The ASGARD project

Presentation at the European Brokerage Event promoted by
the Security Research NCP Network (SEREN4) and the French Ministry of Interior

Presenter(s): António Fonseca (Polícia Judiciária)

AGENDA

1. **The ASGARD project in a nutshell**

2. **Preliminary results**

3. **Project returns to Polícia Judiciária**

The ASGARD project in a nutshell

- The most important thing about the ASGARD project is really NOT related to:
  - Fight against Crime and Terrorism
  - Forensics
  - Technology
  - Big data
  - TRL 6 or above
  - …
- Though all these things are included and are very important, the most important thing about the ASGARD project is…

ASGARD is trying to improve the efficiency of LEA, Industry and Researchers collaboration in Security Research projects

- By the end of the project ASGARD aims to deliver an **active and sustainable** *community* **of practitioners** (LEA, industry, research)

- To **help LEAs increase their** *technological autonomy*

- With **fluid, frequent, and fruitful collaboration** between all stakeholders focused on **short full-development cycles** and face-to-face **"Hackathons" every 6 months**

- **Complementary to other existing initiatives** (i.e., CoU, SU-GM0x CSAs)

Fluid, frequent, and fruitful collaboration

- 3 months duration full-development cycles

- 6 "**hackathons**"

- Start with pre-existing background technologies and then define, design and develop new tools

Polícia Judiciária
European Brokerage Event
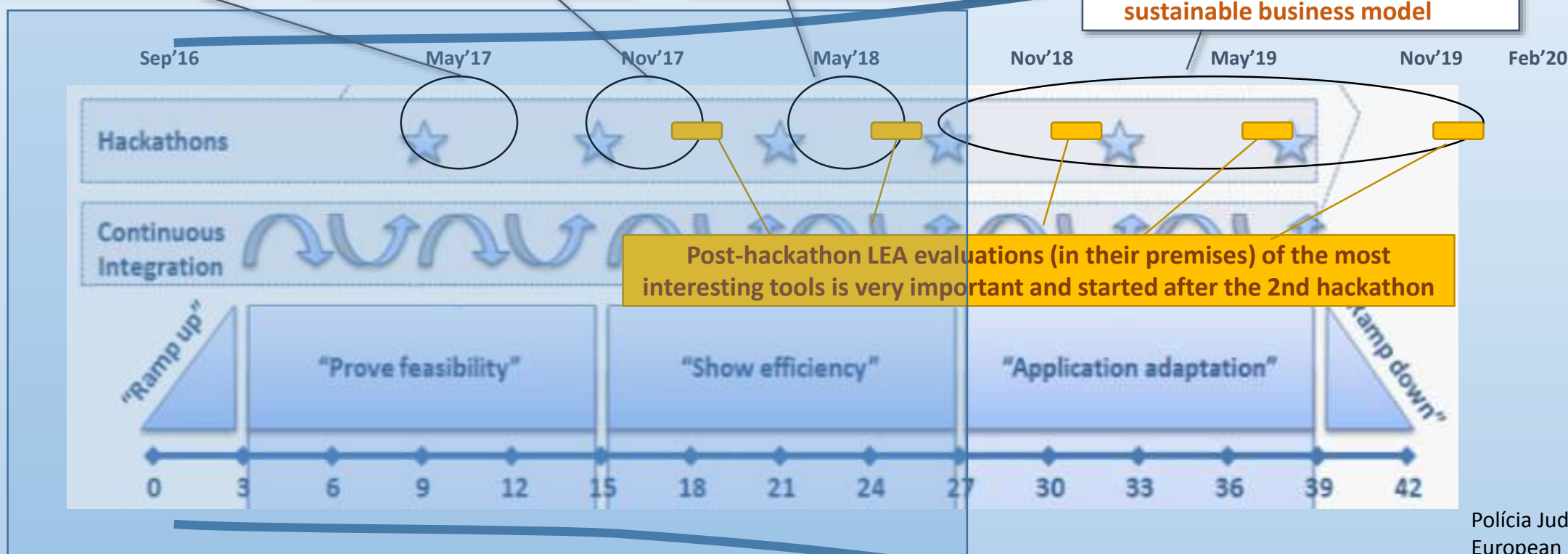02/10/2018
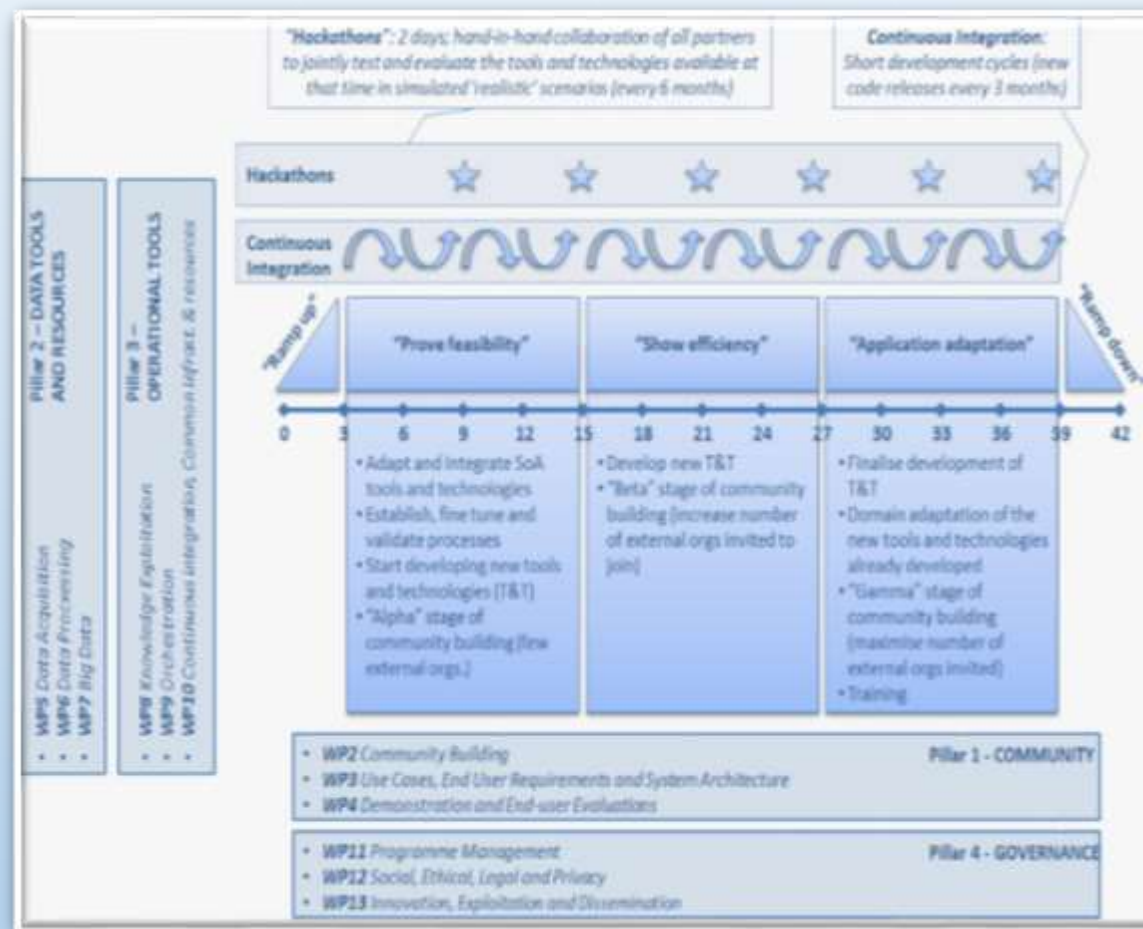
A bird's-eye view on the ASGARD project

- **Focus on PROCESS; using background technologies**

- **Focus on INTEGRATION; "Low hanging fruit" novel tools**

- **Focus on FINE TUNNING processes and integration; more novel solutions**

- **Focus on COMMUNITY BUILDING; MATURE processes and integration; more novel solutions; Goal: discuss and agree a sustainable business model**

| Sep'16 | May'17 | Nov'17 | May'18 | Nov'18 | May'19 | Nov'19 | Feb'20 |

Hackathons

Continuous Integration

Post-hackathon LEA evaluations (in their premises) of the most interesting tools is very important and started after the 2nd hackathon

"Ramp up"

"Prove feasibility"

"Show efficiency"

"Application adaptation"

"Ramp down"

| 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | 39 | 42 |

Polícia Judiciária
European Brokerage Event
02/10/2018

A different way of increasing LEA technological autonomy

Define, develop, share, and evolve **big data** technology solutions that will help LEAs **prevent and fight against crime and terrorism.**

Following open-source principles (with a *sui generis license* that will be created to exploit the results of the project)

Definition and design of the solution based on
(1) *forensic, intelligence* and *foresight* **processes**,
(2) end-user needs driven **use cases** and scenarios,
(3) SoA **technologies** and beyond SoA achievable challenges, and
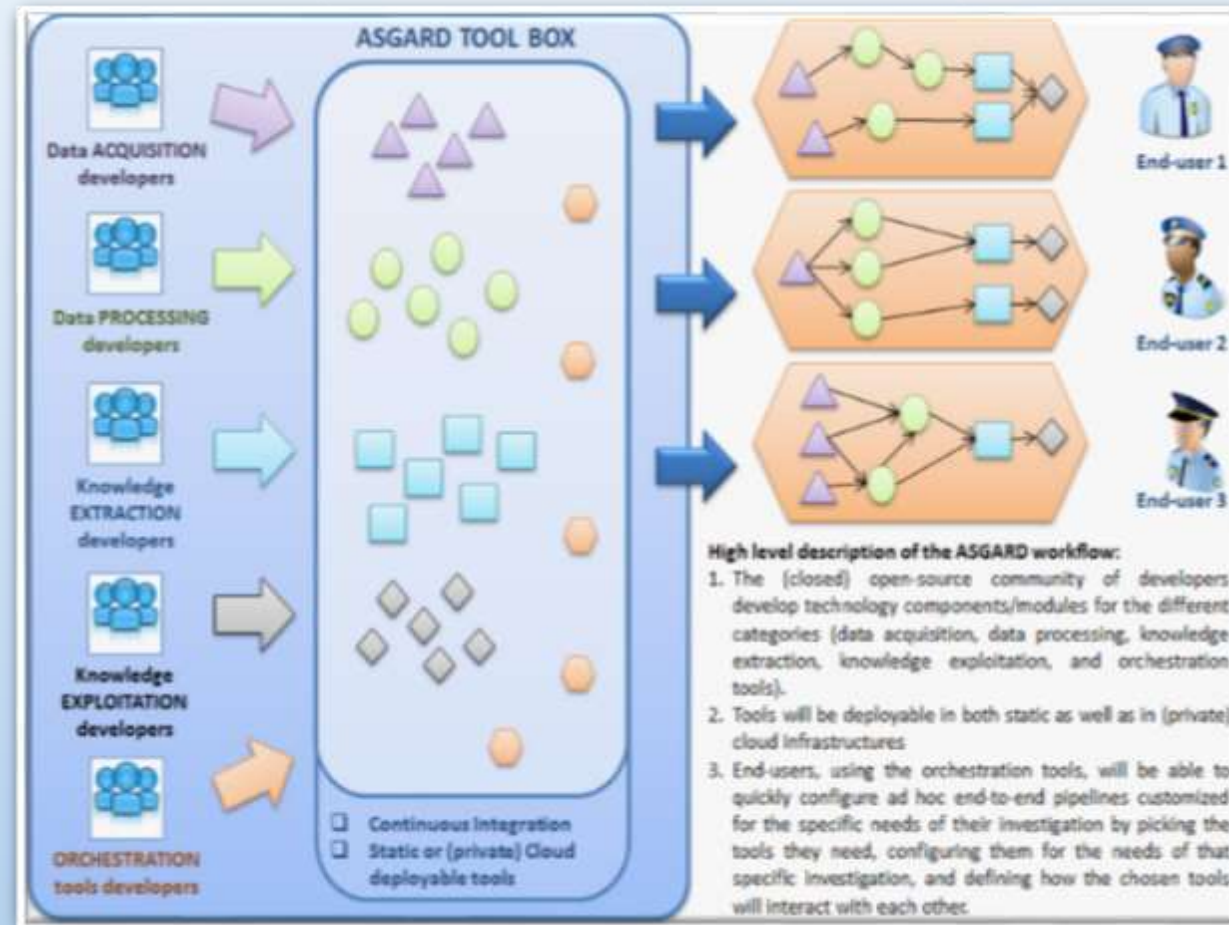(4) In compliance with **Social, Ethical, Legal, and Privacy aspects**.

Polícia Judiciária
European Brokerage Event
02/10/2018

Focus on easy-to-use and to integrate interoperable tools... not on the platform

- A platform will be built... because it is needed for integration, testing, and evaluation...

- But the **focus is on easy-to-integrate and interoperable tools**

- LEAs should be able to **pick-and-choose tools and then easily integrate them with their legacy systems**

High level description of the ASGARD workflow:
1. The (closed) open-source community of developers develop technology components/modules for the different categories (data acquisition, data processing, knowledge extraction, knowledge exploitation, and orchestration tools).
2. Tools will be deployable in both static as well as in (private) cloud infrastructures
3. End-users, using the orchestration tools, will be able to quickly configure ad hoc end-to-end pipelines customized for the specific needs of their investigation by picking the tools they need, configuring them for the needs of that specific investigation, and defining how the chosen tools will interact with each other.

Polícia Judiciária
European Brokerage Event
02/10/2018

8

Building the community

- **33 partners**
  - 12 LEA; 15 RTO; 6 SME/ind.

- A growing **Stakeholder Advisory Group (SAG)** with members grouped in:
  - Strategic group
  - Operational group
  - Industry
  - Research and Academia

Preliminary results

"An investment in **knowledge** always pays the best interest"

(Benjamin Franklin)

"We are stuck with **technology** when what we really want is just stuff that works"

(Douglas Adams)

"It takes collaboration across a **community** to develop better skills for better lives"

(José Ángel Gurria)

Knowledge

Jointly defining and prioritising **requirements**

- Firstly, agree on a reference *Common Process Model*
  - *Tasking, Collection, Evaluation, Collation, Analysis and interpretation, Reporting, Dissemination, Review*

- Then, defining 3 *"umbrella" Use Cases,* 35 specific *User-Stories, and extracting and prioritising* +190 detailed *end-user requirements*

ASGARD Process Model
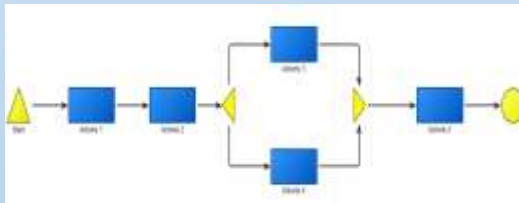
- Each **user story** focuses on one or several of the steps of the Common Process Model for a specific type of investigation within one of the three dimensions of the project (Foresight, Intelligence, Forensics)
- For each **activity**, currently used tools, gaps, and **identified needs** are documented
- Detailed **end-user requirements** are extracted from the identified needs of the user stories

Polícia Judiciária
European Brokerage Event
02/10/2018

Knowledge

From "Push" to "Pull" - LEAs as *partners* not as *customers*

- Understand LEAs **real interests** (of that of their organisations)
- Make sure to avoid "**unrealistic**" expectations in the first place
- Understand **how much time** can they invest/dedicate to the project
- Understand **how much support** do they have internally
- Get their **feedback frequently** (e.g., frequent self-assessment audits) and change things if needed to improve

Technology

- **+45 tools** already developed or under development (as of Sep'18)

- **~60 tools** targeted by the end of the project

- **Interoperable, scalable and easy to integrate**
  - Adopting data exchange formats such as UMF
  - Tools delivered as micro-services and containers (Docker)

- LEAs can **evaluate tools during the "hackathons" and in post-hackathon (in-house)** evaluations
  - This feedback allows re-prioritising and adjusting the development plans

Polícia Judiciária
European Brokerage Event
02/10/2018

Community

- **Goal**:
  - Provide LEAs with increased Technological Autonomy by **creating a long lasting community** of LEAs and the research and development industry, focused on a set of tools and techniques, that **facilitate effective collaboration** in order to **define, develop, share, and evolve open source big data technology solutions** that will help LEAs **prevent and fight against crime and terrorism**

- **Roadmap**:
  1. First half of the project: **Prove feasibility** and added value of the ASGARD approach
  2. Second half of the project: Establish the ground for the **sustainability of the Community**

Polícia Judiciária
European Brokerage Event
02/10/2018

Project returns to Polícia Judiciária

Polícia Judiciária
European Brokerage Event
02/10/2018

New knowledge and a larger community

- Modelling of PJ own user requirements (drug related, cybercrime, …)

- Awareness of the requirements and priorities of other LEAs (ex: migration, forensics, …)

- New models of project development (hackathons, gamification)

- Tuning of new internal structure for project management

- Handling EUCI data

New knowledge and new technology

- More tools for criminal investigation (not only digital forensics but also text, image and videos analysis)

- Forensics but foresight also foresee (important for the Criminal Analysis unit)

- Pipelines and case based analysis, (easy case based configuration)

- New powerful hardware (on premises, can be used experimentally in real cases)

Polícia Judiciária
European Brokerage Event
02/10/2018

Issues during the project

- Lack of Data (not easy to release sensible data)

- Different interests and expectations could difficult progression (technology gap between technologists and practitioners)

Strengths and Opportunities

- *Strength*: **Good collaboration and good level of satisfaction**: all partners declare to be happy with the progress made by the project in the self-assessment audits (though many things are pointed as areas for future improvement)

- *Strength*: We repeat successful approaches and we are **not afraid of trying new things to improve or adapt** to new circumstances

- *Opportunity*: There are **best practices** that could be applied in future projects (e.g., joint requirements definition; iterative full-dev cycles + hackathons + post-hackathon evaluations, handling of EUCI in large collaboration projects)

Polícia Judiciária
European Brokerage Event
02/10/2018

Weaknesses and Threats

- *Weakness*: Dispersion can lead to a **natural tendency to forget about joint collaborative work** and to go back and focus mainly on each of the actors' intrinsic interests

- *Threat*: **Availability** during critical moments of the project

- *Threat*: **Rotation** of key team members or organisational changes

- *Threat*: **"Burning" end-user expectations**

Polícia Judiciária
European Brokerage Event
02/10/2018

More info

- Website: http://asgard-project.eu/
- Email: info@asgard-project.eu
- Website: http://www.pj.pt
- Email: antonio.fonseca@pj.pt

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 700381