

STAMINA WP8 DryRun 1 (DR1) Meeting

DATE	24 March 2022
PROJECT	STAMINA
TRIAL	Romania – IVN-Ro
EDITOR	IVN team (Corneliu Zaharia, Daniel Matei)

PLACE			
VIRTUAL	Yes	LINK	Microsoft Teams (https://teams.microsoft.com/l/meetup-join/19%3ameeting_NDU1NjMzNWQtNjllZC00MTk1LWE0ZjltNTM5MzliZDQ1ODlh%40thread.v2/0?context=%7b%22Tid%22%3a%227c0ed10c-3b7f-4687-bd14-d5e9cc24ff94%22%2c%22Oid%22%3a%22265d9554-2be4-416e-9e20-0d1ab1e5b67e%22%7d)
PHYSICAL		Location	Online location: MS Teams for everyone (link above) Offline Location: Institute of Virology, Bucharest, Romania

SUBJECT	DryRun 1 Meeting / Romanian IVN-Ro Trial execution
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Agenda

Start – End	Topic	Responsible	Tester
10:30 – 10:40	Welcome Agenda review	IVN Team	
10:40 – 11:00	Presentation of the scenario for TRIAL IVN-Ro - step by step description	IVN Team	

Interventions of tool owners for testing solutions in correlation with the scenario			
11:00 – 11:15	Data Management and Harmonization Tool (DMHT-IPT)	INTRA	IVN Team
11:15 – 11:30	Flu and Coronavirus Simulator - FACS – Predictive Modelling Tool	BUL	IVN Team BEIA TEAM
11:30 – 11:45	dynamic Hospital wARd management (CHARM) Tool	BUL	IVN Team BEIA Team
11:45 – 12:00	SmarKo monitoring device	MCS DATA LABS	BEIA Team IVN Team
12:00 – 13:00	Break		
13:00 – 13:15	Web and Social Media Analytics (WSMA)	TRI	IVN Team BEIA Team
13:15 – 13:30	Early Warning System (EWS) Tool	EXUS	IVN Team
13:30 – 13:45	Crisis management (CrisisHub) Tool	CPLAN	IVN Team
13:45 – 14:00	Integrate Emergency Management (ENGAGE) Tool	Satways	IVN Team
14:00 – 14:15	Emergency Maps Tool (EMT (COP))	AIT	IVN Team
14:15 – 14:30	Preparedness Pandemic Tool (PPT)	EXUS	IVN Team
14:30 – 15:00	Feedback and Closing remarks	IVN Team	

DR1 objectives:

- information on the stages of the step-by-step scenario;
- proposals regarding the use / testing of tools in different stages of the scenario development;
- Hardware, software requirements and ways to test each tool (test-table);
- Interaction between tools (integration) in the STAMINA platform (actions for DR2).

Presentations

- **Step by step influenzas scenario in Romania** – IVN Ro (see [text](#) and [slides](#) on SharePoint).
- **Interventions of tool owners for testing solutions in correlation with the scenario** (see [slides](#) on SharePoint).

Data Management and Harmonization Tool (DMHT-IPT)

A. Current status, tests and results

IVN understanding and updates

- IVN understood the scope and characteristics of DMHT and IPT (which can be used with or without DMHT).
- IVN sent to DMHT on 27-Feb-2022 data which were processed and formatted as CSV.
- IVN waits for the ENGAGE web interface to access DMHT in order to insert new data and testing.
- The data sent by IVN in DMHT can be used by FACS for simulation. This connection is not ready yet.
- In our trial, we'll introduce a sequence like: a hospital will send data to DSP (Directorate for Public Health) and we'll try to test DMHT with IPT through the interface offered by ENGAGE.
- DMHT requests 2 different organizations. Before setting 2 organizations external to STAMINA, we need to test DMHT by simulating data transmission.

IVN questions

- In order to record information in DMHT is necessary to transmit data to INTRA or can we create new CSV files to be validated by DMHT?
- DMHT must be connected to existing open or closed data sources, is this correct? Can we also input dummy data, for the trial?
- Does DMHT process the data incoming from the WSMA?

B. Intervention tool owner (Angela Maria Despotopoulou, Sofia Tsekeridou, Themistoklis Anagnostopoulos - INTRA)

General considerations

- we will demonstrate the functionality with open data;
- we will give access very soon, certainly before DR2 demo;
- we have the STAMINA platform that needs to exchange different datasets - they can be exchanged in many ways but not secure;
- is a data lake, everyone can upload data there and give access to somebody else within STAMINA to download and use them for whatever purpose they need;
- when we're uploading data in a shared DB => but maybe we don't want to give access to everyone.

Regarding GUI

- we have a person that will be logging into the GUI as a data provider;
- at this moment there was no sharing of data yet, except for the COVID;
- we give access to this to other organizations: press Edit, we see all members, we choose Beia, we press update => now it is shared; now we add a second organizations;
- now we retract the access.

DMHT GUI for visualizing data (the other part, the receiver)

- this is the dashboard, based on elastic search to visualize the data (Kibana interface);
- you can see the list with all the ingested values;
- you can add filters or run queries on the data and visualize it;
- it can create visualizations: new cases per continent and per country => this is fully customizable;
- also creating some APIs to connect with other tools; we created a sample to retrieve data for this dataset => if we run it, we will receive it. If I try to do it from other organization, I will get an error;

- we have other APIs for ingesting data;
- we have both APIs and GUI;
- you can upload your own CSV data; you will have access to it;
- they want the sample data to build the schema.

Flu and Coronavirus Simulator - FACS – Predictive Modelling Tool

A. Current status, tests and results

IVN understanding and updates

We sent on 17-Mar-2022 more information about FACS (parameter values for a flu pandemic simulation, the population by age groups, vaccines, non-pharmaceutical measures during the pandemic).

IVN questions

- We are currently waiting for the simulation done by the tool owners based on the data sent on 17-Mar.
- The documentation for FACS is in GitLab and it is not clear how we can identify it.
- How can we access the FADE interface? (to Arindam, this question was suggested by Derek).

B. Intervention tool owner (Anastasia Anagnostou, Arindam Saha – BUL)

• Needs for simulation

- we have the locations where the scenario will take place, we will create the locations and also we will receive the demographic data for those locations;

- basically, we need 6 types of inputs: *demographics* (public), *location* (sent), *disease*, *mortality* and *hospitalization*, and the *timeline* when each measure was implemented (closing places of leisure (parks, etc.), masks, etc.);

• If we plan on vaccination, we need vaccination data: starting from date X, each day we had these many vaccinations + efficiency of vaccination, how long it lasts, are boosters required or not; then we can run the simulation: a simple run command.

• FADE = a simple visualization: location graph, demographics, measures. A version of FADE is already online, on a public server, if you want off line we can provide you the code output (this is based on COVID): cases over time, hospitalization over time, infection spread in these locations.

• We will try to model an unknown virus and influenza (this was for COVID).

A documentation can be found at <https://facs.readthedocs.io/en/latest/>.

• How can we access?

- GitHub, offline => you can install this on a local machine (Romania takes about 30 min to run);

- The interface of FACS is on a demo server with limited resources.

dynamiC Hospital wARd Management (CHARM) Tool

A. Current status, tests and results

IVN questions

- Is CHARM tested also by the teams in Turkey, Lithuania and Tunis? Was it run locally by these teams so we can exchange information?
- The demo interface is useful but we also need a document to explain the GUI and examples how to run it.

- (from the demo) “Mode” (this value probably needs to be sampled) – how do we find this value? Do we need to have in advance the distribution of the respective parameters (e.g., Elective ICU) by days? (Fig. CHARM_Demo_01).
- (from the demo) “Replications” means that the simulation is repeated of a number of times? Do the parameters vary in these simulations?
- (from the demo) “Download CSV” doesn’t have the structure of the parameters presented in the demo, instead it’s a very simple example.
- (from the demo) What is the structure for the CSV file for upload?
- (from the demo) Does the “Run simulation” option work in the demo?
- (from the demo) CHARM is supposed to provide information about the patients and the resources (beds) available at a specific time during the pandemic. We are interested to know how can we see this information, as well as the level of details?

B. Intervention tool owner (Anastasia Anagnostou – BUL)

- CHARM is a patient flow simulation. We have the process of the ICU: patient arrives, gets the bed, the length of staying in the ICU, else the patient goes out of hospital. Then mortality of recovery.
- There is no visualization in the tool (can't see patients moving from one activity to other). When the simulation finishes => you can see in the graph how many patients moved and died, etc.
- Can we use CHARM? Yes, link by chat; also, the code is open (preferable on Ubuntu and input the data in CSV).
- The CHARM interface is easier for users who are not experts to input parameters and run simulations mode - from historical data, you can find it from there. If there is no data for the emergency arrivals or elective arrivals, we can send some literature, maybe there are some examples of hospital simulations, and have some estimations of replications and parameters.
- All parameters are parameters of distribution. All these parameters are not fixed values, they are an estimation.
- Every simulation replication will have a different number of arrivals => we can run as many replications as we want.
- If I run just one replication and the computer simulation gets one value => it will not be representative => we run many downloaded CSV files.
- For COVID arrivals we enter our data in CSV file => if you download it you will see a simple file with the number of days, third column is the number of COVID arrivals for a specific day - this is a sample data. In your case, this would be either an assumption or a prediction. More discussions on this run simulation option does work in demo, but not for many arrivals. A test with 100 days didn't work, but 60 days should work.
- Turkey, Lithuania, Tunis, they have the links, not sure if they run it.
- A plan to write some doc, and we will notify you by email.
- Access in the tool: link in the chat + source code.
- What is missing is integration with other components, we'll try before the DR2.

SmarKo monitoring device

A. Current status, tests and results

IVN understanding and updates

- The tool owner proposed a bilateral meeting which we would like to have after DR1.

IVN questions

- We wait from SmarKo to tell us if they can create a SmarKo simulation interface with the device's features, so we can test these features in order to evaluate they can be used in the IVN-Ro TRIAL.
- Alternatively, please propose a way to actually test this device in the IVN-Ro TRIAL.
- Do you see the following situations suitable for using the SmarKo devices?
 - We have a patient which is taken by the ambulance to the hospital and we attach him/her a SmarKo device in order to receive health data in real time to a centralized system.
 - We have a patient with minor symptoms, and instead of taking him/her to the hospital, we attach him/her a SmarKo device in order to monitor the symptoms and to early detect a possible worsening of the condition.

B. Intervention tool owner (Fihmi Mousa – MSC Data Labs, Maria Plakia – EXUS, Sofia Tsekeridou - INTRA)

- Tool owner sent 3 devices; will be send by email who is the recipient.
- Tool owner want to change the mobile app based on feedback, but no feedback (contact person).
- Simulation interface - maybe possible, but didn't do it yet - can emulate? Yes, tool owner will try.
- Tool owner will discuss internally and try the solution.
- Tool owner has the Hardware and the STAMINA application, and collect the data from the devices and send it to the STAMINA server.
- EXUS (Maria Plakia): in case there is abnormal events, EWS will show it; this is in progress => take offline, send email after this.
- Can we put arbitrary values and we can see what happens? e.g., above thresholds to have the values be real (e.g. have SmarKo readings that are from real-live-time people) we'd need ethics approval from a review board. So emulated data is best, if possible.
- To have the SmarKo devices reading, we need an ethics approval to ensure we have the proper documentation and legislation. Ethics approval is per trial, we could do it per the device if all the trials are aligned on how to be used => should have a follow-up (Katrina Petersen -TRI).

Web and Social Media Analytics (WSMA)

A. Current status, tests and results

IVN understanding and updates

- On 7-Mar-2022, IVN sent to Ilaria by email a list of 30 key words in Romanian and English as well as warning thresholds.
- Ilaria recommends to use WSMA for the earthquake part in the trial, however for good reasons we had to give up to the earthquake part.
- The tool owner says there is an interference in the identification of the communication for flu during the COVID-19 period.
- Also, the tool owner says that WSMA is not so significant in Romania due to low utilization of Twitter and Reddit. However, IVN thinks it should be useful in a real epidemic situation.
- Testing WSMA cannot be done using correct keywords because we are currently not in a period prior a pandemic, instead we are now in a very advanced phase of the COVID-19 pandemic.

IVN questions

- It would be very useful if we could access the WSMA tool to test it as a demo product with complete functionality. Can we do this and when?
- Is there a way for WSMA to identify Reddit posts in English, but posted from Romania? Considering that Reddit has access to the user location based on the IP address.
- Do you see the following situation suitable for using the WSMA?
 - Obtain feedback from the population for the measures taken to limit the epidemic, for example: schools are closed and people complain about internet connections or lack of computer devices, wearing masks is mandatory by law and they don't like it. Based on the information collected, authorities could use different approaches for the measures they enforce, for example: explain more to the public why the measures are taken, change one measure with another which is better received and with similar effectiveness.
 - Check how the population reacts after the measures: do they have trust in the authorities? If not, why? Which measures or epidemic effects are impacting them more and how?

B. Intervention tool owner (Ilaria Bonavita – TRI)

- Complete functionality - by middle of May, we can arrange it before the trial, but too tight for the DR2.

- The dashboard is already accessible, web-based, login with credentials and open in any browser; we can do this, but still not ready to process all the results => probably more useful to wait until May.

- Twitter 3.8% of population in Romania, Reddit is bigger 3.5million users.

- We thought to restrict the search to specific sub-Reddits (forums), some defined by region or country (Reddit Romania) => we can restrict the search to these forums, and if we provide with a list of these forums, they can integrate it => need to discuss this with the developers, to let the user select some sub-Reddits.

- Use it as a source of epidemic information - not reliable, because not many peoples discuss this on social media; disaster, more, but a flu not very common, especially in countries where Twitter is not very used. People can use the same words in other contexts and it is difficult to assess if it's really about a virus or false positive. We believe it's very stretched to use the tool for this, and will not justify the potential gain.

- Obtain feedback from the population for the measures - what is the opinion of the public and then to feedback to authorities; what kind of words can we search in order to better understand this feedback, what keywords can be more effective - we can discuss this in the training (we can make assumption to some words, but there are also some strategies which could be more efficient) - before the trial there should be a training session, we should also include it in the training material.

- When we will analyze these results (for the keywords already sent) and we can talk more after that.

- Who will be responsible for the monitoring? IVN (Corneliu Zaharia and Alexandrina Nuta) we should agree how we do it: a person is monitoring and will inform the others? The tool will be integrated with EMT => the person responsible to visualize the EMT will also receive data from WSMA. It can also be integrated with EWS (not sure how useful will be for us). We will also use historic data (more relevant) and PPT will send this data for simulation => how is this planned?

A. Current status, tests and results

IVN understanding and updates

- On 17-Mar-2022, Plakia proposed a telco for 18-Mar-2022, but IVN was involved in preparing DR1, so couldn't honor this invitation. IVN will come back for organizing this bilateral discussion.
- On 22-Mar-2022, IVN transmitted to Nikos Bakalos the document with the last version of the IVN-RO TRIAL.
- We are waiting for info request in order to test (ourselves or the tool owner) the EWS in the IVN-RO TRIAL conditions.

IVN questions

- Will we have access to the testing of the EWS tool and when?
- Can the EWS be used to notify the population directly? If yes, how? Or only the authorities?

B. Intervention tool owner (Maria Plakia – EXUS, Sofia Tsekeridou – INTRA)

- EWS is a bucket tool, it doesn't have a GUI to be tested.

- What we need to have, except the module (the engine): in case we receive historical data or DMHT tool from INTRA, we will need from you to discuss more which ML models we will use for you, after that we will have a specific pipeline (either DMHT provide historical data, then EWS presents, or in the EMT, not sure which one is the most appropriate).

- In the previous telco that we had; we were waiting for some inputs/feedback from IVN. In order to give you these days, we need to have this telco.

- EWS inform the authorities only.

- Availability for next week to arrange the telco.

- [Sofia]: we provide the APIs, we already discussed with Nikos about the access.

Crisis management (CrisisHub) Tool

A. Current status, tests and results

IVN understanding and updates

- We had an intense information exchange with the tool owner. Yesterday (23-Mar-2022) we received a request regarding the resources we want to monitor for each location of the entities involved in the TRIAL, including a data collection questionnaire. We're going to analyze and to reply to these requests as soon as possible.
- The last version of the IVN-RO TRIAL was simplified and was retransmitted to CPLAN. In those cases where the tool owner used data from the previous version of the trial, IVN will update it with the latest ones. We can consider using the previous trial (which was much more complex) if it will be useful.

IVN questions

- We are very interested to see which will be the result of the CMT and CRM optimization done by the tool owner for the considered IVN-RO trial.

B. Intervention tool owner (Charon van der Ham – CPLAN)

- Already considered the latest trial version.

-The data requested is the last one needed to integrate => access to the system next week.

- If the data takes a while to collect, maybe we can give early access and we can try to put the data in technical system directly, otherwise Charon will help.

Integrate Emergency Management (ENGAGE) Tool

A. Current status, tests and results

IVN understanding and updates

- We have access to the tool. We entered ENGAGE but we cannot change or add anything to any section, we can't add a hospital (Fig. ENGAGE_001 and ENGAGE_002).

IVN questions

- When will ENGAGE become active for the end users?
- How can we easily save all the information input by the end users in ENGAGE?
- There is no Help section.
- There is no DMHT interface, unlike the DMHT owner said.

B. Intervention tool owner (Lefteris Voumvourakis – Satways, Sofia Tsekeridou – INTRA)

- This is the page (Share the screen), we sent the instructions. If you click here you download the file and you run the file and ENGAGE starts running. I will login using the account share with you. You have some info about the user, we select the screen config. This is the main interface, we have an example of one hospital. I prepared one for demo, when i select this and I see a report.

- By pressing this button, we can create a new one: you can create a new one from scratch or reuse the old one.

- The report is being sent to the other tools (EMT and CrisisHub).

- Try again and if not, send an email.

- If we need for the TRIAL a second hospital, we can create a new user, based on the number of hospitals.

- We can have a superuser if you wish (headquarters of the hospitals) which can see all the hospitals.

- Once the report is created, the info is saved.

- Help: don't have now, we have a small video on SharePoint, link to FAQ.

- All the info in this report is based on the protocol for hospital availability - it's in the same Excel with FAQ.

- Initially there was a discussion for IPT to integrate in ENGAGE, but in the end, it will be a web interface, so it will not be in ENGAGE. Sofia: we have UIs for both cases (data provider and data receiver).

- According to the final system architecture, there is no dataflow from the SmarKo devices to ENGAGE, but no visualization of patient in ENGAGE.

Emergency Maps Tool (EMT (COP))

A. Current status, tests and results

IVN understanding and updates

- We have access to the EMT (COP). There are many questions which we'll send by email to the tool owner. Several questions now:

IVN questions

- In “Configuration” there is “Server access keys” section with the options “Open Weather Map API Key” and “Sentinel API Key” (Fig. EMT_003). Can an example be given on how to obtain these keys?
- Does “Sentinel API” have an application in the management of a pandemic?
- How can we introduce different symbols like the ones in the Legend (Fig. EMT_005)?
- “Layout selection – Stamina ENGAGE” has messages. Do they come from other tools or are just examples? (Fig. EMT_004)
- Are these messages important? Is this connection already created and can we access it?
- Are the details from “Details” section (Fig. EMT_001 and EMT_002) created in EMT or in ENGAGE?
- We asked by email if FACS was integrated in EMT and it wasn’t, they were still working on integrating WSMA. Is this integration done now, because we cannot see in our access?
- Does the program have an Exit command/button?
- Can the EMT show in real time the location of an ambulance? Can the EMT show on map the location of objects in real time, based on geolocation inputs?

B. Intervention tool owner (Patrik Kaleta – AIT)

- EMT = COP is the same tool.
- API keys: comes from previous project where EMT was involved => we don't need it in STAMINA (open weather was supposed to give info about weather, rain, storm), if you would like to have such layers on the map, we can discuss about these keys, but from the trial I understand we don't need them.
- "Sentinel API" is not relevant for our trial.
- We receive the link to the PDF came from CrisisHub; we can only offer a visualization or download option. EMT is connected to 12-13 tools, so far: CrisisHub, ENGAGE, GLEAM, now with WSMA.
- Integration before 11-April? some tools are still in development and not able to provide data => we depend on the other tools.
- Icons can be added? Yes, send to the tool owner; the details are from ENGAGE.
- We are currently working on WSMA, first run yesterday => now WSMA is there, not completed.
- When you close the browser (not the tab) everything is closed/deleted; there is no logout button, we can discuss if this is needed.
- This tool is just for visualization => you can't edit => nothing you can lose/save.
- We can set some data to be shown on the map by default every time => you can talk to us and tell us.
- Also the default language is English => if you want in Romanian, we can set it up, just need translations from you.
- Real-time location of ambulance is theoretically possible, if there is a tool to send this (in STAMINA we don't have this, as we know); one thing we tried for Spanish trial: implement some sort of simulator where you can create objects (an ambulance) and add locations and timestamps => and simulate it and have it displayed in the EMT => if we would be able to provide this data (to transmit it somehow to this tool), we would need to work on this to implement it (a listener): hypothetically is possible but we need information and implementation.

Preparedness Pandemic Tool (PPT)

A. Current status, tests and results

IVN understanding and updates

- We had last week a bilateral presentation of the tool from the tool owner.
- The tool owner helps us to implement our trial in PPT. On 22-Mar-2022 we received the request for a set of information that we'll provide as soon as possible after DR1.

IVN questions

- We are now waiting for clarifications from the tool owner regarding how can IVN test this tool.
- We couldn't understand what happens when the user hits "Play" on the scenarios existing in the "Library".
- Does the program have the "Exit" feature?

B. Intervention tool owner (Anax Fotopoulos, Alexandros Karalis – EXUS)

- Credentials sent by email, you can access it, maybe there are some bugs, but were working on them.

- Hit "Play"

the trainer designs the scenario in the PPT

the participants view things through the EMT (and other tools)

single messages, events, that are sent mainly through EMT (can be other tools as well).

- Each message has a center (operational, tactical and strategic) so we can differentiate real than virtual events/messages.

- Everything is saved by default, when you exit, it remains there.

- We have cookies to keep you login; we have a sign-out button.

Demo – details:

- play button => you can see events;

- you can differentiate by colors;

- we have this message from the ambulance call center;

- the list of organizations => we need to insert them correctly in the scenario;

- you can assign different persons to each organization;

- we can see that someone from operational level sent to the tactical level this message, we have the message on the map and the time;

- then we have another message: sender, receiver, message;

- then we have an event;

- tabs can differentiate what you see: only events, only messages, social media;

- after the message is sent, it takes some time for the teams to discuss about it.

Action points

DMHT-IVN uses access to the tool as soon as it is available to enter data into the database by the data provider and retrieve data from this database by the accepted user.

FACS - IVN will continue to correspond with the tool owner to obtain the simulation results for the data transmitted by IVN.

CHARM - IVN will explore the facilities offered by this tool using information from the ICU belong to a hospital in Calarasi County.

SmarKo - The IVN team will test when they have access to the simulation interface of SmarKo devices.

WSMA - IVN will access the program dashboard to test the functionality of the tool.

EWS-IVN will contact the tool owner for a telco at the suggestion of the tool owner.

ENGAGE - IVN will have this Demo available.

EMT-IVN will contact the tool owner to clarify the issue of inserting icons into the program.

PPT-IVN will continue to explore the functionality of the tool.

Next steps

The IVN team is ready to access the STAMINA platform to see the integrated operation of the tools selected for the TRIAL IVN-Ro.

Annex (Fig. - Print Screens) - [DR1 IVN-Ro Minute – Annex.pdf](#)