



# UNCOVER: development of an efficient steganalysis framework for uncovering hidden data in digital media

## GENERAL PRESENTATION

UNCOVER Consortium

Open General Training



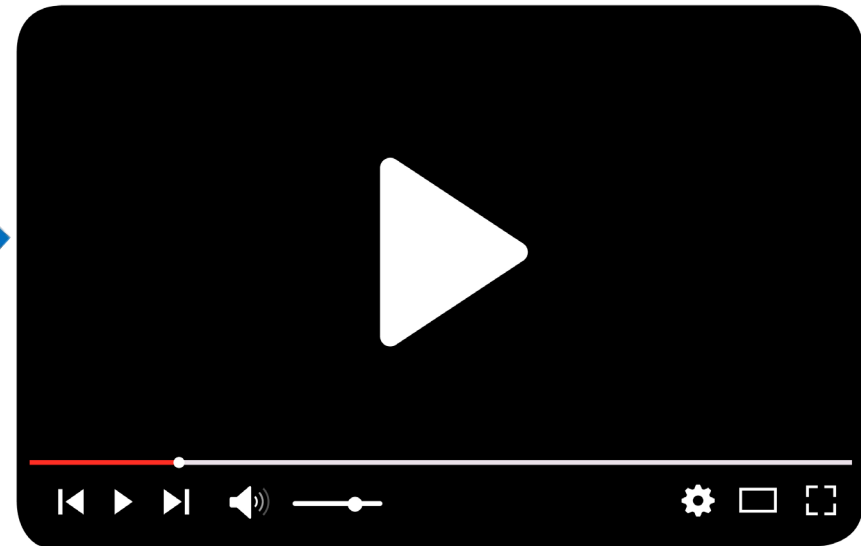
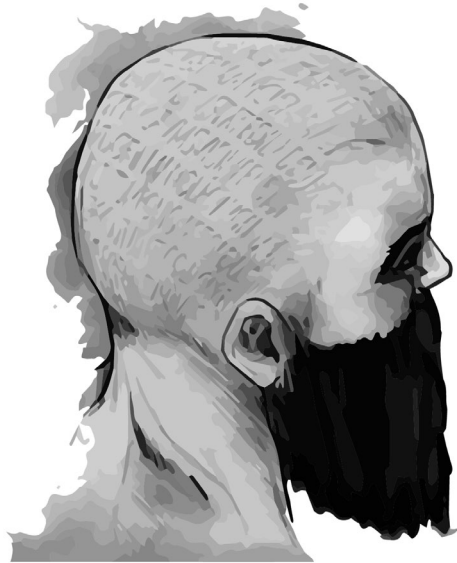
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101021687.



# The Evolution of information hiding

Histaiacus (5th century b.C.)

Masqood Lodin (2011)

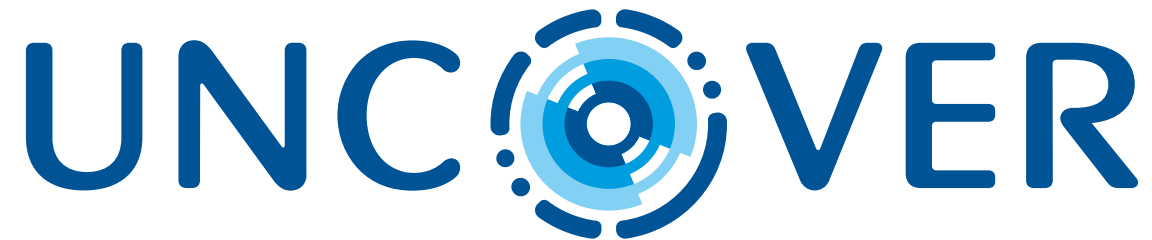
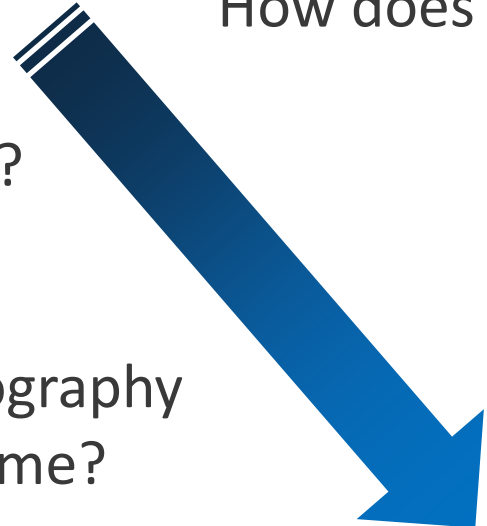


## Steganography

How does steganography work?

What is steganography?

How is steganography linked to crime?



Background   Objectives   Procedure

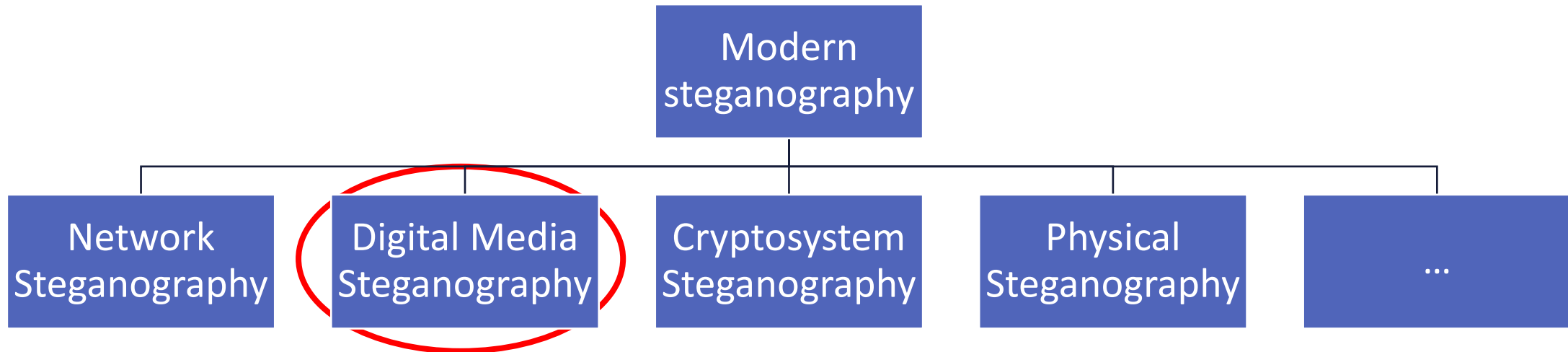
# What is steganography?

→ Information hiding: make secret data difficult to notice for observers

→ Steganography :

→ well known subfield of information hiding

→ aims to hide secret data in a suitable carrier



# What is steganography?

Digital Media Steganography is the art of **hiding secret data** in a suitable carrier, more precisely in innocent looking media (images, videos, audio files, text files, ...)

**Cryptography**

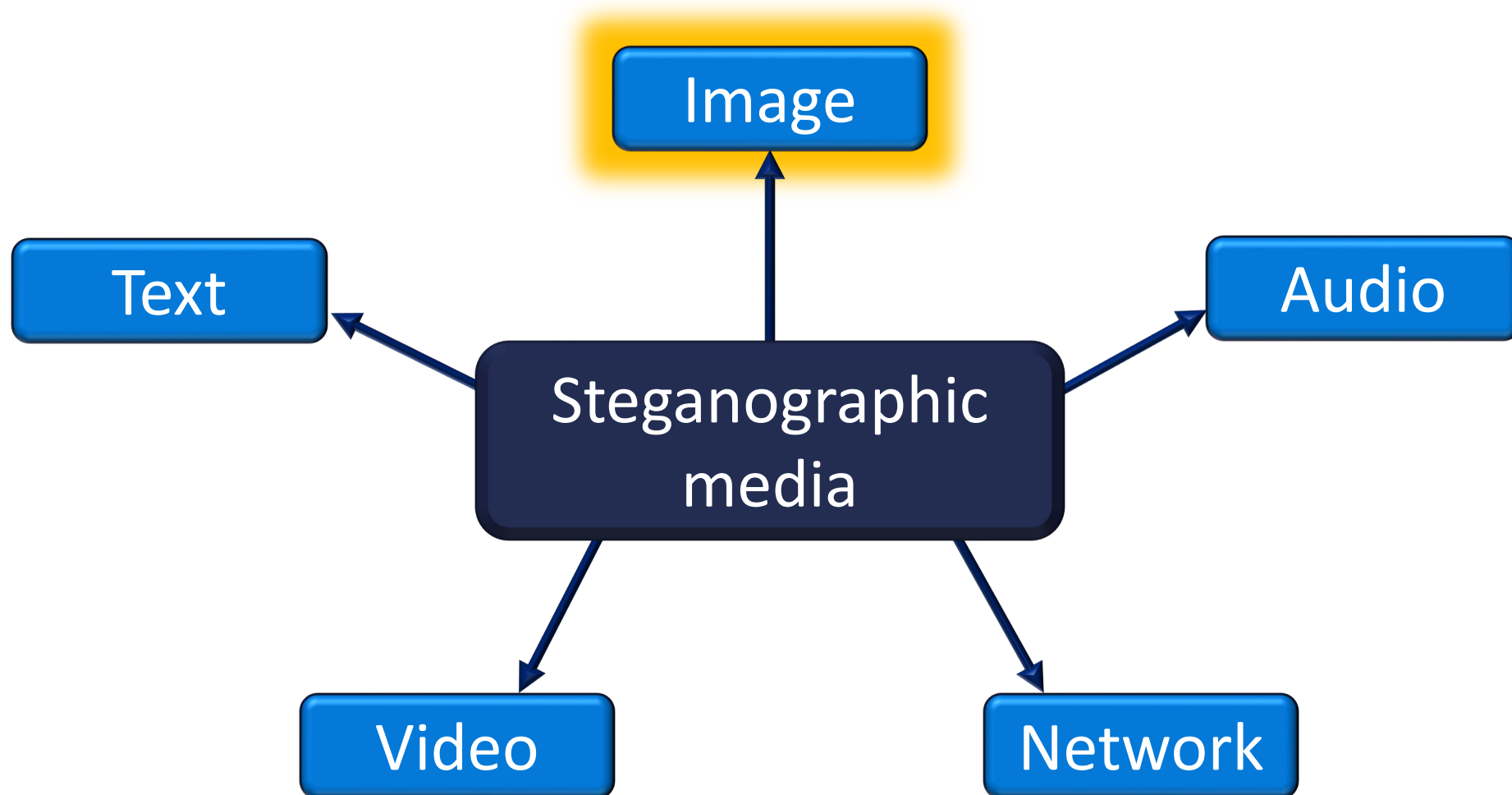
*“CRYPTOS” = hidden*

Hides message **MEANING**

**Steganography**

*“STEGANOS” = covered*

Hides message **PRESENCE**



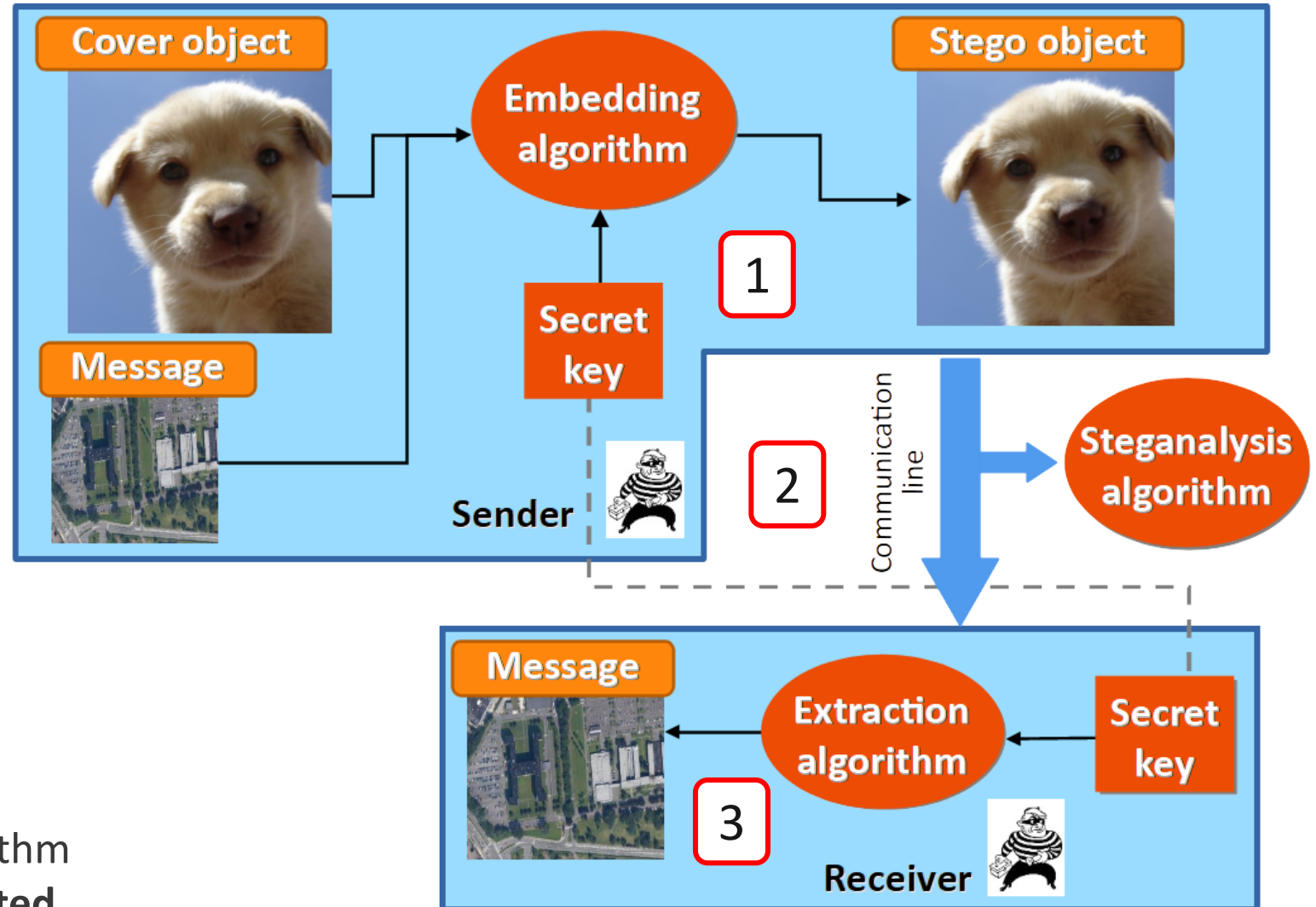
# STEGANOGRAPHY: the method (image)

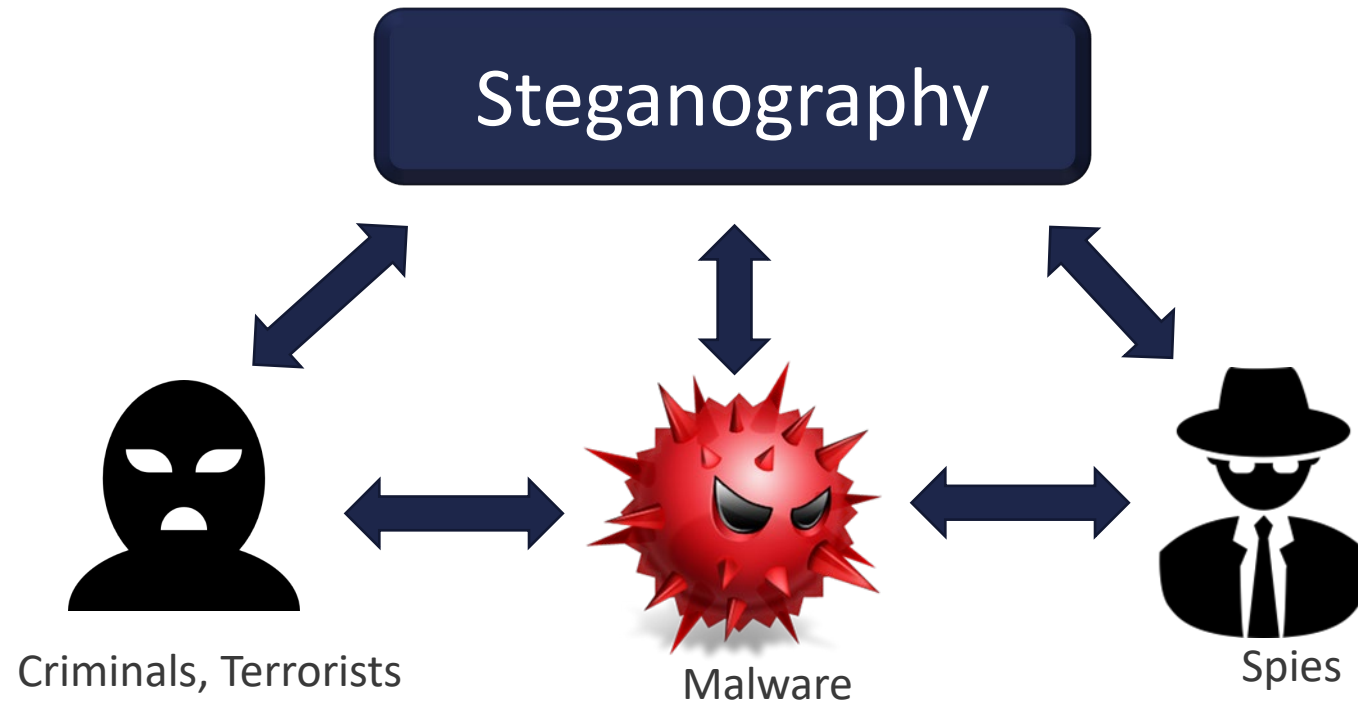
**1** cover object  
+ secret message  
+ secret key  
= **stego object**

**2**

- Sender & receiver share secret key.
- Stego object is left somewhere “innocent”.
- Receiver locates stego object.

**3** stego object  
+ secret key  
+ extraction algorithm  
= **message extracted**

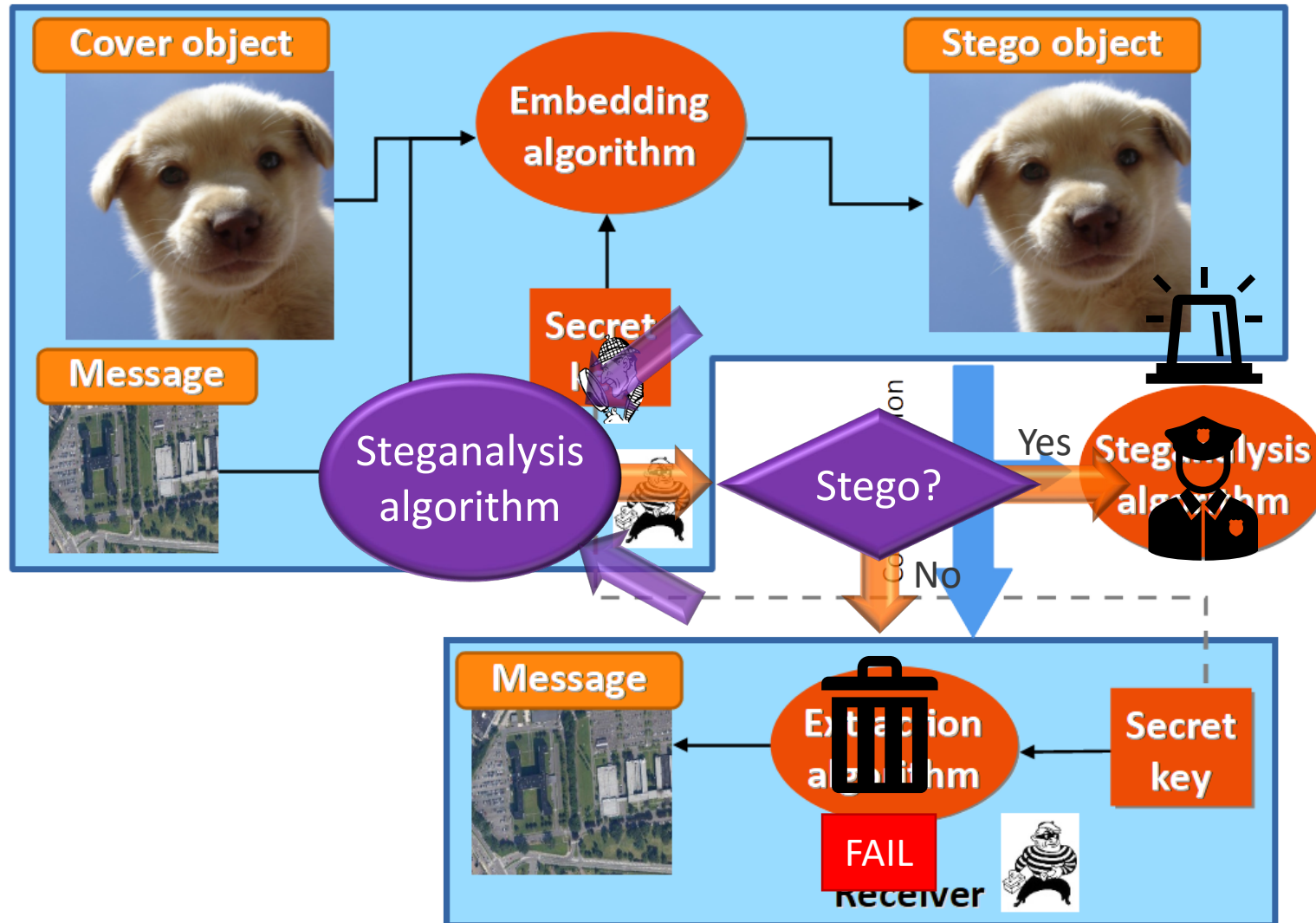




- Hiding communication between criminals/terrorists
- Cyber espionage, information leakage
- Hiding criminal activities (e.g. child pornography)
- Malware (hiding code, C&C-server addresses,...)



# STEGANALYSIS – the reverse process of steganography



# UNCOVER

Development of an efficient steganalysis framework  
for uncovering hidden data in digital media.

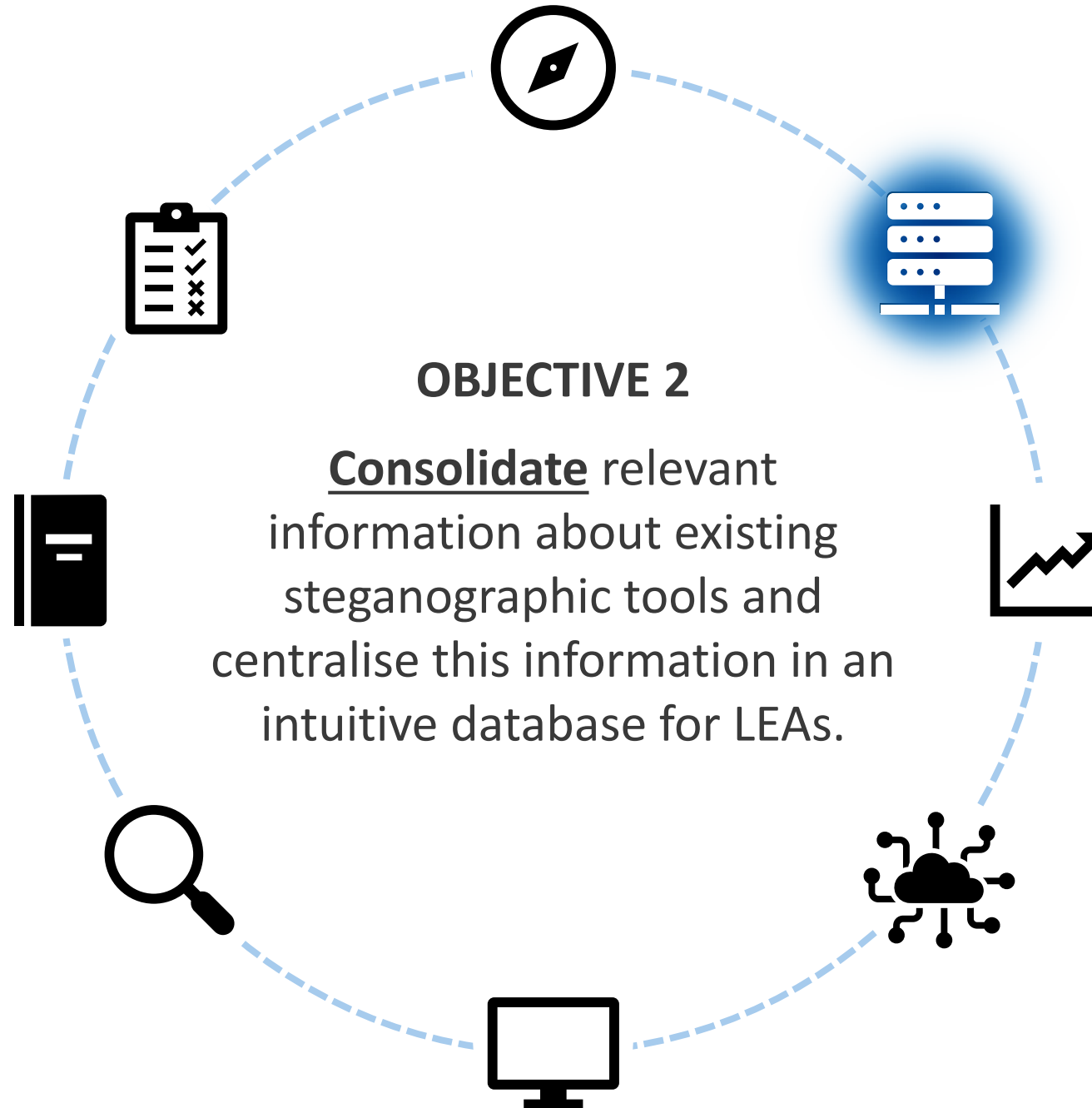


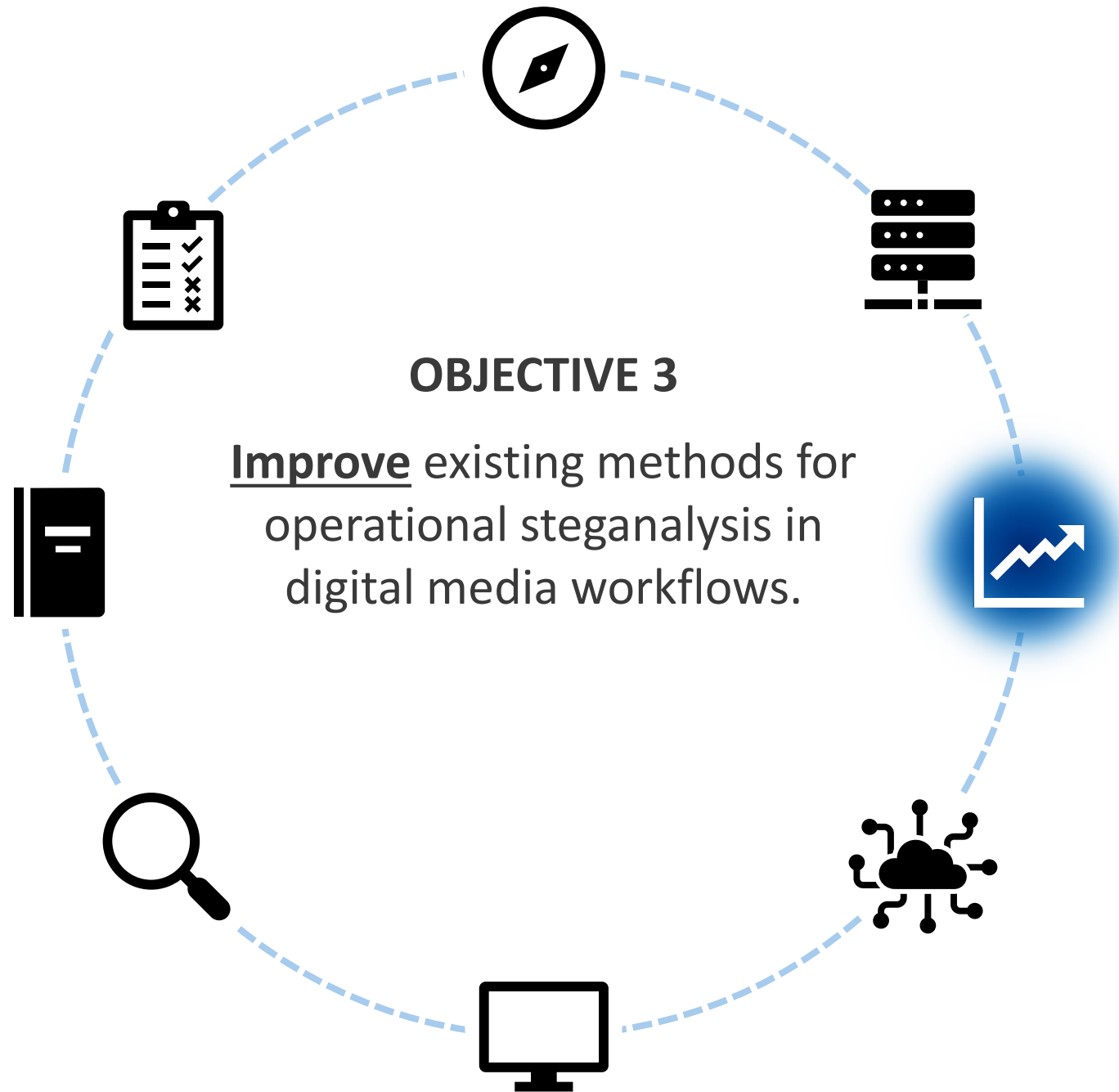


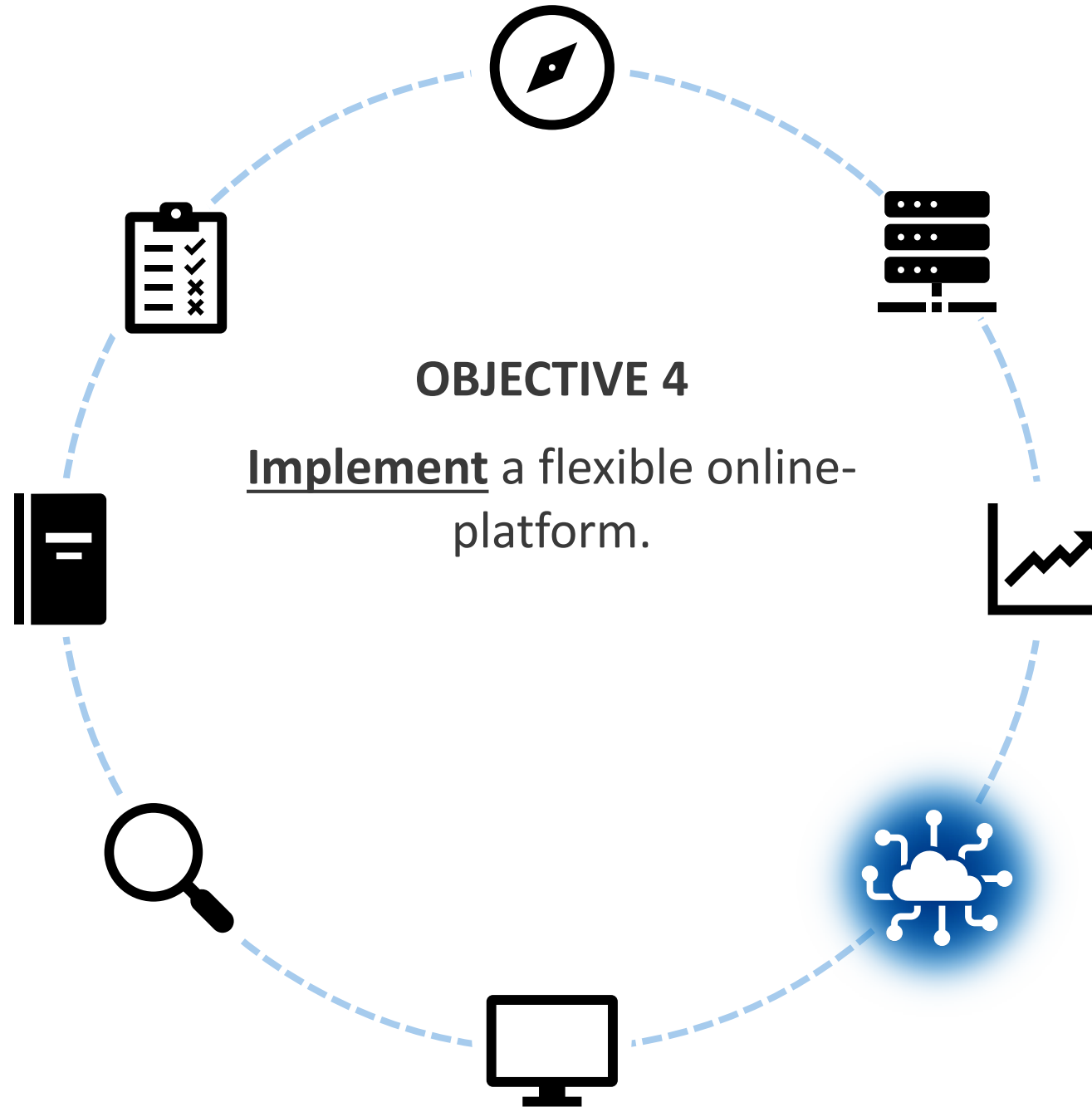
Criminal use of steganography has been increasing rapidly

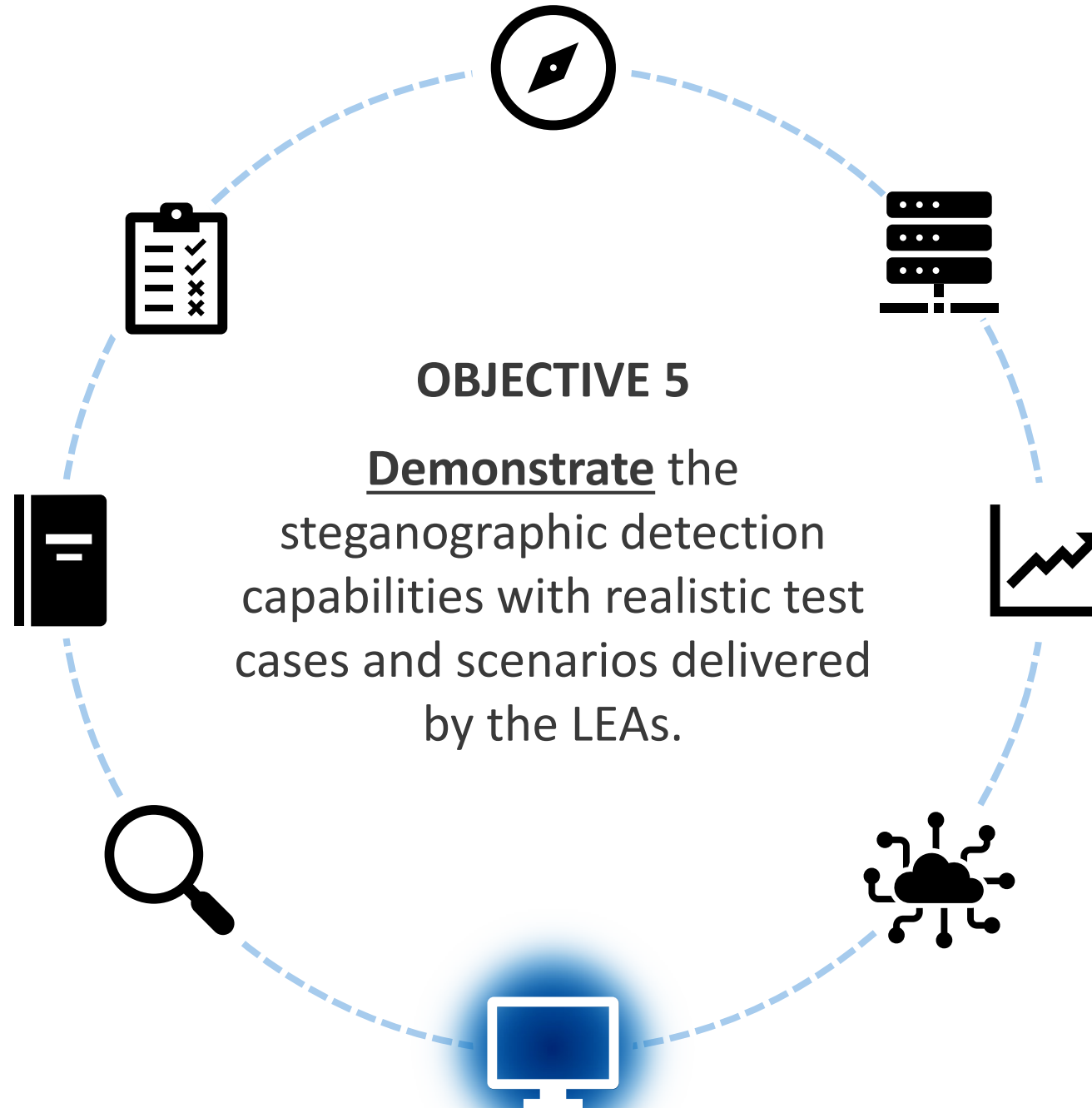




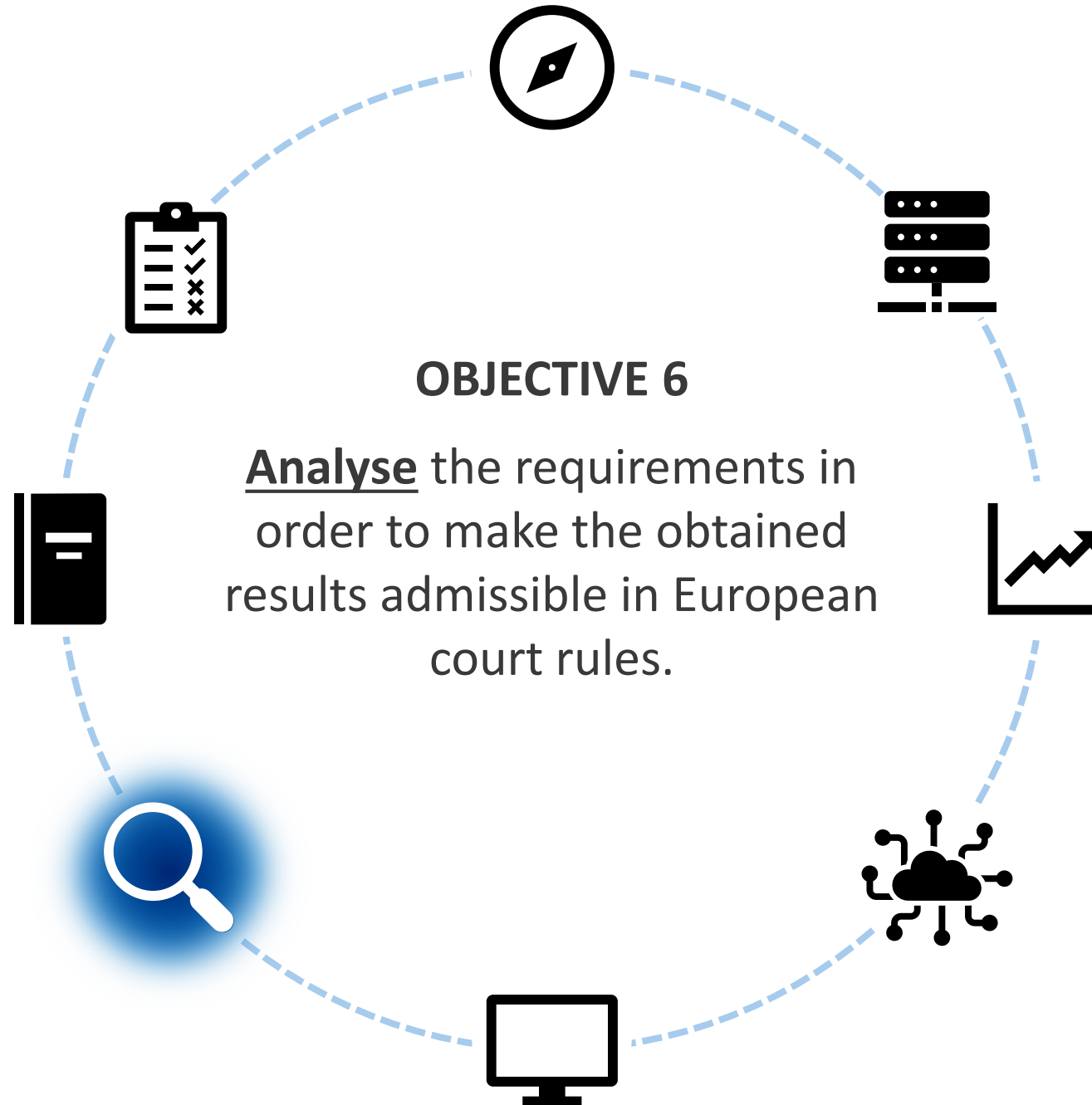


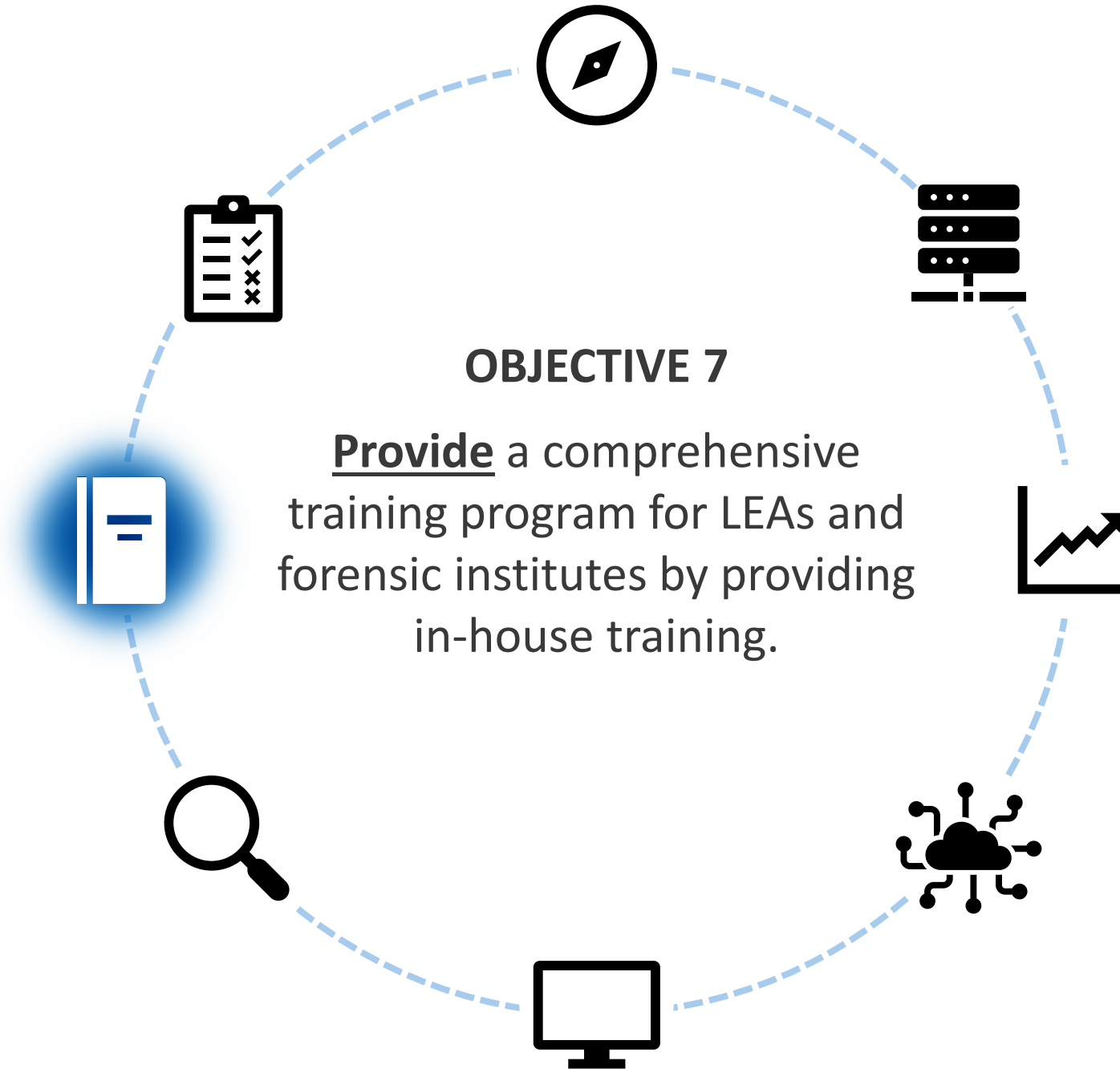


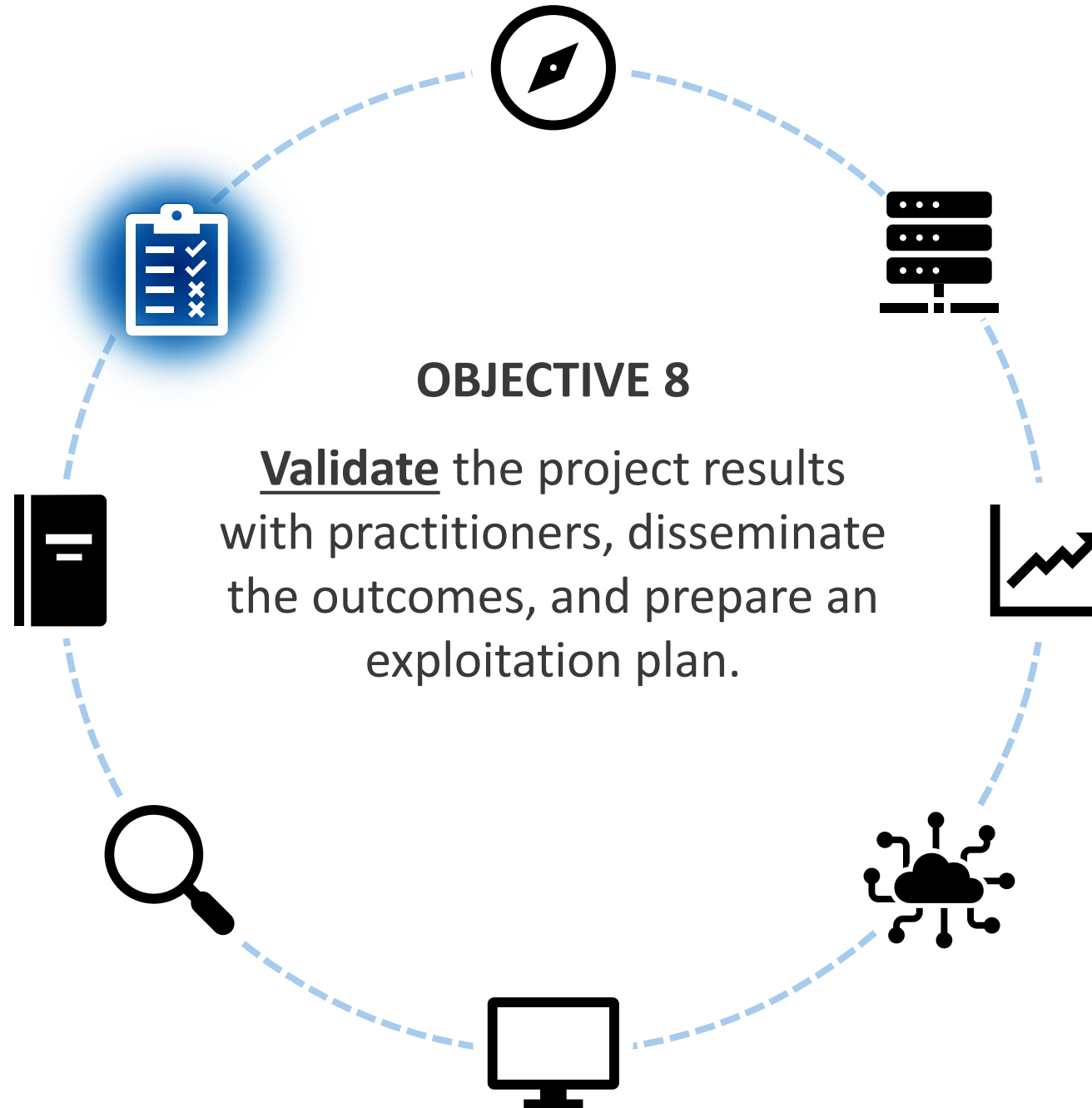




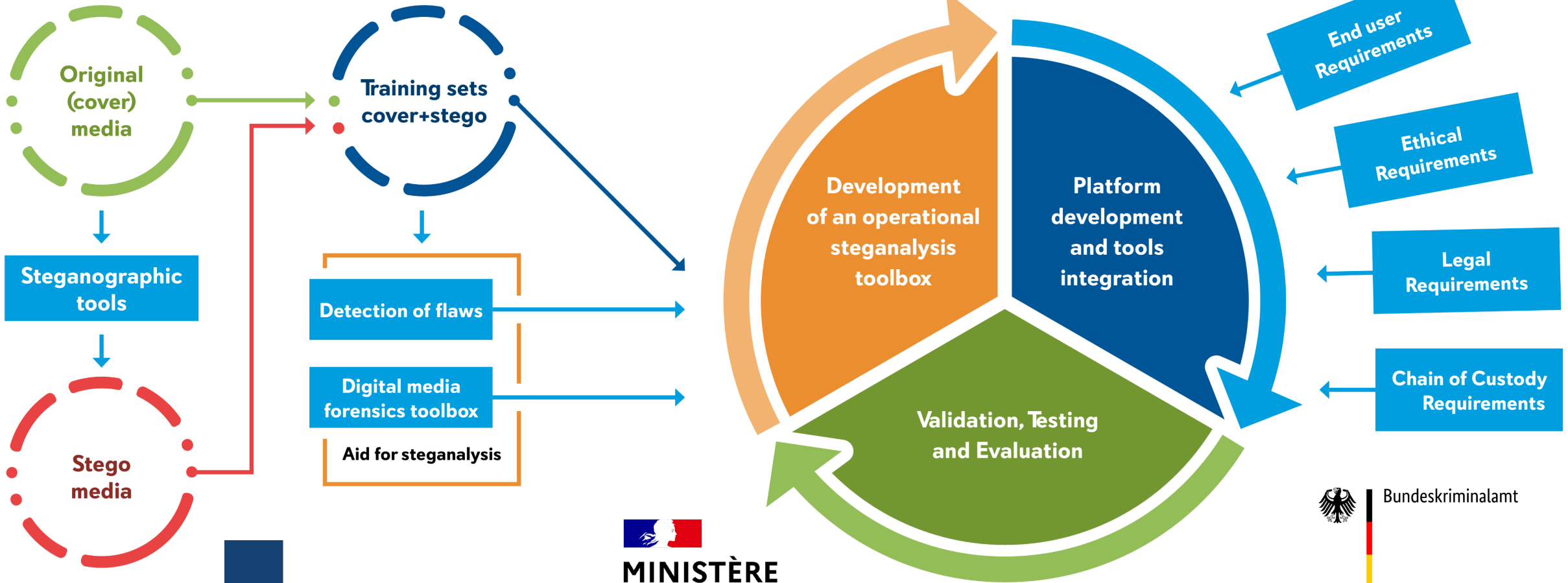








# SCHEMATIC



Netherlands Forensic Institute  
Ministry of Justice and Security



MINISTÈRE  
DE L'INTÉRIEUR

*Liberté  
Égalité  
Fraternité*



Bundeskriminalamt



## Wrap up

→ Steganography ? Steganalysis ?

→ Digital Media Steganography

→ UNCOVER project

Want to know  
more about UNCOVER?



SCAN ME

**THANK YOU**  
 MAAKE, TERMA KASIH, RAIBH MAITH AGAT, JUSPAXAR, OBRIGADO, MATONDO, SALAMAT, KIITOS, MOCHCHAKKERAM, MULTUMESC, KIA ORA, CHOKRANE, MAMANA, NRRINGRAZZJAK, OBRIGADO, DANK JE, MAAKA, MULTUMESC, GRAZIE, MERCI, MOCCHAKKERAM, OBRIGADO, MATONDO, SALAMAT, CAM ON BAN, MERCI, MOCCHAKKERAM, ASANTE, UA TSAUG RAU KOJ, MOCCHAKKERAM, MATONDO, CHOKRANE, MATUR NUWUN, WELALIN, SPASIBO, DANK JE, RAIBH MAITH AGAT, SPASIBO, MAAKE, OBRIGADO, ARIGATO, MOCHCHAKKERAM, OBRIGADO, KIITOS, DANKON, NRRINGRAZZJAK, MOCCHAKKERAM, VINAKA, MULTUMESC, NRRINGRAZZJAK, MAMANA

Want to know more about UNCOVER?



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