IT TOOLS AND METHODS FOR MANAGING MIGRATION FLOWS

Preliminary Exploitation Plan

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Executive Summary

The Preliminary Exploitation Plan outlines the actions required for exploitation of the key project's results, as well as it reflects the current status considering the technological developments. There are various viable products that have been identified and will be exploited.

This deliverable focuses on the analysis of the three main Key Exploitable Results identified by the ITFLOWS' beneficiaries. In particular, these are: a) the EUMigraTool, b) Simulations of irregular migration across countries towards the EU & local population displacement and c) Evidence-based policy analysis and recommendations.

There has been a special focus on analysing the exploitation of EMT, due to its complexity and sustainable nature. After all, as the project requires, D9.5 – Final Exploitation Plan, based upon D9.4, shall develop a Business Plan for exploitation of the tool.

The current exploitation process covers market analysis with its segmentation and significant value proposition. There have been initial estimates of cost and potential revenues for each KER separately, as well as a risk assessment plan and exploitation activities performed so far.

The sections analysing each KER reflect the main ideas and elements put forward by the partners during the Horizon Results Booster meetings. They include inputs and feedback from everyone participating in both seminars.

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Abbreviations

AI: Artificial Intelligence

AMMI: Associazione Multitietnica del Mediatori Interculturali

BUL: Brunel University London

CA: Consortium Agreement

CEPS: Centre for European Policy Studies

CERTH: Ethniko Kentro Erevnas kai Technologikis Anaptyxis

CRI: Associazione della Croce Rossa Italiana

CSD: Centre for the Study of Democracy

CSO: Civil Society Organization

EASO: European Asylum Support Office

EC: European Commission

EMT: EUMigraTool

ESS: Exploitation Strategy Seminar

EU: European Union

FIZ: Fiz Karlsruhe–Leibniz-Institute fur Informationsinfrastruktur GMBH

FRONTEX: European Border and Coast Guard Agency

GA: Grant Agreement

HRB: Horizon Results Boosters

IAI: Istituto Affari Internazionali

IFW: Institut für Weltwirtschaft

IOM: International Organization for Migration

IPR: Intellectual Property Rights

JRC: Joint Research Centre

KER: Key Exploitable Result

MTU: Munster Technological University

NGO: Non-Governmental Organization

OCC: Open Cultural Center

ORE: Open Research Europe

PWG: Policy Working Group

TFEU: Treaty on the Functioning of the European Union

TRC: Terracom AE

TRL: Technological Readiness Level

UAB: Universitat Autònoma de Barcelona

UB: Users Board

UN: United Nations

UNHCR: United Nations High Commissioner for Refugees

WP: Work Package

1. Introduction

The purpose of this deliverable is to design an initial strategy for the exploitation of the project's results.

By the end of the project, we aim to have addressed the following important questions so as to be confident that we have conducted a successful Exploitation Plan for ITFLOWS project:

- ***What kind of needs does the project respond to?***
- ***What kind of challenges is ITFLOWS looking at and proposing solutions?***
- ***What new knowledge (results) will the project generate (assessment of the state of art)?***
- ***Who will use those results?***
- ***What benefits will be delivered?***
- ***How will end-users be informed about the generated results?***

For this purpose, Terracom S.A. in collaboration with the Consortium partners, is committed to conduct an Exploitation Plan for the project's results. The **Preliminary Exploitation Plan (D9.4)** is delivered in month 18 of ITFLOWS project and the Final version **(D9.5 – Final Exploitation Plan)** is expected in month 36.

2. Roadmap of activities

The structure of D9.4 is presented in this section as follows:

Initially in the upcoming **Section 3**, we present the exploitation strategy and the process that will be enforced during ITFLOWS project. We highlight the project's main goals and objectives and, finally, introduce the Key Exploitable Results (KERs) identified by ITFLOWS' partners.

Sections 4, 5 and **6** outline each one of the three main KERs of this research. The deliverable presents an analysis of the market conditions, defines the target market and alternative solutions and emphasises on the benefits of each result. It also describes the necessary activities to be executed after the finalisation of the project, the way they will be monitored and explains how each KER will be put in use in order to make an impact.

In **Section 7,** we continue with the description of actions followed by the project's partners in terms of exploitation, such as the participation in workshops and the presentation of ITFLOWS in several events. It is important mentioning that in this regard we have also consulted the Horizon Results Booster Services, having participated in the two seminars organized by this initiative of the EC.

Finally, **Section 8** summarises the work performed in this deliverable and outlines the future steps and actions that we will follow. During the project's lifecycle and after its end, further exploitation activities shall be taken so as to get a more comprehensive overview and conduct the project's deliverable D9.5 – Final Exploitation Plan with due date the end of ITFLOWS.

3. Exploitation Strategy

The objective of this deliverable D9.4 – "Preliminary Exploitation Plan" is to primarily approach the project's exploitation by presenting an initial strategy that is being enforced during the project's lifetime.

3.1. Introduction and main objectives of the Exploitation Plan

The ITFLOWS exploitation plan describe the expected results from the project and define its best exploitation. There has been mutual cooperation between strategic partners and, additionally, potential strategic alliances have been identified. Essentially, the exploitation plan includes the identification of the project's audience and strategic objectives, as well as the project and partner level implementation – exploitation – sustainability activities and objectives.

Aiming to extend the impact of ITFLOWS, this deliverable intends to ensure high visibility of project results among target groups and stakeholders, raise general awareness and use of project results. In sum, **the exploitation goals are to**:

- Engage different target groups with information adjusted to their needs.
- Maximise the impact of the project on stakeholders.
- Raise general public awareness on ITFLOWS project objectives.
- Engage with policy makers and practitioners in the field of migration.
- Identify complementary models/tools and explore options for synergies, cooperation or merging.

The exploitation objectives of ITFLOWS are the following:

- Identification of target groups and stakeholders.
- Spreading, as effectively as possible, the project's results among relevant stakeholders on a timely basis.
- Establishing and maintaining mechanisms for effective exploitation of the project results.

In order to achieve and ensure maximum impact and high visibility of the project results, we perform the following activities (at different stages of the project lifecycle):

- **Before the project starts:**
  - Drafting the exploitation plan.
  - Defining the expected impact.
  - Consideration of target groups and stakeholders.
- **During the project:**
  - Updating the exploitation plan.
  - Assessing the impact on target groups and stakeholders and their needs.
- ✓ **After funding period ends:**
  - Continuing further exploitation of the project results.
  - Developing ideas for future cooperation.
  - Evaluating achievements and impact.

Exploitation of project results will be continued after the funding period. According to the project's GA, by the end of the project the EMT will be at TRL 6, meaning that it will have been tested in certain real environments. For this reason, it will become necessary to continue with further research and software development, so as to reach and evolve the level of EMT in order the tool to be able to operate under the expected conditions and be ready for exploitation. Therefore, the consortium is committed to explore further funding opportunities, research and document alternatives that may contribute in finalising the tool.

3.2. Exploitation of the Project Results

The project results are both tangible and intangible. Tangible results could include practical tools or products (such as training courses and material for the EUMigraTool), research publications, reports, new forms of collaboration and networking, newsletters, etc. On the other hand, intangible results may include skills and personal experiences gained by the project participants, as well as knowledge.

Extensive exploitation will be assured through the integration of the project results, in a sustainable way and structure. This way they can be tailored to third-party requirements and needs and be able to sustain after the funding period. It is highly important that they will be accessible, well documented, focusing on the benefits, and, of course, transparent.

In addition, it is crucial that exploitation of the project results takes place through workshops, as well as online seminars, discussions with target groups and stakeholders and even face-to-face transfers of relevant results. In order to achieve desired impact on stakeholders and target groups and to set the basis for effective use of the project outcomes, ITFLOWS partners have elaborated an exploitation strategy for each outcome.

The design of the exploitation strategy is a way to brainstorm on the use of project results, characterise them, identify the risks and potential obstacles for exploitation and analyse how to address them. In particular, project partners have worked together on:

- The description of the key exploitable project results (KERs), and
- The exploitation plan.

3.3. Exploitable Results

3.3.1 List of Exploitable results

Table 1 summarises the Key Exploitable Results (KERs) identified by the project's partners:

No.	Name of the KERs
1	EUMigraTool (EMT)
2	Simulations of irregular migration across countries towards the EU & local population displacement
3	Evidence-based policy analysis and recommendations
4	Open research data pilot (ORDP)
5	Training courses and material for the EUMigraTool
6	Datasets created and analysed from unstructured sources;
7	Implementation of methods to extract frequent patterns from tweets representing migration drivers
8	Conceptual paper on migration drivers and trajectories

Table 1. Name of the KERS

The above list provides the KERs that have been proposed by ITFLOWS partners. However, after extensive discussion between Consortium partners and during the sessions with Horizon Results Booster,[1] we came to the conclusion that the most important KERs for analysis are the first three. These are: a) the EUMigraTool (EMT), b) Simulations of irregular migration across countries towards the EU & local population displacement, and, finally, c) Evidence-based policy analysis and recommendations.

The measures which are used for monitoring the implementation of the actions

[1] We provide an analysis about Horizon Results Booster and its services in section 7.

required are the KPIs (Key Performance Indicators). They are used to underline the success of the exploitation activities. Therefore, KPIs for each of the three KERs, are presented in **Table 2** below:[2]

KER	KPI Description
KER1, KER2	Models for predicting migration flows tested and validated in relation to historical migration data
KER3	Identification of areas where there is tension between migrants and EU local population with evidence-based recommendations to mitigate the risk
	A list of documented refugee integration policy improvements is recommended
	A list of documented improvements in migration / refugee policy is recommended

Table 2. KPI per KER

There are also two KPIs presented in the initial proposal[3] that are related with the D7.3 - "EMT User Guide". D7.3 is expected to be completed by month 24th of ITFLOWS and, therefore the specific KPIs are not mentioned in this deliverable.

The User Guide for EMT will contribute in achieving successful exploitation of the tool. It will be dedicated to develop an online environment (support forum, access to training material) that contributes to the transfer of knowledge and the support of services. Thus, end users will be aware of EMT's functionalities and get to learn how to use the system appropriately.

[2] ITFLOWS initial proposal, Section 2.1, p. 29
[3] These are a) Creation and successful piloting of EMT amongst policy and civil society actors represented by the UB b) Demonstration through piloting that EMT enables optimization of border resources to manage migration numbers.

A more detailed analysis will be included with feedback in the final version of the Exploitation Plan (D9.5).

3.4. Exploitation intentions

In this section, we elaborate in detail the exploitable intentions regarding the selected KERs we have mentioned.

Table 3 below provides information[4] about the highlighted KERs, based on what is stated in the original project proposal. In particular, it includes partners responsible for each KER, what can be the use model (Direct or Indirect – i.e.: licensing, direct selling, patenting, further funding, etc.), the contribution to the generation of such KER and finally, partners' role (who does what, when, how).

Partner responsible	KER	Interest	Contribution to the generation of this KER	Role
CERTH	1	The EUMigraTool will be implemented in a production environment, considering all the EU data protection requirements developed during the project. After the EMT tool completes validation, the envisaged costs will be to finalise tool production release software, tool deployment (e.g., server and online costs) and tool updates and maintenance. Two possibilities are considered to cover these costs: - Charging end-users (Municipalities and/or NGOs) with an annual/membership fee for the EMT; - Voluntary-based plan for ongoing	Specification of the architecture. Design of the simulation component. Application of simulation of irregular immigration & local population displacement. Visualisation, infrastructure integration and deployment	CERTH is responsible for the EMT specifications and architecture and the Visualisation, infrastructure integration and deployment. Together with BUL it is in charge of the simulation component of the tool.

[4] Information source: as referred in the initial proposal of ITFLOWS

		software development and maintenance of the tool.		
BUL/ CERTH	2	Simulation models to forecast the migration movements across countries and towards the EU on a high-level scale and to develop and validate models of individual situations that affect a particular country and as a result make people to seek escape abroad. The migration drivers and trajectories are identified. The social media analysis will monitor public attitudes towards migration throughout an analysis of tweets in EU Member States.	Identification of Drivers of EU-bound irregular mixed migration in countries of origin and transit & integration of migrants across EU Member States. Social media analysis method. Analysis of public attitudes of EU citizens towards migration.	BUL is responsible for the development of the simulation models in cooperation with CERTH; IfW & MTU provide the background analysis and tools for the simulation.
BUL/CSD	3	Project's accumulated results will be initially translated into evidence-based policy analysis and recommendations and then extensively disseminated to wide and relevant audiences at a national and EU level. The aim is: -To work towards bridging the gap between research and policy in the field of migration; - To engage into constructive dialogue between policy makers, stakeholders, experts, civil society, the media and researchers on the project's aims, activities and findings; - To formulate workable policy recommendations at the national and EU level;	Establishment of the Policy Working Group. Organisation of workshops with policy makers. Definition of recommendations.	CSD & CEPS organise the activities to engage & involve policy makers, BUL coordinates the recommendations with support from all ITFLOWS partners.

		- To translate the research findings into specific policy solutions; - To facilitate the exchange of knowledge and the expansion of good practice on the use of big data information systems with conformity to data protection, privacy and ethical concerns; - To lay the ground for research-based policy recommendations that could help design future EU policies in the field of migration, asylum and integration.		

Table 3. Exploitation intentions

3.5. Exploitation process

In this section the procedure and further development needed are presented, so as to have valuable and concrete steps towards exploitation. The exploitation framework is separated for each KER as follows:

Characterisation: It is important to identify and describe the problem that our potential end-users have and how we are going to address and validate them. This way we can make sure results are properly used and that the envisaged impact is achieved.

Also, we have identified alternative solutions and competitors. First, we have listed the weaknesses and strengths offered by alternative solutions, and then we have compared and quantified the added value of our solution.

A description of the competitive advantages and the innovative aspects of our solution indicate its uniqueness and provide sound information on the magnitude of the value that it is offering.[5]

To finalise the exploitation plan and prepare the use of KER, a clear identification of the target market with its segmentation was needed, as well as market "early adopters".[6] We present our use–model to show how each KER will be put in use and become available to end-users to generate an impact. Once it is put into the market, that is how long it will take, from the end of the project to the final result. IPR background and foreground will be also taken into account in order to set out specific rules of intellectual property.

Exploitation roadmap: In this section a brief description of the actions planned and needed to be executed, 3-6 months after the end of the project, is provided in order to start the implementation of our exploitation plan. It will mention the role and contribution from each partner of the ITFLOWS consortium in each action defined, as well as list the milestones to be used for monitoring the implementation of the actions.

This process also includes information on the costs and investments needed to bridge the end of the project to next steps planned (e.g., increase TRL and go to market), as well as financial resources to cover costs incurred.

At this point we should take under consideration and point out the revenues we expect to collect, as they generate the cash flow that will make the use of each result (KER) sustainable over time. We estimate the revenues according to our early adopters and potential customers and make an approach to indicate what is expected during the first and third year (after KER has been used).

It is worth noting that impact is one of the main objectives of H2020. Therefore, we are aware it is crucial to describe impact in the exploitation plan in a way that it mobilises measurable changes in terms of growth and transforms the results of ITFLOWS project into concrete benefits for society.

[5] See Section 4.1.3., p.36.
[6] As "Early adopters" we mean those who we intend to address first as they are the ones that, probably, feel the problem harder than all the others.

Risk assessment and priority map: This section summarises the Risk Management Plan for each particular KER. It provides a description of each risk, the probability of risk happening and potential intervention. The latter refers to the action needed to manage a risk factor appropriately, depending on the resulting situation (control, action, no action, warning).

Use options: This section describes each KER's exploitation route, meaning, the way we work and go through in order to show how each KER will be further exploited.

The sections below (structured by KER) reflect the main ideas and elements put forward by the partners during the Horizon Results Booster meetings.

4. KER No. 1 – EUMigraTool

In recent years, both the European Union as a whole and its Member States face a challenge in managing intense migration and refugee flows within their territories. Migration is indeed a global phenomenon and it has become an important topic for discussion in EU policy debates. Field actors responding to migrants' arrivals could benefit from having accurate knowledge of migration flows and plan policy strategies accordingly.

4.1. Characterisation

Economic, political and social impacts affect the migration phenomenon in such way that makes the forecasting a very challenging issue. The main problems that have emerged as a result of human flows include:

- The difficulty to predict the arrival of irregular migrants at EU borders, in terms of numbers and characteristics, as actors giving response to the migrants arriving in the EU territory do not have appropriate insight into all the triggering factors.
- There is a need to predict (irregular) migration flows arriving into the EU external borders in order to be able to anticipate and plan for adequate assistance to migrants.
- Organisations working locally / regionally / nationally / internationally with irregular migrants would be able to manage their activities more efficiently. For this, they need solid information and knowledge, which is currently scattered and complicated to access (e.g., different websites, different data sources). They also need scientific based knowledge for their advocacy activities.
- It is important to identify potential risks of social tensions between migrants and local population in the EU, as very often EU citizens feel insecure and threatened by new entries of people, and chances of them reacting aggressively towards migrants are quite high most of the times.

4.1.1. Alternative Solutions

So far, EU and its Member states have tried to anticipate the above emerging problems by finding alternative solutions to manage migration flows. We have been analysing existing predictive models that have been created or are still in progress in ongoing projects. This research aims at helping get an overview of those models that are available and their current state of development.

Table 4 below presents the main predictive projects/tools that have been created so far and a brief description for each one.

Project/tool	Internet link
CEWARN	http://www.igadregion.org/cewarn
FLEE	https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/
JETSON	https://jetson.unhcr.org/index.html
IDETECT	https://www.internal-displacement.org/about-us
MIRROR	https://cordis.europa.eu/project/id/832921
Mixed Migration foresight (MM4Sight)	https://mixedmigration.org/wp-content/uploads/2018/07/MM4Sight_1pager.pdf
QuantMig	https://iiasa.ac.at/web/home/research/researchPrograms/WorldPopulation/Research/QuantMig.html
CrisisWatch	https://www.crisisgroup.org/crisiswatch
PRIO CONFLICT PREDICTION	https://www.prio.org/Projects/Project/?x=1401
UNACCOMPANIED AND SEPARATED CHILDREN	https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/
Early Warning and Preparedness System	https://www.easo.europa.eu/analysis-and-statistics

(EPS)	Access to data: https://www.easo.europa.eu/latest-asylum-trends
Displacement Tracking Matrix System (DTM)	https://dtm.iom.int/ DTM info sheet: https://dtm.iom.int/
The Heightened Risk Identification Tool	https://www.refworld.org/docid/46f7c0cd2.html
Displacement Data Exploration Tool	https://www.internal-displacement.org/database/displacement-data-exploration-tool

Table 4. List of predictive projects / tools in the field of migration

- **CEWARN**

CEWARN (Conflict Early Warning and Response Mechanism) was established in 2002 in order to prevent violent conflict. It is an initiative among the seven IGAD (Inter-governmental authority on development) member countries: Djibouti, Ethiopia, Kenya, Somalia, Uganda, Sudan and Eritrea. Governments of the IGAD region aimed to develop and evolve ways to predict violent situations and make their best to prevent it.

By launching CEWARN, IGAD envisioned of presenting and sharing information about potential violent conflicts, how they occurred and escalated in the above member countries. The aim was thus to analyse that information so that case scenarios were developed and optional response was formulated.

The functionality of the CEWARN Mechanism consisted of data collection and analysis. The ultimate goal was to communicate it in all IGAD member states and disseminate knowledge to all right institutions in order to serve the initial aspirations of peace and prosperity between participant countries and wider regions.

- **FLEE**

Flee is a new agent-based modelling programme. Its first version was established in 2017 and it is funded until 2023.[7] Until 2017, this type of modelling was basically used to study migration and explain its patterns. It was the first time that it was applied for forecasting forced people's destinations who were escaping conflict areas in Africa.[8].Flee is continuously updated to validate its correctness and its main purposes are:[9]

- To develop a tool that is able to predict the destinations of people who are forced to leave their homes.
- To make estimations on how major policy decisions (i.e., border closures and camp relocations) affect migration.
- To approach the number of displaced people in areas that collected data is inadequate.

This research presents a generalised simulation development approach in order to predict possible destinations people are forced to move to. By applying this approach in three African conflict regions (Burundi, Central African Republic, Mali), the simulation tool predicted correctly, after the 12 first days, over 75% of refuge destinations.[10] It also used existing techniques in order to give data for which camps were likely to get full, or numbers of displaced people and possible places they would go to.

Despite the research team could not predict all movements correctly, the reproduction of refugee destinations and their application could successfully lead to the simulation of other conflict situations.[11]

Connection with ITFLOWS: BUL, one of the founders of FLEE, is partner in ITFLOWS.

[7] https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/
[8] Suleimenova, D., Bell, D. & Groen, D. A generalized simulation development approach for predicting refugee destinations. Sci Rep 7, 13377 (2017).
[9] https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/
[10] Suleimenova, D., Bell, D. & Groen, D. A generalized simulation development approach for predicting refugee destinations. Sci Rep 7, 13377 (2017).
[11] Groen, Derek, "Simulating Refugee Movements: Where would you go?", Department of Computer Science, Brunel University London, Uxbridge, Middlesex, UK, Centre for Computational Science, University College London, London, UK

- **JETSON**

Jetson Project was designed by the Information Management (IM) team in UNHCR Somalia operation and developed by UNHCR Innovation Service starting mid-year 2017. It was conceived in an effort to manage and predict forced people movements.[12]

Jetson Project is essentially an experiment rather than a tool, whose main purpose is to clarify the factors and reasons which make people move by identifying the potential relation between forced displacement, climatic changes and violence.[13]

The methods it uses for prediction are machine learning gravity modelling and multivariate Test Site Analysis (TSA). Regarding the forecasting time frames, they include monthly as well as predictions up to three months.[14]

Connection with ITFLOWS: The ITFLOWS coordinator, together with some technical partners, have had several meetings with the Jetson team since the start of the project.

- **IDETECT**

The Internal Displacement Monitoring Centre (IDMC) is part of the Norwegian Refugee Council (NRC). This is an independent, non-governmental organisation and plays a great role in providing analysis and information on internal displacement globally.[15]

In September 2017, IDMC started implementing the Internal Displacement Event Tagging and Clustering Tool (IDETECT). IDETECT[16] extracts data in real time from documented information about the number and the location of people who are

[12] https://www.unhcr.org/innovation/jetson-insights-into-building-a-predictive-analytics-platform-for-displacement/ See also https://medium.com/unhcr-innovation-service/a-goat-story-3ed6bdd2b237
[13] https://jetson.unhcr.org/index.html
[14] Blasi Casagran, Cristina; Boland, Colleen; Sánchez Montijano, Elena; Vilà Sánchez, Eva (2021): "The Role of Emerging Predicting IT Tools in Effective Migration Governance", *Politics & Governance*, Volume 9, Issue 4, https://doi.org/10.17645/pag.v9i4.4436
[15] https://www.ict4dconference.org/wp-content/uploads/2018/01/IDMC%E2%80%99s-solution-IDETECT-ICT4D-Conference.pdf
[16] https://www.internal-displacement.org/monitoring-tools/monitoring-platform

forced to move. After reading reports and world news, it has the ability to filter and keep only those which are relevant to internal displacement.

There is a team of experts that review IDETECT's outputs and proceeds with correction and validation of the database accordingly. This procedure helps improve IDETECT 's efficiency and accuracy overtime.[17]

IDCM aims to further expand the potentials of IDETECT in the future by exploring ways to implement it in more situations such as cross border movement and food insecurity as it becomes more precise. This will help and support its partners to manage emergencies and be better informed on how to reduce the risk of future displacement.[18]

Connection with ITFLOWS: The ITFLOWS coordinator has met with the IDETECT team since the start of the project

- **MIRROR**

MIRROR Project is ongoing research funded by the European Union's Horizon 2020. It started on June 2019 and will expire at the end of May 2022. The project's consortium consists of fourteen partners, among them practitioners as well as people from research and industry coming from seven different countries.

MIRROR examines and indicates how future migrants think about destination countries in Europe. This is especially relevant since until now more emphasis has been given about how Europe perceives moving people and it is time to look the other way around.[19]

MIRROR project mainly focuses on the development of an integrated platform and an ensemble tool where, in contrast to EMT, only governments and border authorities will have access to. By following a systematic methodology, it will manage to detect the differences between reality and the image migrants have of Europe as, very often, these two concepts do not meet with one another.

[17] https://www.internal-displacement.org/monitoring-tools/monitoring-platform
[18] https://www.ict4dconference.org/wp-content/uploads/2018/01/IDMC%E2%80%99s-solution-IDETECT-ICT4D-Conference.pdf
[19] https://cordis.europa.eu/project/id/832921 See also: https://www.hensoldt-analytics.com/2020/12/23/latest-contributions-of-hensoldt-analytics-to-the-h2020-mirror-project/

During their research,[20] a combination of methods are used in order to have a comprehensive analysis and a clear picture on the subject. This includes multimedia and social network analysis along with automated text from the one hand with empirical studies on the other, aiming to develop a substantiated description of how people from outside the EU perceive Europe and taking under consideration data from different sources.[21]

Policy makers and border agencies validate all the outputs created in MIRROR project and a basis for policy recommendations are being formed.[22]

Connection with ITFLOWS: The ITFLOWS coordinator has had several meetings with the MIRROR coordinator and has also participated in their events.

- **Mixed Migration foresight (MM4Sight)**

This project was launched by the Mixed Migration Centre, a knowledge centre in the Danish Refugee Council. It established a forecasting model, the MM4SIGHT, a machine learning system for total forced displacement and presented data on an annual level. It was updated in 2019-2020 and aims to update continuously regarding more countries.[23] Total forced displacement concerns refugees and asylum seekers outside a certain country but also those displaced internally in that country.[24]

The system is able to make migration forecasts by using a set of models assuming "as-is" existing conditions. This means forecasts in which existing conditions are considered fixed and any underlying factors' changes affect the models in making scenario predictions.[25]

According to the creators of this tool, it has been quite challenging to make quantitative evaluation in this application. This is because estimations made for mixed migration flows (i.e., irregular migrants who are not well documented) take under consideration several data and sources that may not reflect the reality. To

[20] https://h2020mirror.eu/?page_id=804
[21] https://cordis.europa.eu/project/id/832921/reporting
[22] https://cordis.europa.eu/project/id/832921/reporting
[23] https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/
[24] https://ieeexplore.ieee.org/document/8880487/
[25] https://ieeexplore.ieee.org/document/8880487/

become more specific, there were some cases[26] in Saudi Arabia and South Africa where the model failed to make forecasts due to the high volatility of those countries in migration volumes.

Yet, overall, this tool is providing useful information on conditions of migration which can make DRC better understand the reasons that drive people to move in the first place and also be an initial point to aid planning through the implementation of modern statistical approaches.[27]

Connection with ITFLOWS: ITFLOWS has included DRC as part of our Policy Working Group and also three offices of the DRC (DRC Denmark, DRC Italy and Greece, and DRC Europe) are validating our EMT as part of the Users Board.

- **QuantMig**

The QuantMig project started at February 2020. It is funded by the European Union's Horizon 2020 and coordinated by the University of Southampton. It is still in progress and expected to be completed by the end of January 2023.[28]

This project aims to contribute to the production of integrated migration policy perspectives in Europe by creating scenarios and focusing on the estimation, explanation and forecasting of migration flows[29]. Their research gives further understanding on the causes and main parameters of migration flows, from and towards Europe, regarding the country of origin and destination with particular focus on third countries. [30]

In order to make a clear assessment of the migration wave and its causes, data is extracted from a set of statistical estimates. At the same time, through interactive simulation models,[31] QuantMig describes the resulting uncertainty by providing timely warnings.

QuantMig is really relevant for ITFLOWS as it offers a set of tools to be implemented with a view to contributing in policymaking. In this way it will be

[26] https://ieeexplore.ieee.org/document/8880487/
[27] https://ieeexplore.ieee.org/document/8880487/
[28] https://iiasa.ac.at/web/home/research/researchPrograms/WorldPopulation/Research/QuantMig.html
[29] http://www.quantmig.eu/project_and_the_team/what_is_quantmig/
[30] http://www.quantmig.eu/res/files/QuantMig_Project_Summary.pdf
[31] http://www.quantmig.eu/res/files/QuantMig_Project_Summary.pdf

possible to manage and plan migration as well as to ensure a significant impact through innovative methods.[32]

Connection with ITFLOWS: The QuantMig coordinator has participated in ITFLOWS events and has provided feedback on the EMT.

- **CrisisWatch**

The International Crisis Group[33] is an independent organisation which works with main purpose to prevent wars and deadly violence and promote peace. As the number of violent conflicts and crises is rising dramatically, the efforts to resolve them become quite complicated. Interestingly, Crisis Group engages with policy makers and by combining analysis and expert field research works towards this way.

The team of researchers is based in Brussels and they have produced CrisisWatch[34], a monthly updated tool that provides information about the conflict trends and escalations. It is a tool made for decision makers to understand, be informed and aware of the global conflict landscape. By being updated at the start of every month it provides evidence from the past calendar month by presenting more than 70 cases of conflicts and tensions. [35]

All elements on CrisisWatch tool can be used on a tablet, smartphone or desktop. Users can navigate to the situations of conflict, follow through an interactive map and become uniquely informed of the crises and conflicts around the world. This information is offered by a searchable database which provides access to every entry back from September 2003.

Its use is widespread in both the public and private sectors, such governments and NGO's as well as academics and journalists who try to stay abreast of the world's

[32] http://www.quantmig.eu/res/files/QuantMig_Project_Summary.pdf
[33] https://www.crisisgroup.org/who-we-are
[34] https://d2071andvip0wj.cloudfront.net/CW%20leaflet%202018-30iii2018%20-%20version%20for%20website.pdf
[35] https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/ See also: https://www.crisisgroup.org/crisiswatch

violent conflicts and escalations. In this way they are given the opportunity of early warning in order to take the necessary actions on time.[36]

- **PRIO CONFLICT PREDICTION**

Prio Conflict Prediction project is a modelling effort which aims to make predictions about armed conflicts inside a certain country.[37] Having as a starting point internal armed conflicts in several countries which had occurred from 1970, this research seeks to predict such cases of conflicts up to 2050.[38]

The project uses a novel simulation approach seeking to make as actual and accurate forecasts as possible, by taking under consideration complex correlation among explanatory variables. For instance, it takes into account a country's conflict past, status of development as well as its neighbourhood's developmental level and number of conflicts because, it is obvious that if a conflict occurs in a country, then the risk of something relevant to happen in the countries next to it increases significantly.[39]

Focusing mainly in the period of 1970 – 2009, the project claims that if the predictions made are correct, it is estimated that, by 2050, the conflicts will have been reduced by half relatively to the current situation, even if a pessimist scenario is verified. They add that before this decline, an increasing conflict proportion is estimated to proceed in East and South Asia and, also, in East, Central and Southern Africa.[40]

- **UNACCOMPANIED AND SEPARATED CHILDREN**

This projection model is an effort from UNHCR in order to make forecasts on the arrivals of unaccompanied and separated children (UASC) in refugee camps during a month or even a week. Models created concern several countries, usually updated each year, and they aim to provide a range of alternative care methods.[41]

[36] https://www.crisisgroup.org/about-crisiswatch
[37] https://www.prio.org/Projects/Project/?x=1401
[38] https://www.prio.org/utility/DownloadFile.ashx?id=1306&type=publicationfile
[39] https://www.prio.org/utility/DownloadFile.ashx?id=1306&type=publicationfile
[40] https://www.prio.org/Projects/Project/?x=1401
[41] https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/

It is obvious that the need to make predictions of UASC is quite significant as it will contribute to the protection of children and their rights, as well as to the strengthening of efforts for family reunifications.

- **Early Warning and Preparedness System (EPS)**

Early warning and Preparedness System (EPS) by EASO[42] is a system which collects data focusing on information gathered from the Common European Asylum System (CEAS). Its main objective is to forecasting EU asylum applications taking under consideration several factors such as violent conflict, economy, political events, etc.

The methodology this forecasting model follows focuses on adaptive machine learning algorithms and provides on weekly level forecasts while it can also make short-term up to one month. The EPS relies mostly on open access data such as EASO own data/Eurostat and GDELT data.

Although the system shows low percentage indicator of error/success (5 -10% error), predictions of this system are limited in asylum applications and the time frame extends for a period of one week.

Connection with ITFLOWS: EASO is providing regular feedback to ITFLOWS a part of the Policy Working Group.

- **Displacement Tracking Matrix System (DTM)**

Displacement Tracking Matrix (DTM) is a system that analyses collected data regarding conditions, needs and vulnerabilities in order to monitor and locate displacement and mobility of population.

It was developed in 2004 and designed so that after capturing and processing information in a constant way, then spreading information for better understanding people's movements and needs. IOM has evolved and improved DTM continuously during its lifetime, the tool monitors countries that experience

[42] https://www.easo.europa.eu/analysis-and-statistics

conflicts and natural disasters in their territories and it is able to provide insights and data, in a country and a global level.

The methodology this system follows has to do with tracking people on the ground at critical points and on specific migration routes in transit countries, so as to derive quantitative estimates of the flow and/or presence of a specific population category.

Except being used in operations for humanitarian assistance in large scale level, it is worth noting that DTM proved that it can be deployed both as preparedness tool and in recovery phase of the response.

Connection with ITFLOWS: IOM is providing regular feedback to ITFLOWS a part of the Policy Working Group.

- **The Heightened Risk Identification Tool**

The Heightened Risk Identification Tool (HRIT)[43] was designed so as the UNHCR to be able to identify refugees in danger. Its first version was launched in 2008. It is quite simple to use and someone does not need to be an expert in the field of risk assessment in order to make use of it.

The HRIT mainly focuses on enchasing the process in identifying people who are at risk and need assistance by asking several questions directly persons who needs help, always in a friendly atmosphere and keep them calm and feeling safe. This procedure and the answers given by an individual clarify the areas and the households that are in danger. Interestingly, it is not necessary to interview all the members of a household but rather a representative is quite enough.

However, since HRIT relies on personal interviews given by people in a vulnerable situation, it is very likely that those individuals might not be willing to share sensitive personal data. In addition, the staff that is in charge of each interview is not required to examine family relationships and verify an interviewee's sincerity.[44]

[43] https://www.refworld.org/docid/46f7c0cd2.html
[44] https://www.unhcr.org/4aa76c279.pdf

- **Displacement Data Exploration Tool**

Displacement Data Exploration Tool is a platform that aims to explore displacement, taking under consideration other phenomena as well, as time passes by. The estimates of displacement rely on conflicts, violence and disasters.

The methodology that has been followed is divided in two cases. First, regarding conflict and violence, estimates for new displacement during the year are being reported, after monitoring its occurrence in particular countries and conducting situational approaches.

In the second case of disasters, the monitoring relies on an event–by –event basis. After capturing data from different sources, the most reliable and completed are generated in order to estimate the specific event (disaster).

4.1.2. Additional competitors for EMT

- **Data sources such as Eurostat, United National, GDELT and national statistical offices[45]**

They play a potential key role in further developing new solutions for overcoming language barriers and enable better transfer of knowledge and more equal access to language technology. Yet, they use only historical data for different challenges, and they should still explore and improve multiple approaches of data re-use that are ethical, sustainable, and fit-for-purpose.

- **Websites on economic and social information**

There are many public sources of information that provide quantitative data related to migration, including, among others, population statistics,[46] theoretical drivers of migration, including armed conflict and violence (ACLED), climate disasters,[47] low levels of development,[48] food insecurity,[49] irregular governance,[50] unaffordable food,[51] policy changes,[52] among others.[53]

[45] Information gathered during discussions on the HRB Seminar.
[46] City Population. (2021). *Population statistics for countries, administrative divisions, cities, urban areas and agglomerations—interactive maps and charts*. https://www.citypopulation.de; UN. (2021). United Nations population division. https://www.un.org/development/desa/pd
[47] EM-DAT. (2021). The international disaster database. https://www.emdat.be; European Centre

These are very good sources of a variety of information with greater transparency and empowerment of users which enforces competition and co-operation within and across sectors and nations. Nevertheless, data collected from different sources can vary in quality and format and in many cases may not be fully reliable.

- **Information and data gathered manually by NGOs.**

Many NGOs have field officers on disembarkation that collect data of migrants' arrivals by direct observation and validate what has been collected with local authorities and UNHCR.

They use different applications to get feedback by migrants or virtual volunteer over provided services. In such way, NGOs manage to have an overview of migrants' needs and adjust their services accordingly.

However, in case of using data from surveys to migrants, it should be kept in mind that interviewees do not always provide accurate information.

It is worth mentioning that ITFLOWS partners will examine the possibility the EMT complementing its predictions through data collected by the NGOs end-users of the tool.

- **Information drawn from social media**

In recent years social media are increasingly being used as an information source, as they include information related to risks and crises and are able to reach large

for Medium-Range Weather Forecasts. (2021). Advancing global NWP through international collaboration. https://www.ecmwf.int

[48]The World Bank. (2021). World development indicators. https://databank.worldbank.org/source/world-development-indicators

[49] Integrated Food Security Phase Classification. (2020). The IPC population tracking tool. http://www.ipcinfo.org/ipc-country-analysis/population-tracking-tool/en

[50] Rulers, Elections, and Irregular Governance. (2021). Rulers, elections, and irregular governance dataset [Data set]. https://oefdatascience.github.io/REIGN.github.io/menu/reign_current.html

[51] Food and Agriculture Organization of the UN. (2021). Domestic price warnings. http://www.fao.org/giews/food-prices/en

[52] European Country of Origin Information Network. (2020). About ecoi.net. https://www.ecoi.net/en/about/about-ecoi.net

[53] Blasi Casagran, Cristina; Boland, Colleen; Sánchez Montijano, Elena; Vilà Sánchez, Eva (2021): "The Role of Emerging Predicting IT Tools in Effective Migration Governance", *Politics & Governance*, Volume 9, Issue 4, p. 138. https://doi.org/10.17645/pag.v9i4.4436

audiences. In terms of extracting useful information, Facebook and Twitter are considered to be the most important sources.[54]

Very often, however, information could be incomplete and not reliable. Social media only gather information from a segment of people, namely, those sharing their intentions online. Therefore, great attention should be paid to the information collected and alternative ways of verifying it must be activated.

4.1.3. Unique Selling Point USP - Unique Value Proposition UVP

ITFLOWS is a project which aims to predict and manage migration flows from the moments migrants arrive in the EU to the stage of integration of migration. It also proposes solutions for several groups of stakeholders in order to identify, prevent and reduce the possible tensions between migrants and EU citizens.

For predicting migration flows from countries of origin to EU Member States, ITFLOWS is developing new models incorporating the push–pull[55] factors that influence people to move. This is another significant factor that distinguishes ITFLOWS from past studies. According to current situation, most of the research studies have focused, for instance, solely on a specific country or were not able to take under consideration all push–pull aspects that drive or force people to move.[56]

The above expectations are achieved through the use of precise models and the development of an innovative IT tool, the EUMigraTool (EMT). In addition to managing and monitoring migration, such tool incorporates the extremely important ability of predicting migration flows and potential tensions. This software platform which is being constructed to provide adequate predictions about moving population to certain EU countries of origin, as well as detecting possible conflicts that may arise between EU citizens and migrants.

[54] However, there is a difference in terms of the popularity of these platforms for each country and region. An investigation on the suitable platform is needed for each use case.
[55] "Push Factors are negative factors that drive people to migrate to a new area (e.g war). On the contrary, Pull Factors are positive aspects that attract people to leave homelands and settle to a new place (e.g., good employment opportunities). Migration usually happens as a result of a combination of this push and pull factors."
As retrieved from: https://www.bbc.co.uk/bitesize/guides/z3p4b82/revision/1
[56] ITFLOWS GA 882986, Section 1.4., p. 22

It is worth mentioning that gender aspects and biases which have been identified in D2.2 "Gender Action Plan" are also considered in the design of the tool. This is done in such a way that any discrimination regarding gender or otherwise is avoided.[57]

As has been stated in the Initial Proposal of the project**, the main target group and earlier adopters of the ITFLOWS' proposed system (the EMT) are NGOs** working with migration within the EU, so as to be appropriately coordinated and able to manage the upcoming flows.

Additionally, **municipalities** will benefit significantly from the EMT as they will be in position to allocate properly their resources, be organised and ready for the refugees' arrivals. Usually, they are not in place to have accurate information and insights about imminent flows, leading to inadequate coordination in managing and integrating the often-vulnerable people that arrive in their territories.

The technical characteristics and functionalities of the tool are described in detail in D6.1[58] and D6.2[59] (D6.2 is submitted also in month 18th of the project). Below, we present some first features/visualisations of the EMT as retrieved from https://emt.itflows.eu/:

[57] "The Gender Committee is tasked with monitoring the ITFLOWS Gender Action Plan, both internally and externally. In keeping with its Gender Action Plan, the project seeks to address gendered forms of discrimination as part of larger intersectional discrimination, and to mitigate or eliminate such biases and inequalities throughout the entire project." As retrieved from https://www.itflows.eu/about/boards/the-gender-committee/ See also ITFLOWS Deliverable 2.2 "Gender Action Plan"
[58] ITFLOWS Deliverable 6.1 "Report on the specifications and architecture of the EMT platform"
[59] ITFLOWS Deliverable 6.2 "Preliminary release of the EMT"

Visualisation 1

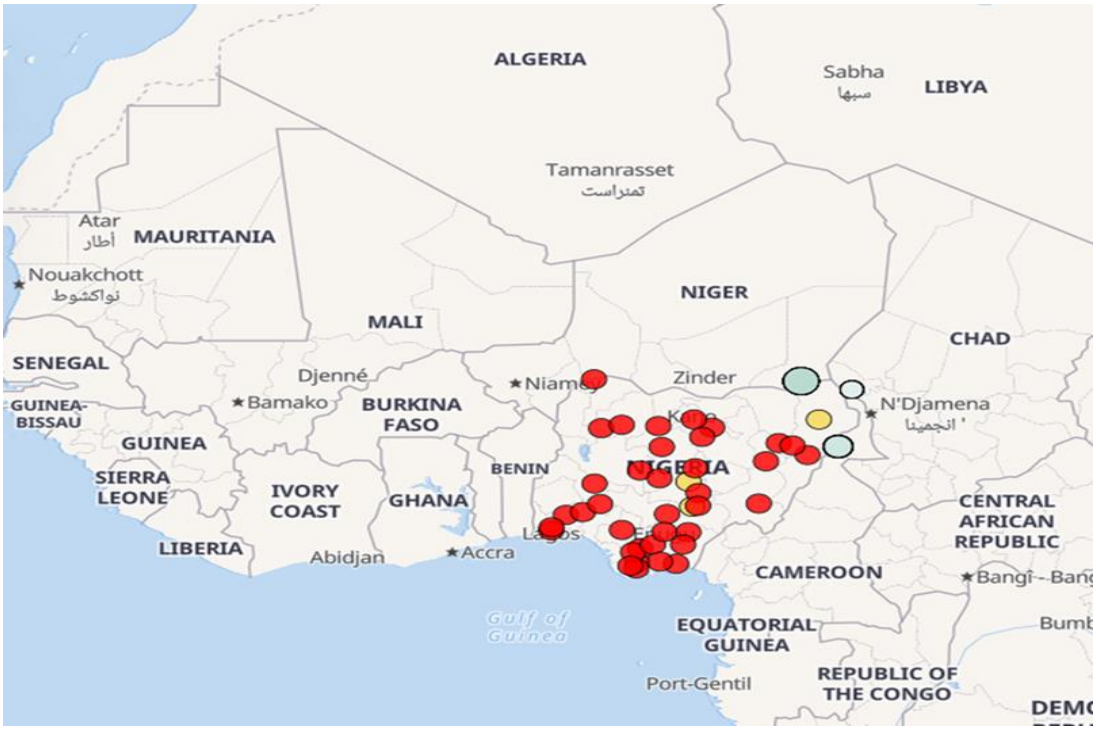


Figure 1. Conflict zones and refugee camps on selected countries

Figure 1 indicates countries on the map that include conflict zones and adjacent refugee camps. By selecting a specific country (this issue will be included as an option in the future), the map depicts the following points:

- In red, circles are the conflict zones (we can see an area by hovering above).
- In yellow, circles are the neighboring cities.
- In green, usually in neighboring countries, there are the refugee camps.

Visualisation 2

Figure 2. Arrivals of migrants in European countries

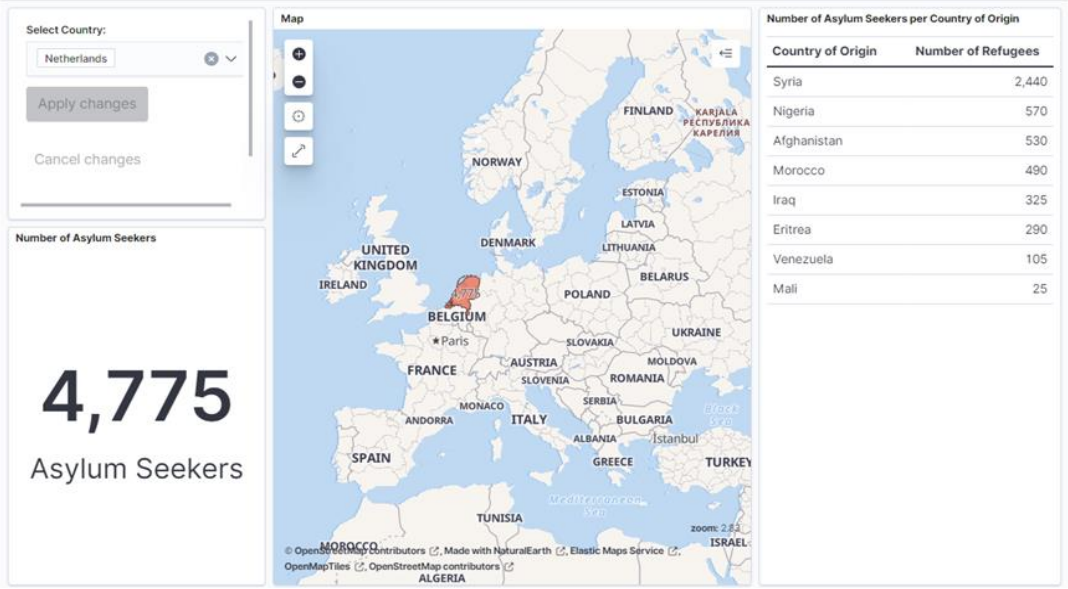


Figure 3. Number of asylum seekers arriving in the EU

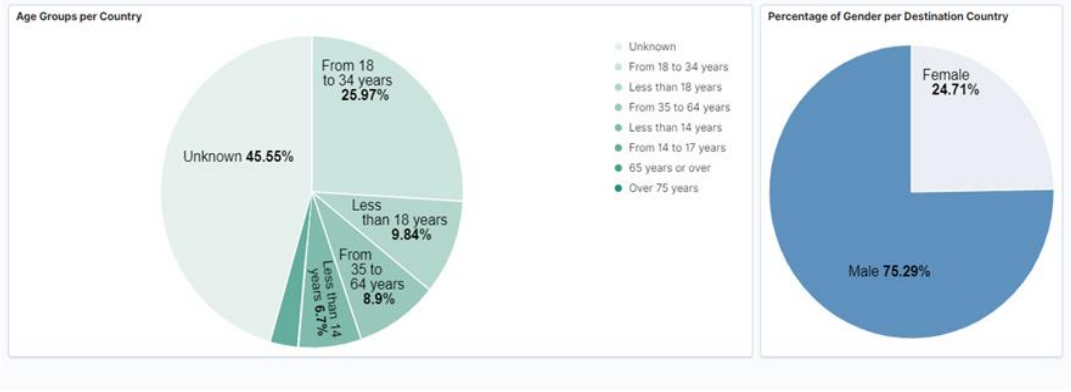


Figure 4. Pie charts indicating age groups and gender percentages per destination country

Figure 2 shows the arrivals of migrants in European countries. By choosing a destination country in **Figure 3**, we are provided with various information such as the number of asylum seekers and the countries they come from. In the future it is expected to have an additional filter regarding the country of origin. **Figure 4** indicates the age groups and the ratio female / male per destination country in pie chart.

These are some of the first samples of visualisations provided above. ITFLOWS technical partners of the project are constantly experimenting in order to display the data in the best possible way so as to give value to end users.

It is important to highlight that there has been given **great emphasis to data protection, ethical and societal risks when using the tool**. Data provided in the EMT follows strict ethical and risk procedures, as the main principle is to protect migrant' rights and privacy.[60]

4.1.4. Target Market

The process of engaging with potential buyers and users of the EUMigraTool is part of the project's implementation. In order to finalise the exploitation plan, a clear identification of the target market with its segmentation is needed.

ITFLOWS focuses on several potential users for the EMT, but **primarily it targets civil society**. More specifically, the main customer segments are non–profit organisations, meaning, NGOs working with and for migrants, NGOs working in the

[60] See Deliverables 2.1, 2.3 and 2.4 of ITFLOWS.

field of human rights, as well as municipalities and their authorities in the field of migration.

NGOs provide humanitarian assistance to migrants that arrive in European territories, in camps or any other facility they settle in, medical help and legal support, as well as rescue assistance at sea.

It is a quite often phenomenon for NGOs to encounter incidents of violence at their facilities or during the attempt to rescue migrants on the coast (e.g., criminal activities such as migrants' trafficking). Most of the times, people on the move are in a vulnerable situation, facing health problems, injuries and execution.

These facts make NGOs look up for ways to be properly prepared for migrants' arrivals and be ready to act immediately, always taking under consideration their human rights.

On the other hand, municipalities / local authorities are those who are in charge of finding appropriate ways to help migrants and refugees, provide them with shelter, food and any medical assistance needed. They contribute actively in those people's integration and play a key role so as they adjust in new conditions as normally as possible.

For this reason, it is necessary to be prepared and house their available resources properly so as to be ready for the imminent arrivals of migrants, and allocated efficiently following the procedures needed for their settlement.

It is very important to mention that during the phases of settlement and integration, municipalities seek to avoid potential tensions that may arise between migrants and local populations, so that both sides go through a normal daily routine, and mitigate the possibilities of unpleasant incidents happening (e.g., people getting seriously injured, women's abuse, children's exploitation).

Therefore, adopting the under-development tool, the above organisations will be in position to play a crucial role in assisting migrants and managing populations' movements. They will have access to more accurate information faster and in a timely manner so that they are able to organise and act immediately.

4.1.5. ITFLOWS' Users Board (End users)

The solutions that EMT provides shall be validated by end users who are the members of ITFLOWS Users Board (UB).[61]The UB consists of two different groups of practitioners:[62]

Group 1 Disembarkation & First Response	Practitioners, such as NGOs, who work in the coastal territories and coast/border authorities, focusing on disembarkation and first reception of migrants. They will pilot EMT in selected territories and be, essentially, the end-users of the "prediction interface" of the tool.
Group 2 Integration	Group 2 concerns practitioners who focus on integration of migrants. Those will be NGOs and local administrations. They will test and validate EMT regarding integration policies and labor opportunities for refugees in selected countries.

Table 5. Groups of ITFLOWS UB

In order to capture different environments and use cases, the selection for the "Users Board Participatory Feedback" are broad with presence from countries of Italy, Spain, Greece, Bulgaria and Denmark.

More specifically, the institutes (NGOs and municipalities) that are participating on the EMT are the following:

From Italy:

- The Municipality of Settimo Torinese.
- The NGO OXFAM ITALIA.
- The NGO CROCE ROSSA Italiana.
- The NGO Federazione delle Chiese Evangeliche in Italia.

[61] The UB and its valuable contribution is been analyzed in detail in the D7.1 - Report on Users Board Participatory Feedback. In addition, in the current deliverable, we provide information in chapter 7 as well.
[62] https://www.itflows.eu/about/boards/the-users-board/

- Associazione Multitietnica del Mediatori Interculturali (AMMI).
- Associazione Penelope Coordinamento solidarietà sociale onlus.
- Associazione Iroko.

From Spain:

- Open Cultural Centre (OCC).
- Red Solidaria de Acogida in Madrid.
- A local branch of Spanish Red Cross in Málaga.

From Greece:

- Hellenic Red Cross.
- Open Cultural Center (OCC).
- Network of Children's Rights.
- Municipality of Katerini.

From Bulgaria:

- CVS-Bulgaria.
- Centre for Studies and Democracy.

And, finally, from Denmark:

- Danish Refugee Council.

The main purpose is to regularly interact with the members of the Users Board in order to understand their needs and also learn how they perceive each EMT function. Therefore, we initially forwarded through email a document with questions to be addressed related to the scope of the project. The questions referred to:

- **EMT** (strengths and weaknesses, current prediction method each organisation might use, suggestions for alternative user buyers other than NGOs and municipalities).

- **Procurement** (types of services and procurement processes followed for that reason, pricing policy and funding channels).
- **Van Westendorp's Price Sensitivity Meter**[63] (price-related questions in order to clarify an end user's preferences over the value of a product or service).

More specifically, the questionnaire was the following:

EMT tool description EMT will provide an analytic migration tool based on several models that will predict the arrival of migrants in the EU. This prediction tool will have precise measurements that will allow for an efficient allocation of the human and financial resources required to manage the arrival of migrants and asylum seekers. The tool will also identify possible tensions between EU citizens and migrants by identifying the sentiment of local populations towards migration in the EU. It will give advice on personalised integration paths within the EU, in order to reduce the existing tensions caused by the disparity of policies of the Member States. By identifying resources, policies, and public attitudes in the different EU Member States, the EMT aims to contribute to a better matching of refugees' needs and assets with socioeconomic contexts favorable to their integration and reduce the risks of tensions between migrants and EU citizens.
Scope of ITFLOWS **EMT** 1. Based on the description, what do you think are the benefits and weak points of such a service? 2. Do you currently use any service or have any in your mind to forecast the prediction of migrants? 3. If yes, which one?

[63] https://en.wikipedia.org/wiki/Van_Westendorp%27s_Price_Sensitivity_Meter

4. If no, how do you currently forecast flows?
5. For this service, we target NGOs and municipalities. To your knowledge, do you believe there is also another appropriate buyer that we did not think?

Procurement

6. What kind of services have you purchased, to optimize operations?
7. What is the purchase/procurement process followed for those?
8. What is the pricing model you usually select
9. What are the main channels of financing for your organization?

Van Westendorp's Price Sensitivity Meter

10. At what price would you consider ITFLOWS to be so expensive that you would not consider buying it?
11. At what price would you consider ITFLOWS to be priced so low that you would feel the quality couldn't be very good?
12. At what price would you consider ITFLOWS starting to get expensive, so that it is not out of the question, but you would have to give some thought to buying it?
13. At what price would you consider ITFLOWS to be a bargain—a great buy for the money?
14. How much would you expect this ITFLOWS to cost?

Such procedure was fully consistent with EU data protection standards. Therefore, we present answers from UB members without sharing personal information from the subjects.

The results of this approach and according to the organisations that answered the questionnaire were the following:

Regarding the first question which refers to the benefits and the week points of using EMT, the responses referred to:

EMT could be an operation tool for practitioners, first responders and policy makers to predict short term flows, a sort of early-warning system method and

would incentivise the latter to allocate reasonable resources and capacities to manage the flows and new arrivals.

Additionally, benefits of such a service could be advice on personalised integration paths within the EU, reduction of the existing tensions caused by the disparity of policies of the Member States. Finally, the tool could provide the ability to combine and analyse simultaneously the fundamental axes of migration.

There was a statement made by the UB saying that constant updates on the inputs used to provide the EMT with relevant information would probably be a time-consuming process that would requires very good concurrency and commitment among EU Member States.

Concerning the next three questions that refer to whether members of the Users Board of ITFLOWS use any service to forecast migration flows or not:

One claimed having an operative unit on Migration, which also studies the phenomena, although it was more involved in the first response with Saar operations and activities at the ports of disembarkations, border and transit points.

Their organisation relies mostly on data provided by specialised agencies such as IOM, European Migration Network and EASO. It participates in general coordination meeting with other national societies or partners in EU project in various EU members states which can give a prediction on new arrivals. Significant cooperation with several national societies helps them monitor what would happen in their borders, for example to explore the movement of people through a specific route. End users also found the collaboration with another NGOs to share information on the level of vulnerability of migrants very relevant.

Other NGOs stated that they do not any similar service at the moment. In order to make forecasts, they are mostly relying on constant updates and analysis made by international sources, some of those predicting the flows and possible tensions.

As for the fifth question related to the target groups and the potential buyers of the EMT:

There were suggestions to approach big International NGOs, such as International Federation of Red Cross, or Doctors without Borders, which might have some budget to invest in this regard.

In addition, some end users proposed to explore funding from governmental offices, practitioners, first responders, national societies, policy makers, international organisations such as IOM, the European Migration Network. the EASO or public health institutions, as they could also benefit from the tool. Such groups are likely to have budget to cover the EMT maintenance and they could also influence relevant policies, at national and European levels.

On the other hand, regarding small NGOs, it was mentioned during the survey that they do not possess great financial sources and, as such, the tool would probably not have a great impact for them. In addition, small NGOs are mainly reactive and do not have enough resources to respond to any rising needs.

For acquiring such a service, they would have to create a proposal for its significance and apply for a grant to their local government or to the EU.

Finally, concerning the ways and how we could approach potential target groups, the majority of the answers suggested informing relevant stakeholders through journals, events, research papers and, most importantly, demonstrating the value of the tool. A quite significant proposal made on the survey consisted on going to **Reliefweb.int**, a service that provides humanitarian information and enables workers in the humanitarian section and various decision makers to design effective strategies and plan their responses accordingly. Other options mentioned were to approach UN agencies that launch their own invitations to tender (ITT) and national bids.

Moving on with questions 6 to 9 related with procurement process (kind of services, purchase process, selected pricing model, financing channels):

Interestingly, an NGO claimed that their unit is engaged, not only on providing humanitarian assistance, but also on training for protection to the practitioners. Therefore, they have purchased a software to develop e-learning training. It follows national bid requirements and any decision depends on whether the cost is lower or higher than 40,000 euro. These sorts of initiatives are mainly financed by the national government, private contributions and EU funded projects.

Another organisation informed us that it develops its own tools to optimise the services provided to migrants, taking into consideration their actual needs and its capacity. Moreover, it is assisted by an internal network of support services. Their pricing model selection is based on cost efficiency and actual needs. Finally, they receive financing from national and international donors, national and EU funding, funding through Ministries.

For the last part which refers to Van Westendorp's Price Sensitivity Meter (questions 10 -14):

There was only one response for this part. It stated that, according to their understanding, they believed that the purchase of such a tool, depended on the organisation's financial capacity in relation to the tool's efficiency, and it should be proved and justified by the developers beforehand.

Regarding potential target groups for the EMT, they suggested large international NGOs such as International Federation of Red Cross, Doctors without Borders, etc. as they do have the budget for such a service (some of them have a turnover of over 100 million). Making use of the EMT could have a great impact for them, as they would be able to forecast the need of resources and allocate them before the arrival of migrant flows.

During the project's lifespan and according to the suggestions of the members of the Users Board who responded to the questionnaire, we initiated further engagement with additional interested parties, based on the project's needs. Since our target market is focused on NGOs and municipalities, we are considering

feedback from other civil society and umbrella organisations for NGOs and municipalities.

Already, partners of the ITFLOWS consortium have made several important approaches and are in continuously extending the members of the EMT validation team who will test the tool's further versions. As such, members of the humanitarian project REACT[64] (in collaboration with Ministry of Immigration and Asylum and European Union funding), the NGO "A Drop in the ocean"[65] and members of DRC for Greece / Italy and Europe have already joined the project.

4.1.6. Business Environment: SWOT Analysis

SWOT Analysis is a simple tool that has been around for decades and is considered to be the most widely used strategy in modern times. It is easy to understand and to communicate to stakeholders, as it is a simple diagram and can be applied to many levels and at different depths of a business or an organisation in general.

Its purpose is to analyse the internal and external environment of an organisation, categorising it into **"strengths"**, **"weaknesses"**, **"opportunities"** and **"threats"** in order, afterwards, to be the basis on which the proposals for action will be based.[66] So, regarding the EUMigraTool, we present below each of these areas, aiming to have a comprehensive analysis on such matter.

[64] https://www.react-thess.gr/
[65] https://www.drapenihavet.no/en/a-drop-in-the-ocean/
[66] Helms, M.M. and Nixon, J. (2010), "Exploring SWOT analysis – where are we now? A review of academic research from the last decade", Journal of Strategy and Management, Vol. 3 No. 3, pp. 215-251. As retrieved from https://doi.org/10.1108/17554251011064837

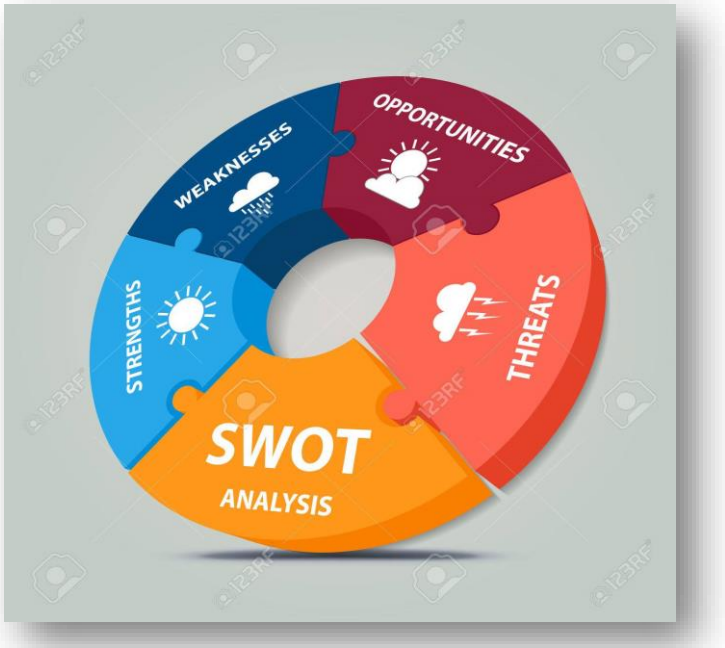


Figure 5. SWOT Analysis

Strengths

Below we present the strengths of EMT:

- Consortium has great experience and insights in the sector. Every partner is committed to work through distinctive and continuous improvements in shaping techniques and approaches so as to come up with the best possible results.
- EMT can be an operation tool for NGOs and municipalities. It provides them the ability of a more accurate foresight and a better coordination in managing migration flows and, generally, improve their strategies on handling this important issue. It will also help them prepare accordingly and have appropriate allocation of available human and financial resources for new arrivals of migrants and refugees.
- It could be a way of managing the lack of cohesion and disparity between policies of the Member States. Such differing conditions lead to tensions among them and deter Member States from managing migration appropriately.

- Negative public attitudes towards migrants tend to be in quite high levels due to several factors, such as a country's migration history, composition of migrants' population (origin, educational level, religion etc.) and migration policies. EMT has the potential to decrease and mitigate tensions as well as negative perceptions between EU citizens and migrants by identifying them in advance and allow stakeholders to act accordingly by taking the right measures during the integration process of migrants.
- Many NGOs have partial access to data and, usually, in an unstructured way. This makes it very difficult for them to maintain a comprehensive view on migration trends and possible changes regarding the routes and drivers. For these reasons, by using EMT, NGOs will be provided with simple and clear diagrams related to what the main trends of migration flows are.

Weaknesses

The weaknesses of the EMT are:

- EMT is a software platform that will rely on several models with multiple evidence on migration flows and is expected to be used by different stakeholders. It is an innovative instrument with no existing clientele; therefore, we would have to build the market from scratch.
- If EMT is used merely as an "early-warning system", this could deter policy makers to address the migration issue. It does not provide information about the drivers of migration and does not contribute to the explanation of migration trends. An early-warning system, in essence, is not able to explain why a certain indicator changes, goes up or down, neither predicts a phenomenon or action in order for someone to be prepared. Instead, it gives people crucial seconds to act in time.[67]
- Migration forecasts rely on complex fundamental dynamics. Although there are many approaches for managing this issue, such as forecasts, foresight (or scenarios) and early-warning systems, they all have one thing in common:

[67] https://reliefweb.int/report/indonesia/limitations-and-challenges-early-warning-systems-case-study-2018-palu-donggala

uncertainty.[68] The diversity of motives behind migration flows and the emergence of new types of migration make it very difficult to predict. Until now every research uses different approaches and tools (individually or a jointly), but none of them has been able to predict the future in a proven and successful way.

- Potential costs could be a weak point of the tool too. Those costs will be crucial to finalise the tool software, tool updates, online costs, etc. As stated in the initial proposal of ITFLOWS, those costs could be covered by charging municipalities and NGOs with a fee for the EMT or draft a plan for continuous software development and support of the tool. Yet, this could be unaffordable for some end users. For instance, if we take a front-line NGO in a middle-income country, ITFLOWS could be too expensive to buy considering its annual budget and available funds.

- The use of EMT might not succeed in producing reliable predictions in case of force majeure events. While the COVID-19 pandemic has brought significant challenges to almost every country in the world, there are sweeping data showing huge size impact on minorities and marginalised groups, including migrants, refugees, asylum seekers and the countries hosting them.[69] COVID-19 pandemic has changed global socio-economic conditions again, while it is still unknown which will be its mid-term and long-term consequences.

Opportunities

- As said above, most studies related to predicting migration flows have been focused on a specific country of origin or destination in each case. Essentially, until today, there are not any approaches which predict reliably new arrivals of migrants within the European Union.[70]

[68] https://www.migrationdataportal.org/blog/forecasting-future-migration-many-approaches-one-commonality-uncertainty
[69] https://www.refugeesinternational.org/reports/2020/7/6/locked-down-and-left-behind-the-impact-of-covid-19-on-refugees-economic-inclusion
[70] Buettner, T., Muenz R. (2016) Comparative Analysis of International Migration in Population Projections. Knomad Working Paper 10., as referred in the initial proposal of ITFLOWS.

- Several studies as well as the feedback gathered from end – users of ITFLOWS show that there are some EU Member States which use their own models[71] and they use different data sources to forecast migration flows arriving in their territories. Many governments conduct migration forecasts too at a national level, which vary on their inclusion of scenarios, number of migrant subgroups, projection period, and methodology.
- Forecasts are based on different assumptions. Migration forecasting relies on assumptions regarding demographic dynamics, the political, environmental and socioeconomic changes, as well as migration policies. This happens due to the fact that the existing tools and models are not able to incorporate all complex migration factors. As a result, a comprehensive explanation of the whole migration process becomes rather impossible at times.[72]

Threats

- EMT might be misused by anti-immigration administrations, parties, governments, etc. If, for instance, the municipal council of a border town is dominated by anti-immigration members, this could result in using the predictions in order to prevent the arrival of migrants and amplify tensions between them and the local population.
- New competitors entering the market could be a possible threat for ITFLOWS too. Technological progress is evolving at a very fast pace and a variety of applications and platforms which offer similar services are constantly being created. As a consequence, it is possible that we will have to deal with ones that use the same advanced technology as our project does.
- Constant updates on the inputs used to provide EU with relevant information will be a time-consuming process that requires very good concurrency and commitment among EU Member States.
- From the moment we intend to develop EMT within the EU Member States and not in a national way, we may face problems with the selling price. More

[71] Disney, G. et al. (2015) Evaluation of existing migration forecasting methods and models. Report for the UK Migration Advisory Committee. ESRC Centre for Population Change, University of Southampton.
[72] Sardoschau, S. (2020) The Future of Migration to Germany. Assessing Methods in Migration Forecasting. DeZIM Project Report #DPR 1|20 Berlin.

specifically, the country of origin of a developing product plays an important role in shaping the price in the world market. Each Member State has different level of wages and taxes, which determine significantly the pricing of a product. For example, a platform developed in a lower income country would have an advantage over a similar one developed in a country with higher wages.

- The data could be incomplete and not reliable. In case of missing values, or even the possibility of lacking a section or a substantial part of the data used, could limit the usability of EMT. In many developing countries, empirical evidence about past and current migration flows is almost entirely missing, and for a number of developed countries, data are also incomplete or unreliable.[73]
- Data collected from different sources can vary in quality and format. Data which have been extracted from various sources may not have much compatibility among data fields. In this case, such data requires major preprocessing before it is analysis-ready.

4.1.7. Go to Market

Regarding the use model, that is, the way EMT will be made available to potential end users in order to generate an impact, we have considered several options. We believe that the EMT will be fully usable in about two years after the end of the project. It will be an online tool where license and subscription options will be examined, including free subscriptions. It is expected that subscription levels will be differentiated for the different modules/use options or functions (i.e., arrival/migration flows and social tensions) and also according to customer segments. Different access to functionalities is being considered as well.

We are half-way in the ITFLOWS project and, as the proposed system is under development, we will thoroughly examine the above options, which will be further elaborated during the rest of the project's lifespan.

[73] Buettner, T., Muenz R. (2016) Comparative Analysis of International Migration in Population Projections. Knomad Working Paper 10.

As being significantly important, an IPR report will be drafted. Beneficiaries of ITFLOWS are required to adequately protect their results, taking into account possible prospects for commercial exploitation and any other legitimate interest. Considering what has already been agreed in the Consortium Agreement, regarding the IPR Background and Foreground, it has been indicated that results are owned by the Party that generates them and as far as all partners participate in the design, development and validation of the tool, at this stage the foreground is shared by all of them.

The UAB in cooperation with the ITFLOWS technical partners and NGOs have already started discussions for potentially preparing an agreement to be signed by certain project's beneficiaries. In this agreement, among others, the final ownership (background / foreground) and intellectual property rights of the EMT after the end of the project will be clarified.

With continuous research and as the project progresses, a comprehensive IPR report will be available by month 36th and be included in project's deliverable D9.5 – Final Exploitation Plan.

4.2. Exploitation Roadmap

In this section we present the actions we perform during the project and which will continue to be executed for some time after its completion **(three to six months),** so as to start implementing our exploitation strategy. In addition, as we are in half-way within the project, we are already present a cost estimation to implement the planned activities, as well as the projected revenues and eventual profits once the EMT will be in use after the project ends. A more detailed analysis will be elaborated in the final version of our exploitation strategy and the Deliverable 9.5 – Final Exploitation Plan.

The ITFLOWS exploitation plan relies on the experience of the Consortium partners as well as the recommendations and structures that are provided by the European Commission. Therefore, during the project's lifetime, all ITFLOWS partners are involved and contribute to several activities for exploitation.

Our exploitation plan covers the following actions:

- **Explore funding for the progress of the EMT and its finalisation for launch on the "market".** Partner TRC is in charge of drafting the exploitation plan and, therefore, is in the process of identifying the appropriate investment model for EMT.

- **Identify more in detail the potential customers/users**. As we mentioned above, the main target group for the proposed system is civil society (NGOs, municipalities), so NGOs partners have taken the responsibility to investigate potential users, their needs and how they could use the tool in the best possible way.

- **Develop use cases (for awareness & outreach).** NGO partners with the assistance of CERTH and MTU outline the ways a user will interact with the system and, additionally, will communicate technical requirements to stakeholders.

- **Further market research for moving towards economic sustainability (viability study).** UAB together with TRC are responsible for analysing the market. EMT should be continuously up to date according to market trends. In order to identify whether something new has come up, the partners analyse the existing circumstances and adapt accordingly so as to achieve economic sustainability for the tool.

- **Identify complementary models/tools and explore options for synergies, cooperation or merging.** The partners who are in charge of this activity is UAB together with technical partners TRC, CERTH and BUL. They keep examining ways for synergies and cooperation in order to reach its best evolution possible and exploring the possibility of using the model in the research field for creating something new.

- **Discussion on ethical considerations as part of the development of the exploitation actions.** For this matter UAB, FIZ and BUL are the most appropriate partners to deal with. They have the expertise for reviewing relevant ethical guidelines and constantly updating the knowledge of

relevant laws and regulations. It is worth noting that these members of ITFLOWS Consortium are able to ensure that the research will accurately represent its results, will be free of plagiarism and work misconduct, factors that are decisive for a successful exploitation plan.

- **Start discussions on "exit strategy" for partners not interested in the exploitation pathway.** UAB, as the coordinator partner of ITFLOWS project, is carrying out this activity. In the possibility of a partner or more are not willing to continue with the exploitation after the end of ITFLOWS, UAB shall ensure the goals of the project will be achieved and will not be jeopardized. In any case, the project's outcome will remain sustainable and will achieve the expected impact. Therefore, the UAB and TRC are preparing an Exploitation Agreement accordingly.

We should clarify here that all partners contribute with input and feedback to the actions identified above, regardless of who is responsible for each one separately.

The costs which will result from implementing the specified activities are estimated as follows:

- Staff costs for exploring the funding options, the further market research, developing use cases and generally for all actions mentioned above.
- Travel costs for several meetings and activities.
- Costs for support/consultancy for market research & marketing.
- Technical staff for further development and updates of the EMT.
- Costs of hardware & servers to keep the EMT functional/running simulations. In case of moving to virtual server: the related costs.
- Staff costs, materials and travel for additional "users" to test and evaluate the implementation of the EMT.
- Costs related to the deployment of the EMT website: domain, design and development (staff costs, domain acquisition and maintenance, translators).
- Staff costs for the "support team".

- ❖ Costs related to training for the EMT: staff costs; materials for the "learner"; logistics (room rental, catering etc.); fees for trainers/speakers.

Nevertheless, in addition to the resulting costs, we ultimately aim at the revenue that would bring us the best possible use of the EMT, once it reaches the expected TRL and is launched to market. The generated cash flow will be a determining factor in sustained use of the tool over time.

Always taking under consideration the early adopters of the tool (NGOs and municipalities part of the Users Board), we expect to collect revenue by offering various services, such as consultancy on how to optimise the use of EMT and support contracts and integration with third-party applications.

Additionally, licensing and training for the EMT could make eventual income. In the case of the services that EMT will provide, we could examine the option of freemium, where basic services are free of charge and the most advanced functions are paid for, such as development of additional features and customisation of the tool.

Something that we should keep in mind and explore, through the project's lifetime and after its end, is the additional income from future selling of the data generated by the EMT. It creates plenty of opportunities for an interested actor to pay and get data in return.

The incurred costs require sources of funding to cover them initially before collecting the first revenues. These are the resources needed to bridge the necessary investment in order to increase TRL and ensure results. For this reason, we should examine the following cases:

- ➢ Partners of ITFLOWS continuing the development, or a new partner who could offer their own budget.
- ➢ An external organisation (e.g., European Union).
- ➢ A spin-off company dedicated to the exploitation of EMT.
- ➢ Initiating a new research project or find synergies with recurring projects that their goals can be aligned to ours.

- National/regional incentives.
- Public funding.

At this time of the project, this preliminary exploitation plan reflects the current status of the proposed platform, which is still under development. With constant research we will elaborate and update the sources of cost coverage and analyse in depth what is needed to cover the incurred costs and be able to obtain them at the right timing.

Finally, it is important mentioning that, as required by the H2020 programme, the expected impact in terms of growth/benefits for the society that results from ITFLOWS project should be described. Research in H2020 must lead to an impact and communicate the significance of the benefits which are expected from the project.

4.3. Risk assessment and Priority map

This section analyses in detail all the procedures followed in order to assess, manage and address the potential threats associated with the project and may arise during its lifespan.

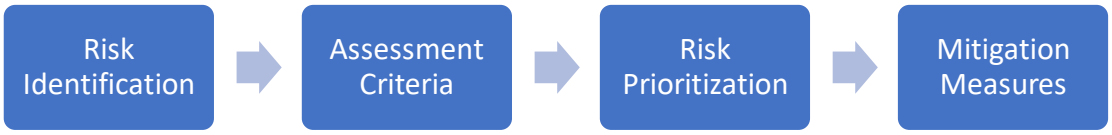
Danger is obviously present in all activities of all organisations, regardless of the purpose and by the structure of their functions. Risk management should be at the heart of any strategy management organisation. It is the process by which organisations approach methodically the risks associated with their activities, in order to achieve sustainable benefit and create value.

The risks are impossible to eliminate, therefore efficient and careful management is required in order to avoid them. The main focus of a good risk management is recognition and handling of potential risks. Its goal is to classify the understanding of the possible benefits and threats of all those factors that can affect our work. In that way, this leads to increased chances of success, and reduced probabilities of failure and uncertainty of achieving overall objectives of an organisation.

As the projects progresses, the risk assessment is expected to be continuously updated and every procedure applied will be reviewed, due to the experience and knowledge gained, in order to produce more reliable results.

4.3.1. Risk Assessment Process

Initially, in this section we present and analyse the process followed in order to manage risks that have been identified as potential threats of EMT. The main steps we have focused on are:



Regarding the first step, **Risk Identification procedure**, the contribution of all ITFLOWS partners was required in order to have a comprehensive list of possible risks. This particular procedure takes place continuously throughout the project's lifetime and will be repeated later in order to eliminate them to the extent possible.

As far as the second step is concerned, that is **Assessment Criteria**, each risk identified has been assessed according to the impact that it will have if occurred on the project and upon the likelihood which demonstrates the probability that the risk might occur during the implementation of the project.

After identifying and evaluating the potential risks, we have proceeded with the next step of **Risk Prioritisation**. This is of high importance to monitor potential risks closely and to be aware of each one of them, in order to avoid any negative consequences.

Finally, the last part of this procedure has to do with mitigation measures (potential interventions) that we have followed in order to deal with the identified risks. We are presenting below the strategy we followed and the actions we took depending on the level of each threat.

4.3.2. Risk Identification

We are first presenting potential risks that may affect the implementation of EMT and its successful outcome. An approach to categorise them has been made. The

main categories are: Partnership, Technological, Market, IPR/Legal, Financial/Management and Environmental/Regulation/Safety risk factors.

Partnership Risks

- Partners (also external partners) not willing to share data which feed into the EMT.
- Partner not interested anymore in the joint partnership of the tool (even if committed to it in the CA).
- Transfer and signing over of knowledge and responsibilities related to the EMT is not properly done or smoothly done within partner institutions.

Technological

- Due to the use of AI (which is rapidly developing) the tool can become outdated (if the tool is not enhanced).
- Lack of technological skills at the stakeholders/customers to run the tool fully autonomous.
- Lack of technological infrastructure at the stakeholders/customers to run the tool fully autonomous.
- Infrastructure/servers are physically located at a partner institution: partner decides it does not want to host the EMT anymore.
- Data extracted from Big Data sources are biased or manipulated.

Market

- Lack of trust in the validation data included in the EMT.
- Added value of the EMT is not as expected and does not cover the expectations of the customers (against existing solutions).
- Similar tools are developed by competitors and/or replicate the EMT and improve it.

- Not outreaching to our complete target market (which is niche focused - NGOs and municipalities (due to the ethical focus and principles of the project).
- Stakeholders / users do not think the tool is useful and will help them to improve their work/support (and not only a "nice thing to have").

IPR/Legal

- Data protection rules do not allow to access and use data needed for quality modelling and decision making.
- Misuse of the tool - a partner provides the tool to customers/third parties excluded from the ethical principles of the project or third parties use it for purposes for which it is not intended.
- Data cannot be used for the tool as it does not allow the data to be used for non-research purposes and limits the access of EMT to data.

Financial/Management Risk Factors

- Lack of funding to take the EMT to the market and roll it out to the customers.
- Insufficient communication in the consortium.

Environmental/Regulation/Safety risks:

- Unexpected developments on geopolitical level cannot be modelled.
- External partners do not communicate updated in the validation data.

It is important to distinguish potential risks mentioned above, from those that could play a significant role during the life cycle of the project and those with less or unimportant effects. This process has been based upon the impact on the project and the likelihood of a certain risk to happen. So, after being evaluated, they are presented as follows in **Table 6**:

Risk	Risk Exposure (Probability)
Partners (also external partners) not willing to share data which feed into the EMT	High
Partner not interested anymore in the joint partnership of the tool (even if committed to it in the CA)	Medium
Transfer and signing over of knowledge and responsibilities related to the EMT is not properly done or smoothly done within partner institutions	Medium
Due to the use of AI (which is fastly developing) the tool can become outdated (if the tool is not enhanced)	Low
Lack of technological skills at the stakeholders/customers to run the tool fully autonomous	High
Lack of technological infrastructure at the stakeholders/customers to run the tool fully autonomous	High
Infrastructure/servers are physically located at a partner institution: partner decides it does not want to host the EMT anymore	Low
Data extracted from Big Data sources are biased or manipulated [74]	Low
Lack of trust in the validation data included in the EMT	High
Added value of the EMT is not as expected and does not cover the expectations of the customers (against existing solutions)	High
Similar tools are developed by competitors and/or replicate the EMT and improve it	High

[74] ITFLOWS GA No 882986, Section 1.3.5., p.49

Not outreaching to our complete target market (which is niche focused - NGOs and municipalities (due to the ethical focus and principles of the project)	High
Stakeholders / users do not think the tool is useful and will help them to improve their work/support (and not only a "nice thing to have"	Medium
Data protection rules do not allow to access and use data needed for quality modelling and decision making	Low
Misuse of the tool - a partner provides the tool to customers/third parties excluded from the ethical principles of the project or third parties use it for purposes for which it is not intended	High
Data cannot be used for the tool as it does not allow the data to be used for non-research purposes and limits the access of EMT to data	Low
Lack of funding to take the EMT to the market and roll it out to the customers	Medium
Insufficient communication in the consortium	Medium
Unexpected developments on geopolitical level cannot be modelled	High
External partners do not communicate updated in the validation data	High

Table 6. Risk probability

The whole process of risk assessment requires mitigation measures we have to take in order to manage and monitor effectively the certain threats identified.

The following tables (**Tables 7, 8** and **9**) summarise the Risk Assessment Plan. Starting with the first one, there is a description of each risk, the degree of criticality of the risk related to the final achievement of the KER (rating from 1 – low to 10 – high), the probability of risk happening (rating from 1 – low to 10 –

high), potential intervention, estimated feasibility/success of intervention (rating from 1 – low to 10 – high) and, finally, conclusion.

Moreover, the Summarising Risks Table and the Risk priority map depict potential risks identified and the action needed to manage a risk factor appropriately, regarding the resulting situation (control, action, no action, warning).

Risk Assessment							
	Description of Risks	**Degree of criticality of the risk related to the final achievement of KER 1 (1 low - 10 high)**	**Probability of risk happening (1 low - 10 high)**	**Risk Grade**	**Potential intervention**	**Estimated Feasibility / Success of Intervention (1 low- 10 high)**	**Conclusion**
	Partnership Risk Factors						
1	Partners (also external partners) are not willing to share data which feed into the EMT	6	10	60	Search for alternative data providers; Intensify lobbying and working with the data providers	6	**Action!**
2	A partner is not interested in the joint partnership of the tool anymore (even if committed to it in the CA)	7	5	35	Increase understanding of what each partner expects/wants; consensus on the potential changes in the CA concerning this aspect; partner proposes alternatives/change status (if their role is crucial); design a solid exit strategy	8	**Control**
3	Transfer and signing over of knowledge and responsibilities related to the EMT is not properly done or smoothly done within partner institutions	4	6	24	Identify the persons responsible in the exploitation strategy; design a strategy for identifying staff can take over key roles in case of need as an ongoing process (back-up staff); have a team informed and aware about the project and can support a new team member coming onboard	8	**Control**
	Technological Risk Factors						

4	Due to the use of AI (which is fastly developing) the tool can become outdated (if the tool is not enhanced)	6	4	24	Updating the tool is done until the last day of the project; updating of the tool regularly embedded explicitly in the exploitation strategy/roadmap	8	**Control**
5	Lack of technological skills at the stakeholders/customers to run the tool fully autonomous	6	9	54	Design a "customer" training programme; detailed documentation made available, including video instructions; Support team for additional & customised support to be provided; promote/facilitate a "user" group/community for peers (e.g., by a space for sharing provided on the website, released in GITHUB...)	9	**Action!**
6	Lack of technological infrastructure at the stakeholders/customers to run the tool fully autonomous	9	10	90	EMT is provided with hardware; cloud version of the tool and clients sign in (no need for physical infrastructure at location)	8	**Action!**
7	Infrastructure/Servers are physically located at a partner institution: partner decides it does not want to host the EMT anymore	4	7	28	Move to a server which is accessible by all partners (e.g., virtual server)	9	**Control**
8	Data extracted from Big Data sources are biased or manipulated	4	6	24	The project will collect data from multiple sources covering a wide geographical range. This way, it will be easy to identify unreliable data and not include it in the modelling process. So, if a part of the data is unreliable it will be easy to identify and exclude from the modelling process.	8	**Control**
	Market Risk Factors						
9	Lack of trust in the validation data included in the EMT	8	9	72	Emphasise better the underlying research to increase trust in the data; improve the trust in the validation of the data collaborating more intensively with the "data providers"	5	**Between Action & Warning**
10	Added value of the EMT is not as expected and does not cover the expectations of the customers (against existing solutions)	7	9	63	Follow an iterative development process while collecting and incorporating feedback from target groups in all stages of the development.	8	**Action!**

11	Similar tools are developed by competitors and/or replicate the EMT and improve it	7	8	56	Constant updating of the tool in order to adjust to specific needs of end users and be always on track. ITFLOWS is listed on ResearchGate, the largest research organisation, so the EMT can be constantly updated regarding relevant existing projects or upcoming ones.	7	**Action!**
12	Not outreaching to our complete target market (which is niche focused - NGOs and municipalities (due to the ethical focus and principles of the project)	4	7	28	Intensify work and focus groups with targeted customers and drill better into their needs (and adapt the EMT); increase awareness of the tool (focused campaign); role model users/ambassadors in each country (big NGOs could function as providers of the knowledge generated to the smaller ones); communication done in local language	9	**Control**
13	Stakeholders / users do not think the tool is useful and will help them to improve their work/support (and not only a "nice thing to have"	10	6	60	Elaborate success stories/use cases/testimonials (based upon real-life cases from partner NGOs); role models in each country; engage "satisfied customers/users" in showing the usefulness through their own communication activities	10	**Action!**
	IPR/Legal Risk Factors						
14	Data protection rules do not allow to access and use data needed for quality modelling and decision making	4	2	8	Mostly analyse open access data. In the need of relevant databases which are not accessible, we search for alternatives such as buy data if possible.	8	**Control**
15	Misuse of the tool - partner provides the tool to customers/third parties excluded from the ethical principles of the project or third parties use it for purposes for which it is not intended	8	8	64	Strong monitoring procedures have been designed for the project having as an ultimate goal that the research activities will be conducted in strict compliance with the EU and international human rights legal and ethical framework. Also, an access mechanism will be established consisting of three aspects: Registration & Data usage, Authentication and Authorization	9	**Action!**

16	Data cannot be used for the tool as it does not allow the data to be used for non-research purposes and limits the access of EMT to data	5	2	10	From the moment that we will use open data, concerning the commercialisation purposes we will use also those that can be exploited too.	8	**Control**
	Financial/Management Risk Factors						
17	Lack of funding to take the EMT to the market and roll it out to the customers	5	6	30	Examine alternative financing models with the European Commission and the entire community of the project.	8	**Control**
18	Insufficient communication in the consortium	7	4	28	Ensure sustained cooperation between partners through developing a strong communication strategy such as using advanced communication technologies; investing appropriate time to encourage everyone to present their work, difficulties and find solutions.	6	**Control**
	Environmental/Regulation/Safety risks:						
19	Unexpected developments on geopolitical level cannot be modelled	9	10	90	Use of historical and conflict data related to tensions that occur in countries and pose a risk to several territories	8	**Action!**
20	External partners do not communicate updated in the validation data	7	8	56	External partners will be informed continuously with the use of dedicated websites, social media and newsletters and be encouraged to leave their feedback.	7	**Action!**

Table 7. Risk assessment for KER 1

Summarising Risks Table	
Number of "No Action" Risks	0
Number of "Control" Risks	10
Number of "Action" Risks	9
Number of "Warning" Risks	0
Number of Risks in the middle of everything	0
Number of Risks Between Control & No Action	0
Number of Risks Between Action & Warning	1
Number of Risks Between No Action & Warning	0
Number of Risks Between Control & Action	0

Table 8. Summarizing Risks Table for KER 1

Table 9. Priority Map for KER 1

Most of the cases present a situation with high-risk grade and a high probability of success (Action) and a low-risk grade coupled with a high probability of success of the planned remedy (Control).

In case of action, we should be vigilant at all times to respond actively to the risk that may arise due to its high probability of happening. We believe that the mitigation measures we are proposing will make a significant contribution to achieving this goal.

On the other hand, in the case of control, some situations are identified where it would be preferable to keep an eye on as they present low risk grade. We will keep monitoring regularly in order to be ready to act.

4.3.3. Conclusions

Risk assessment is expected to be constantly updated, keeping in track and listing of potential issues that might appear. It is expected to be monitored and controlled through the definition of action plans.

The consortium is committed to monitor the risks that have been identified, analysed and evaluated so that we are aware and able to see if a risk has changed form and therefore how it is addressed, as well as if any new risk arises.

Finally, each partner and especially ITFLOWS WP leaders will monitor and repeat the process until the project ends in order to be able to identify any new risks and act accordingly.

4.4. Use options

Regarding the utilisation of the final product and its subsequent exploitation and scale-up, it is too early to make an estimate of the further investment needed. The needs will be assessed both in terms of technology and in terms of dissemination and exploitation of project results.

The project's implementation will help us assess the impact of various initiatives taken towards commercialisation, such as our presence in relevant forums, exhibitions, think tanks, the dissemination throughout the consortium's various channels, research publications, trainings etc. to fine-tune our exploitation roadmap. The software development will also highlight additional needs in functionality, sources needed (monetary and human) and what would be the needs after ITFLOWS finalisation.

5. KER No. 2 – Simulations of irregular migration across countries towards the EU & local population displacement

Irregular migration is unpredictable in nature, and sudden large changes in migration flows can result in societal and humanitarian problems, largely due to lack of preparation by the authorities and support organisations involved.

Some knowledge can be obtained by monitoring existing migrant movements. However, it is challenging to comprehensively track migration flows, and moreover there is no guarantee that past movement patterns will repeat themselves in the future. By using simulations to predict migration flows we can obtain an estimate for a range of different scenarios, including ones that are unprecedented or for which little historical reference information exists.

5.1. Characterisation

We forecast the (irregular) migration flows through the EU external borders, simulate (agent-wise) different routings of migrants' journey through transit countries and forecast the trigger events (such as conflicts) in a realistic, scenario-based manner.

This modelling could assist stakeholder organisations such as government authorities and NGOs that need systematic, high-fidelity forecasts to adequately prepare for future peaks in migration. They also need to have scientifically substantiated estimations for their advocacy activities, or to justify necessary (financial) resource allocations.

5.1.1. Alternative Solutions

Currently, the alternative solutions that are available are presented below:

- **Expert advice**

Frequently, local experts are consulted, which then proceed to characterise forecasts based on their knowledge of local events and recent history. Our proposed solution is intended to supplement expert advice, not replace it.

- **UNHCR's Jetson Project (free)**

As seen above, it predicts local displacement figures using traditional machine learning approaches for the specific case of Somalia. Jetson project assumes weather and goat prices to be the main drives of local displacement. It is not suitable for large scale assignments.

- **Conflict Forecast Project – conflictforecast.org (free)**

Conflict Forecast predicts conflict using an LDA topic modeller's topic share (similar to the large-scale model) both for soft and hard case conflicts. It is very good at conflict forecasting but very limited to it.

- **National press monitoring services provided by GDELT (not free)**

GDELT[75] performs plenty of sentiment analysis and topic classification to national press as well as it provides a variety of migration and conflict related data. It constitutes an amazing case as a database but not as a prediction tool.

There are also a range of modelling approaches in the academic literature which have been applied (and sometimes validated) against historical situations in single countries.

5.1.2. Unique Selling Point USP - Unique Value Proposition UVP

The models for local population displacement provide forecasts where displaced people may cross the border when a violent conflict erupts (or intensifies), and it also includes (basic) models that help users to see how arrival numbers could change depending on different possible developments in the conflict.

The models require approximately an hour to run on a local machine, and the user can quickly see expected arrivals over time using the analysis and visualisation

[75] https://www.gdeltproject.org/

tools. Forecasts can be made over a period of many months, subject to obvious uncertainty in the developments of a local conflict (or other major adverse event).[76]

The ITFLOWS simulations and models combine conflict and migration models. The simulations are based upon an agent modelling approach which allows stakeholders to directly insert new assumptions or behaviours on the individual level (e.g., by changing their mode of transportation, or modifying the likelihood that they will depart from an unsafe location).

It is very important to mention that ITFLOWS' partner BUL, which is one of the responsible partners for developing the simulation models, has great experience on the subject as they are the only organisation capable of rapidly executing large numbers of irregular migration forecast simulations (10,000s if needed), thanks to their direct involvement in major High Performance Computing projects such as HiDALGO (EU-funded, 2018-2021) and SEAVEA (UK-funded, 2021-2024).

At time of writing, BUL relies on an agent-based modelling approach for irregular migration, and which has been validated across 8 different recent conflicts. Their agent-based modelling approach (Flee) allows stakeholders to directly insert new assumptions or behaviours on the individual level (e.g., by changing their mode of transportation, or modifying the likelihood that they will depart from an unsafe location).

It is worth mentioning that Flee is the only predictive model for forced migration that has been included in the catalogue of predictive models by the centre for Humanitarian Data (https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/).

Lastly, BUL is an organisation that uniquely works on a many-objective optimisation approach, allowing stakeholders to rapidly and fully automatically identify optimal interventions or preparatory measures for a given forced displacement situation. This work is still in progress, expecting prototypes to become available from the start of Year 3 of the project.

[76] Information gathered from discussions and exercises during the sessions with the Horizon Results Booster.

5.1.3. Target market

ITFLOWS' simulation models are expected to supplement existing products in the market and not displace them. Therefore, it is our collective responsibility to make the models sufficiently easy to use in order to ensure that.

As the simulation models are not a result directly aimed to be used as a final tool for decision-making at NGOs and municipalities, the research and data analysis activities are considered to be a more suitable target. More specifically, the main customer segments which we focus on are research or data analysis division of the NGOs and municipalities, working with and for migrants, due to the expertise that is needed to interpret and handle the models directly. In addition, we shall approach researchers and research organisations, including think tanks in the field of migration - related issues which are not expected to handle simulations directly, but they may be potentially interested in key outcomes.

Regarding the early adopters, meaning the users who will be the first ones to use our solution, those are research or data analysis division of the NGOs and municipalities, working with and for migrants. It is important mentioning that at the moment, "Save the Children"[77] and the Institute of Migration are already collaborating with the ITFLOWS Consortium partner BUL on developing local migration simulations.

5.1.4. Go to Market

The simulation models referring to conflicts and situations that have been fully constructed are already in use. Regarding all other local and large-scale simulations, they are expected to be fully usable two years after the end of the project.

The main partners of project who are responsible for the development of the simulation models are BUL and CERTH. BUL has background IP in the Flee solver, a range of conflict modelling tools, as well as a range of tools for running large numbers of simulations, and analysis parameter sensitivities. BUL reserves the

[77] https://www.savethechildren.net/

right to not share specific conflict modelling tools when there are major humanitarian concerns around doing so.

Additionally, CERTH has background IP in the large-scale model, the topic modelling source code, as well as deep learning efforts for running migrant arrivals predictions and forecasts. CERTH reserves the right to not share specific topic modelling tools if their use stands against the institute's humanitarian policy.

Both partners aim to put the KER 2 in use through:

- Deployment-ready predictive simulations for scenario-driven irregular migration.
- Training on the use and extension of the predictive simulations.
- Publications.
- Contract research.
- Provision of forecast reports (partner BUL has already done this a few times for "Save the Children").

The above options are considered are being examined thoroughly as the project progresses. Towards and after the end of the project, the idea is to come up with the most appropriate options, which will be available to potential users.

Finally, regarding the IPR foreground and what has been already agreed in the Consortium Agreement, the foreground is shared by all partners.

5.2. Exploitation Roadmap

Simulations models for irregular migration & local population displacement are essentially the base for developing EMT, as they will be integrated in order to bolster the tool for use in a production-ready environment.

As such, the actions to be followed are quite relevant to those identified for EMT (as KER 1):

- **Identify potential users.** UAB among with technical partners TRC, CERTH and BUL are in charge of exploring potential users for the simulation models as the project progresses and until six months after it ends.

- **Identify complementary models/tools and explore options for synergies or cooperation, especially with databases**. Technical partners BUL and CERTH, in cooperation with TRC and UAB, are seeking for complementary models/tools, as well as cooperation or synergies in particular with databases. The aim is to explore the possibilities to use them in research or provision of forecast reports and predictive simulations for scenario-driven irregular migration during the lifecycle of ITFLOWS and within the first six months after its finalisation.

- **Discussion on ethical considerations as part of the development of the exploitation actions**. The Consortium partners that have the appropriate knowledge and expertise regarding laws, regulations and ethical guidelines are UAB, FIZ and BUL. It is a work in progress and aims to carry on until six to nine months after the completion of the project.

The costs related to the actions described are similar with the corresponding ones for KER 1. Therefore, we anticipate mostly staff costs for performing the customer segmentation specified earlier, exploring potential users and complementary models/tools. We also estimate travel costs for the necessary meetings as well as costs for training on the use and extension of the predictive simulations.

Considering the potential revenues and alternative sources to cover the initial costs, we are still examining several options with the aim to end up with the most appropriate ones until the project's end.

Revenues can come from selling customised simulations or provision of forecast reports. On the other hand, alternative sources are at the moment considered public funding, partners of ITFLOWS continuing the development of the simulation models or national/regional incentives.

Regarding local and large-scale simulations, which are expected to be fully in use two years after the end of ITFLOWS, we will further explore the options mentioned above.

5.3. Risk assessment and priority map

In this section we present the risks identified for KER 2 after following the same procedure we followed for EMT as being the KER 1. It is important mentioning that those which were relevant to the ones described for KER 1 in Section 4 are not being analysed again here in order to avoid repetition.

Risk Assessment							
	Description of Risks	**Degree of criticality of the risk related to the final achievement of KER 1 (1 low - 10 high)**	**Probability of risk happening (1 low - 10 high)**	**Risk Grade**	**Potential intervention**	**Estimated Feasibility / Success of Intervention (1 low- 10 high)**	**Conclusion**
	Partnership Risk Factors						
1	Partners disagree on using their forecasts in the large-scale model.	6	7	42	Plan B implementation of predictions without partners input to make the model invulnerable to partnership risk factors.	8	Control
2	Partners (also external partners) not willing to share data which feed into the large-scale model.	8	8	64	Use of multiple data sources so there are always alternatives; keeping regular back-ups of data currently available for later use.	7	Action!
	Market Risk Factors						
3	Open-source publishing of the code eliminates need to buy the model for deployment.	8	10	80	Avoid publishing source code for the first year of the model's exploitation period.	8	Action!
4	Similar tools are developed by competitors that replicate and improve the large-scale model.	8	9	72	Under the radar exploitation of the model for the first 6 months.	6	Action!
	Financial/Management Risk Factors						
5	Lack of funding to improve the large-scale model by using data not available for free.	4	6	24	Use of multiple data sources so there are always alternatives	8	Control
	Environmental/Regulation/Safety risks						

6	Unexpected consequences of climate change make migrant predictions unreliable.	6	7	42	Train and test our models as often as possible using as much climate data as possible.	7	Control

Table 10. Risk assessment for KER 2

Summarizing Risks Table	
Number of "No Action" Risks	0
Number of "Control" Risks	3
Number of "Action" Risks	3
Number of "Warning" Risks	0
Number of Risks in the middle of everything	0
Number of Risks Between Control & No Action	0
Number of Risks Between Action & Warning	0
Number of Risks Between No Action & Warning	0
Number of Risks Between Control & Action	0

Table 11. Summarising Risks Table for KER 2

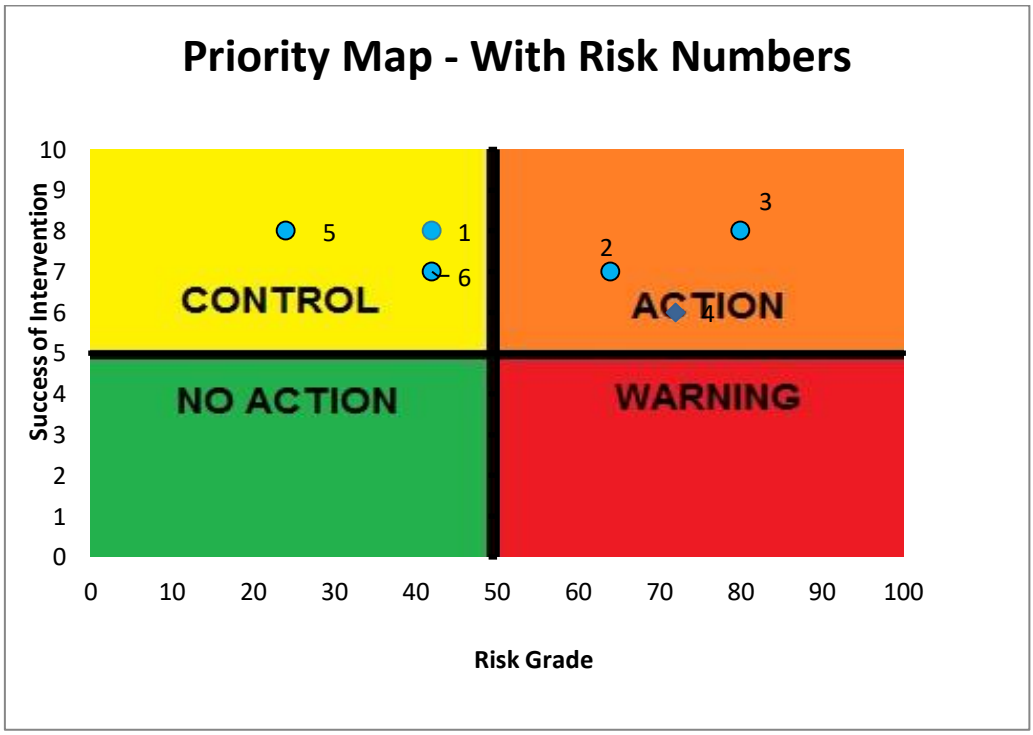


Table 12. Priority Map for KER 2

Table 10, 11 and **12** above, present Risk assessment and Priority map for KER 2.

The risks identified in this section present situations between a low-risk grade coupled with a high probability of success of the planned remedy (control). Each risk should be monitored constantly so as we are ready to respond in any potential change.

Additionally, risks with high-risk grade and a high probability of success (Action) are identified. In this case, the possibility of one of these to occur is quite high. Therefore, drastic actions are required to address and mitigate potential threats, as presented in Table 9.

5.4. Use Options

The exploitation route and the planned activity we intend to follow for KER 2 is still under consideration at the time of writing. Since we have not taken final decisions yet, the following options are examined as possible at this preliminary stage - with the aim to have a clearer picture in D9.5:

- Deployment of a novel product/service (offered to the target markets).
- Contract research (new contracts signed by the research group with external clients).
- Development of a new legislation/standard.

6. KER No.3 - Evidence-based policy analysis and recommendations

Policy makers constantly need comprehensive, up-to-date, and accurate data, as well as evidence and research-based policy analysis and policy recommendations to guide them in addressing policy issues related to managing mixed migration flows and devising better integration policies and strategies that follow a rights-based approach to migration.

6.1. Characterisation

Managing migration flows is meant broadly to respond to spontaneous arrivals of migrants, refugees, and asylum-seekers at the EU's external borders in an efficient and human manner, in full compliance with all obligations of the EU and its Member States, and in line with the principle of solidarity enshrined in Treaty on the Functioning of the European Union (TFEU).

In addition, existing policy recommendations might not be country or level-specific, i.e., they might need to be adapted to country, regional and/or municipal contexts. Decision-makers might also require data and evidence pertaining to other countries, as these will allow them to draw comparisons, establish differences, and devise regional and transnational strategies and actions. Therefore, the following problems have been identified:

- ✓ Lack of adequate, accurate, and up-to-date information on the following topics: (i) Frequency, intensity, and composition of irregular migration flows, (ii) Attitudes towards migration flows and the effects of migration; (iii) Efforts and initiatives on the part of other actors, such as CSOs (especially frontline workers), regional bodies, etc. to accommodate the needs of arriving individuals, prevent and respond to humanitarian emergencies or backlash against irregular immigrants.

- ✓ Insufficient settings to discuss concrete steps, strategies, and solutions and share best practices with various national and international stakeholders.

- ✓ Difficulty devising optimal short-term solutions (especially in crisis situations) and predicting the positive and negative long-term effects of currently adopted policies.

6.1.1. Alternative solutions

In the last decade, especially in the context of large-scale population movements (as in 2014-2015),[78] there have been numerous projects and initiatives. They aimed to produce analyses, research, recommendations, and instruments that could decrease both the number of irregular arrivals to EU Member States and the tension between migrant populations and host societies.

Such initiatives should not be viewed necessarily as being in juxtaposition to the findings and results of ITFLOWS. Rather, the project consortium focuses on upgrading and building on such existing findings, results, and recommendations. Importantly, the ITFLOWS project aims not to decrease irregular arrivals *per se* but rather to increase preparedness of governments and CSO actors, helping them respond to migration flows better and formulate effective policies.

Another alternative solution to consider is a situation where policy makers are not provided with recommendations, which could limit their access to evidence-based policy suggestions that are consulted with a vast array of stakeholders (such as CSOs, researchers, frontline responders, etc.).

Table 13 contains representative projects on the subject and a brief analysis for each one follows next:

Project	Internet link
UWT	https://cordis.europa.eu/project/id/44272/reporting
EACH - FOR	https://cordis.europa.eu/project/id/44468/reporting
CLANDESTINO	https://cordis.europa.eu/project/id/44103

[78] Berry Mike, Inaki Garcia-Blanco, Kerry Moore, "Press Coverage of the Refugee and Migrant Crisis in the EU: A Content Analysis of Five European Countries", Report prepared for the United Nations High Commission for Refugees (December 2015), as retrieved from https://www.unhcr.org/56bb369c9.pdf

DEMIG	https://cordis.europa.eu/project/id/240940
TRANSHI – ROM	https://cordis.europa.eu/project/id/660281/reporting
MOVES	https://cordis.europa.eu/project/id/812764
HumMingBird	https://cordis.europa.eu/project/id/870661

Table 13. List of projects related to policy recommendations in the field of migration

- **UWT**

The Undocumented Workers' Transitions (UWT)[79] project started in March 2007 and lasted for about two years, until February 2009.

Its main purpose was to deepen and analyse the factors that lead people to migrate and emphasised mostly on irregular migration. Over selected EU Member States (Italy, Spain, UK, Austria, Belgium, Denmark and Bulgaria) an increase in undocumented migrants had been indicated.

Therefore, the main research objectives of UWT project were to assess the migration wave in the EU as accurately as possible, understand in what grade labour markets in host countries are affected by the entry of migrants and investigate the possible consequences for women workers, including those who had been trafficked.[80]

The results of this research showed that despite the intense efforts of the states to mitigate undocumented migration in the reference countries, in many of them it was not possible. On the contrary, they remained in quite high levels. What was observed in this study was that although the criteria and measures to restrict irregular migrants and refugees were very strict, they failed to be effective.

[79] UWT: Undocumented Worker Transitions, Work Package 10 Final report: The relationship between migration status and employment outcomes, prepared by Sonia McKay, Eugenia Markova, Anna Paraskevopoulou and Tessa Wright, Working Lives Research Institute, March 2009

[80] UWT: Undocumented Worker Transitions, Work Package 10 Final report: The relationship between migration status and employment outcomes, prepared by Sonia McKay, Eugenia Markova, Anna Paraskevopoulou and Tessa Wright, Working Lives Research Institute, March 2009

The research concludes that migration will continue to exist and any efforts to reduce and curb irregular migrants will rather exacerbate their plight instead of preventing them from entering the country from the outset.

- **EACH – FOR**

In EACH – FOR project (January 2007 - March 2009) 23 cases were examined,[81] where each one covered different condition related to socioeconomic and climatological factors. The selected areas analysed were the problematic ones and did not constitute all geographical regions in total.

The ultimate purpose[82] of this research was to work in parallel with policy makers, civil society, researchers and educators in order to provide valuable insight and scenarios for environmental forced migration towards Europe.

The EACH – FOR project managed to elaborate and develop a methodology to a very complicated phenomenon and to make a significant overview of the existing bibliography related to the studied cases taking it as a base for the research. In addition, six environmental scenarios were developed over countries within regions where migration flows were observed.

Finally, all the produced results of the project were efficiently disseminated as many papers and newsletters were published, research outputs were presented in several conferences in a national, European and global level.

- **CLANDESTINO**

CLANDESTINO Project (Irregular Migration: Counting the Uncountable. Data and Trends Across Europe) was a thorough approach to support policy makers in constructing an appropriate policy framework for undocumented migration.

This research started in September 2007[83], lasted for two years and focused on specific EU countries. Those were the Netherlands, United Kingdom, Germany,

[81] https://cordis.europa.eu/project/id/44468/reporting
[82] EACH-FOR project, Environmental Change and Environmental migration Scenarios, Final Activity Report, 14 May 2009, as retrieved from https://cordis.europa.eu/docs/results/44/44468/126792421-6_en.pdf
[83] https://cordis.europa.eu/project/id/44103

Austria, Poland, Hungary, Slovakia, Greece, Italy, France and Spain. The project also covered three cases of EU neighbouring countries which were considered as mediator ones, that is regions which were used by migrants as the path to reach EU (i.e., Turkey, Ukraine and Morocco).

The project's main goals were to analyse and estimate the data provided for undocumented migration, in the first place, and to present a new alternative methodology in order to classify and evaluate the data relatively to this phenomenon.

For this purpose, the research used several methods[84] in order to measure irregular migration, such as anonymous questioners, interviews with migrants in person and with experts on the subject, and analysis of existing data coming from the records of police and generally enforcement agencies.

A database was constructed and supported by the EU Member States mentioned earlier. In addition, appropriate policy briefs were designed accordingly, one for each Member State which was studied, in order to use the outputs widely, as well as for each one of the neighbouring EU countries. Finally, the project produced a comparative analysis that led to the following concluding remarks about irregular migration:[85]

- It is a complex and multidimensional phenomenon that cannot be explained in one way and despite the several methods that are available, the application of a specific one in all EU countries is at least unlikely.
- It is often the result of specific legislations that lead to the lack of enforcement, policy gaps and generally non – applicable policies.
- Formulation of a common policy is prevented by differences in cultures regarding the law between EU Member States.
- Crisis drives irregular migrants accept extremely low income and bad working conditions due to the fear of not being able to work at all and not having the means to survive.

[84]CLANDESTINO Project, Final Report, 23 November 2009, as retrieved from https://emnbelgium.be/sites/default/files/publications/clandestino-final-report.pdf
[85] CLANDESTINO Project, Final Report, 23 November 2009

- Racist events and tensions had increased in destination countries.
- Policies have to support and protect the most vulnerable irregular migrants from poverty, sexual abuse and exploitation.

- **DEMIG**

The DEMIG project[86] (January 2010 - December 2014) is considered to be an innovative research project as it went beyond the simple methods of just considering the push pull factors of migration in order to balance the flaws in methodology and the failure to steer the phenomenon. It presented and analysed how the states of receiving and sending migrants affect and impact the timing and volume of migration.

By using a novel approach of simultaneously studying the origin and destination countries, an empirical analysis was conducted referring to policy effects about the factors that drive migrants to wealthy countries. For this purpose, the analysis drew data from several databases that covered different number of countries and periods of time.

The main results of DEMIG project[87] indicated that migration had remained significantly stable and was estimated about 3% of the world's population. Increasing levels of education as well as the growing complexity of labour markets drive people to move for work and family in higher income societies but the existence of poverty, on the other hand, prevented migration as mobility was severely limited due to lack of resources.

Non-migration policies tend to become ambiguous because they lead to discouragement of moving but, in parallel, people are endowed with additional resources that help them migrate easily.

Finally, in spite the fact that migration policies are effective in general, nevertheless they seem to be constrained in shaping migration by structural determinants which operate in the opposite direction. They affect migration in

[86] https://cordis.europa.eu/project/id/240940
[87] Hein de Haas, Mathias Czaika, Marie-Laurence Flahaux, Edo Manhendra, Katharina Natter, et al. International Migration: Trends, Determinants and Policy Effects. 2018. ffhal-01872666f

such powerful ways that go beyond the bounds of those policies and make them incapable of influencing the process.

- **TRANSHI – ROM**

The TransHI-Rom (2015 – 2017) presented the Romanian migration to Western Europe, specifically to Italy and France for about a decade, between 2002 and 2013 mainly regarding the emerging risk that a migration process generates. The specific time period was selected due to the fact that it was after 2002 when Romanians could freely travel in the EU countries and, consequently, migration to the west appeared in extremely increasing levels.[88]

More precisely, it aimed to present the impact fear had on policy makers and how they were influenced by it, the development of this fear between the three countries mentioned and, finally, how this fear affected the relationships between natives and migrants. Regarding the latter, the research focused especially on young adults.

Among the work performed during the lifetime of the project, interviews from Romanian migrants who had lived in France and Italy took place. It was an approach to examine several aspects about their social integration and the existent relations with destination societies.

This research proved that, for migrants nothing is certain, everyday things change and stability during everyone's lifespan is a quite challenging matter. Although people on the move desire to settle down permanently somewhere, nevertheless, everything is fluid and a continuous effort of negotiating and claiming their rights for personal well-being. [89]

- **MOVES**

MOVES – Migration and Modernity: Historical and Cultural Challenges is a doctoral programme which started in march 2019, it is in progress and is funded by the European Union's Horizon 2020.

[88] https://cordis.europa.eu/project/id/660281/reporting
[89] https://www.fabiodisconzi.com/open-h2020/projects/195922/results.html

As mass migration is considered to be a great challenge for the EU countries, this particular research aims to demonstrate that this phenomenon can be addressed in an effective way, only if it is examined from its cultural, social and historical point of view relatively to the past.[90]

It is important to emphasise and take past migration flows into account because only then a comprehensive analysis will be constructed in order to present and undertake the issue efficiently. MOVES is perhaps the first project that puts all these factors together and combines them in order to study migration in a more integrated way as, until now, previous studies tented to ignore what had happened in the past and what we could learn from previous migration flows.[91]

Through this research, an effort will be made to examine and manage migration over the long term and avoid any short - termism. This will be achieved by providing conceptual tools and generating new knowledge about how modern world will shape taking into account historical and cultural patterns.

Its overall significant contribution will have to do with supporting policy makers and education in the future and also mitigate negative perception and attitudes towards migration and migrants.[92]

- **HumMingBird**

HumMingBird project is ongoing research funded by Horizon 2020, it started in December 2019 and will last until November 2023.[93] Its main goal is to contribute in improving the understanding of changes in migration flows and in what drives migrants to move from one place to another.

Additionally, it is an approach to estimate populations, identify the trends that arise and show the impact of policy decisions in the future. It is noteworthy that all data come from migration flows and assumptions relatively to the past, as it is very challenging to estimate how migration is shaped from the current situations.[94]

[90] https://cordis.europa.eu/project/id/812764
[91] http://projectmoves.eu/moves-profile/
[92] http://projectmoves.eu/moves-profile/
[93] https://cordis.europa.eu/project/id/870661
[94] https://cordis.europa.eu/project/id/870661/reporting

Due to the fact that there are several data gaps that do not allow appropriate policy making over this extremely important issue of concern, a policy brief[95] has been published in order to address these gaps related to international migration.

More specifically, the data gaps include a) vague data estimations and inconsistent measurements of the phenomenon, something that complicates even more this already difficult situation, b) omission of causes and driving factors of migration, c) variation of available data and their quality among countries and regions, d) policy makers have delayed access to controversial quality data.

During this study, there will be a deployment of migration scenarios[96] taking into account the factors that influence people to migrate and how trends will affect the societies. These scenarios are necessary for policy makers to proceed with their implementation for drafting appropriate policies effectively.

It is also quite important to understand the role gender[97] plays in migrants' decision making for the policies to be shaped accordingly, which is one of the main concerns of this project.

Finally, great emphasis has been given by the authors of the project on the need for alternative methods and data sources in order to meet the respective challenges. One can be the use of mobile phone data[98] for gaining insights about the migration process in Europe, as they are able to cover significantly the data gaps during the research as well as to contribute in a more adequate preparedness for future population movements. These data can be quite helpful to governments, researchers, NGOs, international organisations, etc.

In order to prevent any ethical and legal circumstances, the project will establish appropriate practices and test several usage scenarios to avoid any possible risks.

6.1.2. Unique Selling Point USP - Unique Value Proposition UVP

All policy-related activities (workshops, policy briefs, meetings and consultations with the Policy Working Group) should be linked to evidence-based policy

[95] https://hummingbird-h2020.eu/images/publicationpdf/d2-3-eind.pdf
[96] https://cordis.europa.eu/project/id/870661
[97] https://hummingbird-h2020.eu/images/publicationpdf/d2-1-eind-1.pdf
[98] https://hummingbird-h2020.eu/images/projectoutput/d6-1.pdf

research, and potentially assist EMT by proposing policy recommendations based on the outcome.

Furthermore, the policy workshops, the policy briefs and recommendations will be finalised following consultations with and validation by the members of the Policy Working Group (PWG). On one hand, engagement with the PWG will help us better identify the key issues, trade-offs and data gaps policy actors need to tackle with.

On the other, the constant dialogue with and feedback from the PWG will allow us to better translate research results to policy guidance and effectively communicate such guidance to the relevant policy audiences. The PWG consists of renowned experts in migration, who have been involved in policy formulation and policy analysis.

Finally, ITFLOWS' policy output will involve a clear gender dimension[99] and will comply with the most recent ethical standards in the field of migration, data collection and processing, etc.

6.1.3. Target market

It is a key ambition of ITFLOWS to produce and disseminate evidence-based policy analysis and recommendations designed to work towards bridging the gap between research and policy in the field of migration and engage into constructive dialogue between policy makers, stakeholders, experts, civil society, the media and researchers on the project's aims, activities and findings.

The project also foresees to formulate workable policy recommendations at the national and EU level, to translate the research findings into specific policy solutions and facilitate the exchange of knowledge and the expansion of good practice on the use of big data information systems with conformity to data protection, privacy and ethical concerns.

This way, it aims to lay the ground for research-based policy recommendations that could help to design future EU policies in the field of migration, asylum and integration.

[99] See D2.2 of ITFLOWS

To accomplish the above expectations, the project has:

- Established a dedicated Policy Working Group to facilitate a constructive dialogue with policy makers and ensure the transferability of research results into practice through regular consultations and validation of project results
- Organised workshops for and with policy makers, running consecutively in a three-day conference in Brussels.[100]
- Started to work on publishing five thematic policy briefs and evidence-based recommendations on the main project topics (migration prediction, response, and integration).

So, in order to finalise the exploitation plan and prepare the use of this KER, the groups we target are:

- Policy makers at local, regional, national, European, and international levels who are responsible for formulating and amending policies. These policies are mostly related to migration, but could also be related to other sectors: education, health, economics and labour, social policies, foreign policy etc.
- Civil-society organisations (CSOs) working with irregular migrants, refugees, and asylum-seekers (for instance, providing services).
- Scientific community: researchers and scholars from different disciplines.

6.1.4. Go to Market

As has already been agreed in the Consortium Agreement, all ITFLOWS partners participate in efforts to ensure high-quality policy output and greater policy impact.

It is expected that the KER evidence-based policy analysis and recommendations shall be put in use about half to a year after project finalisation through online and offline policy publications.

[100] For more information, see https://www.itflows.eu/2022/02/14/itflows-conference-2022/

In addition, during the course of the project bilateral and multilateral, formal and informal consultations will take place with policy makers during meetings, events, workshops, conferences and seminars.

6.2. Exploitation Roadmap

The activities to be executed during and after the finalisation of the project refer to:

- **Active dissemination and communication of policy-related deliverables** (especially, but not only, policy briefs). These will be achieved through various channels such as social media profiles, webinars, presentations and media appearances, as well as networks (local, national, international, informal, formal).
- **Follow-up meetings and talks** (informal and formal) with policy makers and policy experts who joined and participated in policy-related activities during the project to probe the outreach and the applicability of proposed policy measures.
- **An exploratory report** based on a feedback survey among key stakeholders to evaluate the adoption of policy guidelines. We will monitor whether the suggested policy recommendations were finally addressed, shared, utilised or consulted in order to draft strategies, action plans and policies at EU, national, and local levels.

For all actions defined above mainly UAB and all partners leading WP8 (CSD) and WP9 (CEPS), always supported by the rest of the partners, are responsible for monitoring their implementation. About six months after the project ends, it would be necessary to provide particular concise reports (perhaps three to five pages) related with the finalised communication and dissemination activities, the achieved follow-up and the use of the policy recommendations produced by the project.

At this preliminary stage of the exploitation plan, we estimate mainly staff costs for exploring the funding options for all actions mentioned above, as well as for dissemination, communication, research, and reporting activities. In addition, we anticipate travel costs for the necessary meetings and activities that will take place after the end of the project.

To cover these costs initially, several options are considered and are thoroughly examined, as the project progresses until its finalisation, such as initiating a new research project or find synergies with recurring projects that their goals can be aligned to ours.

After ITFLOWS comes to its end, we expect potential revenues. For instance, direct revenue could stem from providing custom policy recommendations to specific bodies or authorities, if they require additional reports on a particular topic.

6.3. Risks Assessment and Priority map

Tables 14, 15 and **16** present the Risk assessment and Priority map for the last KER (KER 3) we analyse in this deliverable. The work perfomed has been meticulously described on the previous analysis of the two other KERS. Therefore we will only focus on additional items here.

Risk Assessment							
	Description of Risks	**Degree of criticality of the risk related to the final achievement of KER 1 (1 low - 10 high)**	**Probability of risk happening (1 low - 10 high)**	**Risk Grade**	**Potential intervention**	**Estimated Feasibility / Success of Intervention (1 low- 10 high)**	**Conclusion**
	Partnership Risk Factors						

1	Feasibility to achieve this KER differs significantly among partners	6	8	48	Partners assist each other, attempting to increase feasibility for those partners that are experiencing difficulties	8	Control
2	Lack of expertise within the current partnership	7	4	28	Design a strategy for identifying staff can take over key roles in case of need as an ongoing process (back-up staff); have a team informed and aware about the project and can support a new team member coming onboard; seek external partners with the needed expertise	8	Control
	Technological Risk Factors						
3	Policy fails to substitute already existing solutions	8	5	40	Consider customizing the proposed policy solutions to fit existing needs; Increase dissemination and communication efforts	7	Control
	Market Risk Factors						
4	Weak exploitation of the produced material (policy recommendations and policy insights)	8	6	48	Emphasize better the underlying research to increase trust in the data serving as grounds for the evidence-based policy recommendations; increase trust through stressing the validation of the policy product (through and by PWG); create focused campaigns to increase exploitation	6	Control
5	Early adopters are hard to reach	7	5	35	Create focused campaigns and utilise all existing networks to reach early adopters; design a dedicated communication strategy	7	Control
6	Reception and acceptance not as planned	9	4	36	Elaborate success stories/use cases/testimonials (based upon real-life cases from partner NGOs or even policy makers); role models in each country; engage "satisfied customers/users" in showing the usefulness through their own communication activities; organize dedicated Q&A sessions; probe into whether policy makers are interested in re-packaging the policy product to better fit their needs	7	Control
	Environmental/Regulation/Safety risks						

7	Limited number of opportunities to reach policy makers and organise dissemination and communication events during the project (which affects building relationships) due to COVID-19 restrictions	7	4	28	Plan events that are smaller in scale and offer options for hybrid participation; develop and implement robust safety protocols, complying with the measures adopted in the respective country	7	Control

Table 14. Risk assessment for KER 3

Summarizing Risks Table	
Number of "No Action" Risks	0
Number of "Control" Risks	7
Number of "Action" Risks	0
Number of "Warning" Risks	0
Number of Risks in the middle of everything	0
Number of Risks Between Control & No Action	0
Number of Risks Between Action & Warning	0
Number of Risks Between No Action & Warning	0
Number of Risks Between Control & Action	0

Table 15. Summarizing Risks Table for KER 3

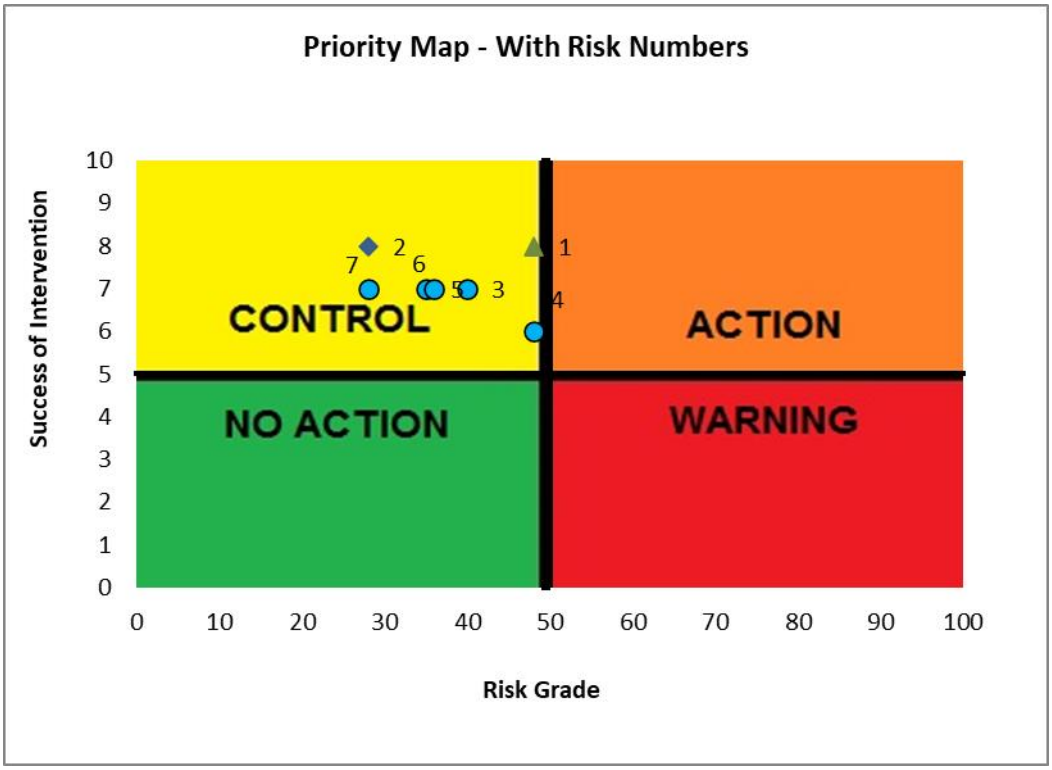


Table 16. Priority Map for KER 3

For KER 3 we have identified risks situated with a low-risk grade and a high probability of success of the planned remedy (Action). It would be preferable to constantly monitor them so as to implement potential interventions mentioned above and act on time when necessary.

6.4. Use Options

Since we are only half way within the project we have not taken final decisions on this particular KER. We will continue considering options such as selling a newly policy plan. With continuous research we aim to come to more specific conclusions as ITFLOWS comes to its end.

7. Exploitation Activities during ITFLOWS' Lifecycle

Some first steps for exploiting ITFLOWS' results have been made since the beginning of the project. In order for the outcome of this work to be successfully exploited and make an impact, ITFLOWS has participated and been presented in several events to date.

7.1. Project Branding

Since July 2020 the brand design[101] of the project has been developed in order for ITFLOWS to be a recognisible venture. The project branding includes:

- **Electronic Newsletter:** starting from February 2021, it is issued every six months and contains information about the upcoming events and the latest project developments, among other important news related to the project.
- **Social Media Branding:** Since August 2020 social media tools like LinkedIn and Twitter have been launched. Social media branding has already made an impact on the public, counting with more than 330 followers.
- **Templates:** Standardised templates available to all ITFLOWS partners have been created. They have been made for communication, dissemination and also project reporting purposes.
- **Project Infographics:** Infographics which provide links to ITFLOWS website and social media channels have been developed.
-

7.2. Workshops with the ITFLOWS Users Board on the EUMigraTool

In this section, a brief description of the three workshops which have taken place between ITFLOWS' partners and representatives from the project's Users Board are provided. The main goals of those events were to gather insight and continuous feedback for the practitioners in the field of migration, as the end users' input is

[101] ITFLOWS Deliverable 9.1 "Project Website & Project Branding"

considered to be extremely important during the creation process of EMT.

7.2.1. First Workshop in January 2021

On the 20th of January 2021, the first official online workshop took place, including ITFLOWS Partners' representatives and the Project's Data Protection Advisor, in order to welcome the members of ITFLOWS' User Board (UB). They were provided with information and an external analysis of the project's scope and the presentation of EMT. It was an attempt to gather the first feedback from the members of the UB, regarding their needs and the potential challenges they confronted with.

A presentation on the EUMigraTool was given to the UB. During the presentation plenty of questions were set out indicating a significant interest of UB's members on the project and its outcome, as well as the high degree of criticality of their active participation which would contribute to further development and design of the EUMigraTool. Therefore, during this workshop a survey with the use of a questionnaire via Padlet was prepared from ITFLOWS Consortium and answered by the UB.

Finally, great emphasis was given to the data protection, ethical and societal risks in using the tool, explaining that the data provided in the EUMigraTool would follow a strict ethical and risk procedure as the main principle is to protect migrant' rights and privacy.

ITFLOWS
Users Board Workshop

Wednesday, 20 January 2021
15:00 – 19:00 CET

ONLINE VIA ZOOM

PROGRAMME

Time	Work Package	Description	Speaker
15:00	Work Package 7	CRI welcomes the Users Board Brief overview of the Meeting Agenda	Paola Maieli (CRI)
15:15	Work Package 1	Presentation of ITFLOWS	Cristina Blasi (UAB)
15:30	Work Package 6	Presentation of the EMT	Diana Sulelmenova (BUL) & Georgios Stavropoulos (CERTH)
16:00	Work Package 7	Survey on features of the EMT	Haithem Afli (CIT)
16:30		**15 MINUTES BREAK**	
16:45	Work Package 7	Discussion based on the survey	Users Board
17:15	Work Package 2	Data protection, ethical and societal risks of the EMT	Jonathan Andrew (DPA ITFLOWS) Emma Teodoro (UAB)
17:45		**15 MINUTES BREAK**	
18:00	Work Package 4	Presentation on ITFLOWS WP4 Focus on integration of migrants	Elena Sánchez (UAB)
18:15	Work Package 4	Discussion of national measures for migrants' integration with Users Board	Users Board
19:00	Closing	End of the Workshop Closing words	Paola Maieli (CRI)

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 882986".

Figure 6. UB workshop agenda

Figure 9 shows the workshop agenda which includes the programme and the presentations that took place during the event, while **Figures 10** and **11**, below, depict excerpts from the Padlet survey that was followed between ITFLOWS Consortium and the members of the UB.

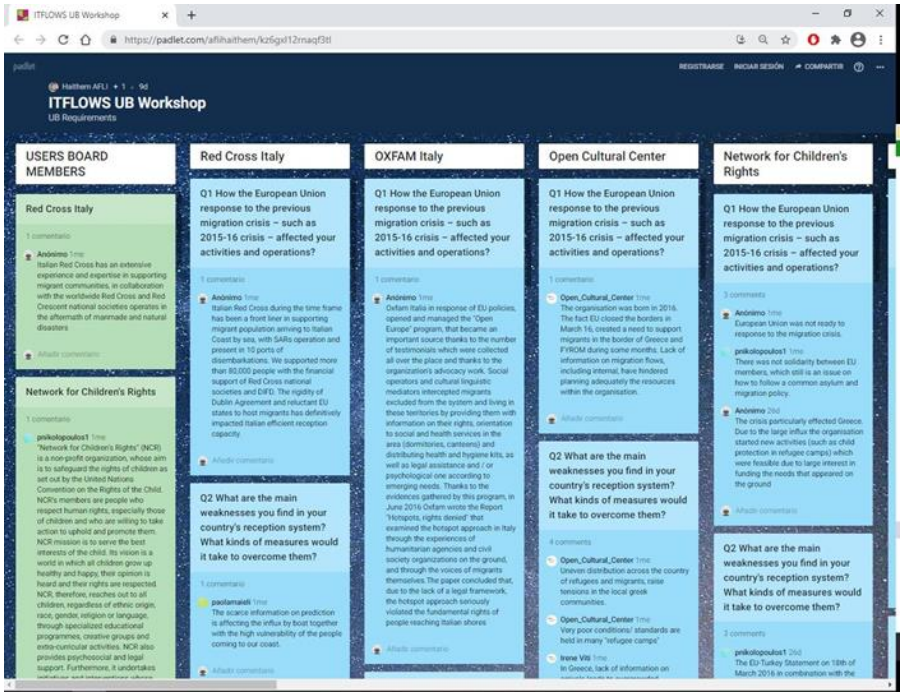


Figure 7. Padlet survey

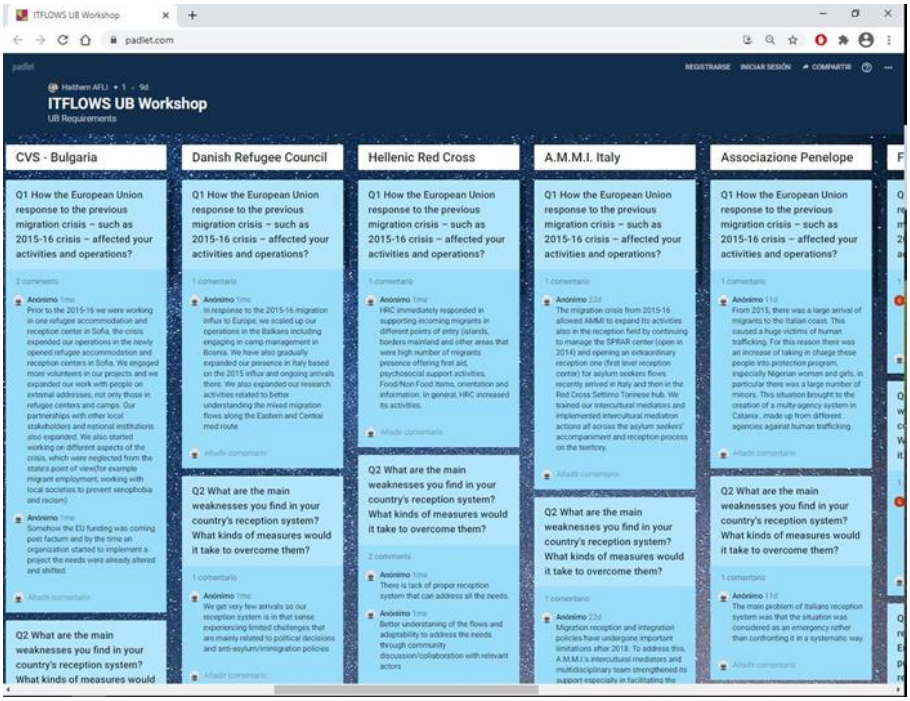


Figure 8. Padlet survey

7.2.2. Workshop in September 2021

The next workshop with the members of the ITFLOWS' UB took place on 16 September 2021. Input from external organisations such as Red Cross Europe, PICUM (Platform for International Cooperation on Undocumented Migrants) and

Privacy International were gathered related to the value of IT Predictive Tools in the field of Migration. Also, discussions and feedback on EMT were moderated between the members of the UB.

There were three rounds of questions related on:

- Data Collection and Design (usefulness of data gathered via the EMT, additional data to be incorporated into the EMT, improvement of EMT design to make it more valuable).
- Features and Efficiency (whether EMT is user friendly and in what grade, most relevant features and functions, whether EMT data visualizations are easy to understand).
- Expectations, Potential Results and Risks (expectations from the EMT, how it could be improved, rights to be safeguarded when collecting data).

The feedback and insights provided by the UB were once again extremely decisive during the workshop where great emphasis was given on the potential misuse of the tool and the necessity to monitor closely this challenge. It was highlighted that EMT must remain innovative and several possibilities regarding analysis of tensions and legal / ethical elements of EMT were mentioned.

7.2.3. Workshop in February 2022

The last workshop so far was held on 1 February 2022. There were discussions between ITFLOWS partners and the members of the UB upon the modelling of migration between countries and how we can monitor population's displacement effectively.

Participants made several suggestions on the different functionalities of the EMT and proposed several options to be considered in integrating the tool (i.e., sentiment and attitude analysis). Certain issues were pointed for consideration until next internal EMT meeting between ITFLOWS partners in September 2022.

7.3. ITFLOWS participation in a Workshop organised by FRONTEX[102]

Frontex invited ITFLOWS to present in a workshop that took place on 20 – 21 May 2021. It was an online workshop where eleven EU funded projects relevant to Border and External Security (BES) were introduced. There were representatives from the Border Security Observatory, DG Migration and Home Affairs, experts from industry and academia, NGOs, research centers and end users (e.g., ministries of interior, various governments, police directorates, etc.).

The main purpose of this event was to get the European Border and Coast Guard (EBCG) community familiar with projects related to Research and Innovation and provide them with operational insights.

The project received very positive comments and was in the delightful position to accept proposals for joint activities with the ITFLOWS from some of the participants.

Figures 12, 13, 14 and **15** following next display excerpts from the presentation of our project's Coordinator, Cristina Blasi, related to ITFLOWS and some functions / features of EMT.

[102] https://www.itflows.eu/2021/05/21/itflows-participated-in-a-workshop-organised-by-frontex/ see also https://frontex.europa.eu/future-of-border-control/eu-research/news-and-events/workshop-on-horizon-border-security-projects-lkgtI5

Figure 9. Presentation of ITFLOWS project [103]

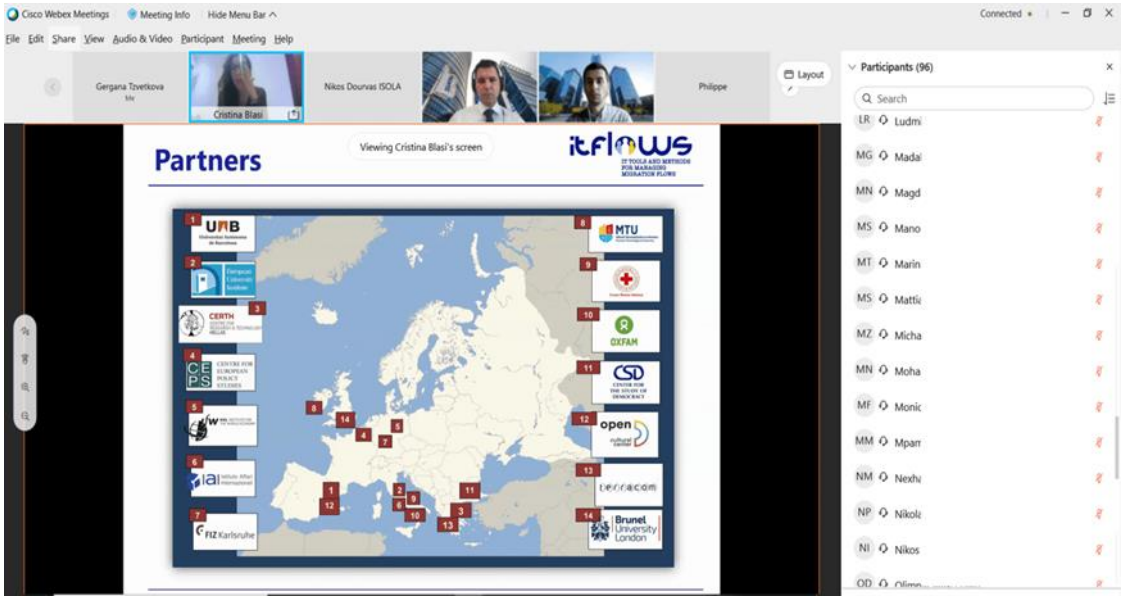


Figure 10. ITFLOWS Consortium [104]

[103] https://www.itflows.eu/2021/05/21/itflows-participated-in-a-workshop-organised-by-frontex/
[104] https://www.itflows.eu/2021/05/21/itflows-participated-in-a-workshop-organised-by-frontex/

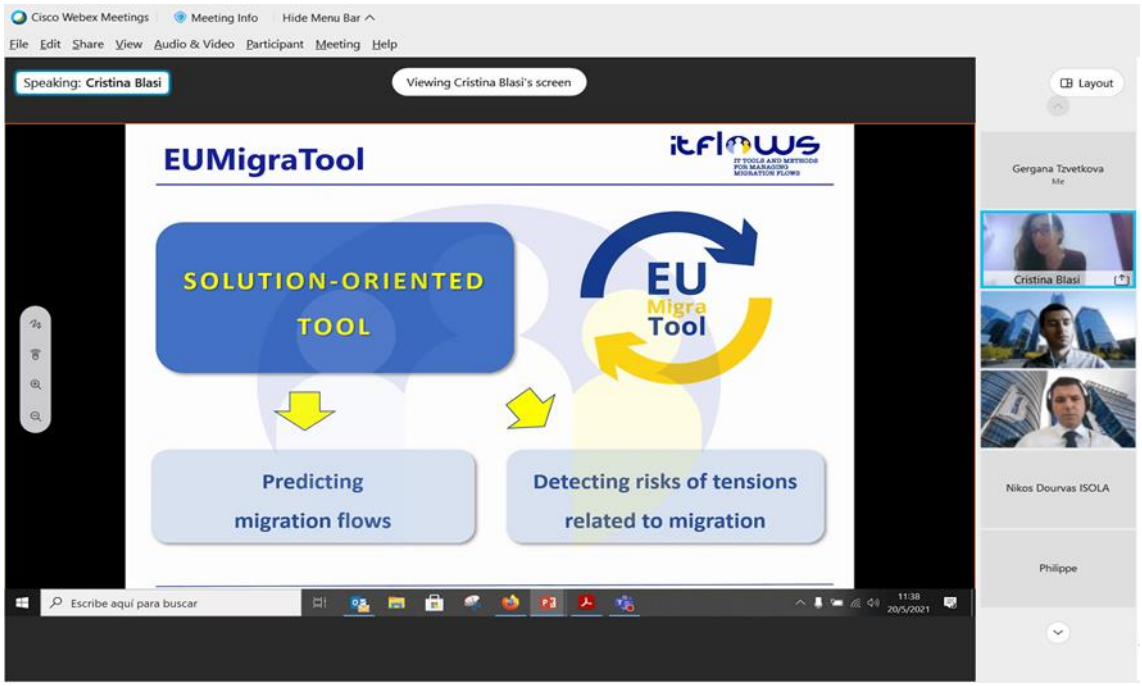


Figure 11. Twofold innovation solution of EMT. Ability to predict migration flows and possible tensions[105]

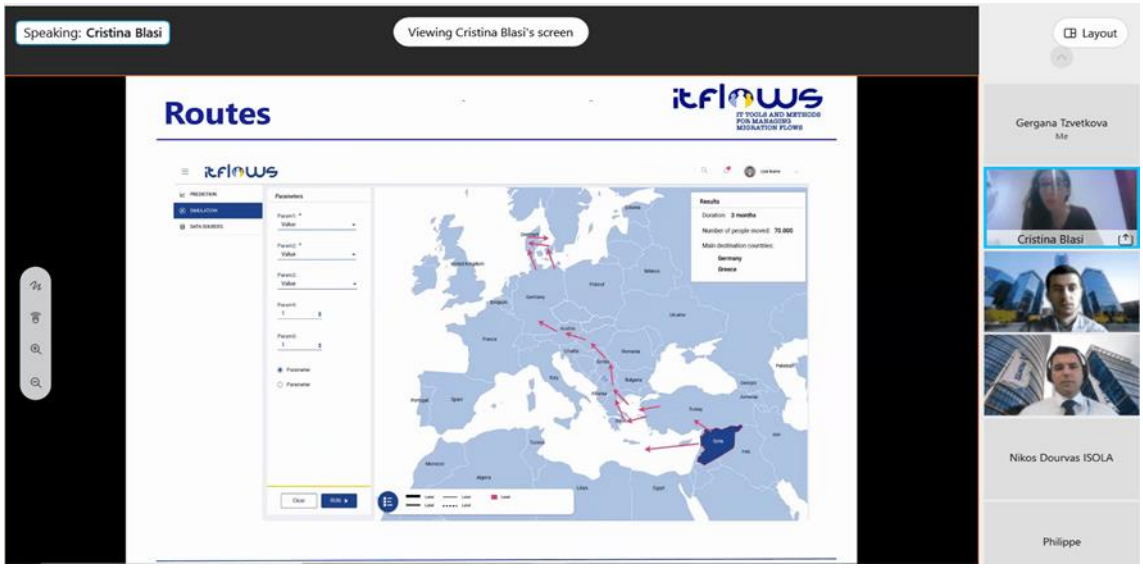


Figure 12. Illustration of migration flows from Syria, as a country of origin, to EU[106]

[105] https://www.itflows.eu/2021/05/21/itflows-participated-in-a-workshop-organised-by-frontex/
[106] https://www.itflows.eu/2021/05/21/itflows-participated-in-a-workshop-organised-by-frontex/

7.4. Presentation of the ITFLOWS project at the Integration Working Group[107]

On 21st of July 2021 a meeting of the Integration Working Group took place. Integration Working Group was established on 2017 by UNHCR and the Bulgarian Council on Refugees and Migrants.

In this meeting, ITFLOWS project was presented by the Center for the Study of Democracy (CSD). We introduced the project in front of members of major organisations working with asylum-seekers and refugees in Sofia.

The discussion focused on the EMT and the expectations regarding this result of ITFLOWS, as a technological outcome.

7.5. Approaching potential successors of the tool

We have identified two organisations that could potentially take over the tool and continue its development from August 2023: The Joint Research Centre and the Danish Refugee Council.

The Joint Research Centre[108] is a service funded by the European Commission creating science and knowledge. JRC supports EU policy makers through the development of innovative tools and collaborations with several organisations globally. The work produced in JRC has a great impact on people, as the results of the continuous research support public health, the environment and contribute to sustainability and safety.[109] It is worth noting that in their last policy report they mentioned ITFLOWS among other projects funded by the EU on Data Innovation.[110] On 18 February 2022, the ITFLOWS Coordinator had a meeting with the staff of the Demography, Migration and Governance department within the JRC. We discussed potential collaborations and they accepted to participate in the ITFLOWS Policy Meeting of 21-22 June 2022.

[107] https://www.itflows.eu/2021/07/27/gergana-tzvetkova-csd-presented-the-itflows-project-at-the-integration-working-group/
[108] https://ec.europa.eu/jrc/en
[109] https://ec.europa.eu/jrc/en/about/jrc-in-brief
[110] See https://publications.jrc.ec.europa.eu/repository/handle/JRC127369, Section 3.4, p. 16

We are currently having an open discussion with the Danish Refugee Council and we hope to find further synergies in the future, as they are also creating their own predictive tool, FORESIGHT. Representatives of DRC are part of ITFLOWS Users Board and ITFLOWS Policy Working Group, so we are continuously exploring ways in which the two tools could merge and be accessible to all NGOs within the EU.

7.6. ITFLOWS project on ResearchGate and Open Research Europe

The ITFLOWS project has been listed on ResearchGate.[111] ResearchGate is a European commercial networking site which is addressed to researchers and scientists and, in terms of active users, it is considered to be the largest academic social network.

In addition, the EU has created a new repository called Open Research Europe where we are able to publish articles related to the ITFLOWS project. ORE is a platform launched by the European Commission and, although it is quite new, it has already a very good reputation.

7.6.1. ResearchGate

ResearchGate is a social networking site, the largest research organization, where researchers and scientists and, also, several funded projects share papers and find collaborations.

Through this site, users who are registered in the site are able to provide data, upload research results, propose solutions and new ideas, so an ongoing project like ITFLOWS can be constantly updated with insights and information to help it evolve and adjust to special needs of potential end – users.

[111] See https://www.researchgate.net/project/ITFLOWS-IT-Tools-and-Methods-for-Managing-Migration-Flows

7.6.2. Open Research Europe (ORE)

Open Research Europe (ORE)[112] is a new EU initiative for the sharing of scientific knowledge within the EU. It is also a free and open access platform. Using ORE for publishing articles related to the ITFLOWS project provides immediate Open Access publication of our research, as well as a range of article types including full research and review articles, essays, method articles, case studies, etc.

7.7. Horizon Results Boosters Services

The European Commission, in order to maximise the impact of research projects funded by FP7 and Horizon2020, has launched a new initiative, called the Horizon Results Booster.[113] It provides services and valuable guidance on how to best disseminate and exploit research results.

HRB is an online tool, free of charge, and its services are delivered to both closed and ongoing projects. The three main services that are provided through this programme are:

- **Service 1:** Portfolio dissemination and exploitation strategy.
- **Service 2:** Business plan development, and finding out how to secure additional funding for plan's implementation.
- **Service 3**: Going to market and getting research ready for commercialisation.

The requesting services can be requested at any time by eligible projects, but, of course, it is easily understood that the sooner the better and they are delivered up to one year after the submission of application by the beneficiaries of the projects.

Regarding ITFLOWS project, the Consortium partner TRC, who is in charge of designing an exploitation strategy for the project's results, followed the necessary

[112] https://ec.europa.eu/programmes/horizon2020/en/news/new-open-research-europe-ore-platform-has-opened-its-wings
[113] https://www.horizonresultsbooster.eu/

procedure and applied for Horizon Results Booster Services. The project was successfully approved to receive all the services provided by the HRB.

Initially, in a short period of time, we had two meetings with HRB. In the first one, the HRB Manager on the Contractor side, Alessia Melasecche Germini, introduced us this initiative. She provided us with an overview of Horizon Results Booster Services, their objectives and outputs. She emphasised that a team of international experts supports all the above services and clarified that assigned experts do not replace the beneficiaries of the projects in the implementing activities, but they act rather like facilitators and provide guidance through specialised activities.

During the second meeting we met the consultant that was assigned as ITFLOWS project's expert, Manon van Leeuwen. She was provided with an overview of the project and its scope, and sent her all the required documents in order for her to prepare the two seminars regarding the "Exploitation Strategy".

An Exploitation Strategy Seminar (ESS) is a workshop to brainstorm on use of project results, characterise them, identify the risks and potential obstacles for exploitation and analyse how to address them.

At the ESS the project partners and the appointed Expert work together on:

- The description of the key exploitable project results (KERs).
- The intentions of each partner with regard to use of the KERs.

After the ESS, the Expert prepares a report summarising the results of the seminar for the project partners and the European Commission.

Both sessions took place virtually on Zoom platform where representatives of the ITFLOWS Consortium participated. The first one was held on 27 October 2021 and the second on 10 November 2021.

During the first ESS there was an introduction by the expert related to definitions, Key Exploitable Results, difference in aims and techniques between exploitation and dissemination and, finally, the exploitation plan. Revision of the results defined and further development required was mentioned and discussed between the partners.

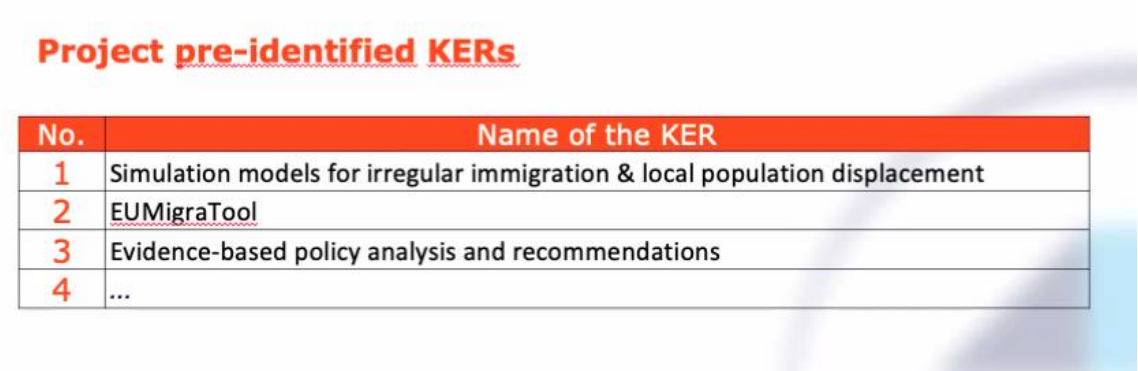
In conjunction with the hints and guidance of Manon, everyone elaborated their knowledge and experience in an effort to conceive and come up with the best ways of exploiting the project's results. At the end of this initial seminar, next steps and preparations for day 2 were pointed.

During the second day, there was a short briefing of day 1, questions were answered and then an introduction of risk analysis was provided by the expert. The partners along with the appropriate assistance conducted the risk analysis and risk map on the selected Key Exploitable Results and finally discussed on the exploitation road map and further activities needed.

Both sessions[114] were very helpful and gave us valuable guidance on how to proceed with a successful exploitation strategy. We could satisfactorily conclude that Horizon Results Booster Services looks up for ways of making research towards strong societal impact in order to preserve the general interests of the EU by focusing on concretising the value of R&I activity for societal challenges.

Figure 13. Presentation of Horizon Results Booster

[114] The Final Report submitted by the HRB's expert, Manon van Leeuwen, after the completion of the two sessions, is provided in Annex 1 of this deliverable.



Project pre-identified KERs

No.	Name of the KER
1	Simulation models for irregular immigration & local population displacement
2	EUMigraTool
3	Evidence-based policy analysis and recommendations
4	…

Figure 14. Selected defined KERs

Figures 16 and **17** are derived from the presentation of the HRB expert, Manon van Leeuwen.

7.8. ITFLOWS Policy Webinar

On the 16 November 2021, ITFLOWS organised a webinar[115] entitled 'The EU Pact on Migration: A New Framework for Predicting and Anticipating "Crises"? The Webinar addressed several key issues that related to how "crisis" is qualified and assessed, which are the deficits characterising existing maps and visualizations of migration in the EU and, finally, what are the ethical and legal dilemmas raised.

In particular the main discussion points were the following:

- A significant clarification that migrants are human beings entitled to dignity and justice.
- Existing tools for forecasting migration have to rely on rigorous methodology and sound scientific quantitative and qualitative data. Otherwise, it is not realistic to deliver accurate predicting methods on migration.
- Whether there is a difference between data and/or information with knowledge and evidence. It also addressed the question whether it was possible to face a risk of strengthen several myths related to migration or

[115] https://www.itflows.eu/2021/11/10/itflows-policy-webinar-16th-nov-2021-the-eu-pact-on-migration-a-new-framework-for-predicting-and-anticipating-crises/

feeding extreme anti-immigration narratives that the EU is being "conquered" or "invaded" by foreigners.

- Predictions and visualisations must consider crucial legal and ethical considerations in their working definitions and methodologies.
- It is extremely important to ensure legal certainty in the definitions used as they have profound consequences for people and the rule of law.
- Member States and EU policy instruments, instead of managing migration and delivering asylum, often cause reduction in the total number of entries by limiting departures and arrivals.

8. Conclusions and future steps

This Preliminary Exploitation Plan presented the initial activities performed for achieving successful exploitation of the projects results. We have analysed three of the main Key Exploitable Results, as identified by the Consortium partners, with a special focus on KER 1 about EUMigraTool (EMT) due to its complexity.

The proposed system, the EMT, is still under construction. Therefore, this research is constantly evolving as final decisions have not been made so far. Since we are in month 18 of ITFLOWS, factors such as the IPR report and the business model are still under consideration and are expected to be completed by month 36, which is when the project ends.

Feedback and information collected during events with stakeholders across several sectors will be used to proceed with the development of a Business Plan related to the exploitation of the EMT. The Business Plan will include:

- A business strategy;
- An operation plan;
- A clear action plan to be implemented by the project;
- An estimation of time to market;

Regarding Horizon Results Booster, we have requested the "Business Plan Development" service and "Go to Market" as well. We aim to get assistance on how to develop an effective Business Plan and, hence, to bring our results closer to the market. Starting from next month (March of 2022), we plan to make contact with the assigned expert to arrange next meetings.

The final Exploitation Plan, that is D9.5, will be delivered by the end of the project. Our goal is to have a comprehensive overview of the exploitation strategy to be enforced by August 2023 and the next steps required after the finalisation of ITFLOWS for the commercialization of its results.

Lastly, it is very important to mention that this deliverable includes teamwork from all the partners of the Consortium who provided their feedback and insights whenever needed. Their contribution was decisive and extremely useful in the smooth completion of this study.

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Annex 1

Horizon Results Booster: Final Report For «ITFLOWS»

In this section we provide the Final Report written and submitted by the consultant that was assigned as our expert in Horizon Results Booster Services, Ms. Manon van Leeuwen.

This report presents all the work and discussions performed during the sessions that took place between ITFLOWS partners and HRB's expert regarding the exploitation of the project's results, as well as inputs and recommendations from Manon's perspective in order for us to bear in mind when working on our exploitation plan.

PDES – Module C Final Report
For
« ITFLOWS»

« IT tools and methods for managing migration FLOWS »

Project ID Number
882986

Exploitation Strategy Seminar
delivered on 27th of October and 10th of November 2021

Provided by:
MANON VAN LEEUWEN

Index

1 Executive summary

This report summarises the process followed for the PDES-C service delivered to ITFLOWS and the main outcomes of the exploitation strategy seminar (ESS) held on the 27th of October and 10th of November 2021. The seminar was conducted from remote (online) due to the COVID19 restrictions enforced throughout Europe.

It presents the seminar, the agenda of the day, the participants. It then introduces the terminology used, and the three main tools presented and exercised:

- the characterisation table
- the exploitation roadmap and
- the risk matrix.

Main outcomes achieved during the seminar for 3 Key Exploitable Results (KERs) are then illustrated as discussed and agreed at the meeting. Finally, this report provides recommendations from the expert on how to follow up with the preparation of the Final Plan for Exploitation and Dissemination of Results (PEDR), for what Exploitation is concerned. Information to be used for further advancing in exploiting project results are provided in annexes and attachments.

The Expert was appointed on the 11th of May 2021 and the Project Coordinator was contacted the first time on the 15th of June 2021. The introductory call took place on the 23rd of June 2021. It was agreed that the seminar would take place in after the summer.

It was agreed to have a two-half days ESS, with the first session taking place on the 27th of October 2021 and the second one on the 10th of November 2021. Before the seminar the Expert sent to the Project Coordinator all the info and the Exploitation Summary Table to be shared with Project Partners and filled.

A Preliminary Report was sent out on the 17th of October 2021 with the Expert strongly suggesting sharing the document with all the Partners before the ESS to have a common starting point at the ESS. The ESS was then attended by all the Partners. The agenda presented in this report is the one actually run.

During the seminar, the discussions included a focus on how exploitation needs to aim at sustainability of the activities, after the end of the project. Sessions were held in plenary, with all the partners attending, actively contributing, according to their role.

On the same days of the ESS, the Expert sent to the Project Coordinator, to be shared with Project Partners, all the materials used, and slides presented, namely the slide decks on: 1. ESS Agenda and Exploitation Concept; 2. The Characterisation Table; 3. Risk Assessment and Priority Map and 4. The Exploitation Roadmap.

After the ESS the Expert requested the consortium to work further on the 3 KERs identified as main exploitable results.

Anonymous feedbacks were gathered from participants through the HRB platform project's dedicated workspace.

From the Expert's perspective, some quick preliminary remarks that will be better detailed in the Recommendations section are provided below. Project Partners need to carefully consider the following remarks:

a. During the preliminary meetings and ESS session, it became clear that ITFLOWS is well on its way to achieve the objectives and aims as set out at the start of the project. Nonetheless, the approach to exploitation (or sustainability) was not yet articulated. This is mainly related to the specific area (irregular migration challenges) and the target groups (NGOs working with and for migrants and public bodies), where exploitation should not be understood with a more commercial focus, but more as a way to keep the KERs alive and sustainable (economically and socially) beyond the project life time. The ESS allowed the consortium to understand this better and how they can take advantage of the activities within the project, and with regards to the User Board to design their own sustainability approach and make it a reality.
b. The meeting has allowed the consortium members to make their doubts and expectations with regards to exploitation more explicit and discuss them in more detail.
c. The 3 KERs addressed in the present report represent the main and overarching results from the project, and as such are an excellent basis for the sustainability plan of the project and to lay the groundwork for the actual take-up and transfer of the results for a wider constituency, identified as costumer segments in each of the KERs. The final report resulting for the ESS sessions and subsequent work by the consortium and expert can thus be used to for defining the exploitation strategy and activities.
d. All partners were present with at least 1 person, however, to ensure that the rest of the team members of the partner organisations are aware of the results of the ESS sessions, and the outcomes of the discussions, it is key that the Coordinator informs all partners of the outcome of the ESS and shares the final report. It is important that all partners understand the implications of exploitation. They impact the exploitation strategy and as such it is key to have all the teams on one line with it comes to the exploitation strategy and activities.
e. A summarised version of the present report could even be presented to the User Board for feedback from a more "customer oriented" perspective and as part of the validation activities, such as the definition of the problem addressed by the KER.
f. As the ESS sessions focussed on 1 of the KERs due to lack of time, and this KER involves more than one partner for the exploitation pathway, the consortium should discuss in more detail the use options and define the most appropriate one to be applied, this should be part of the exploitation discussions in the meetings. The same applies to the other 2 KERs which were developed by the consortium after the ESS.

2 List of Abbreviations

Abbreviation	Definition
CSO	Civil Society Organisation
GDELT	Global Database of Events, Language and Tone
NGO	Non-Governmental Organisation
UNHCR	United Nations High Commissioner for Refugees

3 Introducing the PDES-C

3.1 The PDES-C

The aim of this service is to strengthen the capacity of projects in using their research results enhancing partners' capacity to improve their exploitation strategy.

Project activities and the research work done or to be done are considered in terms of Key Exploitable Results (KERs). KERs are results which have commercial and/or societal significance. The results selected for the discussion during the service are analysed from a viewpoint which is exploitation only and considering how they will be used to generate, after the end of the project, impact. This is the market/customer demand or societal needs/user point of view.

The service and the virtual Exploitation Strategy Seminar (ESS) provided the participants with the opportunity to work on:

1) the identification/grouping of key exploitable results;
2) the first definition of the related use mode;
3) the identification and mapping of risks related to the exploitation;
4) follow-up actions.

The ESS for ITFLOWS was conducted remotely, online, due to the COVID-19 restrictions enforced throughout Europe.

3.2 Agenda of the day

27th of October 2021

9:30 – 10:15 Ice Breaking – (Expert – All)

Introduction to the ESS & Short ice-breaking and presentation of participants

10:15– 11:00 Introducing Exploitation

Definitions, Key Exploitable Results, exploitation v/s dissemination & the exploitation plan (Expert)

11:00 – 11:15 Break

11:15 – 12:15 Key Exploitable Results

Revision of the results defined, further development of the Characterisation Table (Expert; All)

12.15 – 12.30 Q&A

12.30 – 13.00 Next steps and preparations for day 2.

19th of November 2021

9:30 – 9:45 Briefing day 1

Q&A (Expert)

9:45 – 10:15 Introducing risk analysis

Risk map and exploitation roadmap (Expert)

10:15 – 11:00 Key Exploitable Results

risk analysis and risk map

11:00 – 11:15 Break

11:15 – 12:00 Key Exploitable Results

exploitation roadmap

12.00 – 12.30 Q&A.

12.30 – 13.00 Next steps and preparations for final report.

3.3 List of Participants

27th of October 2021

No. Partner	Organisation	Surname, Name
1	UNIVERSIDAD AUTONOMA DE BARCELONA (UAB)	• Cristina Blasi Casagran • Coleen Boland • Santiago Ariel Villar Arias
2	EUROPEAN UNIVERSITY INSTITUTE (EUI)	• Lenka Drazanova
3	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (CERTH)	• Georgios Stavropoulos
4	CENTRE FOR EUROPEAN POLICY STUDIES (CEPS)	• Miriam Mir Canet
5	INSTITUT FUER WELTWIRTSCHAFT (IFW)	• Tobias Heidland
6	ISTITUTO AFFARI INTERNAZIONALI (I.A.I.)	• Asli Okyay
7	FIZ KARLSRUHE - LEIBNIZ-INSTITUT FUR INFORMATIONSINFRASTRUKTUR GMBH (FIZ)	• Thilo Gottschalk
8	MUNSTER TECHNOLOGICAL UNIVERSITY (MTU)	• Afli Haithem
9	ASSOCIAZIONE DELLA CROCE ROSSA ITALIANA (C.R.I.)	• Paola Maieli
11	CENTER FOR THE STUDY OF DEMOCRACY (CSD)	• Gergana Tzvetkova
12	ASSOCIACIO OPEN CULTURAL CENTER (OCC)	• Irene Viti
13	TERRACOM AE (TRC)	• Stelios Gkouskos • Konstantinos kalampokis • George Gogolos • Anna Pappa
14	BRUNEL UNIVERSITY LONDON (BUL)	• Alexandra Xanthaki

13 partners out of 14 partners attended the meeting held on the 27th of October 2021. OXFAM ITALIA ONLUS ASSOCIAZIONE (OXFAM ITALIA) was missing.

10th of November 2021

No. Partner	Organisation	Surname, Name
1	UNIVERSIDAD AUTONOMA DE BARCELONA (UAB)	• Cristina Blasi Casagran • Coleen Boland • Santiago Ariel Villar Arias
2	EUROPEAN UNIVERSITY INSTITUTE (EUI)	• Lenka Drazanova

3	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (CERTH)	• Georgios Stavropoulos • Ilias Iliopoulos
4	CENTRE FOR EUROPEAN POLICY STUDIES (CEPS)	• Miriam Mir Canet
5	INSTITUT FUER WELTWIRTSCHAFT (IFW)	• Tobias Heidland
7	FIZ KARLSRUHE - LEIBNIZ-INSTITUT FUR INFORMATIONSINFRASTRUKTUR GMBH (FIZ)	• Thilo Gottschalk
8	MUNSTER TECHNOLOGICAL UNIVERSITY (MTU)	• Afli Haithem
9	ASSOCIAZIONE DELLA CROCE ROSSA ITALIANA (C.R.I.)	• Paola Maieli
11	CENTER FOR THE STUDY OF DEMOCRACY (CSD)	• Gergana Tzvetkova • Rosalina Dodorova
12	ASSOCIACIO OPEN CULTURAL CENTER (OCC)	• Irene Viti
13	TERRACOM AE (TRC)	• Stelios Gkouskos • Konstantinos kalampokis • George Gogolos • Anna Pappa
14	BRUNEL UNIVERSITY LONDON (BUL)	• Alexandra Xanthaki • Diana Suleimenova

12 partners out of 14 partners attended the meeting held on the 19th of November 2021. OXFAM ITALIA ONLUS ASSOCIAZIONE (OXFAM ITALIA) and ISTITUTO AFFARI INTERNAZIONALI (I.A.I.) were missing.

4 Exploitation and Key Exploitable Results

4.1 Next future - Exploitation in Horizon Europe

Activities to disseminate and exploit results from research and innovation are an integral part of Horizon Europe. Enhanced dissemination and exploitation are strategic matters for the success of Horizon Europe, synergies with other programmes and for the achievement of impact on society at large. One of the most efficient ways of furthering dissemination and exploitation of research results is through education and training. When new discoveries and knowledge are integrated in education activities, students at all levels are able to bring state-of-the-art knowledge with them to workplaces across society.

In addition to the initiatives towards open science mentioned above, Horizon Europe introduces novelties in the way research and innovation results are disseminated and exploited, giving more **emphasis to third party uptake** with **private investments** and to the knowledge and **impact these results create after the end of research and innovation projects**.

Against this background, and in line with Horizon Europe's overarching objective of enhanced communication and engagement with the public, dedicated activities for the visibility, use and valorisation of research and innovation results, including mission outputs are introduced. Horizon Europe ensures support to beneficiaries for their dissemination and exploitation activities during and after their project lifetime. Furthermore, a framework for feeding consolidated outcome based on research and innovation results, into policy and decision making will be proposed.

The availability of top-quality talent and the effective circulation of knowledge between research, industry, education and training is a pre-requisite for maximising the impact of European research and innovation investments. Integrating research and innovation activities with education and training and supporting activities for knowledge exchange and transfer across sectors, for instance via Marie Skłodowska-Curie Actions and Knowledge and Innovation Communities, is a powerful method to ensure research and innovation activities are informed by and directed towards citizens' and society's needs and the results are widely disseminated, for instance through a well-educated work-force. A balanced approach between research and innovation is a central part of Horizon Europe, built in the design which spans the full range of Technology Readiness Levels (TRLs) from curiosity-driven research to commercially driven innovation and support to market deployment, and within innovation, technological, non-technological and social innovation.

4.2 Definitions

Results: Any tangible or intangible output of the action, such as device, data, knowledge and information whatever their form or nature, whether they can be protected.

Communication: the **promotion of the project and its results** to a multitude audience (including the media and the public/society) in a strategic and effective manner.

Dissemination: the **public disclosure of the results** by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium.

Exploitation: the **utilisation of results** – up to four years after the action:

- in further research activities other than those covered by the action concerned, or
- in developing, creating and marketing a product or process, or
- in creating and providing a service, or in standardisation activities.

4.3 Characterisation Table

The characterisation table is the tool used in the ESS to summarises the main features of a KER and to provide information on the selected exploitation route. Information summarised in the characterisation table is to be further integrated and finalised after the ESS becoming the base for the PEDR/business plan for the result. It does not focus on the scientific dimension of the KER but offers a snapshot of the most important elements to be considered when dealing with the use of a result, following a problem oriented (demand driven) approach.
During the ESS project partners discuss the characterisation table in an interactive manner and further finalised it.
In the table, each element is described in a simple way highlighting the most important features that distinguish the result from current solutions. The table contains information on:

- **The novel solution:** Description of the Result, problem solved, Unique Selling Point (competitive advantages or innovativeness introduced compared to already existing Products/Services);
- **Market:** Product/Service Market Size, Market Trends/Public Acceptance, Product/Service Positioning; Competitors/Incumbents, Prospects/Customers;
- **External factors:** Legal or normative or ethical requirements (need for authorisations, compliance to standards, norms, etc.);
- **Go to market aspects:** Cost of Implementation (before Exploitation), Time to market, Estimated Product/Service Price, Adequateness of Consortium Staff, External Experts/Partners to be involved;
- **IPR Status***:* Background (type and partner owner), Foreground (type and **partner owner)**;
- **Exploitation Strategy:** Exploitation Forms (direct industrial use, technology transfer, license agreement, publications, standards, etc.), Which partner contributes to what (main contributions in terms of know-how, patents, etc.) Partner/s' expectations, Sources of financing foreseen after the end of the project (venture capital, loans, other grants, etc.).

4.4 Priority map and risk matrix

The Priority Map provides at a glance a snapshot on the main risks identified by the partners. It is based on risks selected in the Risk Matrix assessment tool (Risk Matrix) and the proposed remedy actions. The Risk Matrix helps the partnership identifying for each KER, the type of risk, its level of importance related to the use of the concerned KER, the probability for such a risk to happen, remedy actions and their probability to succeed.

The Risk Matrix analyses the following six different categories of risks:

- **1. Partnership Risks:** internal risk factors related to the composition of the partnership or specific behaviours of the partners, conflict of interests, etc.

- **2. Technological Risks:** external factors related to the feasibility of the technology, its level of development, presence of other emerging technologies, etc.
- **3. Market Risks:** external risk factors related to fulfilment of marked needs, presence of competitors or alternative products, etc.
- **4. IPR Risks:** factors related to the presence of similar previous patents, the possibility to protect the developed technology/product, patent counterfeit, etc.
- **5. Environmental risk factors:** are external factors related to the presence or changing in legislations, standards, etc. Special attention will be given to regulatory environment and standardisation issues.
- **6. Financial risk factors:** factors related to the availability of funds for bringing the research stage to prototyping industrialisation/commercialisation.

The severity grade is scored for each risk (1 = low; 10 = high). The grade shows the importance of the risk with respect to successful exploitation. For example:

- a previous patent, on the same technology, is a severe risk (10 points) if our exploitation route is fully relying on patenting;
- the sudden change of market conditions can be a severe risk if we want to introduce a product into the market.

After scoring the severity grade, the second step is to evaluate the probability for the risk to happen (1 = low; 10 = high). In the examples above:

- in the case of the patent, if we realize (after a quick search) that there is a patent preventing us to patent as well, then the probability of happening is 100% and the related mark is 10;
- in the case of market change: the apple market will not change so dramatically in the next future (grade 1) while apps market is changing every day (grade10).

The product of the severity and the probability grade will give the risk grade of the concerned risk factor (value on the x axis).

The risk grade coupled with the probability of success will position the risk in the Priority Map.

- A high-risk grade and a low probability of success of the intervention, identifies a situation where we may consider discussing to stop the project (Warning). Examples:
  - There is a patent interfering with the one we would like to file. As a remedy, there is the plan to ask the owner for an agreement but, it is evident, chances of succeeding are very low. The selected exploitation path is blocked and there is not any possibility to go on;
  - The market is changing regulations and the product is not compliant anymore. As a remedy, there is the re-design of the product but with a very low probability of having something that will match the customers' needs. This may lead to the decision to stop the project.
- A high-risk grade with a high probability of success for the remedy action defines a situation where there is the need for an immediate action to ensure exploitation (action). Examples:
  - There is a previous patent interfering with the one we are about to file in. An agreement with the previous patent is feasible. In this case, the exploitation of that technology, if the agreement is reached, it is still possible, but action should be taken as soon as possible;

  - The market is changing regulations and the product is not respecting the new one. The re-design of some components will fulfil both compliance to new regulations and customers' needs. Partnership should re-think our project as soon as possible.

- A low-risk grade coupled with a high probability of success of the planned remedy defines a situation where it would be preferable to keep an eye on what is happening (Control) to be ready to act. Example:
  - Regulations in the market have not changed since the last 20 years and our product is valid only with such regulations. As a remedy, we should re-design some components to continue to be on the market. We have to monitor the situation (regulatory framework) and in case it will change, we have to immediately re-design our product.
- A low-risk grade and a low probability of success for the remedy, it is a situation does not call for immediate action (no action). Examples:
  - Regulations in the market have not changed since the last 20 years and our product is valid only with such regulations. We could think to re-design our product but there are low possibilities to get good results. Under these conditions it is better not consider any intervention;
  - Regulations in the market have not changed since the last 30 years and our product is fully compliant. There is no need at the current stage to modify our product nor to be worried about any change in regulations.

4.5 Towards the exploitation plan

The ESS is just one of the first step of a structured path towards exploitation. Working with KERs calls for understanding what the actual results are (will be) and what needs to be until the end of a project (and beyond) to have a clear and actionable exploitation plan ready and agreed among partners.

In the following pages, we provide a table that illustrates how what it is discussed during the ESS is to be integrated and developed to prepare the exploitation plan. Using these tables will help project partners in better prepare and structuring the Plan for Exploitation and Dissemination of the Results (PEDR) by focusing on relevant information planning actions and ensuring resources needed for a sustainable use of the results.

Support in finalising is part of the Business Plan Development (BPD) service provided under the Horizon Results Booster [1].

[1] https://www.horizonresultsbooster.eu/

Characterisation Table

Add KER name	
Problem	*Describe the problem you are addressing (the problem your potential users have).* *Potential users are the people, companies, organisations, etc. that you expect will use the result (and generate an impact). They are your "Customers".*
Alternative solution	*Describe how your "customer" has solved the problem so far.*
Unique Selling Point USP - Unique Value Proposition UVP	*Describe the competitive advantages, the innovative aspects. What does your solution do better, what are the benefits considering what your user/customer wants, how does your solution solve his/her problem better than alternative solutions, what distinguishes the KER from the competition/current solutions?*
Description	*Describe in a few lines your result and/or solution (i.e., product, service, process, standard, course, policy recommendation, publication, etc.). Use simple wording, avoid acronyms, make sure you explain how your UVP is delivered.*
"Market" – *Target market*	*Describe the market in which your product/service will be used/can "compete", answering the following questions:* *- What is the target market?* *- Who are the customer segments?*
"Market" – *Early Adopters*	*Early adopters are the "customers" you are willing to address first. They are usually the ones that feel the problem harder than all the others (they are not the project partners).*
"Market" - Competitors	*Who are your "competitors" (note: they are the ones offering "alternative solutions")?* *What are their strengths and weaknesses comparing to you?*
Go to Market – Use model	*Explain what is your "use model", how the KER will be put in use (made available to "customers" to generate an impact). Examples of use models: manufacturing of a new product, provision of a service, direct industrial use, technology transfer, license agreement, contract research, publications, standards, etc.* *Note training is a service.*
Go to Market - Timing	*What is the time to market?*
Go to Market – IPR Background	*What is the Background (type/ partner)?*
Go to Market – IPR Foreground	*What is the Foreground (type/ partner)?*

Exploitation Roadmap

The roadmap is a tool designed to help the consortium to identify and plan activities to be performed after the end of the project. The highest risk a consortium faces is not being able to implement the exploitation and dissemination plan and increase the TRL level or go to market, due to lack of

resources. The exploitation roadmap is designed to address this risk, mitigate it and pave to way toward use and a stronger impact.

Exploitation roadmap	
Actions	*Briefly describe actions planned to be executed 3-6 months after the end of the project.*
Roles	*Roles of partners involved in the actions defined above.*
Milestones	*List the milestones and KPIs to be used for monitoring the implementation of the actions listed above. Add timeline.*
Financials Costs	*Cost estimation to implement planned activities (1 year, 3 years).*
Revenues	*Projected revenues and eventual profits once the KER will be used (1 and 3 years after use).*
Other sources of coverage	*Resources needed to bridge the investment needed to increase TRL and ensure the result is used.*
Impact in 3-year time	*Describe impact in terms of growth/benefits for the society.*

Use options

KER's Exploitation route (how the KER will be further exploited)			
Selected route		**Implementing actor**	**Yes**
DIRECT USE	Commercialisation: *deployment of a novel product/service (offered to the target markets)*	One partner[2]	
		A group of partners[3]	
	Contract research (*new contracts signed by the research group with external clients*)	A partner	
		A group of partners	
	A new research project (*application to public funded research programmes*)	A partner	
		A group of partners	
	Implementation of a new university – course (*Note that a training course is a service*)	A partner	
		A group of partners	
		A new partnership	
INDIRECT USE	Assignment of the IPR	A partner	
		A group of partners	
	Licensing of the IPR	A partner	
		A group of partners	
	Development of a new legislation/standard	A partner	
		A group of partners	
	Spin- off	A partner	
		A group of partners	
		By assignment	
		By licensing	
	Other (*please describe*)		

[2] Partners identifies the partners of the project receiving the ESS, not third parties that may be partner in the future.

[3] Provide the names of the partners.

5 ITFLOWS

5.1 Project Main Data

TITLE	IT tools and methods for managing migration FLOWS
ACRONYM	ITFLOWS
CONTRACT NUMBER	882986
BUDGET	4.871.832,50 €
COORDINATOR	UNIVERSIDAD AUTONOMA DE BARCELONA
STARTING DATE	1st of September 2020
ENDING DATE	31st of August 2023

5.2 Project Abstract

In order to deal with migration flows in Europe in an optimal way, the EU-funded ITFLOWS project aims to predict and manage migration flows via the creation of an evidence-based information and communication technology-enabled solution, the so-called EUMigraTool. The tool will ease the reception, relocation order to deal with migration flows in Europe in an optimal way, the EU-funded ITFLOWS project aims to predict and manage migration flows via the creation of an evidence-based information and communication technology-enabled solution, the so-called EUMigraTool. The tool will ease the reception, relocation, settlement and integration of migrants. Intended to be used mainly by first-line practitioners, second-level reception organisations and municipalities, it will also help predict migration flows and identify the potential risks of tensions between migrants and EU citizens. Ultimately, the project will formulate recommendations and good practices for the attention of policy makers, governments and EU institutions.

Prediction and management of migration are a major challenge for the European Union and also for many different stakeholder groups that provide resources and assistance to migrants along their journey. Yet, in order to develop better strategies and instruments among policy makers and practitioners in the field of migration, we still need a deeper understanding of this phenomenon.

ITFLOWS will generate novel insights on migration. As mentioned above, the purpose of ITFLOWS is to provide accurate predictions and adequate management solutions of migration flows in the European Union in the phases of reception, relocation, settlement and integration of migration, according to a wide range of human factors and using multiple sources of information. These insights will be provided by an evidence-based ICT enabled solution (the EUMigraTool- EMT) and precise models. All solutions will have fitness for purpose continually validated by practitioners in cooperation with civil-society organisations in a dynamic and iterative process.

In sum, ITFLOWS will propose tailor-made solutions for practitioners and policy makers for managing migration. On the one hand, the EUMigraTool targets first-line-practitioners, second-level reception organisations and municipalities. It will provide modular solutions based on the prediction of migration

flows and the identification of risks of tensions between migrants and EU citizens. On the other hand, an in-depth analysis on drivers, patterns and choices of migration as well as public sentiment towards migration will lead to the drafting of adequate recommendations and good practices for policy makers, governments and EU institutions.

5.3 KERs considered at the ESS

The Consortium has identified 3 Key Exploitable Results to discuss at the ESS, which have not been included in the Preliminary Report.

No.	Name of the KER
1	Simulation models for illegal immigration & local population displacement
2	EuMigraTool (EMT)
3	Evidence-based policy analysis and recommendations

6 Improved Exploitation Strategies for Key Exploitable Results in ITFLOWS

The Characterisation Table and the Exploitation Roadmap were drafted by the beneficiaries with feedback and suggestions from the expert. The final version is the result of several iterations, brainstorms and discussions during the webinars and coaching sessions. Some final feedback and pointers from the expert have been included in red and italic.

6.1 KER No.1 – Simulations for irregular migration & local population displacement (KER leading beneficiary: CERTH & BUL)

6.1.1 Characterization of the result

Recommendations for research priorities	Input from the Beneficiary	Output and comments/suggestions for improvement by the Expert
Problem	Irregular migration is unpredictable in nature, and sudden large changes in migration flows can result in societal and humanitarian problems, largely due to lack of preparation by the authorities and support organisations involved. Some knowledge can be obtained by monitoring existing migrant movements. However, it is challenging to comprehensively track migration flows, and moreover there is no guarantee that past movement patterns will repeat themselves in the future. By using simulations to predict migration flows we can obtain an estimate for migrant flows for a range of different scenarios, including ones that are unprecedented or for which little historical reference information exists.	*Irregular migration is unpredictable in nature, and sudden large changes in migration flows can result in societal and humanitarian problems, largely due to lack of preparation by the authorities and support organisations involved.* *Some knowledge can be obtained by monitoring existing migrant movements. However, it is challenging to comprehensively track migration flows, and moreover there is no guarantee that past movement patterns will repeat themselves in the future.* *Stakeholder organisations such as government authorities and NGOs need systematic, high-fidelity forecasts to adequately prepare for future peaks in*

	In summary, we need to **predic**t the (irregular) migration flows through the EU external borders, simulate (agent-wise) different routings of migrants' journey through transit countries and forecast the trigger events (such as conflicts) in a realistic, scenario-based manner. This modelling is important because stakeholder organisations such as government authorities and NGOs need systematic, high-fidelity forecasts to adequately prepare for future peaks in migration. They also need to have scientifically substantiated estimations for their advocacy activities, or to justify necessary (financial) resource allocations.	*migration. They also need to have scientifically substantiated estimations for their advocacy activities, or to justify necessary (financial) resource allocations.* *Part of the problem description is more a description of the solution itself and is therefore recommended to be included in the "description" section of the characterisation table.* *The problem is properly identified, however be aware that when moving towards actual exploitation you should validate these problems together with your "customers" (problem/ "customer" fit). Being able to solve problems is key to make sure results are used and that the envisaged impact is achieved.*
Alternative solution	Alternative solutions available right now: • Expert advice alone. Frequently, local experts are consulted, which then proceed to characterise forecasts based on their knowledge of local events and recent history. Our proposed solution is intended to supplement expert advice, not replace it. • UNHCR's **Jetson Project** (free). • **Conflict Forecast** Project – conflictforecast.org (free). • National press monitoring services provided by **GDELT** (not free).	*Alternative solutions are important to benchmark the proposed innovation and to get a better insight on competition.* *Having a picture of the weaknesses and strengths of the alternative solutions, will help you to compare and to quantify the added value of your solution and to have insight on how the alternative solutions are delivered (who is providing them and at which conditions).*
Unique Selling Point USP – Unique Value Proposition UVP	We are one of very few organisations that combine conflict forecasting models with migration models to create a unified forecast.	*The ITFLOWS simulations and models combine conflict and migration models. The simulations are based upon an agent modelling approach which allows stakeholders to directly insert new assumptions or behaviours on the individual level*

	We are the only organisation capable of rapidly executing large numbers of irregular migration forecast simulations (10,000s if needed), thanks to our direct involvement with major High Performance Computing projects such as HiDALGO (EU-funded, 2018-2021) and SEAVEA (UK-funded, 2021-2024). At time of writing, we are the only organisation that relies on an agent-based modelling approach for irregular migration, and which has been validated across 8 different recent conflicts. Our agent-based modelling approach allows stakeholders to directly insert new assumptions or behaviours on the individual level (e.g. by changing their mode of transportation, or modifying the likelihood that they will depart from an unsafe location. At time of writing, Flee is the only predictive local forced migration model that has been included in the catalogue of predictive models by the centre for Humanitarian Data (https://centre.humdata.org/catalogue-for-predictive-models-in-the-humanitarian-sector/). Lastly, we are the only organisation working on a many-objective optimisation approach, allowing stakeholders to rapidly and fully automatically identify optimal interventions or preparatory measures for a given forced displacement situation. This work is in progress at time of writing, but we expect prototypes to become available from the start of Year 3	*(e.g., by changing their mode of transportation, or modifying the likelihood that they will depart from an unsafe location.* *The UPV should be expressed in terms of the UPV of the KER in itself not in terms the partner(s) responsible for the KER. The KER describes the simulations or models, and thus should define their specific UPV. It is unclear how "Flee" relates to the ITFLOWS model, if it formed the basis for the KER than the fact that it is included in the mentioned catalogue can be seen as part of the UPV.* *It is important that the UVP is validated and backed with facts and data. Check the UVP with early adopters and collect facts and data from the testing phase of your project to provide sound information on the magnitude of the value that your solution is offering*
Description	The models for local population displacement provide forecasts where displaced persons may cross the border when a violent conflict erupts (or intensifies), and it also includes (basic) models that help users to see how arrival numbers	*By using simulations to predict migration flows we can obtain an estimate for migrant flows for a range of different scenarios, including ones that are*

	could change depending on different possible developments in the conflict. The models require approximately an hour to run on a local machine, and the user can quickly see expected arrivals over time using the analysis and visualisation tools. Forecasts can be made over a period of many months, subject to obvious uncertainty in the developments of a local conflict (or other major adverse event).	*unprecedented or for which little historical reference information exists.* *The models for local population displacement provide forecasts where displaced persons may cross the border when a violent conflict erupts (or intensifies), and it also includes (basic) models that help users to see how arrival numbers could change depending on different possible developments in the conflict.* *They help to **predic**t the (irregular) migration flows through the EU external borders, simulate (agent-wise) different routings of migrants' journey through transit countries and forecast the trigger events (such as conflicts) in a realistic, scenario-based manner.* *The models require approximately an hour to run on a local machine, and the user can quickly see expected arrivals over time using the analysis and visualisation tools. Forecasts can be made over a period of many months, subject to obvious uncertainty in the developments of a local conflict (or other major adverse event.* *As indicated before, part of the problem description, is more related to the description of the actual solution and thus recommended to be included in this section of the table.*
"Market" – *Target market*	Main target market: research society and humanitarian research divisions. Main customer segments:	*The main target market is defined more in terms of research related activities, while one of the segments mentioned is NGOs. If the main target market is the*

	- NGOs working with and for migrants (normally the research divisions of this NGOs, due to the expertise needed to interpret and handle models directly). - Research divisions for municipalities. - AI companies interested in migration-related solutions. Additional customer targets - NGOs working in the field of human rights (not expected to handle simulations directly, but are potentially interested in key outcomes). - International organizations in the field of migration. - The research community at large. Our models are expected to supplement existing products in the market, not displace them. It is our collective responsibility to make the models sufficiently easy to use to ensure that.	*research sector than this should be better reflected in the segments as well.* *As the simulation models are not a result directly aimed to be used as a final tool for decision-making at NGOs and municipalities, the research and data analysis activities are a better target.* *As such it is recommended to rephrase the segments, to align better with the main target market identified. It is suggested to not include those interested in the key outcomes of the simulations as these would* *Main customer segments:* - *Research or data analysis division of the NGOs working with and for migrants (due to the expertise needed to interpret and handle models directly).* - *Research divisions for municipalities.* - *Researchers and research organisations, including think tanks in the field of migration-related issues.* *Additional customer segments:* - *AI companies interested in migration-related solutions.* *To finalise the exploitation plan and prepare the use of the KER It should include both a qualitative and quantitative description in terms of size and features.*
"Market" – *Early Adopters*	Save the Children and the Institute of Migration are already collaborating with us on developing local migration simulations.	*As the simulations and models are aimed to be used by research and analysis divisions within these types*

	NGOs working with and for migrants and municipalities which are part of the Users Board. Other NGOs working with and for migrants.	*of organisations it would be good to specify this clearly.* *It is important to underline that, you should be as much precise as you can. Being the early adopters the first ones you would like to reach out with your innovative solution it will be important to be able to connect with them. Make sure your early adopters are consistent with the target market (customers).*
"Market" - Competitors	Jetson Project: predicts local displacement figures using traditional machine learning approaches for the specific case of Somalia. Assumes weather and goat prices to be the main drives of local displacement. Not suitable for large scale assignments. Conflict Forecast: predicts conflict using an LDA topic modeller's topic share (similar to the large-scale model) both for soft and hard case conflicts. Very good at conflict forecasting but very limited to it. GDELT: performs plenty of sentiment analysis and topic classification to national press as well as it provides a variety of migration and conflict related data. Amazing as a database but not as a prediction tool. There are also a range of modelling approaches in the academic literature which have been applied (and sometimes validated) against historical situations in single countries.	*The text provided by the beneficiaries is quite consistent with that expected* *However, be aware that "Competitors" may be different whether you envisage to provide a product (e.g., the simulation or the model) or perform the simulation for a particular customer.*
Go to Market – Use model	Deployment-ready predictive simulations for scenario-driven irregular migration. Training on the use and extension of the predictive simulations.	*The text provided by the beneficiaries is quite consistent with that expected.* *Nonetheless it would be good to specific in more detail the different segments for the different use models,*

	Publications Direct industrial use Contract research Provision of forecast reports (partner BUL has already done this a few times for Save the Children).	*and also explain in more detail what is meant with "direct industrial use".*
Go to Market - Timing	For conflicts and situations that we have already fully constructed: now. For all other local and large-scale simulations: 2 years after the end of the project.	*The text provided by the beneficiaries is consistent with that expected*
Go to Market – IPR Background	BUL has background IP in the Flee solver, a range of conflict modelling tools, as well as a range of tools for running large numbers of simulations, and analysis parameter sensitivities. BUL reserves the right to not share specific conflict modelling tools when there are major humanitarian concerns around doing so. CERTH has background IP in the large-scale model, the topic modelling source code, as well as deep learning efforts for running migrant arrivals predictions and forecasts. CERTH reserves the right to not share specific topic modelling tools if their use stands against the institute's humanitarian policy .	*The text provided by the beneficiaries is quite consistent with that expected. However, it is recommended to specify how these two IPR items have a direct relation to the KER itself.*
Go to Market – IPR Foreground	All partners participate in the design, development and validation of the tool. At this stage the foreground is shared by all partners	*The text provided by the beneficiaries is quite consistent with that expected. Nevertheless, if available, provide information considering also what already agreed in the Consortium Agreement*.

6.1.2 Exploitation Roadmap

KER name	Input from the Beneficiary	Output and comments/suggestions for improvement by the Expert
Actions	1. Identify more in detail the potential customers/users. 2. Identify complementary models/tools and explore options for synergies, cooperation or merging. 3. Discussion on ethical considerations as part of the development of the exploitation actions.	*Make sure that there is alignment with the activities of the go to market model mentioned above.* *Please also consider whether adaptations need to be made to the KER in view of the different segments (and thus uses) identified (e.g., an AI company might need an adapted version of the simulation.* *Please add a timeline per each of the listed actions.*
Roles	- Identify potential customers/users - Explore options for cooperation especially with databases. - Further market research - Identify complementary models - Discussion on ethical considerations - All partners contribute with input and feedback to all actions.	*In this case you should clearly identify which partner will cope with the actions listed in the section above, connecting them directly.*
Milestones	M1-M6. Explore funding and tracking of potential customers/users. M6-M9. Discussion on terms of use and ethical considerations.	*The timeline for the activities is provided, but the specific milestone for each of the 3 actions identified above should be defined and a KPIs to verify its achievements indicated.*
Financials Costs		*The costs related the actions to take the KER "to the market" are staff costs for doing the specific customer segmentation and market research.* *Provide information on the costs/investments needed to bridge the end of the project to the next steps planned and*

		increase TRL or go to market (you may invest in a patent, in the realisation of a prototype, etc).
Revenues		*Revenues can come from the "sales" of customised simulations for a specific client, or by providing licenses for example for AI companies.* *Consider revenues you will expect to collect by licensing, or thanks to service provision or sale of devices. They generate the cash flow that will make the use of the result sustainable over time (provide an estimation concerning the first year and what is expected after 3 years, if possible). It is recommended that you estimate the revenues according to your early adopters and potential customers and include the information in the draft exploitation plan.*
Other sources of coverage		*Staff time from the organisations driving the KER forwards are expected.* *Financial resources to cover costs incurred before collecting the first revenues (during the "time to market" – see costs) and their sources. Sources can be partners' own budget, other project grants, national/regional incentives, risk capital, loans, etc. Make sure to obtain them at the right timing.*
Impact in 3-year time	Migration is being handled with greater composure and readiness on behalf of the destination countries.	*Impact is the objective of H2020. Impact should mobilise measurable changes in terms of growth/benefits for the society (i.e., jobs created, investments mobilized, turnover generated).* *The impact is defined more in terms of the project overall than specifically for the KER it is recommended to finetune.*

6.1.3 Risks Assessment and Priority Map

	Description of Risks	Degree of criticality of the risk related to the final achievement of this Key Exploitable Result. Please rate from 1 to 10 (1 low- 10 high)	Probability of risk happening Please rate from 1 to 10 (1 low - 10 high)	Risk Grade	Potential intervention	Estimated Feasibility/Success of Intervention Please rate from 1 to 10 (1 low- 10 high)	Conclusion
Partnership Risk Factors							
1	Partners disagree on using their forecasts in the large-scale model.	*6*	*7*	**42**	Plan B implementation of predictions without partners input to make the model invulnerable to partnership risk factors.	*8*	**Control.**
2	Partners (also external partners) not willing to share data which feed into the large-scale model.	*8*	*8*	**64**	Use of multiple data sources so there are always alternatives; keeping regular back-ups of data currently available for later use.	*7*	**Action!**
Technological Risk Factors							
3	AI rapidly grows; methods become outdated quickly.	*6*	*5*	**30**	Regular updates in the models to ensure state of the art performance.	*9*	**Control.**
Market Risk Factors							
4	Open-source publishing of the code eliminates need to buy the model for deployment.	*8*	*10*	**80**	Avoid publishing source code for the first year of the model's exploitation period.	*8*	**Action!**
5	Similar tools are developed by competitors that replicate and improve the large-scale model.	*8*	*9*	**72**	Under the radar exploitation of the model for the first 6 months.	*6*	**Action!**
IPR/Legal Risk Factors							

6	Data protection rules do not allow to access and use data needed for quality modelling and decision making	*4*	*2*	**8**		*8*	**Control.**
Financial/Management Risk Factors							
7	Lack of funding to improve the large-scale model by using data not available for free.	*4*	*6*	**24**	Use of multiple data sources so there are always alternatives;	*8*	**Control.**
Environmental/Regulation/Safety risks:							
8	Unexpected consequences of climate change make migrant predictions unreliable.	*6*	*7*	**42**	Train and test our models as often as possible using as much climate data as possible.	*7*	**Control.**

All the risks identified are currently under Control or Action.

The **Technological Risk factor; the Financial/management Risk factors, IPR/legal risk factor** and the **Environmental/Regulation/Safety risks** are present under control. They all represent a low to medium risk grade (associated in most cases with a a low to medium degree of criticality and a low to medium high probability of happening). The **IPR/legal Risk factor** represents a low risk grade. For all the planned remedy actions represent a high level of success. The consortium should monitor these risks closely, to be ready to take action if needed.

The **Partnership risk factors** have one factor in the control area and one in the area where action is needed. In the same manner as for the abovementioned factors, the one in the control area has a medium risk grade and a high probability of access of the remedial action, and as such the consortium should monitor it closely to take action when needed. The second risk factor has a medium to high risk grade and a medium to high probability of success for the defined remedial action. The same applies to the **Market Risk Factors** are both also in the "action" area with for both medium to high risk grades, however with different levels of probability of success the proposed remedial actions. It is recommended that the remedial actions are implemented as soon as possible.

6.1.4 Use options

KER's Exploitation route (how the KER will be further exploited)			
Selected route		**Implementing actor**	**Yes**
DIRECT USE	Commercialisation: *deployment of a novel product/service (offered to the target markets)*	One partner[4]	
		A group of partners[5]	X
	Contract research (*new contracts signed by the research group with external clients*)	A partner	
		A group of partners	X
	A new research project (*application to public funded research programmes*)	A partner	
		A group of partners	X
	Implementation of a new university – course (*Note that a training course is a service*)	A partner	
		A group of partners	X
		A new partnership	
INDIRECT USE	Assignment of the IPR	A partner	X
		A group of partners	
	Licensing of the IPR	A partner	X
		A group of partners	
	Development of a new legislation/standard	A partner	X
		A group of partners	
	Spin- off	A partner	
		A group of partners	
		By assignment	
		By licensing	
	Other (*please describe*)		

More than 1 option has been selected as the consortium has not yet taken a decision on the use options and has agreed to mark the options considered as possible at this stage.

[4] Partners identifies the partners of the project receiving the ESS, not third parties that may be partner in the future.
[5] Provide the names of the partners.

6.2 KER No. 2 EUMigraTool (KER leading beneficiary: CERTH)

6.2.1 Characterization of the result

Polar Research Programmes and implementation plan	Input from the Beneficiary	Output and comments/suggestions for improvement by the Expert
Problem	- Difficult to predict the arrival of irregular migrants at EU borders in terms of numbers and characteristics, those giving response to the migrants arriving do not have insight into the numbers, characteristics and needs. - Need to **predic**t the (irregular) migration flows through the EU external borders, to be able to anticipate and plan for adequate assistance. - Organizations working locally with irregular migrants need to be able properly their activities, for this they need solid information and knowledge, which is currently scattered and complicated to access (e.g. different websites, different data sources). They also need scientific based knowledge for their advocacy activities. - Need to identify potential risks of social tensions between migrants and local population.	*The text provided by the beneficiaries is consistent with that expected.* *Before starting actual exploitation, it is recommended to validate the problems together with the problem-owners. Being able to solve problems is key to make sure results are used and that the envisaged impact is achieved.*
Alternative solution	Existing predictive tools used for government purpose or for internal management, e.g. • Project Jetson • Early Warning and Preparedness System (EPS) • Mixed Migration foresight (MM4Sight)	*Existing predictive tools used for government purpose or for internal management, e.g.* • *Project Jetson – (Rather than a tool it is a proof of concept, as over the course of a year it conducted scoping, research and piloting, but*

	• Internal Displacement Event Tagging and Clustering Tool (IDETECT), • Displacement Tracking Matrix System (DTM • Switzerland • Forecasting reports, • Ireland forecasts • Netherlands forecasts • Swedish forecast • Greece/Italian/Spanish • Canadian forecasts • The Heightened Risk Identification Tool (User Guide) • Displacement Data Exploration Tool Data sources such as Eurostat, United National, GDELT and national statistical offices (only historical data). Websites on economic and social information. Information and data are gathered manually by NGOs. Information drawn from social media.	*never produced a user-facing, interactive tool. At the same time, it uses machine learning for predictive purposes)* • *Early Warning and Preparedness System (EPS) – (They are limited to asylum applications model only predicts a few weeks into the future, and there are no policy makers in the world that could make decisions based on that.)* • *Mixed Migration foresight (MM4Sight) – (The FORESIGHT tool focuses its forecasts on only forcibly displaced asylum seekers and refugees from a given country, with machine learning and Bayesian network models.)* • *Internal Displacement Event Tagging and Clustering Tool (IDETECT) - operates an AI tool and a real-time monitoring platform investigating displaced individuals globally* - *Displacement Tracking Matrix System (DTM) – (capture new emerging routes and rapid changes in how smuggling networks.)* • *Switzerland – (forecasts were upturned by unexpected or particular events, in 2011/12 in the context of the Arab Spring and in 2015/16)* • *Forecasting reports – (information shared by Member States)* • *Ireland forecasts – (informal forecasting based on updated extrapolations)* - *Netherlands forecasts – (forecast for asylum applications)* - *Swedish forecast – Combining quantitative and qualitative information to make prognoses*

		based on risk analyses and early warning, migration algorithms. Holt-Winters model (with seasonality), which is constantly updated, and combined with a range of models (time series, exponential smoothing, and machine learning techniques that generate multiple predictive functions and select the best one). It includes additional models for 'throughflows' (the processing of asylum applications, based on queuing theories and probabilistic models) and for 'outflows' (the distribution of beneficiaries of asylum in the Swedish territory, based on mathematical models). A key question is to what extent the model can be exported and applied to other contexts. - *Greece/Italian/Spanish - crucial information is obviously more difficult to collect for countries located on the external border of the EU, such as Italy or Greece, or when one wants to develop forecasts at the EU level.* - *Canadian forecasts - econometric modelling that uses historical data and current trends.* - *The Heightened Risk Identification Tool (User Guide) - identifying refugees at risk by linking community-based / participatory assessments and individual assessment methodologies.* - *Displacement Data Exploration Tool - situational monitoring in certain countries after we learn of the occurrence of displacement and report the country-wide estimates of new displacement*

		during the year and the total number of people displaced at year's end. It monitors and reports cases of disaster-induced displacement on an event-by-event basis. For each of these events, they collect information from different sources and generate the most comprehensive and reliable displacement estimate for that disaster. *The more detailed description of the list provided initially under the competitor analysis is moved here, as it is a description the alternative solutions.* *It is recommended to analysis the strengths and weaknesses of each individual alternative solutions. Having a picture of the weaknesses and strengths of the alternative solutions, will help you to compare and to quantify the added value of your solution and to have insight on how the alternative solutions are delivered (who is providing them and at which conditions).*
Unique Selling Point USP - Unique Value Proposition UVP	- Multiple targets – a tool for any organisation/entity working with irregular immigration and related to the topic. - EMT helps NGOs and municipalities to anticipate, plan and manage properly the immigration flows and risk of social tensions, and adjust their resources (e.g. human, logistics, financial, etc). They can also use it to share information with relevant actors to increase impact and quality of the support and integration activities. - Novel predictive tool for resource planning, socially oriented. Validated and build together with representatives of the civil society.	*The text provided by the beneficiaries is quite consistent with that expected.* *However, bear in mind that It is important that the UVP is validated and backed with facts and data. Check the UVP with early adopters and collect facts and data to provide sound information on the magnitude of the value that your solution is offering. The UVP describe the reason why the KER solves better than the alternative solutions the problem of our problem-owners.*

	- One tool to access information more quickly and timely. Access more accurate information.	
Description	- Collect, analyse & predict. - Online	*Please, rephrase this section. The description should clarify how the UVP is delivered. In this case the descriptions add poor elements to the UVP, without describing how the KER works.*
"Market" – *Target market*	Main target market: civil society organisations Main customer segments: - NGOs working with and for migrants. - Municipalities. - NGOs working in the field of human rights. Additional customer targets - Research community. - Umbrella organisations for NGOs and municipalities. - European institutions & bodies. - International organizations in the field of migration.	*The text provided is quite consistent with that required.* *Nevertheless, it is recommended to identify with more detail the different segments with a focus on their needs regarding the EMT, the use of the different segments is most likely not the same.* *To finalise the exploitation plan and prepare the use of the KER, the plan should include both a qualitative and quantitative description in terms of size and features. Please consider that geography matters in terms of the market that you want to serve.*
"Market" – *Early Adopters*	NGOs working with and for migrants and municipalities which are part of the user board. Other NGOs working with and for migrants.	*The text provided is quite consistent with that required. The early-adopters are those amongst the problem-owners which suffer the problem most, being consistent with the target market.*
"Market" - Competitors	Existing predictive tools used for government purpose or for internal management, e.g. • Project Jetson – (Rather than a tool it is a proof of concept, as over the course of a year it conducted scoping, research and piloting, but never produced a user-facing, interactive tool. At the same time, it uses machine learning for predictive purposes) • Early Warning and Preparedness System (EPS) – (They are limited to asylum applications model only predicts a	*The first part of the list is a more detailed list on the alternative solutions and should be transferred to the corresponding section of the present KER table.* *The text provided is quite consistent with that expected. Nevertheless, it is important to provide facts and data related to the market competitors, which are the providers of the suboptimal alternative solutions used by the problem-owners.*

	few weeks into the future, and there are no policy makers in the world that could make decisions based on that.) • Mixed Migration foresight (MM4Sight) – (The FORESIGHT tool focuses its forecasts on only forcibly displaced asylum seekers and refugees from a given country, with machine learning and Bayesian network models.) • Internal Displacement Event Tagging and Clustering Tool (IDETECT) - operates an AI tool and a real-time monitoring platform investigating displaced individuals globally - Displacement Tracking Matrix System (DTM) – (capture new emerging routes and rapid changes in how smuggling networks.) • Switzerland – (forecasts were upturned by unexpected or particular events, in 2011/12 in the context of the Arab Spring and in 2015/16) • Forecasting reports – (information shared by Member States) • Ireland forecasts – (informal forecasting based on updated extrapolations) - Netherlands forecasts – (forecast for asylum applications) - Swedish forecast – Combining quantitative and qualitative information to make prognoses based on risk analyses and early warning, migration algorithms. Holt-Winters model (with seasonality), which is constantly updated, and combined with a range of models (time series, exponential smoothing, and machine learning techniques that generate multiple predictive functions and select the best one). It includes additional	

	models for 'throughflows' (the processing of asylum applications, based on queuing theories and probabilistic models) and for 'outflows' (the distribution of beneficiaries of asylum in the Swedish territory, based on mathematical models). A key question is to what extent the model can be exported and applied to other contexts. - Greece/Italian/Spanish - crucial information is obviously more difficult to collect for countries located on the external border of the EU, such as Italy or Greece, or when one wants to develop forecasts at the EU level. - Canadian forecasts - econometric modelling that uses historical data and current trends. - The Heightened Risk Identification Tool (User Guide) - identifying refugees at risk by linking community-based / participatory assessments and individual assessment methodologies. - Displacement Data Exploration Tool - situational monitoring in certain countries after we learn of the occurrence of displacement, and report the country-wide estimates of new displacement during the year and the total number of people displaced at year's end. It monitors and reports cases of disaster-induced displacement on an event-by-event basis. For each of these events, they collect information from different sources and generate the most comprehensive and reliable displacement estimate for that disaster. **Competitor; UN; UNCHR** - S: solid data on particular items, e.g. asylum applicants or particular regions (due to the specific focus); some of	

	the tools are freely available; providing information to law enforcement and intelligence services (use more confidential sources). - W: internally aimed, not accessible for other actors; not directly aimed at NGOs and municipalities and catered for their needs; narrow focus (e.g. only asylum applicants or certain regions); long term predictions, not yet validated. **Data sources such as Eurostat, United National, GDELT and national statistical offices (only historical data).** - S: playing a potential key role in further development of new solutions for overcoming language barriers; enabling better transfer of knowledge and more equal access to language technology - W: only historical data; for different challenges, must explore and improve multiple approaches of data re-use that are ethical, sustainable, and fit-for-purpose. **Websites on economic and social information.** - S: It is a very good source of a variety of information; greater transparency and empowerment of users; competition and co-operation within and across sectors and nations - W: Data collected from different sources can vary in quality and format. **Information and data are gathered manually by NGOs.** - W: If using data from surveys, someone should keep in mind that people don't always provide accurate information **Information drawn from social media.**	

	- S: social media are increasingly being used as an information source, including information related to risks and crises; reach large audiences - W: information could be incomplete and not reliable	
Go to Market – Use model	- Online tool – license /subscription options, including free subscriptions - Subscription levels differentiated for the different modules/use options or functions (arrival/migration flows and social tensions). Different access to functionalities. - Differentiation in subscription according to customer segments.	*The text provided is consistent with that required. Nonetheless it would be good to connect directly each of the use models with the different customer segments and define which options would fit bets which segments.* *Be aware, In the case of licensing, consider that are several different types of licensing agreements that could be used. Discuss the different options with colleagues from the legal department involved in licensing deals. Alo bear in mind that delivering a service entails the presence of a "competent" organisation with procedures, insurances and certifications ready to offer the services according to the expectations of the potential customers*
Go to Market - Timing	2 years after project finalisation	*The text provided is consistent with that required.*
Go to Market – IPR Background	Results are owned by the Party that generates them.	*The IPR is not related to the results generated by the EMT itself, but this section should define if one or more partners have IPR background in related to the EMT..*
Go to Market – IPR Foreground	All partners participate in the design, development and validation of the tool. At this stage the foreground is shared by all partners.	*The text provided is quite consistent with that required.*

6.2.2 Exploitation Roadmap

KER name	Input from the Beneficiary	Output and comments/suggestions for improvement by the Expert
Actions	**1.** Explore funding for the progress of the EMT and finalise tool for launch on the "market" **2.** Identify more in detail the potential customers/users. **3.** Develop use case cases (for awareness & outreach). **4.** Further market research for moving towards economic sustainability (viability study). **5.** Identify complementary models/tools and explore options for synergies, cooperation or merging. **6.** Discussion on ethical considerations as part of the development of the exploitation actions. **7.** Start discussions an "exit strategy" for partners not interested in the exploitation pathway	*The text provided is consistent with that required, it considers both technical issues as well as those related to the business plan.* *Please add a timeline per each of the listed actions.*
Roles	1. Explore funding: TERRACOM 2. Identify potential customers/users: NGO partners 3. Develop use cases: NGO partners & CERTH/MTU 4. Further market research: UAB & TERRACOM 5. Identify complementary models: UAB & TERRACOM/CERTH/BRUNEL 6. Discussion on ethical considerations: UAB, FIZ & BRUNEL 7. Exit strategy: UAB All partners contribute with input and feedback to all actions.	*The text provided is consistent with that required.*
Milestones	**1. Explore funding:** MS1: Identify appropriate investment model M5-M6 after project ends.	*The milestones and timeline are consistent with that required. It would be recommended to define the KPIs for each of the milestones to facilitate monitoring of the implementation.*

	2. Identify potential customers/users: MS1: Identification of certain number of costumers / users M6 after the end of the project **3. Develop use cases** MS1: Outline the ways a user will interact with the system MS2: Communicate technical requirements to stakeholders M5 – M6 after the project ends **4. Further market research:** MS1: Should be continuously up to date in order to identify whether something new has come up MS2: analyse the existing circumstances and adapt accordingly in order to achieve economic sustainability M3 – M6 after the end of the project **5. Identify complementary models:** MS1: Use the model in the research field for creating something new. M6 after the end of the project **6. Discussion on ethical considerations:** MS1: Review relevant ethical guidelines MS2: Constantly updating the knowledge of relevant laws and regulations MS3: Ensure that the research accurately represents its results, it is free of plagiarism and work misconduct. M1 – M6 after the end of the project **7. Exit strategy** MS1: Ensure the goals of the project will be achieved and will not be jeopardised.	

	MS2: project's outcome will remain sustainable M6 after the project ends	
Financials Costs	- Staff cost for exploring the funding options, further market research, use cases etc., i.e. for all actions mentioned above. - Travel costs for meetings and activities. - Costs for support/consultancy for market research & marketing. - Technical staff for further development and updates of the EMT. - Costs of hardware & servers to keep the EMT functional/running simulations. In case of moving to virtual server: the related costs. - Staff costs, materials and travel for additional "users" to test and evaluate the implementation of the EMT. - Costs related to the deployment of the EMT website: domain, design and development (staff costs, domain acquisition and maintenance, translators). - Staff costs for the "support team". - Costs related to training for the EMT: staff costs; materials for the "learner"; logistics (room rental, catering etc.); fees for trainers/speakers.	*The text provided is consistent with that required. When preparing the exploitation plan, make sure to provide realistic estimated and quantify the costs.*
Revenues	- Offer various services (e.g. consultancy on how to optimize the use of EMT; support contracts and integration with third-party applications - Licensing - Training for the EMT - Freemium option: premium users paying for updated EMT (non-updated use is free)	*The text provided is consistent with that required. They identify potential cash flow that will make the use of the result sustainable over time (provide an estimation concerning the first year and what is expected after 3 years, if possible). It is recommended that you estimate the revenues according to your early adopters and potential customers and include the information in the draft exploitation plan.*

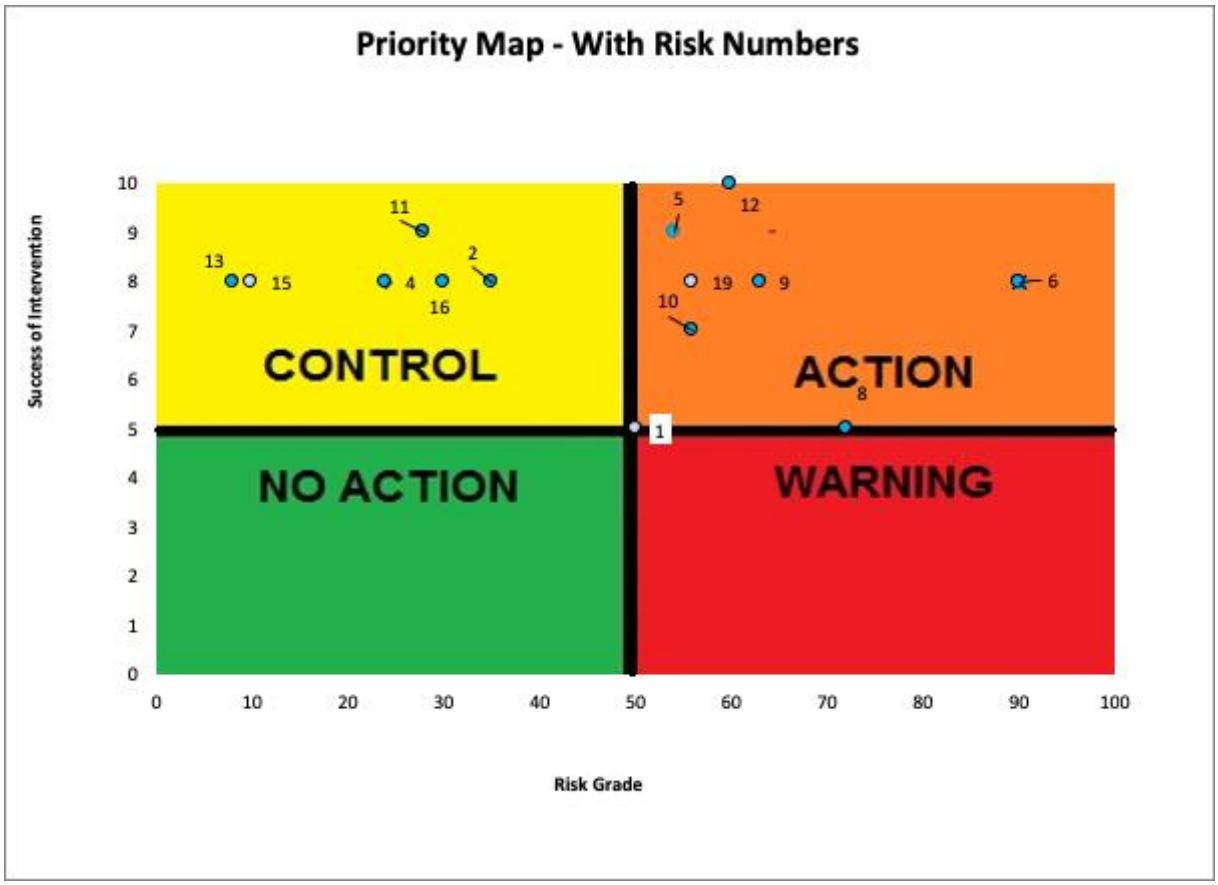
	- Development of additional features/customisation of tool - Selling the data generated from the EMT tool	
Other sources of coverage	a) a partner / s of ITFLOWS continuing the development; or a new partner who could offer own budget b) an external organization (e.g. EU) c) a spin-off company dedicated to the exploitation of EMT d) Initiating a new research project or find synergies with recuring projects that their goals can be aligned to ours. e) national/regional incentives f) public funding	*The text provided is consistent with that required, the financial resources to cover costs incurred before collecting the first revenues and their sources are identified. Sources can be partners' own budget, other project grants, national/regional incentives, risk capital, loans, etc. Make sure to obtain them at the right timing.*
Impact in 3-year time	- ITFLOWS will create methods and tools for better management of migration - EMT will provide new operational solutions for social workers and NGOs for a more efficient response and effective deployment of resources for the management of migrants; reducing risks of tension and conflicts between migrants and EU citizens - The project will also help migrants and refugees as their needs will be better catered for.	*The text provided is consistent with that expected. Nonetheless, impact is the objective of H2020. Impact should mobilise measurable changes in terms of growth/benefits for the society (i.e., jobs created, investments mobilized, turnover generated).*

6.2.3 Risks Assessment and Priority Map

	Description of Risks	Degree of criticality of the risk related to the final achievement of this Key Exploitable Result. Please rate from 1 to 10 (1 low- 10 high)	Probability of risk happening Please rate from 1 to 10 (1 low - 10 high)	Risk Grade	Potential intervention	Estimated Feasibility/Success of Intervention Please rate from 1 to 10 (1 low- 10 high)	Conclusion
Partnership Risk Factors							
1	Partners (also external partners) not willing to share data which feed into the EMT	*5*	*10*	**50**	Search for alternative data providers; Intensify lobbying and working with the data providers	*5*	**In the Middle of Everything**
2	Partner not interested anymore in the joint partnership of the tool (even if committed to it in the CA)	*7*	*5*	**35**	Increase understanding of what each partners expects/wants; consensus on the potential changes in the CA concerning this aspect; partner proposes alternatives/change status (if their role is crucial); design a solid exit strategy	*8*	**Control.**
3	Transfer and signing over of knowledge and responsibilities related to the EMT is not properly done or smoothly done within partner institutions	*4*	*6*	**24**	Identify the persons responsible in the exploitation strategy; design a strategy for identifying staff can take over key roles in case of need as an ongoing process (back-up staff); have a team informed and aware about the project and can support a new team member coming onboard	*8*	**Control.**
Technological Risk Factors							
4	Due to the use of AI (which is fastly developing) the tool can become outdated (if the tool is not enhanced)	*6*	*4*	**24**	Updating the tool is done until the last day of the project; updating of the tool regularly embedded explicitly in the exploitation strategy/roadmap	*8*	**Control.**

5	Lack of technological skills at the stakeholders/customers to run the tool fully autonomous	*6*	*9*	**54**	Design a "customer" training programme; detailed documentation made available, including video instructions; Support team for additional & customised support to be provided; promote/facilitate a "user" group/community for peers (e.g. by a space for sharing provided on the website, released in GITHUB...)	*9*	**Action!**
6	Lack of technological infrastructure at the stakeholders/customers to run the tool fully autonomous	*9*	*10*	**90**	EMT is provided with hardware; cloud version of the tool and clients sign in (no need for physical infrastructure at location)	*8*	**Action!**
7	Infrastructure/Servers are physically located at a partner institution: partner decides it does not want to host the EMT anymore	*4*	*7*	**28**	Move to a server which is accessible by all partners (e.g. virtual server)	*9*	**Control.**
Market Risk Factors							
8	Lack of trust in the validation data included in the EMT	*8*	*9*	**72**	Emphasize better the underlying research to increase trust in the data; improve the trust in the validation of the data collaborating more intensively with the "data providers"	*5*	**Between Action & Warning**
9	Added value of the EMT is not as expected and does not cover the expectations of the customers (against existing solutions)	*7*	*9*	**63**	Follow an iterative development process while collecting and incorporating feedback from target groups in all stages of the development.	*8*	**Action!**
10	Similar tools are developed by competitors and/or replicate the EMT and improve it	*7*	*8*	**56**	Constant updating of the tool in order to adjust to specific needs of end users and be always on track. ITFLOWS is listed on ResearchGate, the largest research organization, so the EMT can be constantly updated regarding relevant existing projects or upcoming ones.	*7*	**Action!**
11	Not outreaching to our complete target market (which is niche focussed - NGOs and municipalities (due to the ethical focus and principles of the project)	*4*	*7*	**28**	Intensify work and focus groups with targeted customers and drill better into their needs (and adapt the EMT); increase awareness of the tool (focussed campaign); role model users/ambassadors in each country (big NGOs could function as providers of the knowledge generated to the smaller ones); communication done in local language	*9*	**Control.**
12	Stakeholders/users do not think the tool is useful and will help them to	*10*	*6*	**60**	Elaborate success stories/use cases/testimonials (based upon real-life cases from partner NGOs); role models in each country;	*10*	**Action!**

	improve teir work/support (and not only a "nice thing to have"				engage "satisfied customers/users" in showing the usefulness through their own communication activities		
IPR/Legal Risk Factors							
13	Data protection rules do not allow to access and use data needed for quality modelling and decision making	*4*	*2*	**8**	Mostly analyse open access data. In the need of relevant databases which are not accessible, we search for alternatives such as buy data if possible.	*8*	**Control.**
14	Misuse of the tool - partner provides the tool to customers/third parties excluded from the ethical principles of the project or third parties use it for purposes for which it is not intended	*8*	*8*	**64**	Strong monitoring procedures have been designed for the project having as an ultimate goal that the research activities will be conducted in strict compliance with the EU and international human rights legal and ethical framework. Also, an access mechanism will be established consisting of three aspects: Registration & Data usage, Authentication and Authorization	*9*	**Action!**
15	Data cannot be used for the tool as it does not allow the data to be used for non-research purposes and limits the access of EMT to data	*5*	*2*	**10**	From the moment that we will use open data, concerning the commercialization purposes we will use also those that can be exploited too.	*8*	**Control.**
Financial/Management Risk Factors							
16	Lack of funding to take the EMT to the market and roll it out to the customers	*5*	*6*	**30**	Examine alternative financing models with the European Commission and the entire community of the project.	*8*	**Control.**
17	Insufficient communication in the consortium	*7*	*4*	**28**	Ensure sustained cooperation between partners through developing a strong communication strategy such as using advanced communication technologies; investing appropriate time to encourage everyone to present their work, difficulties and find solutions.	*6*	**Control.**
Environmental/Regulation/Safety risks:							
18	Unexpected developments on geopolitical level cannot be modelled	*9*	*10*	**90**	Use of historical and conflict data related to tensions that occur in countries and pose a risk to several territories	*8*	**Action!**
19	External partners don't communicate updated in the validation data	*7*	*8*	**56**	External partners will be informed continuously with the use of dedicated websites, social media and newsletters and be encouraged to leave their feedback.	*7*	**Action!**



NOTE: Due to the large number of factors identified and the fact that several are in the same range as others the graphical representation does not identify all 19 risk factors. As such the table provided above has been used as reference.

Most of the identified risk factors are to be found in the areas control and action, with the exception of 2, one in the **Partnership Risk Factors,** which has a medium risk grade and medium probability of success of the remedial action, and one of the **Market Risk Factors** which presents a medium to high risk grade and a medium probability of success of the remedial action. Both risks should be monitored closely, to identify possible changes that could change their situation. For both a good option also is to discuss in more detail the remedial actions and explore additional ones, which could change the probability of success.

The rest of the **Partnership risk factors** have a low risk grade and a high probability of success for the proposed remedial (Control). The consortium should monitor these risks closely, to be ready to take action if needed.

The **Technological Risk factor** present an equal division of half of the identified risk factors with a low risk grade and a high probability for success of the proposed remedy (Control), and another half with a high risk grade and a high probability for success of the proposed remedy (Action). For the first set of factors, they should be monitored closely, for the second set (Action) the proposed remedials measures should be implemented as soon as possible as a permanent action to reduce the related risk grade. A similar situation occurs for the **Market Risk Factors** and the **IPR/legal risk factors**, as such the same recommendation applies as for the Technological Risk Factors.

The **Financial/Management Risk factors** present a low risk grade and a medium to high success of the proposed intervention (Control). As such they should be closely monitored. The **Environmental/Regulation/Safety risks** represent a high risk grade and a high probability of success of the remedial actions (Action), the proposed remedials measures should be implemented as soon as possible as a permanent action to reduce the related risk grade.

6.2.4 Use options

KER's Exploitation route (how the KER will be further exploited)			
Selected route		**Implementing actor**	**Yes**
DIRECT USE	Commercialisation: *deployment of a novel product/service (offered to the target markets)*	One partner[6]	
		A group of partners[7]	
	Contract research (*new contracts signed by the research group with external clients*)	A partner	
		A group of partners	
	A new research project (*application to public funded research programmes*)	A partner	
		A group of partners	**X**
	Implementation of a new university – course (*Note that a training course is a service*)	A partner	
		A group of partners	
		A new partnership	
INDIRECT USE	Assignment of the IPR	A partner	
		A group of partners	
	Licensing of the IPR	A partner	
		A group of partners	
	Development of a new legislation/standard	A partner	
		A group of partners	
	Spin- off	A partner	
		A group of partners	
		By assignment	
		By licensing	
	Other (*please describe*)		

Regarding the utilization of the final product and its subsequent exploitation and scale-up, it is too early to make an estimate of the further investment needed. The needs will be assessed both in terms of technology and in terms of dissemination and exploitation of project results. The project's implantation will help us assess the impact of various initiatives taken towards commercialization, such as our presence in relevant forums, exhibitions, think tanks, the dissemination throughout the consortium's various channels, research publications, trainings etc. to finetune our exploitation

[6] Partners identifies the partners of the project receiving the ESS, not third parties that may be partner in the future.
[7] Provide the names of the partners.

6.3 KER No. 3 Evidence-based policy analysis and recommendations (KER leading beneficiary: CSD)

6.3.1 Characterization of the result

Briefs & Advice for support of policy making	Input from the Beneficiary	Output and comments/suggestions for improvement by the Expert
Problem	Policymakers constantly need comprehensive, up-to-date, and accurate data, as well as evidence- and research-based policy analysis and policy recommendations to guide them in addressing policy issues related to managing mixed migration flows and devising better integration policies and strategies that follow a rights-based approach to migration. By managing migration flows here we mean broadly responding to spontaneous arrivals of migrants, refugees, and asylum-seekers at the EU's external borders in an efficient and human manner, in full compliance with all obligations of the EU and its Member States that derive from international and EU international law and in line with the principle of solidarity enshrined in TFEW. In addition, existing policy recommendations might not be country- or level-specific, i.e., they might need to be adapted to country, regional and/or municipal contexts. Decision-makers might also require data and evidence pertaining to other countries, as these will allow them to draw comparisons, establish differences, and devise regional and transnational strategies and actions. Therefore, the following problems could be identified:	*The text provided by the beneficiaries is quite consistent with that expected.* *Before starting actual exploitation, it is recommended to validate the problems together with the problem-owners. Being able to solve problems is key to make sure results are used and that the envisaged impact is achieved.*

	- P1: Lack of adequate, accurate, and up-to-date information on the following topics: (i) frequency, intensity, and composition of irregular migration flows, (ii) attitudes towards migration flows and the effects of migration; (iii) efforts and initiatives on the part of other actors, such as CSOs (especially frontline workers), regional bodies, etc. to accommodate the needs of arriving individuals, prevent and respond to humanitarian emergencies or backlash against irregular immigrants. - P2: Insufficient fora and settings to coin concrete steps, strategies, and solutions and discuss and share best practices with various national and international stakeholders. - P3: Difficulty devising optimal short-term solutions (especially in crisis situations) and predicting the positive and negative long-term effects of currently adopted policies.	
Alternative solution	In the last decade, especially in the context of large-scale population movements involving migrants, refugees, and asylum-seekers (as in 2014-2015), there have been numerous projects and initiatives that aimed to produce analyses, research, recommendations, and instruments that could decrease both the number of irregular arrivals to EU Member States and the tension between migrant populations and host societies. Such initiatives should not be viewed necessarily as being in juxtaposition to the findings and results of ITFLOWS. Rather, the project consortium should focus on how it upgrades and builds on	*The description is an introduction to the type of alternative solutions. However, these should describe how the problems listed in the previous section are currently solved. Accordingly, alternative solutions are important to benchmark the proposed innovation and to get a better insight on competition. Having a picture of the weaknesses and strengths of the alternative solutions, will help you to compare and to quantify the added value of your solution and to have insight on how the alternative solutions are delivered (who is providing them and at which conditions).*

	existing findings, results, and recommendations. Importantly, the ITFLOWS project aims not to decrease irregular arrivals per se but rather to increase preparedness of governments and CSO actors, helping them respond to migration flows better and formulate effective policies. Another alternative solution to consider is a situation where policy-makers are not provided with recommendations, which could limit their access to evidence-based policy suggestions that are consulted with a vast array of stakeholders (such as CSOs, researchers, frontline responders, etc.)	*Connect the Alternative solutions with the problems described, and detail them more (e.g., see the examples from KER 1 and KER 2 in this respect). List in this case the most important ones directly related con providing policy advice and policy recommendations.*
Unique Selling Point USP – Unique Value Proposition UVP	UVP1: All policy-related activities under ITFLOWS (workshops, policy briefs, meetings and consultations with the Policy Working Group) will refer to observations and findings related to the novel EMT – the project's key innovative technological output. UVP2: The policy workshops and the policy briefs and recommendations will be finalized following consultations with and validation by the members of the Policy Working Group (PWG). On one hand, engagement with the PWG will help us better identify the key issues, trade-offs and data gaps policy actors need to tackle with. On the other, the constant dialogue with and feedback from the PWG will allow us to better translate research results to policy guidance and effectively communicate such guidance to the relevant policy audiences. The PWG consists of	*The text provided by the beneficiaries is consistent with that expected.* *Bear in mind that, before starting the exploitation path, the UVP is validated and backed with facts and data. Check the UVP with early adopters and collect facts and data from the testing phase of your project to provide sound information on the magnitude of the value that your solution is offering.*

	renowned experts in migration, who have been involved in policy formulation and policy analysis. UVP3: ITFLOWS' policy output will involve a clear gender dimension and will comply with the most recent ethical standards in the field of migration, data collection and processing, etc	
Description	ITFLOWS produces and disseminates evidence-based policy analysis and recommendations designed to: • Work towards bridging the gap between research and policy in the field of migration; • Engage into constructive dialogue between policymakers, stakeholders, experts, civil society, the media and researchers on the project's aims, activities and findings; • Formulate workable policy recommendations at the national and EU level; • Translate the research findings into specific policy solutions; • Facilitate the exchange of knowledge and the expansion of good practice on the use of big data information systems with conformity to data protection, privacy and ethical concerns; • Lay the ground for research-based policy recommendations that could help to design future EU policies in the field of migration, asylum and integration. To accomplish this, the project envisions: - Establishing a dedicated Policy Working Group to facilitate a constructive dialogue with policymakers and	*The description focusses on the final goals which are envisaged with the policy recommendations but does not describe in detail the specific "service" of policy recommendations, i.e., what kind of information, data or policy advice is offered and how it is delivered.* *It is recommended to connect it with the workshops, policy briefs, meetings and consultations mentioned in the UPV.* *A good option is to define different sets of services, e.g.* - *Policy workshops* - *Policy briefs on specific topics or for a specific country or region.* - *Custom advice for a specific organisation, country or region.* - *Policy recommendations for further research.* *And then define in detail each of these services.* *The 3 activities defined, are activities already foreseen within the project lifetime and could form a solid basis for the KER and its post-project exploitation.*

	ensure the transferability of research results into practice through regular consultations and validation of project results; - Holding workshops for and with policymakers, running consecutively in a three-day conference in Brussels; - Publishing five thematic policy briefs and evidence-based recommendations on the main project topics (migration prediction, response, and integration).	
"Market" – *Target market*	- Policymakers at local, regional, national, European, and international levels who are responsible for formulating and amending policies. These policies are mostly related to migration, but could also be related to other sectors: education, health, economics and labour, social policies, foreign policy etc. - CSOs working with irregular migrants, refugees, and asylum-seekers (for instance, providing services) - Scientific community: researchers and scholars from different disciplines.	*The definition of the main target market, i.e., the policymakers is consistent with that expected.* *The CSO´s and scientific community are also part of the target but probably to a lesser extent than the first ones, as the KER is about policy recommendations.* *As such, the following is recommended:* *Main target market:* Policymakers at local, regional, national, European, and international levels Customer segments: - *Policymakers at local/regional level* - *Policy makers at national level* - *Policy makers at international level* *As expectations are that each group needs adapted recommendations depending on their competencies and capacities to take action.* *Additional target markets:* - *CSOs (who can use the policy recommendations for their lobbying and fundraising activities);*

		- *Scientific community (as input for their research activities).* *Before the final definition of the exploitation plan for the KER, bear in mind that the plan should include both a qualitative and quantitative description in terms of size and features. Please consider that geography matters in terms of the market that you want to serve.*
"Market" – *Early Adopters*	Policy makers who work exclusively on migration-related policies, especially experts from host countries that have seen a surge in: 1) irregular arrivals, asylum applications/international protection claims during and since 2014; 2) anti-migrant sentiments, hate messages, abuse towards migrants, etc.; 3) both	*The text provided by the beneficiaries is quite consistent with that expected. Nevertheless, You should be as much precise as you can, bearing in mind in particular the comments on the main target market and segments mentioned above.* *Being the early adopters the first ones you would like to reach out with your innovative solution it will be important to be able to connect with them, e.g., those policy makers o the User Board are in essence the early adopters.*
"Market" - Competitors	Other academic institutions, CSOs, research centres, consultancy firms or agencies, etc. working closely with governments and municipal institutions and providing policy guidance.	*Note that the Market competitors are those providing the alternative solutions. Make them consistent with the alternative solutions listed in the devoted section above.* *As such, once the alternative solutions are more clearly defined the specific and most relevant competitors should be named here, and for each the strengths and weaknesses are identified. Try to provide facts and figures to enrich the description.*
Go to Market – Use model	The KER will be put to use through: - Online and offline policy publications - Bilateral and multilateral, formal and informal consultations with policymakers during meetings, events, workshops, conferences, seminars.	*The goal here is to understand who is going to "use" the KER and "how". Please connect it with clearly identified services, if needed you can identify a different use model for each of the services.*

		The description gives a first idea on how the recommendations will be delivered but needs more detail to provide quality input for the exploitation roadmap.
Go to Market - Timing	Half year to one year after project finalization.	*The text provided by the beneficiaries is consistent with that expected.*
Go to Market – IPR Background	All partners participate in efforts to ensure high-quality policy output and greater policy impact.	*Please describe whether or not the KER involves any background IPR provided one or more of the participating partners.*
Go to Market – IPR Foreground	All partners participate in efforts to ensure high-quality policy output and greater policy impact.	*Please describe whether or not the KER involves any background IPR provided one or more of the participating partners.*

6.3.2 Exploitation Roadmap

KER name	Input from the Beneficiary	Output and comments/suggestions for improvement by the Expert
Actions	1. Action 1: Active dissemination and communication of policy-related deliverables (especially, but not only, policy briefs) through various channels (social media profiles, webinars, presentations, media appearances) and networks (local, national, international, informal, formal) 2. Action 2: Follow-up meetings and talks (informal and formal) with policy-makers and policy experts, who joined and participated in policy-related activities during the project to probe the outreach and the applicability of proposed policy measures 3. Action 3: An exploratory report on whether the suggested policy recommendations were addressed, shared, utilized or consulted in the drafting of strategies, action plans, policies at EU, national, and local levels. The report might be preceded and based on a feedback survey among key stakeholders to evaluate the adoption of policy guidelines.	*The actions focus on the development of one single report and less on the design of a continuous "service" or activity of providing policy recommendations well beyond the project lifetime.* *Although consistent with the expected timeline of 3 to 6 months after project finalisation, the actions should lay the groundworks for a more permanent activity or service, which can persist and is sustainable in time.* *Make sure to consider the finalisation of all it will be needed to start implement what is in your exploitation plan. Here it is important to identify and describe all the action which are necessary to carry out, in the 3/6 months later the project ends. Do not only consider the content related activities, but also those related to the business or sustainability plan for the KER.* *Please add a timeline per each of the listed actons.*
Roles	Action 1: Mainly UAB and all partners leading WP8 and WP9 (supported by the rest of the partners) Action 2: Mainly UAB and all partners leading WP8 and WP9 (supported by the rest of the partners) Action 3: Mainly UAB and all partners leading WP8 and WP9 (supported by the rest of the partners)	*Please identify the specific partners, in particular with regards to those leading the WPs. Be as much as precise as possible to identify responsibilities inside the consortium, not only who is involved in which action.*
Milestones	**Action 1:** Milestone 1: A concise plan of communication and dissemination activities, M1 after project's end.	*The milestones and timeline are consistent with that required. It would be recommended to define the KPIs for each of the milestones to facilitate monitoring of the implementation.*

	Milestone 2: A concise report (3-5 pages) on the finalized communication and dissemination activities, M6 after the project's end. Timeline: M1-M6 after project's end. **Action 2:** Milestone 1: A concise report (3-5 pages) on the achieved follow-up, M6 after the project's end Timeline: M1-M6 after project's end. **Action 3:** Milestone 1: A concise report (5-10 pages) on the use of the policy recommendations produced by the project, M12-M16 after the project's end Timeline: M12-M16 after the project's end.	
Financials Costs	- Staff costs for exploring the funding options for all actions mentioned above - Staff costs for dissemination, communication, research, and reporting activities. - Travel costs for meetings and activities	*The text provided by the beneficiaries is consistent with that expected.*
Revenues	Indirect - implementing KER3 actions might lead to increasing revenues as envisioned under KER2, for instance if a policy maker proposes or adopts the use of the EMT.	*Explore after the activity has been put into place whether there are options to generate some type of revenue or income to cover (part of) the costs related to the service. Have a look at the possible services suggested in the characterisation table, for instance direct revenue could stem from providing custom policy recommendations to specific bodies or authorities. Another option is the revenue which would be generated from participation fees for the workshops.*
Other sources of coverage	Initiating a new research project or find synergies with recuring projects that their goals can be aligned to ours.	*Financial resources to cover costs incurred before collecting the first revenues and their sources. Make sure to obtain them at the right timing.* *Potential sources are internal funds from the participating organisation (e.g., by providing staff time), or sponsoring for the workshops. Explore the options and bear in mind that for different activities, different sources can be identified.*

		Accordingly, clarify which partner will be responsible for the gathering of the institutional funding.
Impact in 3-year time	- The project creates knowledge and evidence-based support to policy developments: this scientific and practical knowledge will be disseminated to researchers, practitioners, policy-makers, and experts during and after the project. Knowledge and insights will be gained on drivers of migration, patterns of migration in the EU, public attitudes towards migration, perceptions of migrants and asylum-seekers through in-depth interviews and the role of Big Data in predicting migration patterns. - Policy impact is achieved through recommendations for strengthening the effectiveness of policies on management of migration and integration of migrants in the EU. The actions will contribute to improved practices, policies and strategies at local, regional, national and EU level for the management of migration and integration of migrants. - On a societal and individual level, the improved policies of integration might lead to decreased social tensions, decrease in the popularity of radical and extremist messages, the influx of new labour force, etc.	*The text provided by the beneficiaries is consistent with that expected. Nonetheless, to be more precise as you can and provide facts and figures for allowing an assessment of the "size" of the changes deriving from the use of the KER. Impact is the objective of H2020. Impact should mobilise measurable changes in terms of growth/benefits for the society.*

6.3.3 Risks Assessment and Priority Map

	Description of Risks	Degree of criticality of the risk related to the final achievement of this Key Exploitable Result. Please rate from 1 to 10 (1 low- 10 high)	Probability of risk happening Please rate from 1 to 10 (1 low - 10 high)	Risk Grade	Potential intervention	Estimated Feasibility/Success of Intervention Please rate from 1 to 10 (1 low- 10 high)	Conclusion
Partnership Risk Factors							
1	Feasibility to achieve this KER differs significantly among partners	*6*	*8*	**48**	Partners assist each other, attempting to increase feasibility for those partners that are experiencing difficulties	*8*	**Control.**
2	Partner(s) no longer interested in the joint partnership	*8*	*5*	**40**	Increase understanding of what each partner(s) expects/wants; reach consensus on the potential changes in the CA concerning this aspect; partner proposes alternatives/change status (if their role is crucial); design a solid exit strategy	*8*	**Control.**
3	Lack of expertise within the current partnership	*7*	*4*	**28**	Design a strategy for identifying staff can take over key roles in case of need as an ongoing process (back-up staff); have a team informed and aware about the project and can support a new team member coming onboard; seek external partners with the needed expertise	*8*	**Control.**
Technological Risk Factors							
4	Policy fails to substitute already existing solutions	*8*	*5*	**40**	Consider customizing the proposed policy solutions to fit existing needs; Increase dissemination and communication efforts	*7*	**Control.**
Market Risk Factors							

5	Weak exploitation of the produced material (policy recommendations and policy insights)	*8*	*6*	**48**	Emphasize better the underlying research to increase trust in the data serving as grounds for the evidence-based policy recommendations; increase trust through stressing the validation of the policy product (through and by PWG); create focused campaigns to increase exploitation	*6*	**Control.**
6	Early adopters are hard to reach	*7*	*5*	**35**	Create focused campaigns and utilize all existing networks to reach early adopters; design a dedicated communication strategy	*7*	**Control.**
7	Reception and acceptance not as planned	*9*	*4*	**36**	Elaborate success stories/use cases/testimonials (based upon real-life cases from partner NGOs or even policymakers); role models in each country; engage "satisfied customers/users" in showing the usefulness through their own communication activities; organize dedicated Q&A sessions; probe into whether policy-makers are interested in re-packaging the policy product to better fit their needs	*7*	**Control.**
Environmental/Regulation/Safety risks							
8	Unexpected developments on geopolitical level that can affect exploitation measures	*9*	*4*	**36**	Carry out further analysis and consider updates to the produced policy recommendations and insights	*4*	**No Action'**
9	Limited number of opportunities to reach policy-makers and organize dissemination and communication events during the project (which affects building relationships) due to COVID-19 restrictions	*7*	*4*	**28**	Plan events that are smaller in scale and offer options for hybrid participation; develop and implement robust safety protocols, complying with the measures adopted in the respective country	*7*	**Control.**

The **Partnership, Technological and Market Risks** present a low to medium risk grade combined with a (medium to) high probability of success of the envisaged remedial action. These risks should be monitored closely (Control) to make sure that swift action can be taken if needed. The same applies to one of the risks identified in **Environmental/Regulation/Safety Risks.** The second risk identified here has a low to medium risk grade and a medium success for the envisaged remedial action. It is recommended to revise the risk at regular intervals, to identify whether the situation has changed. If so, the risk will change its status, and thus take action if needed.

Two risks, one under the **Partnership Risk Factors** and one from the **Market Risk factors**, are on the verge of the order between control and action, as such, if possible, the remedial action should be implemented, although no immediate action needs to be taken.

The consortium did not identify any **Financial/Management** nor **IPR/Legal risk factors** for this particular KER.

6.3.4 Use options

KER's Exploitation route (how the KER will be further exploited)			
Selected route		**Implementing actor**	**Yes**
DIRECT USE	Commercialisation: *deployment of a novel product/service (offered to the target markets)*	One partner[8]	
		A group of partners[9]	
	Contract research (*new contracts signed by the research group with external clients*)	A partner	
		A group of partners	
	A new research project (*application to public funded research programmes*)	A partner	
		A group of partners	
	Implementation of a new university – course (*Note that a training course is a service*)	A partner	
		A group of partners	
		A new partnership	
INDIRECT USE	Assignment of the IPR	A partner	
		A group of partners	
	Licensing of the IPR	A partner	
		A group of partners	
	Development of a new legislation/standard	A partner	
		A group of partners	**x**
	Spin- off	A partner	
		A group of partners	
		By assignment	
		By licensing	
	Other (*please describe*)		

[8] Partners identifies the partners of the project receiving the ESS, not third parties that may be partner in the future.
[9] Provide the names of the partners.

7 Recommendations

Issues	Recommendations
Characterisation of KERs.	One KER (KER 2 EMT) was discussed during the 2 on-line ESS sessions. The discussion was very participative, with all the participating partners contributing actively. The seminar helped them to understand better how to address the exploitation activities and strategy within the ITFLOWS project, as these were less well articulated at the start of the project. The ESS has been fruitful to kickstart the changing of the mindset with regards to exploitation of a project, which has an eminent social and humanitarian focus. After the on-line sessions, the partners worked on the characterisation of the other 2 KERS, which due to a lack of time could not be addressed during the sessions. The results from the sessions are envisaged to be used as the basis for the sustainability and exploitation plans and activities as foreseen by the project.
Learning from past experience.	The identified KERs are very different of nature, from simulations/models to a specific simulation tool and policy recommendations. But all are intrinsically connected, as the EMT cannot function with the simulations/models and the policy recommendations build on the outcomes of the simulations. All the KERs show a strong focus on social and humanitarian issues, due to the nature of the problem and challenge addressed by the project. This is reflected in the characterisation of the KERs, which do not have a strong commercial focus, with NGOs/CSOs and public bodies as the main target market and customer segments. The successful exploitation of the identified KERs stands or falls as such with the uptake by these target groups, and the success of the exploitation approach thus depends to a large extend on the capacity of the consortium to convince them to use their results. The capacity to generate results relevant for each of them is the common denominator across all the identified KERs. There are several distinct but related factors which are of influence here: • The quality of the provided results, recommendations and advice (and the relevance to a specific field, topic or context); • The prestige and positioning of the project with regards to scientific excellence of the data and results generated by the simulations, EMT or in the policy related activities. The User Board can play a key role here, as their members, considered the Early Adopters can act as ambassadors towards other entities and communicate the benefits and quality of the results. As such they should play a key role in the post-project communication activities and should be mobilised as much as possible. The consortium should analyse what worked well and what did not with respect to the engagement of NGOs, CSOs, decision makers and researchers in the project activities and extract lessons learned which should be taken-up during the implementation of the exploitation roadmap and lead to the sustainability of the

	initiated activities and services, and the options to function independently of EU Research programme funding. In particular with regards to the interaction with the public bodies the following document "Scientific Advice to European Policy in a Complex World" can be a helpful tool as well, https://ec.europa.eu/info/research-and-innovation/strategy/support-policy-making/scientific-support-eu-policies/group-chief-scientific-advisors/scientific-advice-european-policy-complex-world_en
Discussing Exploitation at Consortium Meetings.	During the seminar the ITFLOWS partners became more aware that exploitation is not only about commercial activities aimed at a specific costumer segment willing to pay for a product or service, but that exploitation and sustainability go hand-in-hand and that exploitation can also be non-commercial, and more related to providing support and advice to civil society and policy makers. The work done for the definition and characterisation of the KERs, their risk assessment and the exploitation roadmap, lay the groundworks for a solid sustainability approach for the project and ensure thinking more longer term and wider take-up of results, then the mere use of the results internally by the partners. The momentum of the project is high, with the challenges faced with regards to irregular immigration still a hot topic on the political agenda, and the opportunities for developing a set of sustainable services for a particular market segment are clear. As such it is recommended that the consortium continues to discuss and revise the KERs addressed in the ESS sessions, and revise the inclusion of additional ones, for which a characterisation and risk analysis would be recommended. It is important the consortium pays due attention to the financials, i.e., the obtainment of funds for the maintenance and further development of the KERs and should be quite creative when it comes to fundraising, as the targeted market has clear limits with it comes to its capacity to acquire services. As such, it is recommended that after this initial discussion, the consortium should put the revision and update of the KERs and the plans for future development, on the agenda for each of its consortium meetings, to ensure that there is alignment between the advances in the exploitation planning and the progress of the project. This will also allow to take into account any developments on policy, societal and economical level that influence the exploitation possibilities and options of the identified KERs.
Internal use of KERs	The partners are direct representatives of the different market segments identified in the KERs, and as such the internal use and uptake of the results is ensured. Those who are mostly active in the development of the simulations/models and the EMT have been able to explore the options to increase their service offer to a particular set of customer segments. It is recommended to discuss, as part of the exploitation approach the way each partner foresees on individual level to exploit the results, and in particular to make sure that any potential conflicts of interest regarding exploitation are on the table and openly discussed, in particular as the IPR for the simulations/models lay with the more

	research focussed partners and the EMT (which is based upon these simulations/models) is developed by a more commercial player. The participating NGOs/CSOs should also clearly express what they expect with regards to the use of the 3 KERS post-project.
Planning for an Implementing exploitation	When addressing Exploitation based upon the present service and report, it is suggested to bear in mind the following: • Exploitation is not necessarily commercial but could be understood in the framework of this type of project as "ensuring take-up, transfer and use of the results beyond the project lifetime, not only by partners, but also by third parties", in essence it is all about sustainability. • Make sure that the process of revising the exploitable results, their related risks and the expectations of all partners is a continuous process, this will allow to keep tabs on any issues that might arise. • Be flexible, so as to allow to tap into changes in the economic, environmental, societal and legal context, which can affect the options or possibilities for exploitation of one or more KERs. • Re-address the KPIs and milestones for the exploitation of a KER if needed but do this in consensus and with a strong commitment to comply with the targets set. • Be aware that not only the implementation of the exploitation strategy requires time and resources, but make sure to also estimate the resources and time needed for actually planning for exploitation. Identify internally and externally which resources you have available for this. • When implementing the strategy, make sure to involve all the partners that have indicated to be an active part of this activity, and get the green light from those with a more passive role. Consensus might not always be possible but should be an aim.
Horizon Results Platform	It is strongly suggested for Dissemination purposes to upload each key Exploitable result on the EC Horizon Results Platform https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-results-platform Detailed step-by-step instructions here: https://webgate.ec.europa.eu/funding-tenders-opportunities/display/IT/Managing+Project+Results+in+the+Horizon+Results+Platform Please note that to be authorised to upload you should have granted one of the following roles for the project: PCoCo (Primary Coordinator Contact), CoCo (Coordinator Contact) or PaCo (Participant Contact) roles in the project. This is all explained in the instructions in the link above.
Further exploitation related support service	After the PDESC, BPD service could be delivered, it would be important to finalise the fruitful work done with PDES C first with BPD and then with Go-to-Market services that can be requested at https://www.horizonresultsbooster.eu/ The aim of Go-to-Market services is to address one or more specific aspects for the implementation of the business/action plan:

	• Pitching (capacity to present in front of interested stakeholders) • IPR support (orientation in the IPR landscape) • Innovation Management (specialised training) • Exploitation options (exploration and in-depth analysis of the different options) • Business services (one among commercialisation plan, evaluation of business plan potential, creation of start-up) • Access to non-EU funding (analysis of funding options for follow-on financing)

8 Annex 1: Related information

This chapter reports the results of specific project related to specified key words on the Internet, also a list of projects (found on Cordis) of similar interest with a brief description and related patents.

8.1 Related Links

A combination of the Key Words: « migration flows» & «models» & «digital tools» yields over 4220 results.

A combination of the Key Words: « migration flows» & «models» & «digital tools» & «prediction» yields over 2660 results. The five highest listed using Google search are:

- **Discussion space: Migration 4.0 - Digitalization & New Technologies:** This discussion forum keeps track of recent developments, events, projects and key resources on the digitalization of migration, new data sources and innovative methods. More importantly, it aims at creating a community of practice, providing a space for exchange. Internet link: https://migrationnetwork.un.org/fr/node/150
- **AI, digital identities, biometrics, blockchain: A primer on the use of technology in migration management:** Paper by the Bosch Foundation´s Migration Strategy Group on International Cooperation and Development. Internet link: https://www.bosch-stiftung.de/sites/default/files/publications/pdf/202006/Bither%20%26%20Ziebarth%20%E2%80%93%202020%20-%20technology%20in%20migration%20management%20primer.pdf
- **From Migration Corridors to Clusters: The Value of Google+ Data for Migration Studies:** DOI: 10.1109/ASONAM.2016.7752269. Paper presented at the Conference: IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM'16). San Francisco, USA. August 2016. Internet link: https://www.researchgate.net/publication/304789166_From_Migration_Corridors_to_Clusters_The_Value_of_Google_Data_for_Migration_Studies
- **From digital promise to frontline practice: new and emerging technologies in humanitarian action.** Paper Published by United Nations Office for the Coordination for Humanitarian Affairs (OCHA). Internet link: https://www.unocha.org/sites/unocha/files/OCHA%20Technology%20Report.pdf
- **Toward a model for digital tool criticism: Reflection as integrative practice. Paper published in** Digital Scholarship in the Humanities 34(4). DOI: 10.1093/llc/fqy048. Related project: Digital Research Methodology. Internet link: https://www.researchgate.net/publication/328891738_Toward_a_model_for_digital_tool_criticism_Reflection_as_integrative_practice

8.2 Related projects

- **MEDEA: Mediterranean practitioners' network capacity building for effective response to emerging security challenges**
  Objective:
  The Mediterranean and Black Sea region is characterised by a very volatile and dynamically changing security environment that pose severe threats and challenges on the societies and prosperity. The MEDEA project, during its 60 months of implementation provides funding for four interrelated actions: (i) Establish and Operate the MEDEA network, a multi-disciplinary network of security practitioners, with active links to policy makers and users/providers of security innovations across the M&BS countries focusing in Border Protection and other Security- and Disaster-Related tasks. During the project duration, MEDEA members will engage in activities towards maintaining its sustainability and longevity after the financing of this project ends, (ii) Engage participants in anticipatory governance on emerging security challenges that the Mediterranean and Black Sea regions would face in the coming years (present until +10 years), which concretely operationalizes the backbone of the project in a triple structure: a) understanding unsatisfactory state of play, b) design the desirable future and c) define a resilient pathway on how to achieve this, (iii) Push for the "co-creation" of security technology and capabilities innovations between practitioners and innovation suppliers, which is based upon their evaluation and prioritization on multi-criteria analysis (technology, operational and cost-benefit, etc.) and also linked to Human Development, Policy Making and Organizational Improvements in-terms of facilitating its use by the practitioners (iv) Establish and annually update the Mediterranean Security Research and Innovation Agenda (MSRIA), that identifies areas where security & defence research is needed and the establishment of recommendations for European Security & Defence technology investments. Internet link: https://cordis.europa.eu/project/id/787111

- **CAMELOT C2 Advanced Multi-domain Environment and Live Observation Technologies**
  Objective:
  The creation of the Schengen area has been one of the major achievements of the EU. However, this agreement requires countries to cooperate tightly in order to keep a high level of security at their internal borders, as well as to share the responsibility of managing external borders. Such a variety of borders (land, sea and air) and current challenges requires a consistent approach to border surveillance, based on a plethora of heterogeneous assets. These can be manned or unmanned, ranging from sensors (optical, radar, IR) to unmanned platforms (UAV, UGV, USV or UUV), and need to be combined to offer an integrated situational picture of the area under surveillance and of their location. In order to effectively control their operation and manage the large amounts of data collected by them, new approaches for command and control need to be considered, allowing efficient interaction between the operator and the different assets in the field. CAMELOT proposes to develop and demonstrate different advanced command and control service modules for multiple platform domains, based on a SOA architecture that specifies internal and external interfaces, allowing the development of a modular and scalable command and control station, customisable to the user needs. This architecture can be based on results of previous studies and work or open architectures that may prove more suitable and the interfaces can take advantage of the standardisation work that has been done already. After the definition, CAMELOT partners will prototype service modules according to their expertise, background individual technologies and practitioner needs. These will be integrated progressively in specific testing along the project. Internet link: https://cordis.europa.eu/project/id/740736

- **CROSS-MIGRATION Current European and Cross-National Comparative Research and Research Actions on Migration**
  Objective
  Migration and the characteristics which constitute its parameters, dynamics and complexities comprises one of the most paramount matters in contemporary Europe. Under these designated circumstances, the necessity of relevant, concise, and useful knowledge are prerequisites for the design of efficient and constructive policies. Although particular databases such as EUROSTAT and OECD offer valuable insights into these migratory dynamics, a comprehensive, efficient and integrative database which synthesizes, categorizes and maps out the vast analytical accounts on migration throughout Europe is non-existent. This project, bringing together 16 leading research institutions, networks and policy institutes throughout Europe, aims to proficiently fulfil this gap crucial for policy-purposes through the construction of a central migration hub. This hub will be of instrumental value due to its capability to operate as a key grammar in the design of current and future policy. Essentially, it accumulates and consolidates past, present and future migration research through providing an extensive yet succinct overview of migration drivers, infrastructures, flows, and policies, allowing for an improved systematic understanding of the factors that constitute the interaction between these analytical categories. The accessibility, accumulation and integration of research in one hub will be an integral element for improved policy making as it concentrates and visualizes relevant data – thereby facilitating information acquisition in pursuance of policy oriented goals. As of such, a continuous research-policy dialogue is prevalent throughout the construction of the hub, an insight which enables its users to visualize and develop migration scenarios- entailing a classification system for migration research. Consequently, the project aims to shape a strategic research agenda on migration as it will identify gaps, overlaps and connections within the available stock of migration research. Internet link: https://cordis.europa.eu/project/id/770121

- **REBUILD - ICT-enabled integration facilitator and life rebuilding guidance**
  Objective
  The REBUILD proposal address immigrant integration through the provision of a toolbox of ICT-based solutions that will improve both the management procedures of the local authorities and the life quality of the migrants. The design approach is user-centered and participated: both target groups (immigrants/refugees and local public services providers) will be part of the user requirement analysis and participants in three 2-days Co-Creation workshops organized in the 3 main piloting countries: Italy, Spain and Greece, chosen also for their being the ""access gates"" to Europe for main immigration routes. Users and stakeholders' engagement is a key success factor addressed both in the Consortium composition and in its capacity to engage relevant stakeholders external to the project. The key technology solutions proposed are: GDPR-compliant migrants' integration related background information gathering with user consent and anonymization of personal information; AI-based profile analysis to enable both personalized support and policy making on migration-related issues; AI-based needs matching tool, to match migrant needs and skills with services provided by local authorities in EU countries and labor market needs at local and regional level; a digital companion for migrants enabling personalized two-way communication using chatbots to provide them smart support for easy access to local services (training, health, employment, welfare, etc.) and assessment of the level of integration and understanding of the new society, while providing to local authorities data-driven, easy to use decision supporting tools for enhancing capacities and effectiveness in service provision. Cross-culturality, ethical, accessibility dimensions will be addressed since the very beginning of the project and validated and assessed in terms of consistency and impact during the project lifespan. Internet link: https://cordis.europa.eu/project/id/822215

The project itself has furthermore identified 2 projects which they consider relevant in relation to ITFLOWS, but have not been funded by the H2020 programme:

- **MEDAM Mercator Dialogue on Asylum & Migration** works with policy makers and civil society to identify challenges and draw up action strategies for asylum and migration-related policies in the EU and its member states. In doing so, our research focusses on economic issues in three broad areas: European Asylum System; Immigrant Integration & Countries of Origin, Transit, and First Asylum. It is funded by Stiftung Mercator. Internet link: https://www.medam-migration.eu/
- **Fundamental Rights Assessment of EU Data Collection Instruments:** It is a study initiated by the EU Parliament and carried out by the EU Commission, which has commissioned an international committee of data protection experts to check European data collections for their compliance with fundamental rights. Internet link: https://www.fiz-karlsruhe.de/en/forschung/fundamental-rights-assessment-eu-data-collection-instruments

8.3 Related patents

The project itself does not reference any related patents in its description, nor in the Consortium Agreement.

9 Annex 2: Memorandum of Understanding (MoU)

1. Valorisation and exploitation of … (please refer to the specific KER)
1.1 Agreement between partner, partner, partner ……
1.2 The following Memorandum of Understanding is made on the dd/mm/yyyy by and between

- **Partner a**, VAT …, registered in …, hereinafter referred to as …
- **Partner b**, VAT …, registered in …, hereinafter referred to as …
- **Partner c**, VAT …, registered in …, hereinafter referred to as …
- **……**

Individually referred to as a "Party" or collectively as the "Parties".

1.3 Background of the Agreement

During the CLEANKER project's life the KER was developed… *(clearly describe the KER)*

As per consortium agreement of the Project signed by the Parties, [number of Section]: Results, … Results are owned by the Party that generates them.

Partner a, b, c, x, y and z contributed to the generation of the KER. Each one contributed in the following way:

- **Partner a, …**
- **Partner b, …**
- **Partner c, …**
- **Partners x, …**
- **Partner y, …**
- **Partner z, …**

Upon successful conclusion of the project activities, Parties agreed to jointly define the best way to exploit and valorise the KER.

Partners a, b, c, … expressed the willingness to further valorise and exploit the above-mentioned KER, securing the needed resources, while partners x, y, and z agreed to give to partners a, b, c, … the full right to exploit declaring to have nothing to claim.

Given the uniqueness and further impact potential of KER/s above mentioned, all Parties through this agreement aim to define clear roles and modalities to exploit the programme beyond the grant received from the European Commission.

1.4 Purpose of the Agreement

The agreement is therefore aimed at clarifying and regulating

A. Scope and objectives of KER
B. Use of the brand *(example)*
C. Use of the data collected via the platform *(example)*
D. Use of the DB (software) *(example)*
E. Procedures and Roles of the Parties *(example)*

2. Scope and objectives of KER ……

The Parties agree that KER is …(KER description)

The KER is built around… and it is implemented through:

A. A network(s)-based outreach approach; *(example)*
B. …;
C. …;
D. ….

3. Use of the brand

….

…

4. Use of the data collected

…The registered data are the property of each of the Parties, who can use them for other activities in respect of GDPR and only for non-competing purposes with the current agreement (to be finetuned by partners legal offices).

5. Use of the ….

5.1 Procedures and Roles of the Parties

All Parties shall appoint 1 person within their respective organisation as the first and foremost contact point for ensuring swift and clear communication between the Parties and for implementation of the exploitation plan for this KER as approved by CLENKER and annexed to this MoU.

The initial persons responsible for being the contact point are:

- Partner a: Name, email address, telephone number
- Partner b: Name, email address, telephone number
- Partner c: Name, email address, telephone number
- Partner ……..

All partners will be informed of changes in the contact points in a timely fashion, not exceeding 5 working days from the moment the appointment from the organisation.

Partners a, b, c, … who expressed the willingness to further valorise and exploit the KER will proactively look for potential business development opportunities. Each time one of the Parties is clearly informed by a potential customer, the Party must inform the other Parties' relevant contact points and receive organisational approval (X out of X) to proceed.

It is the responsibility of each Party to ensure the contact points of the other Parties are informed using, if necessary, more than one communication channel (*e.g., email, WhatsApp, phone, etc*). It is the responsibility of the other Parties to ensure the approval to proceed (or denial thereof) is communicated back to the Party in a timely fashion, not exceeding 1 working week (5 working days) from the moment the latter's communication has reached them.

5.2 Dedicated KER management (in the case of a horizontal governance set-up – to be finetuned according to the governance set up chosen by the concerned partners, before the end of the project))

The Party in charge of any new contract will inform all partners about the client, the scope of the contract and foreseen role for each partner (if possible and to different degrees). In order to progress with a new programme, partners must agree on its relevance and viability. Parties have 5 working days to register non-agreement, otherwise the proposal will be considered suitable.

When the contract is finalised, agreed by all Parties and service sold to the client, the Party in charge will act as main contract manager and coordinator, responsible and liable for the smooth implementation of the envisaged activities throughout all phases.

The partner who secures the contract should also perform a "client financial check" and all Parties will be paid promptly upon payment from the client according to the payment schedules agreed upon.

The Party will be the interface between the client and the Parties and will also be responsible for proposing the allocation of resources among partners.

5.3 Promotion and marketing

Parties a, b, c, … who expressed the willingness to further valorise and exploit the KER will ensure the proper outreach, using their networks and contacts (social media, newsletters, websites) to promote the KER toward the target markets and early adopters initially identified in the exploitation plan annexed to this MoU.

The most suitable party to deliver the communication activities will be decided on the basis of the scope of the contract and the main target audience.

Cost of marketing and sales activities will be split among partners according to the provisions of the exploitation plan for the current KER.

5.4 To summarise:

Activity	*Party responsible*	*Cost split between parties (%)*
Programme management and coordination	*Party who secured a contract*	
KER and methodology management	*…*	
Innovation and IPR management		
KER update		
Outreach and communication	*…*	
…	*…*	

6. Intellectual Property Rights and NDA

The Parties acknowledge that nothing in this Agreement shall affect any pre-existing (background) and future (foreground) ownership of any intellectual property rights.

Dedicated NDA will be developed and signed between Parties and customers every time needed.

7. Miscellaneous

In the event of further participation in call for proposals covering actions that fall in the scope of this Agreement, the parties mutually recognize a first right of information and best effort to bid together

This Agreement is at-will and may be modified by mutual consent of all the Parties. This Agreement shall become effective upon signature by the authorised officials and will remain in effect until modified or terminated by any one of the Party by mutual consent. In the absence of mutual agreement by the Parties this Agreement shall remain in force for twenty-four months.

Any dispute that might arise concerning this Agreement shall be settled amicably.

8. Date & Signatures

FOR [please insert name of participant or potential or current partner]

Partner a: Name, Position
Partner b: Name, Position
Partner c: Name, Position
Partner x: Name, Position
Partner y: Name, Position
Partner z: Name, Position

10 Annex 3: The Lean Canvas

10.1 How to approach the business model

The Business Model is the plan for the successful operation of any "business", identifying, the intended "customer" base, products/services, sources of revenue and details of financing. It describes the way in which "value" can be extracted from an exploitable R&D result.
When working on the "business" model it is important to focus on the following elements:

<table>
<tr><td colspan="2">Your ultimate goal
• Why am I doing this thing?
• Which are my goals? (Best and worst scenario)
• Am I really better?</td></tr>
<tr><td>Global market
• Competitors
• Incumbents
• Investors (geography matters)
• Level of investment</td><td>Local market
• Competitors
• Incumbents
• Investors
• Peculiarities</td></tr>
<tr><td colspan="2">6-12-18 months plan
• KPI
• Product roadmap
• Cashflow
• Valuation target
• Next step</td></tr>
</table>

Every customer has a problem, every problem has a solution

When working on the business model, it is crucial to start from the problem not from the solution. New initiatives, including spin-off, fail because their offer (a product, a service, a license) is not designed for the customers. Every customer has a problem; every problem has a solution. Vice versa, not every solution has a problem, not every problem has a customer. Brainstorm and identify the problem (forget the solution) focus on the problem, identify a common definition.

Early Adopters

To develop the exploitation model, it is important to look at early adopters and how to go from early adopters to "early majority". Innovators are the ones that "use" the "alfa" version (2,5%, often the industrial partner in an R&D project); early adopters are the customers ready to "use" the "beta" version (13,5%). Next step is to reach the "early majority" (34%). New initiatives fail before reaching out the early majority and this is connected with the capability to reach early adopters.

Identify the "customers", who will pay, focus on the riskier ones and describe them in the most specific way. Why that customer has that problem is the way to select the assumptions (how they deal with the problem, what are they looking for). Focus on the most important one, the one that, if not validated, will make everything fall down.

UVP

The Unique Value Proposition, or Unique Selling Proposition (USP), is a clear statement describing the benefits of the novel offer, how you solve your customer's needs and what distinguishes you from the competition. It is clearly related to the customers' needs and how their problems are solved so far.
In defining the UVP you do not want a "point of parity" when your features are similar to the ones of the competitors". What counts are the points of difference, what you do, that the others do not and that matters to the customers. You do not want to be better than your competitors, you want to be better for your customers. Do not imitate/mirror competitors. Keep in mind customers, not competitors.

10.2 How to approach the Lean Canvas

For preparing the Exploitation Plan (your business plan) of a R&D result it is useful to use the Lean Canvas. The Lean Canvas is an adaptation of Business Model Canvas by Alexander Osterwalder which Ash Maurya10 created in the Lean Startup spirit (Fast, Concise and Effective startup). Lean focuses on problems, solutions, key metrics and competitive advantages.
The canvas is a good tool to focus on the exploitation model and start collecting information for the exploitation plan. Among the different type of canvas, the lean business model canvas, by Ash Maurya, is the most suited for R&D projects. It is a powerful tool to be used by the partners to further develop the characterization of their KERs, prepare the materials to be discussed at consortium meetings and draft the exploitation/business plan for a KER.
The lean canvas helps to fine-tune and develop the exploitation strategy for a KER having in mind four questions:

1) Who is "my customer"?
2) What is "her/his" problem?
3) How does "She/he" solve the problem now?
4) Is our solution more efficient than the current one?

10.3 How to fill out a Lean Canvas for a KER

The end goal of the lean canvas is that an unknowing third-party will be able to review it from start to end and, and through this revision, understand what your KER is about. They will understand the problem in focus, the customer groups that you target, the solution you provide, how it differentiates from competitors, how you intend to create value, etc. Due to this, it is very important to avoid the use of highly technical language, abbreviations etc. They can result in third parties not understanding the nature of your KER.
Below a description of the main steps to draft the canvas.

1) **PROBLEM** - find 3 main problems you are addressing.

Explain: ***What*** is the problem and ***why*** is it a problem.
Additionally, attempt to add numbers or quantifiable measures that will clearly highlight the scale of the problem.
Describe EXISTING ALTERNATIVES - Find out how they are solving the problem now (today's alternatives)

2) **CUSTOMER SEGMENT** - identify who has the problem, define target customers (do not confuse with users).

Be clear on explaining the geographic location of your customers, the industry in which they are operating in, as well as connecting them to the problem in question.

[10] For more information about this canvas, please refer to the blogpost explaining Lean Canvas and the ideas behind it on his website: http://www.ashmaurya.com/2012/02/why-lean-canvas/

EARLY ADOPTERS - find a small niche that is having the biggest problem, the ones that suffer the most (early adopters).
These will be the first customers of your solution; Be sure to find as much information about these as possible. Explain the geographic location, connect them to the problem, explain exactly why these will be the first adopters, clarify your current connection to them etc.

3) **UNIQUE VALUE PROPOSITION**

Define your UVP based on the today's alternative, what makes your product/service more efficient for your customers, a single and compelling sentence that makes everybody understand why you are far better (your features need to be compelling to the customers' needs, otherwise are irrelevant to clients).
Ensure that you clearly define how you differentiate from alternative solutions, and why the customer will come to you; Explain the ***uniqueness*** of your solution.
Provide facts and data, explaining the performance of your product compared to alternative solutions (efficiency increase of 20%, decreased energy consumption of 10%, 30% fewer development costs etc.).

4) **SOLUTION** – outline the main features of your solution.

When your features are similar of the ones of the competitors, this is an equality. What matters are the points of difference! What you do, that the others do not do and are what matters to the clients.
Be sure to explain the format of your solution (is it a machine, an equipment, a software, a service, a process, etc.), what it does, and how it does it.

5) **UNFAIR ADVANTAGE** – what is it that gives you an advantage in front of the competition? Something that can't be easily copied or bought.

This could be IPR, being first movers on new technology that takes years to develop etc. Be sure to explain, *why* the listed points provide you with an advantage. It can be difficult for third parties to understand if they do not have a wide array of knowledge regarding your industry.

6) **CHANNELS** – How will you reach your customers?
   Be sure to investigate whether the chosen channels are suitable for your choice of customers and consider whether they will be enough to establish the needed reputation on the market.
7) **REVENUE STREAMS**
   Which will be the main revenue streams when the solution is ready for the market. Explain how each of them will generate revenue and how much you expect to generate from each stream.
   Estimate revenues for seed stage after 6 months and after 3 years. Quantify amounts and prices by detailing, for example, the expected number of services provided and paid, number of licenses sold at which prices etc.
8) **KEY METRICS** – key activities you will measure to track the success (e.g. units sold, users registered, retaining users, paying customers, number of complaints …)
9) **COST STRUCTURE** – which will be the main costs when the solution is ready for the market (e.g. customer acquisition costs, distribution costs, hosting, people etc). As with revenues, estimate the total costs issued after 6 months and 3 years along with the estimated cost of each "cost-entity". This will connect your revenues to your costs.

After you finish the exercise, test your hypothesis "out the lab", with at least 2 to 3 real potential customers. Validate the following assumptions:

- Are the problems you assume really the ones? Is your solution to solving their problem?
- Are the features your solution is offering the ones the market needs and looks for?
- Are the explanations provided in the canvas enough to provide the customer with an understanding of your project?

Write down the feedbacks and update, revise, iterate the Canvas accordingly.

Lean Canvas by Ash Maurya

<table>
<tr>
<td rowspan="2">Problem
1)
Top 3 problems

His main problem
Which job has to accomplish

What and why?

4)
Existing alternatives to address the same problems</td>
<td>Solutions
6)
Top 3 features
Based on the VP
(why it is better than others)
Use MVP to test assumptions

Remember: the first sentence should clarify what it does, how it does it.</td>
<td rowspan="2">Unique Value proposition
5)
Why you are different and worth buying
(How you help customer doing his job, accomplish his mission
Improve his position
…. better than others.
Provide

Explain how you differentiate from alternative solutions and thus the uniqueness of your solution.
Provide numbers to the performance of your solutions (see earlier explanation).</td>
<td>Unfair Advantage
7)
Can it be easily copied or brought?
What is the customer retaining costs?
Acquisition costs
Switching costs

See the earlier explanation for clarification.
….</td>
<td rowspan="2">Customer segment
2)
Who are they?

Distinguish between users and customers (customers buy, users “use”)
Split into vertical segments
Pick the strongest customer segment

Remember geographic location, Industry and
connection to the problem.

3)
Early adopters

Remember geographic location, Industry and
connection to problem.
+ why are they early adopters? What is your relation to these etc.</td>
</tr>
<tr>
<td>Key Metrics
9)
Key aspects/activities you need to measure for a feedback</td>
<td>Channels
8)
How you contact your customers/early adopters,
How you deliver value
How you promote value</td>
</tr>
<tr>
<td colspan="3">Cost structure
11)
Prototyping
HR costs, Eng. costs, MFG costs, marketing costs etc.
Estimate costs for each “cost-entity”
Estimate costs after seed stage 6 months and 3 years.</td>
<td colspan="3">Revenue Streams
10)
The different revenue streams How each stream generates revenue Estimation of how much each stream will generate Estimation of revenue at seed stage 6 months and 3 years.</td>
</tr>
</table>

11 Annex 4: Commercialisation options and examples of contracts

11.1 Licensing

Exclusive:
Only the licensee can use the licensed IP or technology (the licensor cannot use or license it);
Sole:
The licensor agrees not to grant any additional licenses but retains the right to make use of the licensed IP.
Non-Exclusive License:
The licensee and the licensor can both use the licensed intellectual property or technology. The licensor is also allowed to negotiate further non-exclusive licenses with other companies.

11.2 Franchising

While on the one hand, franchising helps franchisors to expand their business with the need for less investment, on the other hand, it enables franchisees to enter into a market more easily since the business is based on an established brand and/or on a proven business model. Franchising means less risk and low costs for both parties with higher chances of surviving within the first years of business.
In Europe, the regulation of franchising is not harmonized. Also, in most EU Member States there are no independent codes establishing all the rules for this particular partnership. However, this sector has the particularity of being self-regulated in the EU through the European Code of Ethics for Franchising establishing a set of guidelines and principles for both franchisors and franchisees. Therefore, it is important for potential franchisors and franchisees to get to know the requirements that they must meet under their national law and become familiar with the European Code of Ethics for Franchising.
Due diligence: potential franchisees should carry out a due diligence to detect potential risks, which may arise during the franchise. Such an audit may include verification of the related IP, financial and business information about the franchisor, sufficiency of the goods/services, training and assistance to be provided by the franchisor, etc.

11.3 Joint ventures (JVs)

JVs are business alliances of two or more independent organisations (ventures) to undertake a specific project or achieve a certain goal by sharing risks. IP has an important role in the creation of such collaborations, since venture bring their own intellectual assets for the success of a JV and they should agree on their initial contributions, responsibilities and obligations within the alliance as set out in JV agreements.
Advantages
Gives opportunity to exploit and share IP assets with reduced financial investment.
Allows companies to access new markets by sharing risks.
Creates possibilities to leverage existing technologies and patents developed by each venture.
Provides companies with the chances to develop new IP with less investment.
Allows utilization of unused IP assets.
Disadvantages
There may be an imbalance in expertise, intellectual assets and investment brought into the JV by the ventures.
Coping with different management cultures in IP management may be difficult.

Key terms in the JV agreements: Background, foreground and access rights
In JVs, the ventures bring into the project their previously owned IP assets - which are known as background - and they should decide on the access rights to their background for other ventures. Furthermore, the project implementation will also generate IP, which is referred to as IP foreground or results. The ownership of foreground/results and determination of access rights should be clarified before entering a JV partnership together with compensation of IP registration and/or maintenance costs.

11.4 Spin-off (newco)

A Spin-off (or newco) is a separate legal entity created by a parent organisation (PO) to bring its IP assets into the market. It is generally an efficient solution for the parent organisations, who may not be fully capable of commercialization of their own IP assets, such as for universities and research institutions. Spin-offs are an important means of technology transfer since they are acting as an intermediary between the research environment and industries while putting research results into the commercial market with a marketable product. Moreover, through spin-offs, research organisations can focus on their main task of "research" instead of "marketing", which is the main task of commercial companies (spin-off).
A spin-off company can be formed by a person external to the PO for the exploitation of the IP asset created by the parent organisation. In this type of spin-off, as the new company is owned by an external professional, the IP assets to be exploited by the new company (spin-off) are generally transferred by licensing, to allow the PO to keep control over them. The external professionals can also be venture capitalists, who foresee a market potential in commercialisation of IP.
Conducting due diligence
A due diligence study allows the investors to ascertain the ownership of the IP to be transferred and any obligations affecting the transfer.

11.5 Material Transfer Agreements (MTAs)

MTAs are used when exchanging tangible materials between parties to secure the IP rights of the material provider against possible disclosure by the recipient party. The material exchanged can take many forms, such as product samples, prototypes, software, chemical compounds or biological materials etc. Generally, such a transfer occurs during:

- feasibility studies to check whether the material is compatible with the recipient facilities,
- research activities on the material in R&D partnerships,
- provision of samples or prototypes to future clients for trials, etc.

12 Annex 5: Follow-up funding opportunities

12.1 European Investment Project Portal (EIPP)

The European Investment Project Portal (EIPP) is the EU matchmaking portal, enabling EU-based project promoters – public or private – to reach potential investors worldwide. The Portal is a free service offered by the European Commission and is part of the Investment Plan for Europe, which aims to mobilise investment, boost economic growth and create jobs across the EU.

For more information check here: https://ec.europa.eu/investeuportal/desktop/en/index.html

12.2 The InvestEU Programme

The InvestEU Programme builds on the successful model of the Investment Plan for Europe, the Juncker Plan. It will bring together, under one roof, the European Fund for Strategic Investments and 13 other EU financial instruments. Triggering more than €372 billion in additional investment over the period 2021-27, the InvestEU Programme aims to give an additional boost to sustainable investment, innovation and job creation in Europe.
The Programme consists of:

- The InvestEU Fund which aims to mobilise more than €372 billion of public and private investment through an EU budget guarantee of €26.2 billion that backs the investment of implementing partners such as the European Investment Bank (EIB) Group and other financial institutions.
- The InvestEU Advisory Hub which provides technical support and assistance to help with the preparation, development, structuring and implementation of investment projects, including capacity building.
- The InvestEU Portal which brings together investors and project promoters on a single EU-wide platform, by providing an easily accessible and user-friendly database of investment opportunities available within the EU.

https://europa.eu/investeu/home_en

12.3 CASCADING GRANTS

Cascade Funding, also known as Financial Support for Third Parties (FSTP), is a European Commission mechanism to distribute public funding in order to assist beneficiaries, such as start-ups, scale-ups, SME and/or mid-caps, in the uptake or development of digital innovation.
This funding method aims at simplifying the administrative procedures, creating a light, SME-friendly application scheme, by allowing that some EU-funded projects may issue, in turn, open calls for further funding.
This scheme is based on the model of Erasmus students and was first introduced by the European Commission in Horizon 2020, the Framework Programme for Research and Innovation (2014-2020). It will be used also in the new Horizon Europe Framework Programme for Research and Innovation (2021-2027).
More information and open calls available here: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/competitive-calls

12.4 COSME

COSME is the EU programme for the Competitiveness of Enterprises and SMEs, running from 2014 to 2020, with a budget of €2.3billion. COSME will support SMEs in the following areas:

- Facilitating access to finance
- Supporting internationalisation and access to markets
- Creating an environment favourable to competitiveness
- Encouraging an entrepreneurial culture

COSME is a programme implementing the Small Business Act (SBA) which reflects the Commission's political will to recognise the central role of SMEs in the EU economy. http://ec.europa.eu/growth/smes/cosme/

12.5 Access to finance in Europe

University technology transfer offices (UTTOs) often perform the function of transferring technology and commercialising innovations emerging from the University sector to the market place.
For more information check here:
http://europa.eu/youreurope/business/funding-grants/access-to-finance/index_en.htm
This site can help to apply for loans and venture capital supported by the European Union.
Click on your country to locate banks or venture capital funds that provide finance supported by the EU.

12.6 Ad hoc grants for EIC Pathfinder and EIC Transition grant holders

The grant holders of EIC Pathfinder projects (including grants resulting from certain EIC pilot Pathfinder, FET-Open and FET-Proactive calls) and of EIC Transition projects are eligible to receive ad hoc grants with fixed amounts of up to EUR 50 000, as specified in the relevant call sections of the EIC work programme.
In line with Article 47(3)(b) of the Horizon Europe Regulation, the ad hoc grants are not subject to any call. They reflect the necessity and hence the possibility for the EIC to proactively support, at any stage of a project implementation, the assessment of any potentially innovative lead stemming from a EIC Pathfinder project, or reinforce the coordination and management of a Portfolio where needed.
These ad hoc grants fund either complementary activities to explore potential pathways to commercialisation (for EIC Pathfinder grant holders) or portfolio activities (for EIC Pathfinder and EIC Transition grant holders).
These ad hoc grants do not fund research or activities that were already foreseen in the original project. A maximum of three ad hoc grants can be awarded for each EIC Pathfinder project and more than three may be awarded in exceptional and duly justified cases. A maximum of one ad hoc grant can be awarded for each EIC Transition project. Any such ad hoc grant can be awarded to an individual grant holder or a group of grant holders. EIC grant holders, after discussion with a EIC Programme Manager or following a project review, can apply for such an ad hoc grant.

12.7 Fast Track scheme to apply for the EIC Accelerator

The 'Fast Track' scheme is a novelty under Horizon Europe and a specific process applicable to the EIC Accelerator. It provides for a specific treatment of applications that result from existing Horizon Europe or Horizon 2020 projects.
Under the Fast Track scheme, applicants do not apply directly to the EIC Accelerator call. Instead, a project review is carried out by the responsible funding body to assess the innovation or market deployment potential of an existing project, to decide whether the project is suitable for support under the EIC Accelerator.
The responsible funding body can submit the outcome of the projects review to the EIC Accelerator, if the project review concludes that the following conditions are met:

- the proposal meets the two first criteria of the EIC Accelerator (excellence and impact),
- there is no duplication of funding of activities to be supported under the EIC Accelerator with the existing grant, and
- the applicant meets the eligibility criteria for the EIC Accelerator.

The applicant will then be invited to prepare a full application for the EIC Accelerator to one of the cut-off dates within the next 12 months following initial review. They will receive support through the EIC artificial intelligence-based IT platform and coaching.

12.8 EIC Transition

The EIC Transition funding scheme builds on promising research results to demonstrate and mature the technology and develop business plans.
EIC Transition funds innovation activities that go beyond the experimental proof of principle in laboratory to supports both:

- the maturation and validation of your novel technology in the lab and in relevant application environments
- the development of a business case and (business) model towards the innovation's future commercialisation.

Grants of up to €2.5million and more are available to validate and demonstrate technology in application-relevant environment and develop market readiness.
EIC Transition has open funding for projects in any field of science or technology as well as challenge driven funding on specific strategic fields.
Single applicants (SMEs, spin-offs, start-ups, research organisations, universities) or small consortia (max 5 partners) may apply.

https://eic.ec.europa.eu/eic-funding-opportunities/eic-transition_en

12.9 EIC Accelerator

The EIC Accelerator supports individual Small and Medium Enterprises (SMEs), in particular Startups and spinout companies to develop and scaleup game-changing innovations. In some cases, small mid-caps (up to 500 employees) are supported.
The EIC Accelerator provides substantial financial support with:

- grant funding (non-dilutive) of up to €2.5 million for innovation development costs,

- investments (direct equity investments) of up to €15 million managed by the EIC Fund for scale up and other relevant costs.

In addition, EIC selected companies receive coaching, mentoring, access to investors and corporates, and many other opportunities as part of the EIC community.
Applications can be submitted at any time through the EIC platform. Applicants have to submit a video pitch, a slide deck and respond to a short set of questions about their innovation and their team.
Applications that meet all the criteria at the remote evaluation stage and are assessed positively by the EIC jury but not recommended for funding, will be awarded a Seal of Excellence to help them secure funding from other sources. Companies with a Seal of Excellence can also get support from EIC Business Acceleration Services.

https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator_en

12.10 EIC Prizes

The EIC Prizes are awarded to whoever can most effectively meet a pre-defined challenge, without prescribing how that challenge should be solved. These will boost breakthrough innovation across sectors by fostering cutting-edge solutions which bring major benefits to citizens and society.
In 2021 the following challenges are defined:

- EU Prize for Women Innovators (3 prizes of €100k, 1 prize for 'Women Innovators' main category, 1 prize of €50k for 'Rising Innovator' category)
- The European Capital of Innovation Awards (iCapital) (total budget €1,8 million, European Capital of Innovation winner €1 million)
- The European Innovation Procurement Awards (total budget €300k)
- The European Social Innovation Competition (total budget €200k)

12.11 EUREKA and Eurostars funding

Eurostars supports international innovative projects led by research and development- performing small- and medium-sized enterprises (R&D-performing SMEs). With its bottom-up approach, Eurostars supports the development of rapidly marketable innovative products, processes and services that help improve the daily lives of people around the world. Eurostars has been carefully developed to meet the specific needs of SMEs. It is an ideal first step in international cooperation, enabling small businesses to combine and share expertise and benefit from working beyond national borders.
Eurostars applies a decentralized funding procedure; participants do not receive funding directly from the EUREKA Secretariat or the EU. All funding to participants in approved projects is managed by their respective funding body and according to their national funding rules and procedures. These rules and procedures are dependent on the member countries involved in the project. Project partners are strongly advised to contact their National Project Coordinators (NPCs) and browse on the Eurostars in each country. https://www.eurostars-eureka.eu/

12.12 Entrepreneurship and Small and medium-sized enterprises (SMEs)

The dedicated section on EU portal offers a wide focus dedicated to information on possible EU funding opportunities for SMEs and in general on what EU does for SMEs: https://ec.europa.eu/growth/smes

Furthermore, to know if a programme is relevant to your particular case, we strongly suggest that you contact your local Enterprise Europe Network partner, who can give you one-to-one advice and support in applying for EU funding.
Contact details of the Enterprise Europe Network members: http://een.ec.europa.eu/about/branches/

12.13 Seal of Excellence – EuroQuity Initiative

This initiative is dedicated to those companies who have received the Seal of Excellence from the EU Horizon 2020 SME Instrument Programme. Matchmaking activities and support services will be provided in order to facilitate their access to risk finance and enhance their visibility, through a specific on-line community based on the EuroQuity platform.
Each "Seal of Excellence" SME will gain in this way instant visibility among different actors: the main EU business angels' networks, VCs, corporate investors, and new business partners, at the same time investors will be guarantee on the quality of SMEs' projects and their innovation potential. Free services will also be offered to these companies allowing them to grow on a European level:

- Visibility and access to European investors
- Possibility to pitch online in front of investors during e-pitch sessions
- Connections with National Contact Points of your Country

More information available here https://www.euroquity.com/fr/community/Access4SMEs--Seal-of-Excellence-5bb56459-4f88-4d3c-a2eb-8e4b6e865ea5/

12.14 Contracts and grants - access to business opportunities

Several different contracts and grants are regularly made available for companies or organisations who want to work with Directorate General (DG) for Internal Market, Industry, Entrepreneurship, and SMEs or apply for funding.
In the framework of public procurement contracts, DG Internal Market, Industry, Entrepreneurship, and SMEs regularly organizes calls for tenders. Calls for tenders are special procedures to generate competing offers from different businesses looking to obtain works, supply, or service contracts.
Those tenders/calls also give an insight in competitors' activities as well as ideas for partnerships and stakeholders. Furthermore, there are possibilities for winning contracts.

12.15 Tenders Electronic Daily

TED provides free access to business opportunities from the European Union, the European Economic Area and beyond.
Every day, from Tuesday to Saturday, a further 2,000 public procurement notices are published on TED.
You can browse, search and sort procurement notices by country, region, business sector and more.
Information about every procurement document is published in the 24 official EU languages. All notices from the EU's institutions are published in full in these languages. For more information check here:
http://ted.europa.eu/TED/search/search.do

12.16 Innovaccess - Intellectual Property Portal

Innovaccess aims to enhance Intellectual Property (IP) support services to Small and Medium-sized Enterprises (SMEs) to turn their Intellectual capital into commercial values and competitiveness.
The portal helps to protect IP rights and to understand IP security rules. For more information check here: http://www.innovaccess.eu/.

12.17 European Green Deal

Background

On 11 December 2019, the Commission presented the European Green Deal, with the ambition of becoming the first climate-neutral bloc in the world by 2050. Europe's transition to a sustainable economy means significant investment efforts across all sectors: reaching the current 2030 climate and energy targets will require additional investments of €260 billion a year by 2030.
The success of the European Green Deal Investment Plan will depend on the engagement of all actors involved. It is vital that Member States and the European Parliament maintain the high ambition of the Commission proposal during the negotiations on the upcoming financial framework.
A swift adoption of the proposal for a Just Transition Fund Regulation will be crucial.
The Commission will closely monitor and evaluate the progress on this transition path. As part of these efforts, every year the Commission will hold a Sustainable Investment Summit, involving all relevant stakeholders, and it will continue to work for promoting and financing the transition. The Commission invites the investment community to make full use of the enabling regulatory conditions and ever-growing needs for sustainable investments, and authorities to take an active role in identifying and promoting such investments.

The Just Transition Mechanism

The Just Transition Mechanism (JTM) is a key tool to ensure that the transition towards a climate-neutral economy happens in a fair way, leaving no one behind. While all regions will require funding and the European Green Deal Investment Plan caters for that, the Mechanism provides targeted support to help mobilise at least €100 billion over the period 2021-2027 in the most affected regions, to alleviate the socio-economic impact of the transition. The Mechanism will create the necessary investment to help workers and communities which rely on the fossil fuel value chain. It will come in addition to the substantial contribution of the EU's budget through all instruments directly relevant to the transition.

The Just Transition Mechanism will consist of three main sources of financing:

1) **A Just Transition Fund**, which will receive €7.5 billion of fresh EU funds, coming on top of the Commission's proposal for the next long-term EU budget. In order to tap into their share of the Fund, Member States will, in dialogue with the Commission, have to identify the eligible territories through dedicated territorial just transition plans. They will also have to commit to match each euro from the Just Transition Fund with money from the European Regional Development Fund and the European Social Fund Plus and provide additional national resources. Taken together, this will provide between €30 and €50 billion of funding, which will mobilise even more investments. **The Fund will primarily provide grants to regions. It will, for example, support workers to develop skills and competences for the job market of the future and help SMEs, start-ups and incubators to create new economic opportunities in these regions. It will also support investments in the clean energy transition, for example in energy efficiency.**

2) A dedicated **just transition scheme under InvestEU** to mobilise up to €45 billion of investments. It will seek to attract private investments, including in sustainable energy and transport that benefit those regions and help their economies find new sources of growth.
3) **A public sector loan facility with the European Investment Bank** backed by the EU budget to mobilise between €25 and €30 billion of investments. It will be used for loans to the public sector, for instance for investments in district heating networks and renovation of buildings.

   The Commission will come with a legislative proposal to set this up in March 2020.**The Just Transition Mechanism is about more than funding: relying on a Just Transition Platform, the Commission will be providing technical assistance to Member States and investors** and make sure the affected communities, local authorities, social partners and non-governmental organisations are involved. **The Just Transition Mechanism will include a strong governance framework centred on territorial just transition plans.**

More information available here https://ec.europa.eu/info/research-and-innovation/strategy/european-green-deal/call_en

12.18 European Institute of Technology and Innovation

Under EIT's Knowledge and Innovation Communities (KICs) are partnerships that bring together businesses, research centers and universities. Through the KICs, EIT strengthen cooperation among businesses (including SMEs), higher education institutions and research organisations, form dynamic pan-European partnerships, and create favourable environments for creative thought processes and innovations to flourish. These partnerships are called Innovation Communities and each is dedicated to finding solutions to a specific global challenge, from climate change and sustainable energy to healthy living and food.

There are 8 Innovation Communities and each focuses on a different societal challenge:

- EIT Climate-KIC
- EIT Food
- EIT Health
- EIT Digital
- EIT Manufacturing
- EIT Innoenergy
- EIT Urban Mobility
- EIT Raw Materials

12.19 LIFE Programme

LIFE programme is the EU's funding instrument for the environment and climate action. The programme is divided into two sub-programmes, one for environment (representing 75% of the overall financial envelope) and one for climate action (representing 25% of the envelope).

- The programme includes large scale demos/pilots with focus on Environment and Climate Action; with clear impact aims during the project; and clear environmental/climate problem baseline (de-risk).
- Projects start at TRL 6-7 aiming up to 9 to bridge valley of death (income allowed – end-user important).

- The funding programme uses bottom-up approach (call-topics are broad) allowing proposers to define their solutions needed for their environmental context/problem.
- Focus is on making Environmental impacts in the EU.
- Even proposals from single EU beneficiaries are allowed.
- Proposers can apply in their own language.
- There is no set proposal budget limit.

12.20 Dealflow

Dealflow is sponsored by the European Commission to support EU-funded innovations with fundraising, venture building and networking. It supports EU-funded projects from H2020.
Three typologies of support are foreseen:

- Venture-building: giving tailored support on challenging business topics (e.g. sales strategy, market sizing & research, organizational structure, and pitching);
- Fundraising (preparation): preparing investor materials and providing access to investor networks;
- Networking: introductions to industry experts, potential clients and new partners through their matchmaking platform, community & events.

https://dealflow.eu/

12.21 Accelerators and Incubators

If you have the intention to create a startup/spinoff, you are suggested to check Accelerators/Incubators in your area.
Here below there is a non-exhaustive list of international and pan-European Accelerators/Incubators networks:

- Startup Bootcamp: founded in 2010, Startup Bootcamp is a well-known global network of startup accelerators that offer an intense 3-month program. After Selection Days, 10 startups join diverse accelerator programs (Amsterdam, Istanbul, London, Barcelona, Copenhagen, Berlin, Eindhoven and Haifa) where they receive mentoring, free workspace, great networking opportunities, and pitching opportunities to over 400 investors on Investor Demo Day.
- Startup Weekend: Startup Weekend brings together developers, designers, product managers, aspiring entrepreneurs, marketers and tech enthusiasts to launch a startup in 54 hours. These weekend-long events are focused on learning through creating, building professional relations and networking.
- StartupBus Europe: is a unique project founded in 2010. It is a hackathon for European tech entrepreneurs ("buspreneurs") where they compete over the course of a 3-day bus ride on the way to Vienna.
- IMPACT Accelerator: (Internet Mobile Projects Accelerator) offers premium acceleration services for European mobile start-ups and small and medium-sized business for a period of six months. It operates in several locations in Spain and Italy and given it is one of the 16 consortia selected by the European Commission within the framework of the Seventh Framework Programme, the selected start-ups in the extended phase can count on the Buongiorno Headquarters in 14 countries.
- Wayra: launched in 2011, Wayra is a startup accelerator financially backed by Telefonica, one of the biggest telecommunication companies in the world.

Here below a non-exhaustive list of Accelerators/Incubators in Member States:

- Austria: i5invest, INiTS, Up to Eleven, Kubator

- Belgium: Telenet Idealabs, NEST'Up
- Bulgaria: 3Challenge, Eleven, LAUNCHub
- Croatia: Zip
- Czech Republic: StarCube, Startup Yard
- Denmark: Accelerace
- Estonia: GameFounders,Garage48, Startup Wise Guys
- Finland: Startup Sauna
- France: TheFamily, Numa (Le Camping)
- Greece: OpenFund
- Germany: Axel Springer Plug & Play, hub:raum
- Hungary: iCatapult
- Italy: H-Farm, LuissEnLabs
- The Netherlands: Rockstart
- Norway: betaFACTORY
- Lithuania: StartupHighway
- Portugal: The Lisbon Challenge
- Poland: Gamma Rebels
- Romania: SeedForTech, Innovations,
- Spain: SeedRocket, Tetuan Valley

12.22 Innovfin

InnovFin – EU Finance for Innovators is a joint initiative launched by the European Investment Bank Group (EIB and EIF) in cooperation with the European Commission under Horizon 2020. InnovFin aims to facilitate and accelerate access to finance for innovative businesses and other innovative entities in Europe.
Innovfin makes available specific instruments for different typologies of financing.

Start-up and SME financing

- InnovFin Equity provides equity investments and co-investments to or alongside funds focusing on early-stage financing of enterprises operating in innovative sectors covered by Horizon 2020, located or active in the EU or Horizon 2020 Associated Countries. InnovFin Equity is available via four products: InnovFin Technology Transfer, InnovFin Business Angels, InnovFin Venture Capital, InnovFin Fund-of-Funds.
- InnovFin Guarantee SME guarantee provides guarantees and counter-guarantees on debt financing between EUR 25 000 and EUR 7.5 million, in order to improve access to loan finance for innovative small and medium-sized enterprises (SMEs) and small mid-caps (up to 499 employees).

Corporate finance

- InnovFin Emerging Innovators offers a range of tailored products which provide financing in support of R&I by small, medium-sized and large companies and the promoters of research infrastructure. It provides loans or guarantees directly or indirectly via financial intermediaries.
- InnovFin MidCap Guarantee provides guarantees and counter-guarantees on debt financing of up to EUR 50 million, in order to improve access to finance for innovative midcaps (up to 3 000 employees) which are not eligible under the InnovFin SME Guarantee.

- InnovFin Corporate Research Equity (in collaboration with EFSI) increases the supply of equity-type financing under the European Fund for Strategic Investments (EFSI) to large research and innovation (R&I) programmes and to innovative large mid-caps and small or medium-sized enterprises (SME). It addresses the market gap for large equity-type investment in the form of contingent loans, in particular with mid- to long-term repayments profile that are directly linked to product development cycles.

Science

- InnovFin Science (for research institutions and universities) aims at supporting research and innovation (R&I) investments by public or private research institutes/organisations and universities, including the financing of buildings and other infrastructure directly related to R&I activity. It provide different forms of debt or equity-type financing.

Thematic financing

- InnovFin Energy Demo Projects provides loans, loan guarantees or equity-type financing to innovative demonstration projects in the fields of energy system transformation, including but not limited to renewable energy technologies, smart energy systems, energy storage, carbon capture and storage or carbon capture and use, helping them to bridge the gap from demonstration to commercialisation. The product is deployed directly by the EIB.
- InnovFin Infectious Diseases provides financial products ranging from standard debt to equity-type financing for amounts typically between EUR 7.5 million and EUR 75 million, to innovative players active in developing innovative vaccines, drugs, medical and diagnostic devices or novel research infrastructures for combatting infectious diseases. The product is being made available directly through the European Investment Bank.

12.23 Startup Europe

STARTUP Europe is an initiative of the European Commission to connect high tech startups, scale-ups, investors, accelerators, corporate networks, universities and the media. The 4 main objectives of Startup Europe are to:

- Connect people
- Connect local start up ecosystems
- Help start-ups soft land in other market
- Celebrate entrepreneurs' success

In order to help build a strong European ecosystem where startups can thrive, Startup Europe is empowering 7 projects, funded under Horizon 2020, that are connecting local ecosystems across Europe. These projects will connect deep tech startup ecosystems and support cross-border activities for startups and scale-ups. The cross-border activities include the following: connecting tech entrepreneurs with potential investors, business partners, accessing skills, and services helping startups soft land in new international markets.

- Scaleup4Europe: The Scaleup Labs will provide deep tech start-ups with a structured open innovation approach in which they can achieve cross-border market success, through first successful collaborations with corporate customers, investors and/or public institutions.
- B-HUB FOR EUROPE: Will target deep tech vertical startups in the blockchain domain. The initiative is aimed at: discovering high-potential innovations, shaping suited proof of concepts and business models, providing specialised acceleration services to overcome current market barriers and assist the go-to-market process, unlocking new market channels with potential private/public customers, scaling up

innovative businesses across five startups ecosystems in Europe: IT (Rome), FR (Paris), DE (Berlin), LT (Vilnius) and RO (Cluj-Napoca).

- The Scale-up Champions: Project builds on the premise of equalising opportunities of scaling up for startups across five countries represented through the partners of the consortium: Estonia, Lithuania, Poland, Denmark and Spain. Main activities targeting: corporate-startup collaboration, investment readiness and internationalization
- STARTUP 3: Will scout for top founding teams to identify (uptake) breakthrough innovations from deep tech verticals (i.e., built on tangible scientific discoveries or engineering/ technical advances). Then STARTUP3 will help them fine tune (upgrade) their technologies/ business models and align their value proposition to the actual market demand (the so-called Key Performance Areas – KPAs). Finally, STARTUP3 will bring together top deep tech startups/ SMEs and the most prominent corporate innovators – CVC arms, incubators and accelerators, and innovation labs (facilitated by clusters and digital innovations hubs – DIHs) with the aim of catalysing productive interaction (upscale).
- X-Europe: Brings together leading training, acceleration, events, and media companies from across Europe. Through the delivery of training, matchmaking & promotional services X-Europe will support 150 deeptech startups and help them to internationalize, grow across borders, and into developing frontiers.
- INNODEC - (Innovation Radar Data-based Identification & Commercialisation): Aims to close the gap between investors and research projects from both sides. On the one hand, this is achieved through placing investors/partners in contact with the research projects with the highest potential, and then on the other, to coach the projects on raising capital, identifying a business model and developing a sound go-to-market strategy. This approach will ensure scalability while simultaneously catering to the large diversity between projects and their needs.
- MediaMotorEurope: Will boost solutions that can address challenges. Its goal is to nurture high-potential European deep tech innovators, solving today's most prominent media industry challenges and support them in building the media solutions of tomorrow such as misinformation, accessibility, user interfaces and use of data. A large focus will be on deep tech solutions, such as AI and machine learning, and their potential application in the domain of media and creative industries.

12.24 INTERREG EUROPE

Interreg Europe can help in the following ways:

- **Financial support** – funding is available for interregional cooperation projects, which have the potential to lead to longer-term collaborations and partnerships
- **Expand your network** – meet new like-minded partners, stakeholders, and business colleagues across Europe.

The DG also gives the opportunity to organisations to get some grants through calls for proposals. These are invitations for suppliers to submit a proposal on a specific commodity or service. A grant or a subvention is a direct financial contribution from the European Commission to support a specific action or project of a non-commercial nature, to cover eligible costs directly incurred by the beneficiaries.

For more information check here: http://www.interregeurope.eu/

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HORIZON RESULTS BOOSTER

An initiative of the European Commission