



# UC2 –Prefilled Application

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## Team & partners

- UC lead: National Paying Agency (NPA)
- Development partners: Sinergise, Itree
- Testing PA: FEGA

# Main idea of prefilled application

Each year 3 main things are requested from the farmer during the declaration:

1. Parcel boundary
2. Crop type
3. Additional information

# Goals and results of UC2 by developing

## **1. Crop type integration model and methodology**

with harvested data from other use cases/ land cover classification, crop classification and activity monitoring provided by Sen4CAP;

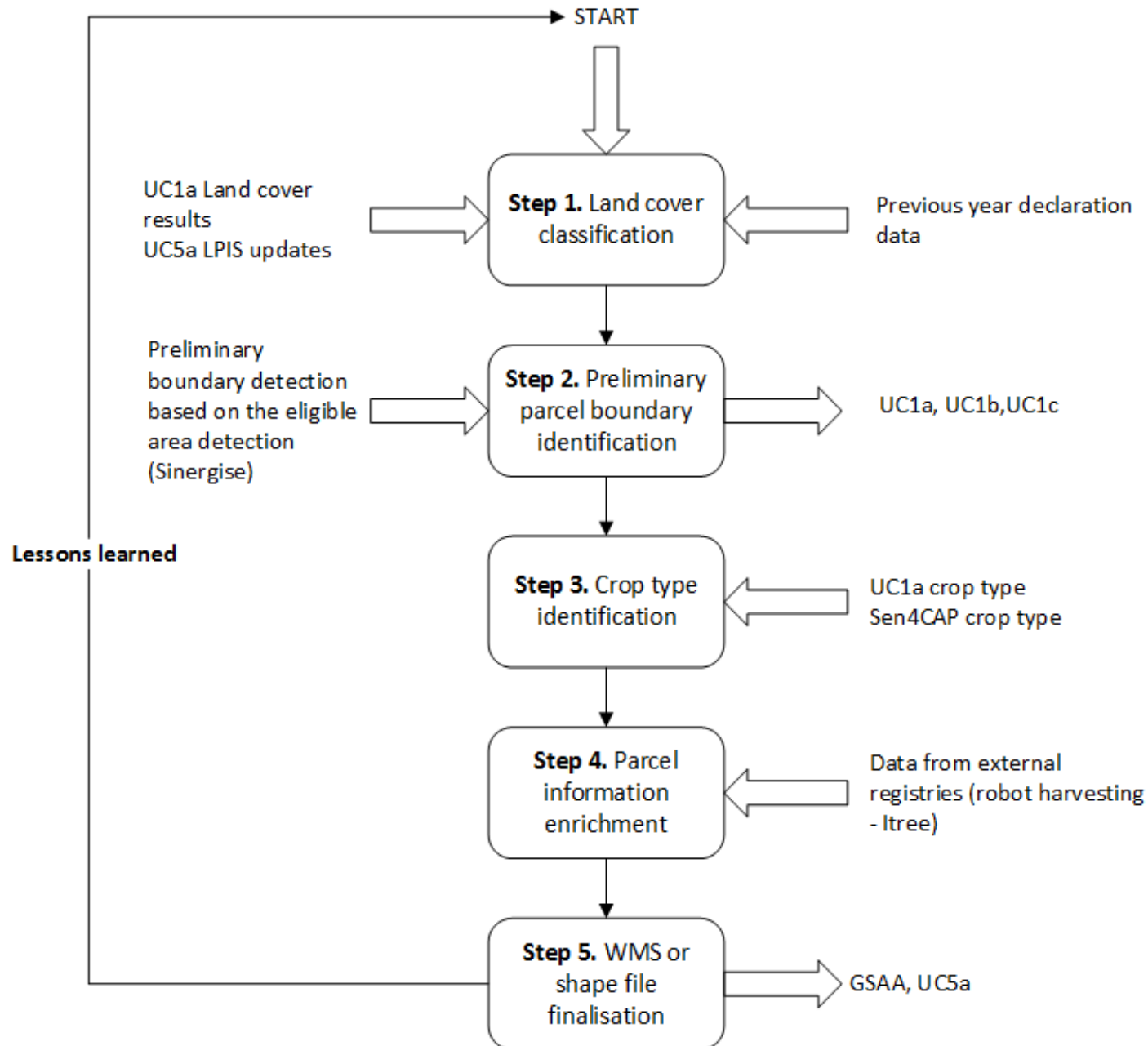
## **2. Preliminary parcel boundary automatic delineation component**

using the eligible area detection algorithm and using the data from other use cases dealing with LPIS boundaries;

## **3. Tool selection and methodology for robotized tools**

for automatic data harvesting from external registers.

# Use case steps

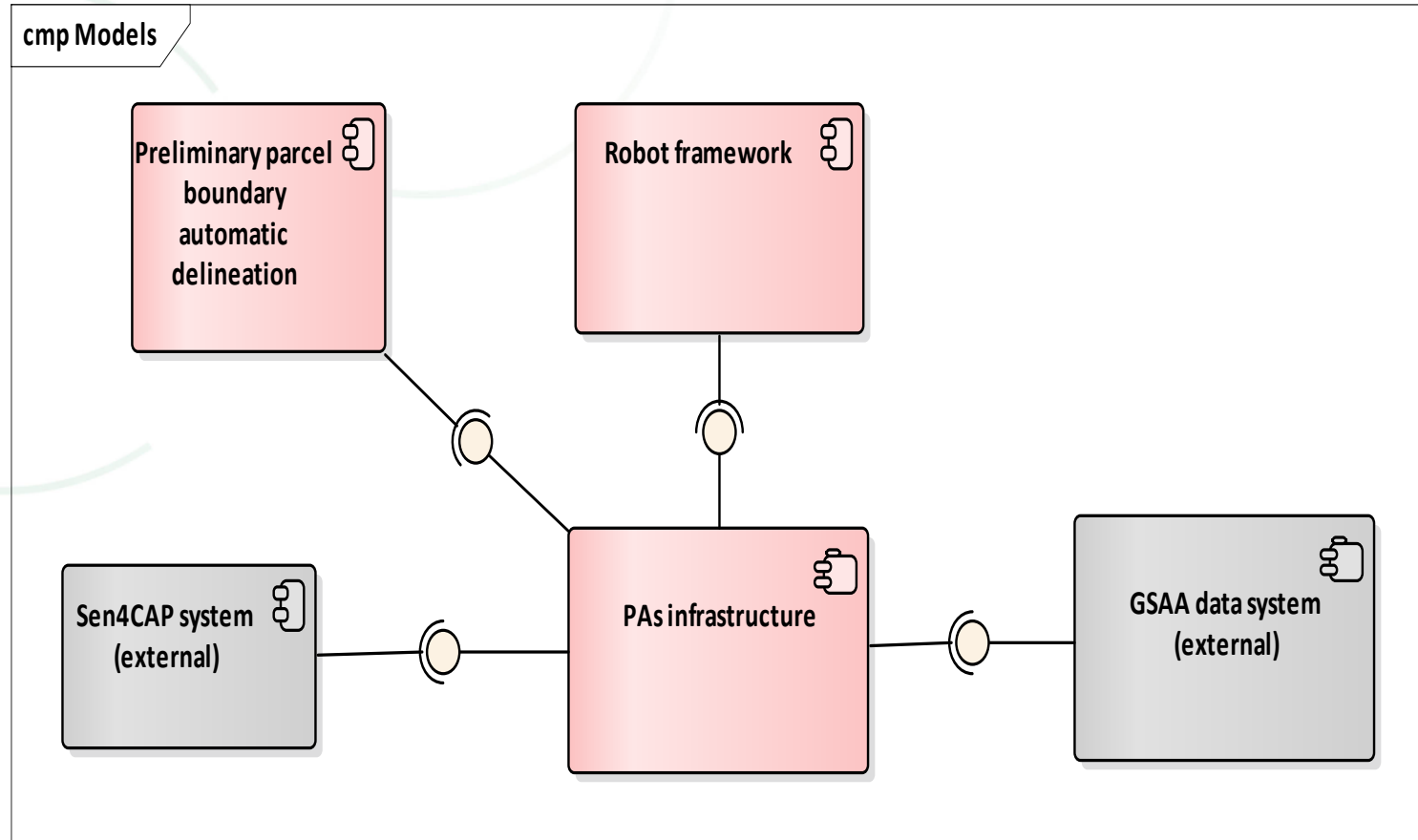


# Results example



Crop type	Activity	Harvested data	Detected boundary	New ineligible object
Grassland	Mowed	Organic farming certified	Yes	No

# Tools & components – architecture



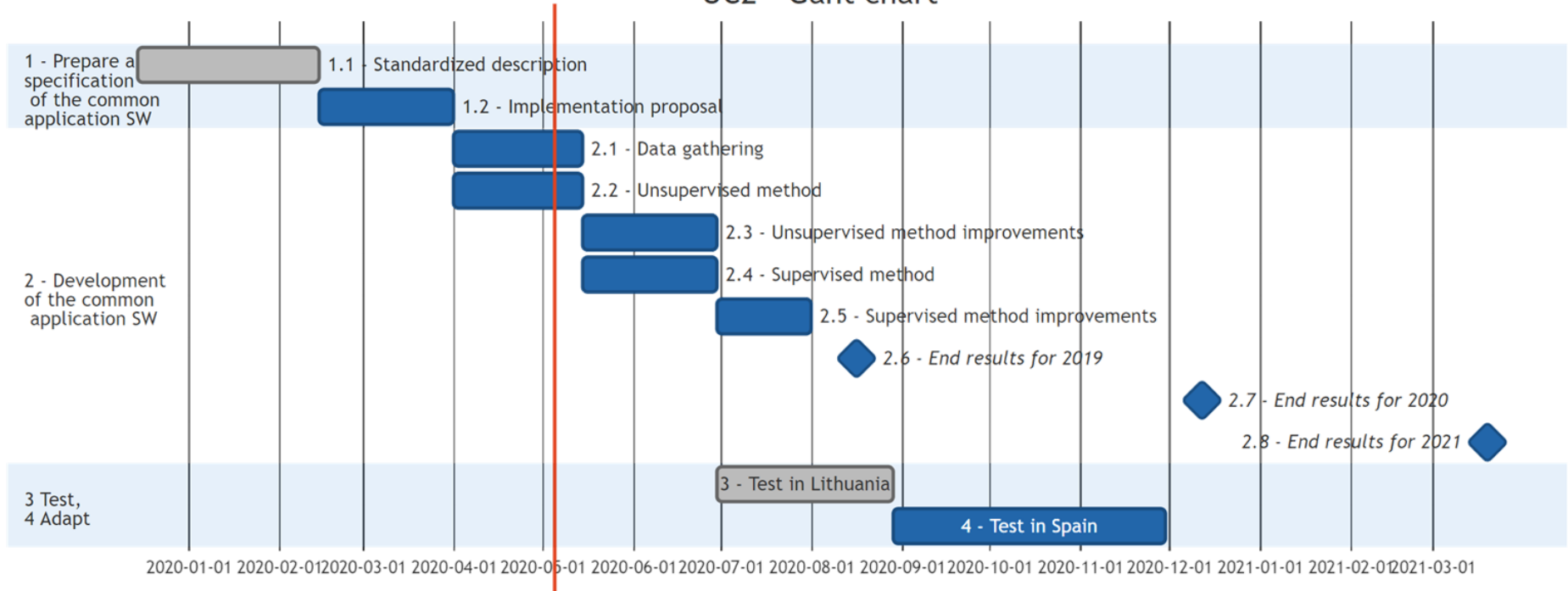
# Preliminary parcel boundary automatic delineation

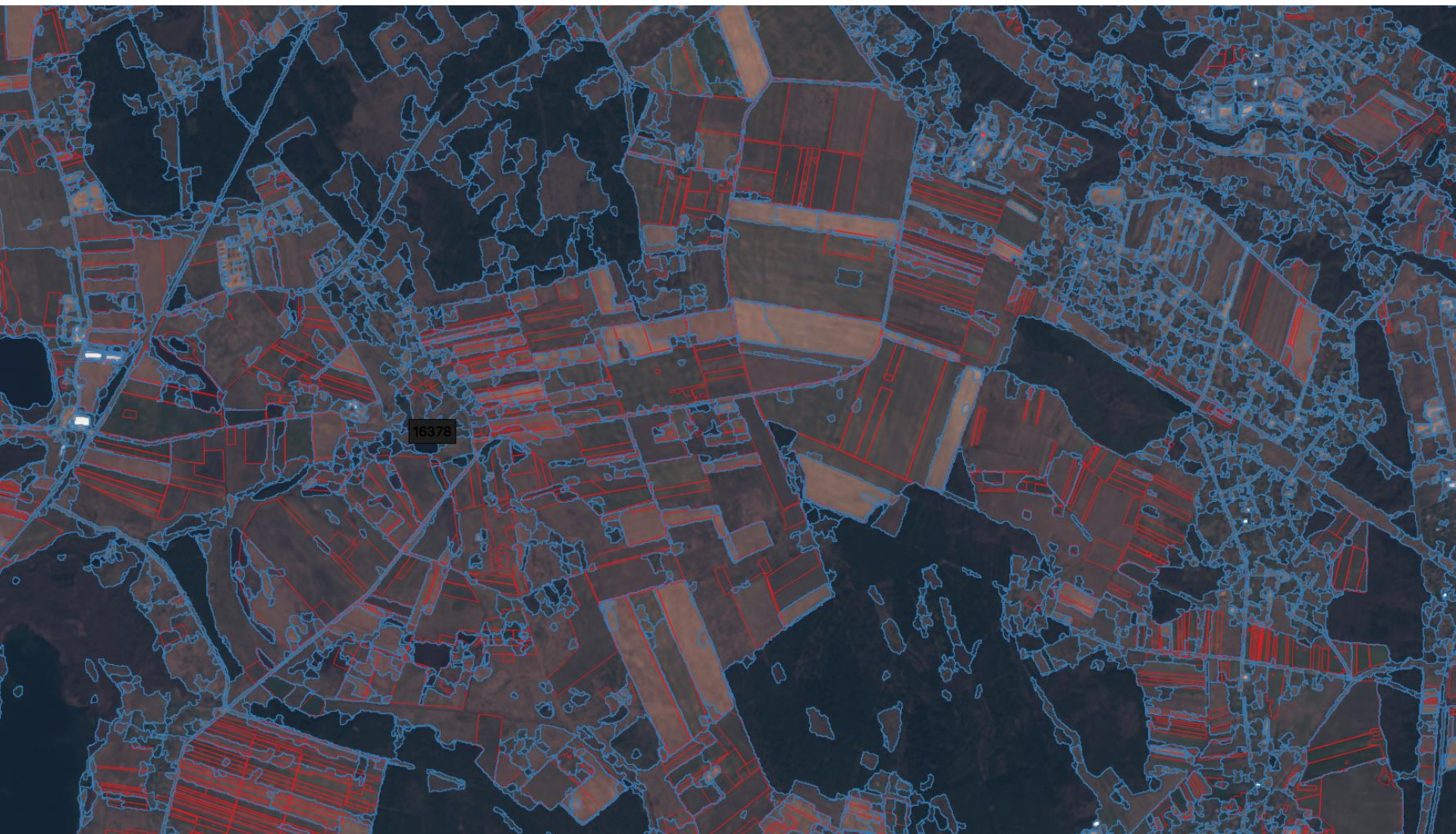
- Use Sentinel data to detect parcels borders.
- Try and compare the results of two different approaches:
  - Unsupervised (LSMS) and
  - Supervised machine learning (eo-learn&eo-flow)
- Input data:
  - EO data (Sentinel-2 data through DIAS APIs)
  - GSAA parcels in shapefile format
- Output data:
  - shapefile with parcel boundaries



# Timeline

UC2 - Gant chart





# Sen4CAP data for 2020 CY

Version	Date at which declaration are provided to Sen4CAP	Approximate amount of declared parcel	Date when data collected from the field by NPA worker will be uploaded to Sen4CAP FTP (up to 200 fields)	Date when result data should be uploaded to FTP by Sen4CAP team (no need of NRT, but of dated product)	Algorithms results			Comments
					L4A	L4B	L4C	
1	Previous year data set	100%	-	01/04	+	-	-	Land cover classification by customized configuration file (crop grouping by land cover)
2	Previous year data set	100%		01/05	+			Land cover classification by customized configuration file (crop grouping by land cover)
3	04/05 - 12/05	40%		13/05	+			Land cover classification by customized configuration file (crop grouping by land cover+ winter crop type)
4	01/06	80%	27/05	10/06	+	+		In situ data for spring/ winter crops
5	15/06	90%	10/06	24/06		+		In situ data for Grasslands indicating mowing/grazing
6	01/07	95%		08/07	+	+	+	
7	08/07	98%		15/07		+	+	
8	22/07	100%	15/07	29/07		+	+	In situ data for Catch crop (PS), fallow land, spring (nitrogen fixing crops), grasslands(mowing/grazing)
9		100%		12/08	+	+	+	
10		100%	12/08	02/09		+	+	In situ data for Catch crop (IS), spring/ winter crops
11		100%	22/09	21/10		+	+	In situ data for Catch crop (IS), (PS)

# Sen4CAP data as crop type input

- ✓ M12-14 – check if any results form Sen4cap crop/land cover type, activity monitoring:
  - can be gathered before declaration beginning
  - can be available during declaration period as preliminary crop type, activity data, at what concrete time and of how much quantity (crop types/ parcels/area/farmers).
- ✓ Check results accuracy based on collected crop type in situ data.
- ✓ DIONE project results us crop/land cover type, activity monitoring input from 2021

# Test process M18

FEGA a testing PA will need to provide:

- Sen4CAP crop type detection results data flow in Spain
- review and compare GSAA UML model
- Test region for preliminary boundary detection
- Input data: GSAA, LPIS



# Robotic Process Automation (RPA) Tool Selection

- Criteria
  - Open Source
  - Support and Community
  - Usability (Learning curve)
  - Versatility (add-ons, multiple platforms, APIs, etc.)
  - Price (for additional features)
  - Orchestration
- Shortlist
  - **Robot Framework**
  - Automagica
  - Taskt

# Timeline / Following actions

- **Actions done:**
  - Tool selection
  - Replicating an existing NPA process on selected tool
- **Actions to do:**
  - Prepare Whitepaper on RPA usage for NPA purposes (M12-13)
- **Alternatives for next actions:**
  - Automate selected FEGA (testing agency) process to check if selected RPA tool is suitable in different environment.
  - Design and prepare process which uses tool developed by Sinergise (UC2) to check if selected RPA tool is suitable in NIVA environment.

# THANK YOU!



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