



## Final Exploitation Plan

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## Project Information Summary

<b>Project Acronym</b>	FRAME
<b>Project Full Title</b>	Framework for the Analysis of Research and Adoption Activities and their Macroeconomic Effects
<b>Grant Agreement</b>	727073
<b>Call Identifier</b>	H2020 - SC6 – CO-CREATION – 2016 -1
<b>Topic</b>	CO-CREATION-08-2016/2017: Better integration of evidence on the impact of research and innovation in policy making
<b>Funding Scheme</b>	Medium-scale focused research project
<b>Project Duration</b>	1st April 2017 – 31st March 2019 (24 months)
<b>Project Officer(s)</b>	Hinano SPREAFICO (Research Executive Agency) Roberto MARTINO (DG Research and Innovation)
<b>Co-ordinator</b>	Dr Georg Licht, Zentrum für Europäische Wirtschaftsforschung GmbH (ZEW), Mannheim
<b>Consortium Partners</b>	Centre for Economic Policy Research, London Lunds Universitet, Lund Università Luigi Bocconi, Milan Universitat Pompeu Fabra, Barcelona London Business School
<b>Website</b>	<a href="http://www.h2020frame.eu/frame/home.html">http://www.h2020frame.eu/frame/home.html</a>

Table 1: Project Information Summary

## Deliverable Documentation Sheet

<b>Number</b>	D8.9
<b>Title</b>	Final Exploitation Plan
<b>Related WP</b>	WP8 Dissemination, Exploitation and Communication
<b>Lead Beneficiary</b>	Centre for Economic Policy Research (CEPR)
<b>Author(s)</b>	Reuben Almeida
<b>Contributor(s)</b>	
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*Table 2: Deliverable Documentation Sheet*

## Quality Control Assessment Sheet

Issue	Date	Comment	Author
Draft v1.1	11/03/2019	Submitted to ZEW for review	Reuben Almeida
Draft v1.2	22/03/2019	Further comments for ZEW to review	Reuben Almeida
Draft v1.3	26/03/2019	Final comments for ZEW review	Reuben Almeida
Final v2.0	28/03/2019	Final review by Co-ordinator	Reuben Almeida

Table 3: Quality Control Assessment Sheet

## Disclaimer

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## Acknowledgment

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## Executive Summary

This document is the ninth deliverable (in chronological terms) of Work Package 8 – Dissemination, Exploitation and Communication of the FRAME project, funded by the European Commission through its H2020 programme (Grant Agreement number 727073).

The document is D8.9 – FRAME Final Exploitation plan, in which the project consortium will seek to set out targets for beneficiaries and examine ways in which the knowledge generated can be imparted to interested end-users.

In FRAME, **exploitation (or use)** has been and will be implemented through research activities, research training, and contributing to policy making. It has been agreed that each partner takes measures to ensure ‘exploitation’ of its results by:

using them in further research activities (outside the action);

developing, creating or publicising the models produced by the consortium.

This Plan will help to establish the basis on which such activities may be pursued up to six years after the project’s end.

Exploitation of their results will be performed either by single partners directly (e.g. for further research or for exploitation in its own activities) or by others (other beneficiaries/end-users or third parties, e.g. through granting access rights or by transferring the ownership of results).

The consortium has been operating on an innovation management system based on the **following measurable pillars**:

Phases	Responsibilities	Description
<b>1. Securing the foundations</b>	Top level management: Co-ordination and WP leads and co- leads, representatives of the partners in the Project Management Board	In the Consortium Agreement each partner has identified the background brought into the project and agreed on rules for the IP and innovation management (where appropriate).
<b>2. Proactive monitoring of project outputs</b>	<b>WP leads and co- leads,</b> supported by the project manager	Proactive monitoring of research outputs - regular reviews within the work packages. Identifying all relevant IP such as software, papers, know- how, etc.
<b>3. Management and protect the project outputs</b>	<b>Contract administrators of the project partners</b> in collaboration with the project office	<ul style="list-style-type: none"> <li>Clarify ownership in compliance with the clauses of the consortium agreement.</li> <li>Check for “hidden traps” (publications, posters, etc), which might affect potential patentability.</li> </ul>
<b>4. Dissemination of the project outputs according to the timeline</b>	<b>Co-ordination and WP leads and co- leads,</b> single scientists involved, in collaboration with the project manager	<ul style="list-style-type: none"> <li>Regular dissemination activity.</li> <li>Regular record keeping at project level.</li> </ul>

# 1 Framework of Exploitation and Dissemination Activities

## 1.1 Assessing the achievement of key project objectives to formulate the final exploitation plan

The project set out to provide a toolkit based on the new models generated by its researchers to analyse and reliably assess the impact of innovation policies and their effects on key variables such as productivity, growth, TFP and unemployment. The aim was to provide this toolkit to end-users beyond the project in primarily policymaking and academic communities to bring about a better understanding of the impact of innovation policies and institutions in Europe over the short-, medium- and long-term.

To recap, the project consortium has sought to disseminate and intends to exploit the knowledge it has produced thus far in the following ways:

1. Advancing current academic knowledge and debates around Dynamic Stochastic General Equilibrium (DSGE) models by allowing for the first time more realistic estimates of the impact of public research and innovation activities on innovation, production growth and unemployment.
2. Embracing social media as an interactive engaging communication tool targeting policy-makers and stakeholders alike.
3. Producing innovative outputs to stimulate debate and action: videos of key project events and with researchers and members of the project's Scientific Advisory Board as well as an animated video, podcasts and publicising key results social media.
4. Influencing policy in a variety of ways through policy briefs, dissemination events, building on previous and existing interactions with stakeholders (EU, ECB, central banks, Member States' ministries, academic peers, commercial banks).
5. Creating a toolkit based on the knowledge generated in WPs 1 – 6 and the new models created thereof. This shall then be made available for the benefit of both practitioners in the policymaking community and researchers in both the private sector and academic community for use after the project.

In the next section we set out what the expected impacts have been and where the consortium can build further in order to exploit the knowledge to its full potential and to the maximum benefit of key stakeholders in Europe. It has been agreed by the partners that the best way to achieve this is by continuing to work together rather than exploit knowledge produced by specific partners separately from the others. This will reflect the joint effort of macroeconomic scholars and innovation policy experts who have collaborated on this project.

## 1.2 Expected Impacts

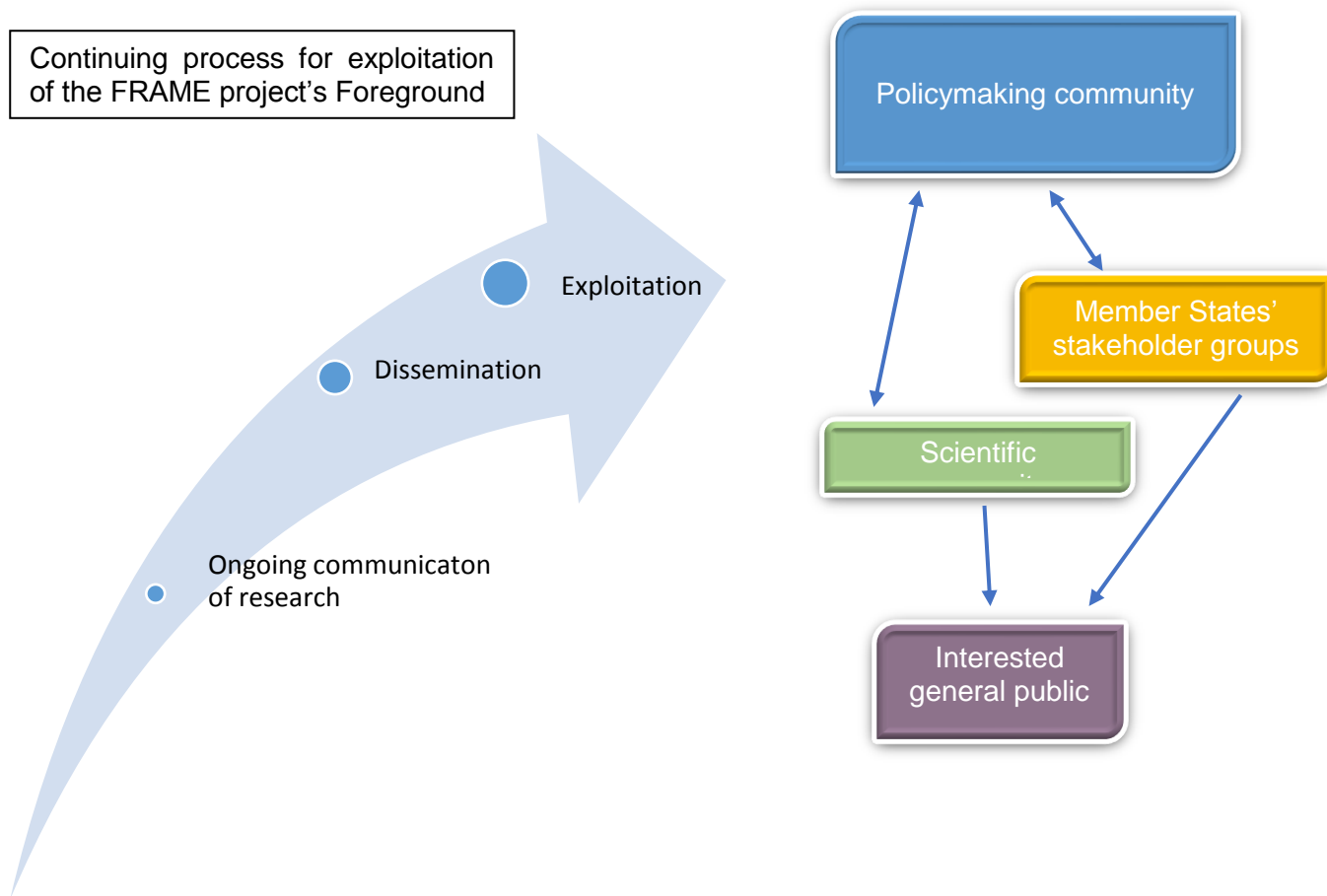
In order to proceed with the analysis of how to sustain the impact of the project's key outputs, it is necessary at this juncture to assess what the expected impacts were from the outset. This Plan will cover the key outputs of the FRAME project, and the measures that will be taken to sustain them. This includes maintaining aggregation of all work done on macro- modelling, monetary and fiscal policy analyses, endogenous technological change, R&D and innovation policy analysis etc; initiating and sustaining a best practice network; and promoting new key work to be carried out such as advocacy (of the new modelling, for example) and providing advice on the use of the toolkit.

To summarise, what the consortium anticipated in terms of the impacts of its work and contributions to the state-of-the-art can be seen below.

Expected Impact	FRAME's contribution
The development of models which provide a realistic assessment of the variety of ways in which research and innovation activities transmit into outputs and impact and of the ways in which public funding and policies can influence this transmission	The development of the baseline model in WP1 and further extensions under WPs 2-4 will provide evidence of how public funding of R&D and innovation adoption has produced outputs and what future outputs will be produced beyond the project. Modelling work carried out under WP5 will demonstrate evidence relating to the cyclical variation of employment and business cycles.
An empirical determination of realistic values for the underlying parameters used in the models	The project will make a direct contribution to this through the activities of WP6, particularly its use of the Fraunhofer dataset to estimate innovation- and public parameters. Furthermore, the project will update and expand upon the Bottazzi and Peri model.
A monitoring of research and innovation performance which captures the broader spectrum of ways in which research and innovation activities translate into outputs and impact, in which knowledge circulates between public and private sectors and internationally or through which quality of research and innovation can be assessed	Increased scientific understanding of how R&D (public and private), policy and macroeconomic variables interact in the short, medium and long-term. In this way the project will contribute to shifting the scientific frontier of macroeconomic modelling based on DSGE models.
A reliable assessment of the societal benefits generated by public funding for research and innovation, not only in terms of productivity growth, economic growth and job creation, but also the impact it has on tackling major societal challenges.	Policymakers, research funding bodies as well as private and public sector bodies and the research communities will be able to exploit the results of the project. Furthermore, FRAME will provide a toolkit that will enable these stakeholders to help reinforce this objective.



### 1.3 Key target and user groups



The chart above demonstrates the ongoing objectives for disseminating the results and exploiting them beyond the project. While the key groups of end-users remain unchanged, we have consolidated these through activities under WP8 and will seek to expand the project's reach by encouraging further interaction with other end-users that we have identified under this WP.

Further work already carried out on WPs 1,2,5 and 6 will continue after the end of the project along the following key lines:

**WP1** – The baseline model extension will be continued in relation to innovation policies, particularly in regard to tax and subsidies common to all sectors; a new calibration strategy will be developed.

**WP2** – Further work on multi-sector and multi-country settings will continue with a particular focus on the impact of wage inequalities/polarisation.

**WP5** – This work package has generated significant findings on the long-run of TFP growth in European countries; future work will continue to promote research into extending these findings with structural approaches, studying further the drivers of unemployment to job creation on the basis of temporary versus permanent (or longer-term) contracts.

**WP6** – This has generated a new project on the impact of public research organisations on local/regional entrepreneurship, which has been derived significantly from the project findings from the analysis of the Fraunhofer data.

## 2. Exploitation

Our exploitation strategy shall continue to be dependent on understanding that any successful exploitation implies turning scientific results generated by FRAME into sustainable, user-optimised and ready-for-use applications for economic modelling and policymaking. Our priorities will therefore focus on pursuing beyond month 24 to build a critical mass of end-users who can benefit further from any developments in the research carried out within the project's two-year duration. All partners will commit to this to ensure that the work continues beyond this initial phase of FRAME.

### 2.1 Developing further communication and dissemination activities for the benefit of end-users (after month 24)

Previously we identified the following two key stakeholder groups:

**Primary communication targets:** these are stakeholders for whom the research outputs are of high interest and with whom we will actively engage beyond the end of the project. These are typically academics working in the same areas of research as well as policymakers with whom FRAME researchers have established links. Communication of ideas will continue through academic workshops and conferences as well as more specific seminars and workshops held at policymakers' organisations.

**Secondary communication targets:** these are stakeholders for whom the research is of potentially more limited interest but who will be still be key beneficiaries of the knowledge generated beyond the project. Interactions with these targets will typically take place at international/ EU-level conferences or through videos, podcasts and social media.

While developing the new models from the baseline one created in the early stages of FRAME, the consortium has focused its delivery of the **primary communication targets**, which are organisations and individuals with whom we want to have a highly-interactive dialogue on the content of our research and demonstration activities:

- Research initiatives that we can identify and with which there are synergies
- Researchers working in key study groups based at central banks within the EU and Associated States; links have already been established with researchers at the OECD, Bank of England, Banque de France, Banca d'Italia, Banco de España, Deutsche Bundesbank among others
- Policymakers at Member State and EU-level and beyond e.g. European Central Bank, government departments, the European Commission, national central banks; we will continue interactions already in place with the ECB, DG Research and through the EABCN network where possible.
- Rolling over the application of the project's Foreground into new areas of study i.e. greener economies/promoting productivity growth in line with policies to combat climate change; developing and applying the new TFP models created more specifically to Europe. We have engaged with, for example, researchers in the Grantham Institute for Climate Change (one of whom presented at the final policy conference) and will seek to replicate this across Europe with similar research groups.

**Secondary communication targets** with whom we plan to continue a less intensive interaction about outcomes and user experiences may include:

- Policy analysts' groups at investment banks
- Economists and policy analysts representing beneficiaries of R&D funding e.g. technology agencies, trades unions, employers' organisations, stock exchanges
- Research consultancies, policy thinktanks, interested NGOs

- Wider research community in areas related to our project activities
- Policy makers at European or national level.

## 2.1 A Research and Policy Network for facilitating interaction between macroeconomists and innovation experts

CEPR has recently launched Research and Policy Networks (RPNs), the main aim of which is to build a community of researchers and practitioners around a particular topic and to ensure that policy issues are considered over a longer time period than is often the case when a single piece of output is produced and then the researchers involved move on. Each RPN typically consists of 15-30 experts with an interest in a topic of high policy relevance and where academic research and collaboration with policymakers can have a high impact. If deemed appropriate, FRAME researchers can commit to participating in such a network and if CEPR has the capacity to administer one, a long-term aim for the project will be to set up a RPN based on experts already identified through the consortium's interactions with policymakers thus far and also to continue the interaction with the Scientific Advisory Board members as well as experts who have spoken at the Final Policy Conference (for instance). As RPNs require self-funding i.e. the ability of Network members to attract funding from other sources, the feasibility of establishing one specific to the macroeconomics-innovation policy interaction engendered by FRAME will be dependent on obtaining such financial or other in-kind resources.

If a RPN were to be set up to help the evolution of the models and other work produced through the project, such a Network may open a debate page on CEPR's policy platform VoxEU and may produce output in the form of eBooks or Policy Insights. Such a development would be a direct link to the final phase of the exploitation foreseen for 2023-25, which is expected to see the knowledge diffused more widely with as large an uptake of it as possible. The project and any activities of the partners are expected to be self-supporting and to include initiatives to generate new solutions with upgrades in the collaboration between the FRAME consortium and the end-users with which they can establish new projects and enduring partnerships.

Setting up a RPN to continue with FRAME's outputs would complement the work of the Task Force but also ensure that there is a clear link to continuing the interaction with policymakers on its SAB and key contributors such as those . Each RPN is typically expected to meet annually although this would be enhanced by separate, perhaps smaller meetings of sub-groups of network members at other academic conferences and workshops. Any member of a RPN is able to publish work through CEPR's Discussion Paper series and each Network is launched through a Vox column hosted on the VoxEU policy portal. As can be noted with reference to the one written by the CEPR and LBS teams and published in month 23 of the project, the outreach is rather high so such a launch could potentially enable the Network to engage with policymakers and governmental organisations not already represented on it.

The idea of setting up a RPN dedicated to continuing FRAME's output, particularly to support the extension to the models created and recalibrations envisaged, is an aim at the time of writing and cannot be committed to as it is dependent on a number of factors, of which both staffing and financial resources are paramount. However, one would also provide a formal foundation for generating future outputs such as Vox columns, CEPR discussion papers, eBooks and further meetings to generate publicity.

## 2.3 Further activities

Advocacy has largely been the focus of WP8 during the project, through its many dissemination activities, with support from all partners and all other work packages. Project partners will continue to promote the outputs of the project through their own organisation websites, and social media.

- Formal deliverables and milestone documents will also be archived in the FRAME document management system, with public documents available via the project website. All partners are encouraged to keep copies of the project documents in their own repositories.
- ZEW will continue its management of the project Foreground by ensuring that deliverables and data sources will be listed and cross-linked and publicly available; working papers developed through the project will be cross-linked to ensure there is green open access to related FRAME publications.
- In the case of any acceptance of papers by journals, ZEW will upload scripts related to the models developed onto GitHub. This will be done by loading them in Dynare, an open source software. Models will be kept under embargo until acceptance by journals. Apart from the restricted data used by ZEW for WP6 and UB for WP5, which must remain private for the time being, all other results are in theory replicable and have the potential to be extended, which would allow any related material to be used for training purposes or further scientific investigations outside the project.
- The #FRAMEEU used on Twitter and Facebook accounts will continue to be used and promoted by ZEW and CEPR. This ensures that the rich niche audience built up during the project lifetime will still receive relevant information through social media and be engaged with.
- The project website will remain live to ensure that partners can access any information that has been published over the project lifetime.

## 2.4 Route to End-Users

The focus of the Consortium is now on the post-initial (project-execution) phases, i.e. further development and finessing of the models for use by policymakers and academia, followed by greater understanding and penetration of the ideas and models into the wider communities.

Timeline	2017 – 2019	2019 - 2021	2021 – 2023	2023 - 2025
<i>Phase</i>	<i>Project Execution</i>	<i>Development of FRAME model solutions for use by policymakers</i>	<i>Penetration of ideas into Policymaking community</i>	<i>Mainstream adoption</i>
<i>Users</i>	Central banks and academia	<b>Member States Central Banks; existing collaborations with academic peers</b>	<b>Roll out beyond EU-based central banks to include EEA and Associated States and those with which there are existing links</b>	

			(Ukraine, Canada, Federal Reserve, Malaysia, Peru, Dominican Republic, Australia, IMF)	
<i>Users</i>	(Government officials – Member States and EU institutions)	<b>European Central Bank (Monetary Policy and Business Cycles units); European Commission (DG RTD, DG EcFin, JRC); OECD;</b>	<b>Member States’ finance ministries; economic analysts at investment/commercial banks, employers’ organisations, trade unions</b>	
<i>Training in use of Knowledge/ toolkit</i>	Partners; practitioners and students	<b>Further dissemination in related PhD programmes and training of practitioners outside academia</b>	<b>Academic journals and textbooks</b>	
<i>Implementation</i>	Partners only	<b>More general adoption in academia, policymaking circles and industry</b>		

### **From month 25**

The next key task of the consortium is to establish the models in a user-friendly format for end-users, including those less expert in working with such models. For example, the consortium will explore introducing teaching of these in PhD programmes and training seminars and workshops. This will help build a new generation of researchers with the requisite expertise to use them and apply them in their later careers.

### **Month 36 onwards**

The consortium also envisages the potential to tap into industry and policymaking communities but, as the models are still new, we will explore the viability of expanding the range of solutions generated by the models so that they can be applied beyond the first wave of end-users identified over the next 12 months. The knowledge will be made public and disseminated further with co-operation from the first set of users in 2021-23, which will be supported by the efforts of any Research and Policy Network set up through CEPR (if is judged feasible to establish one). However, the knowledge is expected to evolve beyond the project and so co-operation with each new set of end-users will be crucial for the successful legacy of the project.

**The final phase of the exploitation foreseen for 2023-25** is expected to see the knowledge diffused more widely with as large an uptake of it as possible. The project and any activities of the partners are expected to be self-supporting and will generate upgrades in the collaboration between the FRAME consortium and the end-users with which they can establish new projects and enduring partnerships.

## **2.5 Planned activities after month 24 to aid further exploitation of results**

The intended end users are the academic community; central banks' study groups and modelling analysts at private sector banks; public R&D funding agencies; and policymakers at national level, ECB and EU. In addition to these specific groups, we believe that the research will be of potentially significant interest to economists of business groups, employers' organisations and trade unions. We will therefore target the following activities at these potential end-users using both long-standing relationships with them at individual researcher- and partner-level.

- CEPR will release at least one more podcast, which will help to summarise the project's policy- and scientific-related implications. Links to this will also be provided through the project website, the main VoxEU portal page and any existing YouTube channels used by the partners.
- Updates of work to be posted on Twitter and LinkedIn by CEPR
- Presentations of key papers emanating from the project are planned as follows after the project end-date. These reflect those that are currently scheduled or for which papers have been submitted by FRAME researchers.

Event title	Partner presenting	Date/Venue	Audience size (approximate)
8 <sup>th</sup> ZEW/MaCCI Innovation and Patenting Conference		May 2019, Mannheim	70
European Summer Symposium in International Macroeconomics	CEPR	7 <sup>th</sup> -10 <sup>th</sup> May 2019, hosted by Banco de Espana, Tarragona, Spain	Over 90 (still being organised)
Workshop on Economics of Science	ZEW	May 20-21, 2019 University of Bordeaux	30
DRUID Conference 2019	ZEW	June 19-21, 2019 Copenhagen	350
2019 Meeting of Society for Economic Dynamics	UB/ LBS (subject to acceptance)	27 <sup>th</sup> -29 <sup>th</sup> June 2019, St Louis, USA	c.250
EEA Congress/AEA Annual Conference	A dedicated session about DSGE modelling putting FRAME at the forefront of new tools (subject to acceptance)	August 2019	250
Jahrestagung des Vereins für Socialpolitik	ZEW (TBC)	September 2019 Leipzig, Germany	60

### 3 Conclusion

The Final Exploitation Plan is a living document, which will be continually monitored, updated and reported beyond the project. It does, however, cover what the consortium expects to do after Month 24 in order to build on the success of the project in its initial phase. However, the primary aim of the consortium’s exploitation activities after month 24 shall be on adopting a proper and achievable sustainability strategy to ensure the success continues and is of benefit to key stakeholders over the period 2019 – 2025.

Task	Sustainability methods (Lead partner)
Raising awareness of the effectiveness and novel approaches of the FRAME models	<ul style="list-style-type: none"> <li>• Continued management of ‘curation’ of models created and developed (ZEW)</li> <li>• Social media presence to continue e.g Twitter (CEPR)</li> <li>• Further research updates on LinkedIn-based blog (CEPR)</li> <li>• Submission of papers to high-ranking academic journals (All partners)</li> </ul>
The continued management of the interaction between academics, practitioners and policymakers	<ul style="list-style-type: none"> <li>• A Research and Policy Network (CEPR, if resources allow)</li> <li>• Invitations to Europe-wide high-profile events organised by CEPR</li> <li>• Participation in smaller workshops and seminars (all partners)</li> </ul>
Continue to promote best practices	<ul style="list-style-type: none"> <li>• Training tutorials and talks (as above)</li> <li>• FRAME RPN (TBC)</li> <li>• Partners continuing to promote the models and policy recommendations that were published during the project lifetime (All partners)</li> </ul>
Other outlets for engaging with interested general public	<ul style="list-style-type: none"> <li>• Continued hosting of project outputs such as videos and Vox columns on the VoxEU and CEPR websites, which can be accessed through keywords</li> </ul>