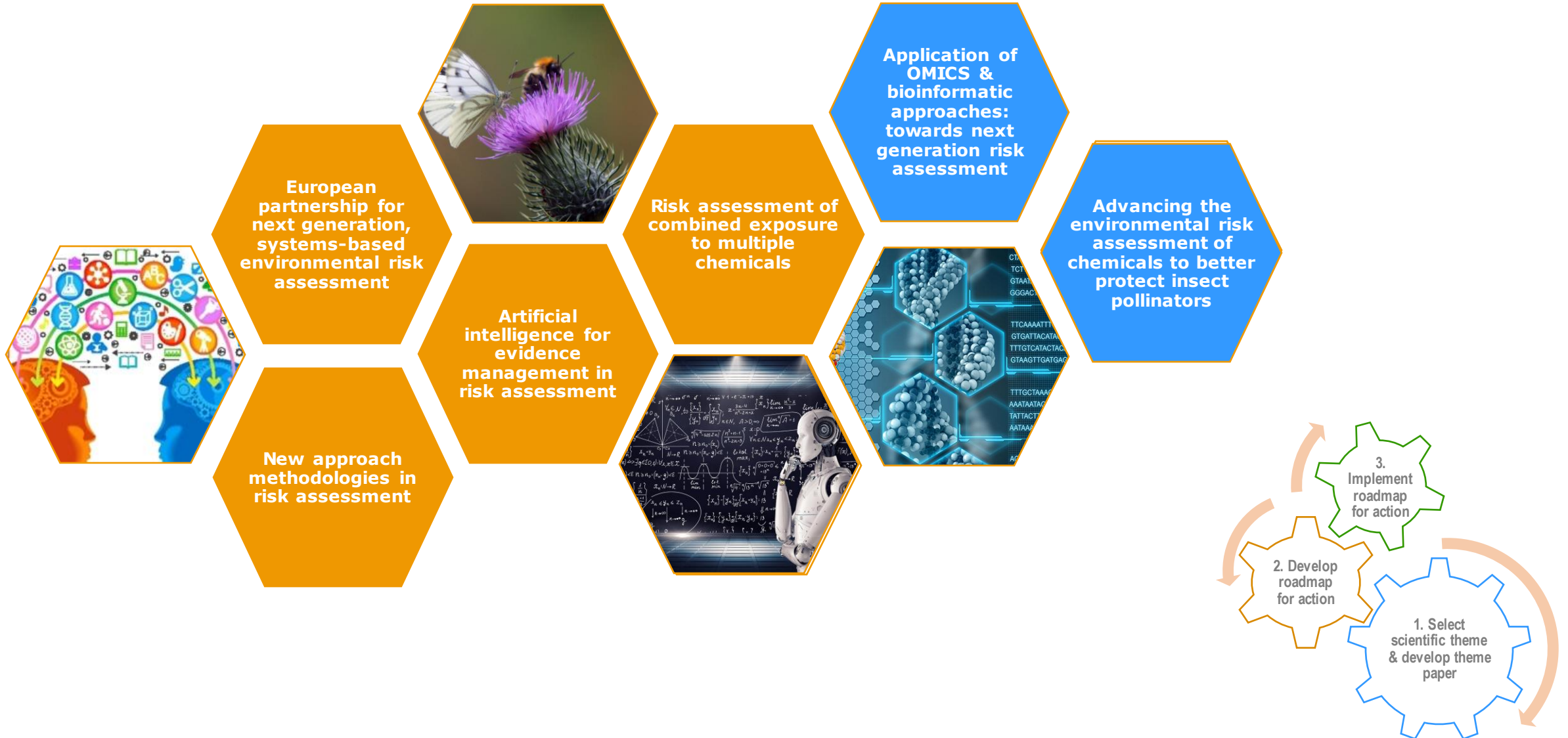
## Goals

- Enhance EFSA's **capacity** to identify studies/projects benefitting regulatory processes/science
- Fill **knowledge gaps** to ensure **preparedness** for:
  - Possible divergences on sensitive matters ("verification" studies)
  - Future risk assessment requirements due to evolving scientific knowledge and legislation
- Enhance capacity building and build **partnerships**

## Process & tools

- Identify **scientific themes** requiring multi-annual cooperative arrangements with Member States, EU Agencies and, if relevant, international partners
- Develop and implement **roadmaps for action**
- Multi-annual, multi-partner and high-value scientific **grant** (co-funding) and **procurement projects**
- 2021: 5 M €; 2022: 15M €/year (planned)

# SPIDO themes & roadmaps 2020-2021



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# Roadmap for actions on artificial intelligence for evidence management in risk assessment

**Didier Verloo**

Head of the Assessment and Methodological Support Unit

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## Risk Assessment Workflow Stages

Plan the evidence; methods, knowledge

Execute the Risk assessment

Adopt (timeliness)

Evidence

**EFSA's evidence management process** It is a structured process of collecting various streams of evidence generated through different study types and alternative approaches reported by different sources

## Evidence Management Framework

**1 Evidence Collection:** Literature, Member states, Applicants, stakeholders, calls for data, consultations, data holders such as Eurostat WHO, Expert Knowledge Elicitations...

**2 Evidence Appraisal:** Assess the uncertainty

**3 Evidence Synthesis & Integration:** Combine

**4 Evidence Visualisation & Dissemination**

**Evidence Management** is a **resource intensive** process where the amount of evidence that can be considered is limited by both the **accessibility** of the evidence and the **resources** available for the different phases of the process.



Picture by Pexels from pixabay

**Artificial intelligence** (AI) approaches such as **machine learning** have immense potential in supporting the evidence management process in the various steps and will strengthen the body of evidence.



Picture by ParallelVision from pixabay

## Implement **Artificial Intelligence** approaches to **Evidence Management** for:

- increased **accessibility** of the **body of evidence**
- increased **breadth** of the **body of evidence**
- enhanced **trustworthiness** of risk assessment
- applied in **human centric** risk assessment process (problem formulation, interpretation)



Picture by Tibor Janosi Mozes from pixabay

AI approaches may **reduce the need** to initiate **verification studies** (as per Article 32d of Regulation (EU) 2019/1381).

In case a verification study is required, AI approaches will **facilitate the integration** of the new evidence generated by the verification study.

AI shall, **efficiently**  
collect, process and analyse  
**more evidence in a timely manner**  
to contribute to the human centric RA  
process

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# *Survey: rationale and next steps*

*Christina Orphanidou, PwC EU Services EESV*

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We aim at delivering a **roadmap for actions providing recommendations for future multi-annual, multi-partner studies or projects in the area of AI approaches**, building on EFSA's vision and supporting EFSA's preparedness for future risk assessment requirements and for preventing possible divergence on sensitive matters.



The roadmap for action will:

- map, identify and prioritise working areas in the respective regulatory and scientific area;
- **identify data gaps, potential research overlaps, challenges and technical/non technical barriers;**
- **identify and rank opportunities for collaboration with potential partners;**
- identify opportunities for communication.

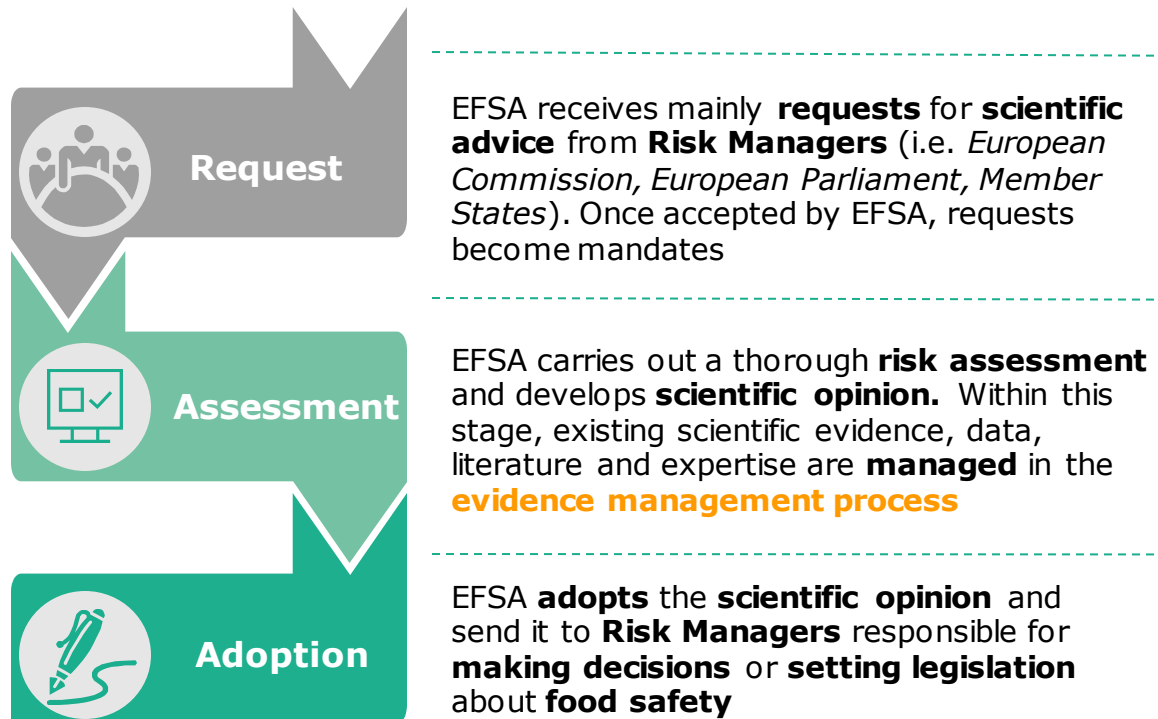
By developing an **approach on the implementation of AI methods in the evidence management phase of the risk assessment**, we will support EFSA to achieve its vision of

- an increase in the accessibility and the breadth of the body of evidence and
- application of human centric AI in close coexistence with the human expertise by 2027

# What is evidence management in risk assessment?

EFSA is the **risk assessor**, evaluating risks associated with the **food chain**. EFSA doesn't have scientific laboratories, nor does it generate new scientific research: it **collects** and **analyses existing research** and **data** and provides **scientific advice** to **support decision-making** by **risk managers**

## Risk Assessment Workflow Stages



**EFSA's evidence management process** is the core of the evidence-based risk assessment. It is a structured process of collecting various streams of evidence generated through different study types and alternative approaches reported by different sources

## Evidence Management Framework

**1 Evidence Collection:** Gathering and validating the required streams of data through multiple means and from various reliable sources.

**2 Evidence Appraisal:** Integrating and assessing the quality, consistency and complementarity of all the collected data.

**3 Evidence Synthesis & Integration:** Combining, summarising and finding key patterns.

**4 Evidence Visualisation & Dissemination:** Production of customised data visualisations - in the form of reports, tables and graphs - and publication of evidence

## Data Collection

- Terminology Mapping
- Data de-duplication
- Anomaly Detection
- Research/Review question evaluation
- Comparable studies/assessments detection
- Relevant Keywords Identification
- Information clustering/categorization
- Abstract Screening
- Information extraction from documents
- Identification of risk/confidentiality issues within a document
- Identification of relevant stakeholders/experts



## Data Synthesis & Integration

- Automatic Text Summarization
- Uncertainty Identification
- Uncertainty Prioritisation



## Artificial Intelligence Areas

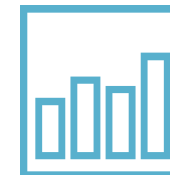
## Data Appraisal

- Information Appraisal
- Information Consolidation
- Quality assessment/correction of written work
- Evidence Sources Appraisal

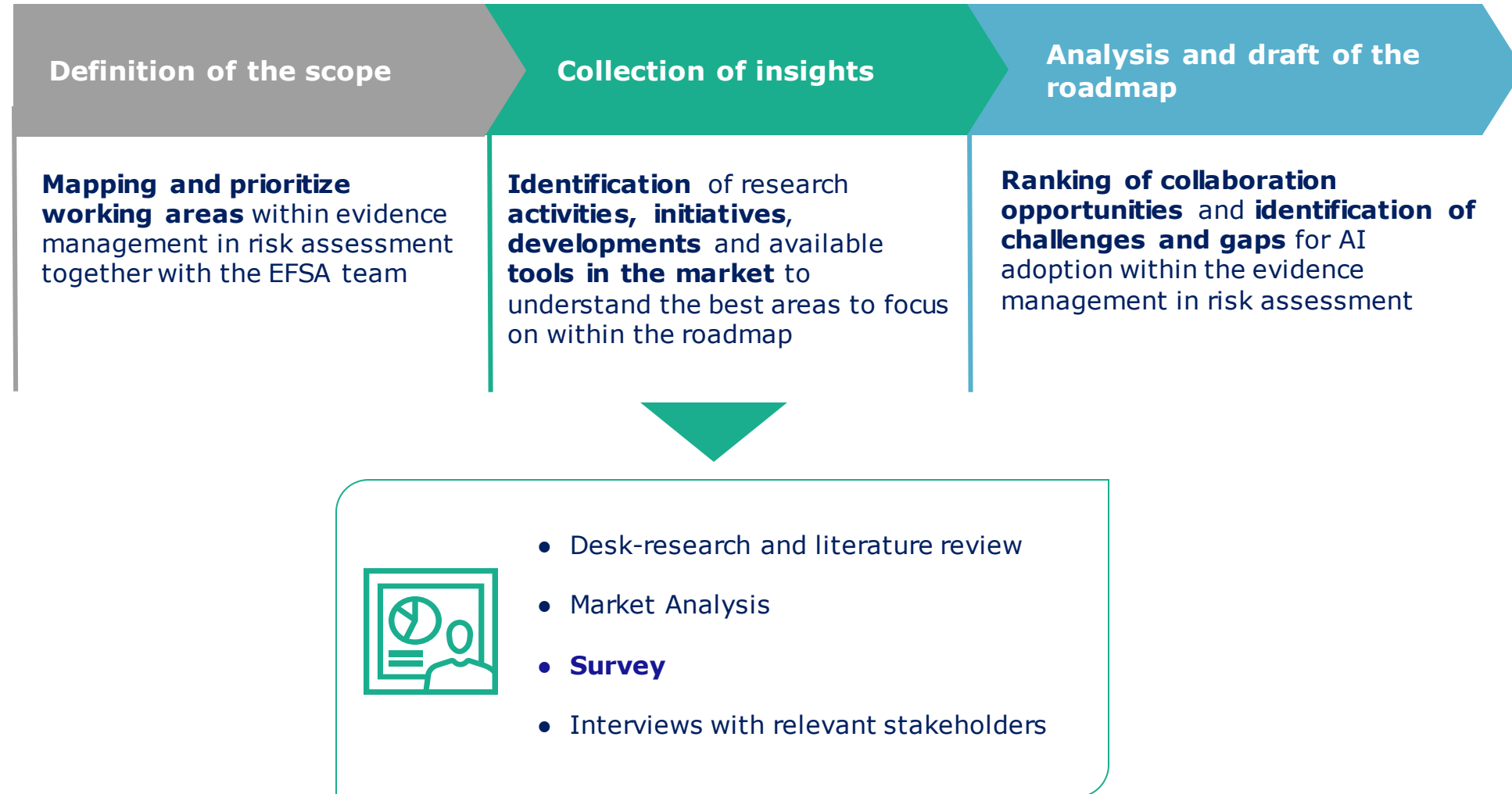


## Data Visualisation

- Automatic Report Production



# How do we proceed?



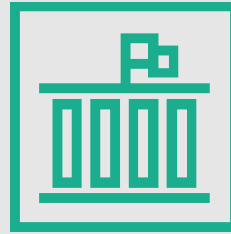
# What are we looking for?



## Academia

(research organisations, universities, AI experts)

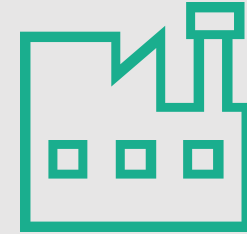
- Ongoing research activities on AI solutions for evidence management
- Understand the development trends of AI solutions applied to evidence management



## National Authorities

(national competent authorities in food safety, medicine etc)

- Examples of ongoing or planned initiatives, where AI has been applied to some evidence management steps
- Understand impact, benefits, challenges and blockers
- Find possible partners for future cooperation with EFSA



## Industry

(IT vendors, start-ups)

- Commercialised or under-development AI solutions that can be applied to the evidence management process
- Understand the maturity of the available AI solutions and market readiness in the next few years



The survey will be open until the **12th of September 2021!**



# What's next?

## Survey

Open until  
September 12th!



## In-depth interviews

to dig deeper into the most relevant research activities/ initiatives/AI solutions



## Data analysis

The team analyses the data collected through the survey and identify the most relevant topics to be further explored



## AI Workshop

The interviewees will be invited to join to the workshop where, together with EFSA, we will discuss the main elements of the roadmap



**Roadmap for action** providing recommendations on AI application to evidence management in risk assessment



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# Q&A

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