Development and implementation of a tool for Data Capture @ Point of Sampling

GP/EFSA/ENREL/2022/03 – TAILOR MADE ACTIVITIES

September 2023
ASAE

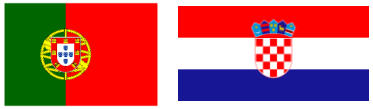
BACKGROUND

Main goals:

- Build capacity on official controls data collection, management and transmission in order to produce data of robust quality to contribute to RA activities
- Improve quality of raw occurrence data for risk assessment, by:
  - Reducing error, incrementing completeness and timeliness both in data fields and food classification, and
  - Reducing the workload and time-consuming manual tasks

The improvements were to be reflected on the strengthening of RA capacity of MS and EFSA

BACKGROUND



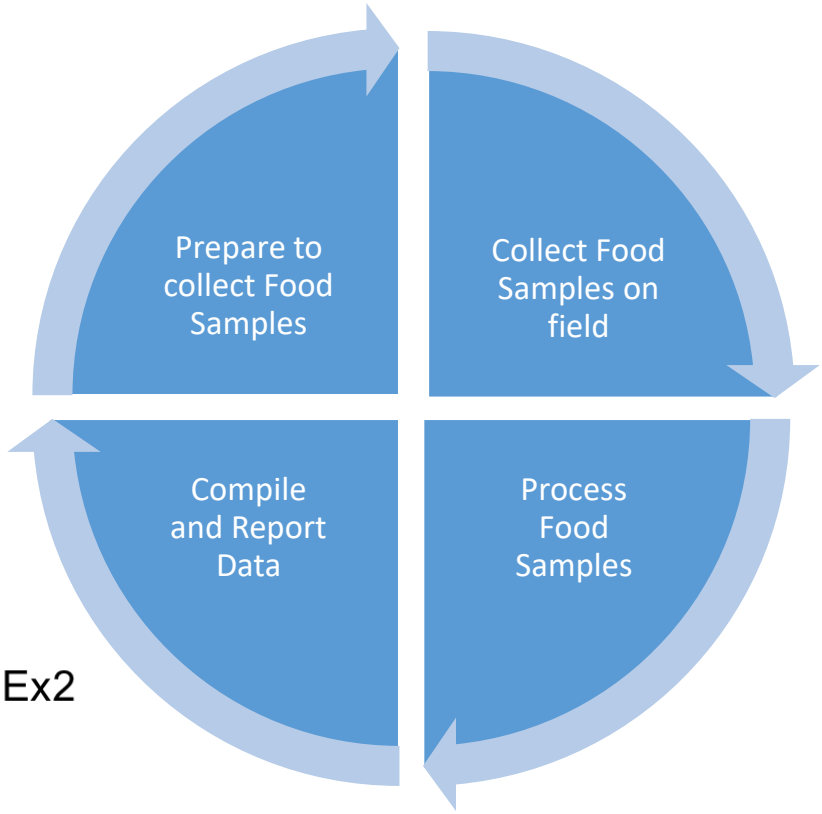
The IDRisk project - Improving Data quality for RISK assessment

- A consortium between 3 partners (ASAE, INSA & HAPIH) was created
- Project granted by EFSA (GP/EFSA/ENCO/2018/03)
- They share the common interest of further developing their own official control National Data Management Systems (NDMS)
- Both ASAE and HAPIH were interested in implementing real-time sample data collection based on preparatory digital forms
- They were committed to investigate and implement an automatic approach to FoodEx2 classification of food samples using the knowledge and the existing databases

BACKGROUND


IDRisk

"Improve Data Quality"



- IDRisk:
  - Digital Forms;
  - Automated data insertion into systems;
  - Acquisition of other types of information;

- IDRisk:
  - Assisted FoodEx2 Encoding;

Paper form Vs Electronic form

BACKGROUND

IDRisk

- To meet the proposed objectives of the project, was created and developed a **digital form application**.
- This created system is suitable for the construction of electronic forms, their management, and their use. The creation of the forms is done in a **WYSIWYG** (what you see is what you get) principle, i.e., the final format should be the same as the printed form:


Vinyl / Paper Cutting Order Form

mcad

Name test_4
Email email_0
Phone phone_0

Submitted
Date date_3
Time time_0

Needed by
Date date_2
Time time_1

File Info
Folder/File Name(s) test_6
Illustrator file ONLY! test_7
Output Dimensions (L" x W") test_8
All Type outlined? test_9

Paper Cutting

Vinyl Cutting
Weeding
Taping
Weed and tape yourself

Color type
Glossy White
Glossy Black
Matte White
Matte Black
Colors (12x12" square)
Customer Supplied ($3 foot)

*** No Rush Orders * 72 hours for full cut/weed/tape ***

Special Instructions / Notes
testbox_0


Vinyl / Paper Cutting Order Form

mcad

Name
Email
Phone

Submitted
Date:
Time:

Needed by
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File Info
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Special Instructions / Notes

Digital Form Application

Results

- System Available for download in https://gitlab.com/arkhamlord666/forms

- Support documents: https://zenodo.org/record/6778397#.YxtTCXbMI2w

BACKGROUND

The developed solution is composed by seven main applications:

1. Designer - a user can create new forms or edit existing forms
2. Preview - allows the user to visualize, test and print the current opened form
3. Forms Manager - all forms and their status are managed by this application
4. Operations Manager and Operation Editor - copes all operations and their status
5. Inspectors App - this application is a Progressive Web Application (PWA), which means it's designed to make the user feels like it's a native application and, can operate without being connected to the web
6. Rest API - tool to control and manage operations.

Final Report

EFSA Supporting Publications

External scientific report | Open Access

SSD2 and FoodEx2 compliant real-time registration and classification of food sampling data - Improving Data Quality for Risk Assessment (IDRisk)

Pedro Nabais, Paulo Carmona, Sarogini Monteiro, Filipa Melo de Vasconcelos, Sidney Tomé, Francisco Ravasco, Roberto Brazão, Maria da Graça Dias, Darja Sokolic, Sandra Basic

First published: 13 October 2022 | https://doi.org/10.2903/sp.efsa.2022.EN-7633

https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/sp.efsa.2022.EN-7633

NEXT STEP

Type of report	PLAN TAILOR-MADE ACTIVITIES		
4.6a	Data Capture @ Point of Sampling: Lead	To lead the project, in collaboration with participating Member States (4.6b), to specify, develop, test, implement and design support and maintenance processes for a mobile tool to capture sampling data in EFSA's SSD2 format at the point of data creation where it could improve data quality or speed or reduce costs or human activity. eg point of sampling by official control officers. This could include incorporation of national sampling plans in the tool to minimise sampling officer data capture activities at the time of sampling.	**30 months**
4.6b	Data Capture @ Point of Sampling: Participate	To participate in the project 4.6a above. This is expected to include requirements definition, use cases documentation and prioritisation, testing and implementation in your national data flow as agreed with Lead and participating Member States. Specific data domains can be specified if preferred.	**30 months**

Based on:

- the prior experience and results obtained in the previous project – IDRisk
- The knowledge for data reporting;
- The existence of technological tools to improve the processing and transmission of data;
- The improvement on harmonizing of data.

NEXT STEP

The foundations are in place for an IDRisk2.0.

NEXT STEP

TAILOR MADE ACTIVITY IMPLEMENTATION

1

- Develop and improve the existing mobile tool to capture sampling data in EFSA's SSD2 format at the point of data creation
  - with further integration of SSD2: directly integrate SSD2 catalogues, translation of SSD2 terms to national language in the system.
- Include the usage of barcode reading, optical character recognition (OCR) and the involvement of an image-to-text AI that leads to visual recognition of food sample images to a textual description.

NEXT STEP

TAILOR MADE ACTIVITY IMPLEMENTATION

2

- Installation of the application in the partner entities of the participating countries

  - Including the necessary adaptation to existing systems and web services for transmitting data to their servers;

  - Creation of specific forms for the areas of interest of the partners involved.

  - Field testing of the developed application and improvement of the weaknesses detected, in order to make it ready to be used for official controls and data collection.



Coordination

The activities lead will be on Portuguese Economic and Food Safety Authority (ASAE) with the technical support of LIACC – The Artificial Intelligence and Computer Science Laboratory of the University of Porto.

EFSA will support coordination of the activities.

WP 1 - Mobilisation phase

Timeframe foreseen for team leader (ASAE) to implement the:

- Implementation of the basic communication structures (including all necessary technical elements) and flows,
- Administrative and logistical procedures that will be required,
- Project team consolidation.

WP 2 - Planning phase

All the activities will be summarized in an Activities plan (Deliverable 1). This will include the overall resources that will be required and the project schedule.

WP 3 - Analysis phase

- Will be performed by **ASAE** with the support of **LIACC**
- Will take into consideration all the requirements provided by the participating countries/entities of the consortium (Deliverable 2) as well as the pain points previously identified by the Advisory Forum Group on Data, EFSA ones and security and Data Protection concerns.
- At this stage, the best technical way to further introduce SSD2 into the system will be studied, namely by integrating the SSD2 catalogues.
- Will be assessed to be included: the usage of barcode reading, optical character recognition (OCR) and the involvement of an image-to-text AI that leads to visual recognition of food sample images to a textual description.

WP 3 - Analysis phase

Key points

- The tool should be user friendly and work in different environments, with different languages and with and without internet availability.
- Re-usability and licensing schemes of the software in use will be part of the analysis
- Will include a 1st short term technical mission to the participation countries/entities where the tool will be installed, in order to understand the practical realities and needs, based in use cases, as well as the existing systems and resources (hardware and software) of the team partners
- In case participating countries/entities have applications in use for the same purpose, reusability of those application could also be assessed.
- As the tool is to deal with sensitive information, as soon as it is installed and fully operational, it will be deployed in their own environment and fully operated by the team partner

WP 4 - Executing phase

- All the consortium members will have to adhere to project plan and architectural prescriptions.
- This phase will include development actions to the existing application, based on the assessment made in WP3.
- Will also include field tests of the developed application in a 2nd short term technical mission, where a team of ASAE/LIACC will accompany the end-users of the application (food inspectors) in collecting and recording the samples taken in the field.
- A field tests report (Deliverable 3) will be produced, where will be described all the weaknesses of the tool that were detected and the measures to be taken to mitigate these weaknesses.

WP 5 - Monitoring & control

The responsibilities of monitoring and controlling the progress of the projects lies with ASAE. EFSA team will contribute by providing information to facilitate the project actions.

WP 6 - Closing phase and final report

Following the development of the application and its full installation and operation, the end users of the application will be trained (Deliverable 4) and a user manual (Deliverable 5) will be prepared.

Correct project closure is the responsibility of ASAE.

The project team will provide a final report (Deliverable 6) with the description of:

- activities, achievements
- pain points, strong points
- suggestions and lessons learned

SUMMARY OF DELIVERABLES

D Nr	Deliverable description	Due Month	Related WP
1	Activities plan	12	2
2	Requirements provided by the participating countries/entities of the consortium	14	3
3	Field tests report	27	4
4	Training materials	30	6
5	User's manual of the tool	30	6
6	Final report	30	6

TAILOR MADE ACTIVITY IMPLEMENTATION

START DATE, DURATION –

Started: 24/08/2023

Kick off meeting 18 and 19 of September 2023

Duration: 30 months

WP		Month																												
No	Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	SIGNATURE	M1																													
WP1	MOBILISATION PHASE				M2																										
WP2	PLANNING PHASE										M3	M4	D1																		
WP3	ANALYSIS PHASE														D2																
WP4	EXECUTING PHASE													M5		M6			M7						M8	M9		D3			
WP5	CLOSING PHASE, FINAL REPORT																													M10	D4 D5 D6

Thank you for your attention !