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NOMAD Evaluation Report V2

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Document description:	The document describes the NOMAD results of the 2nd and 3rd round of the pilots, along with the performed activities, involved actors and the final evaluation results gathered, in order to report the final outcomes from the internal and external users' interactions with NOMAD platform.

Document History

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EXECUTIVE SUMMARY

This is the 2nd and final version of the NOMAD evaluation report that cumulates the activities performed during the last reporting period of the project. The pilot partners along with other external targeted stakeholders have been actively involved in the NOMAD system evaluation in real conditions and have been contributed to the improvement of the platform, as well as in the dissemination of the project's values, leading also to the identification of exploitation means and potential synergies with other organisations, working mainly on the field of policy making and e-government.

In this context, in this last reporting period the pilot partners have further specify and enhance their application scenarios (reported thoroughly in D7.4.1), during the so called 2nd pilots' round. As such, Critical Publics (CP), responsible for the UK pilot, has further elaborate in the "immunotherapy and allergic diseases" domain, by focusing on its "asthma" branch and adding to monitor a domain on a potential "European Asthma Partnership" policy. Additional to that, CP introduced "health" and "environment" domains for examining another policy concerning a "European strategy for environmental impact on citizens' health". As for the Hellenic Parliament (HeP), responsible for the Greek Pilot, it has expanded the "energy framework" domain, by creating in this way a super domain and introducing interesting policies to the investigated, mainly for "RES penetration", "Energy investments" and "Exploitation of own HC sources". Last but not least, Austrian Parliament (AuP), responsible for the Austrian Pilot, has further refined the policies of the "open data" domain, with a special focus on "Access to information held by government agencies". By doing so, pilot partners were able the interact with the new versions of the NOMAD tools and enjoy most of the features that have been requested during the 1st pilots' round, as the tools have been re-designed to serve the identified needs. This has trigger a new, internal round of tools' validation and evaluation, bringing in the front scene new needs and of course solving of any inconsistency occurred in the new implementation phase.

Moreover, in the course of the 2nd round, apart from the application scenario enhancement, each pilot partner has organised a workshop for presenting the new NOMAD toolsuite, for assessing and disseminating the improvements and project's concepts, and also for identifying the stakeholders willing to be engaged during the next, final pilots' round.

The 3rd pilots' round, also called as "free pilots" round was dedicated in the active involvement of external users to the NOMAD experience, where they have been invited to create and test their own application scenarios within NOMAD platform. The engaged users, about 25 in numbers, were spanning across various operational domains and they have crafted quite interesting models assisting in this way the further evaluation of the NOMAD system, from a different perspective and angle, reinforcing the feedback aggregated and revealing the real needs of the end-users also from outside the narrow barriers of the consortium.

The overall internal and external evaluation results, throughout the different piloting rounds, as showed in Figure 1, have been systematically gathered in order to be provided to the technical partners and make the proper upgrades and improvements to the NOMAD system. The evaluation analysis has revealed that the concept of NOMAD is promising for various implementations and targeted audience, while the ICT tools' have further potentials for adopting some more automations and usability enhancements, in order to accommodate a wide range of users, as a commercial product.

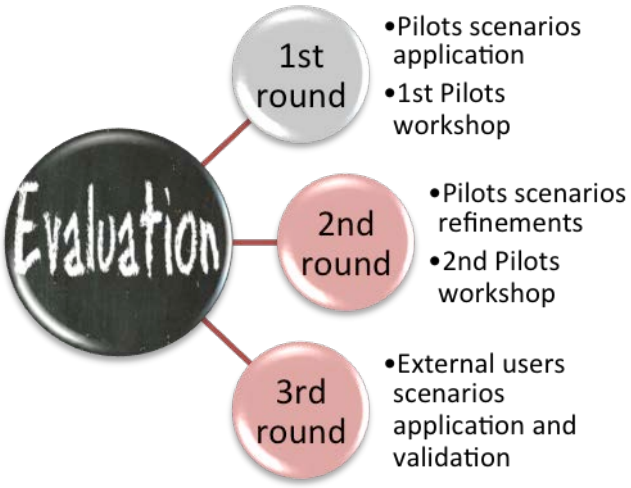

Figure 1: Three-round evaluation analysis

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1. INTRODUCTION

1.1 Purpose and Scope

The purpose of the current deliverable, in continuation of the previous evaluation report (V1), is to provide the specifics of the performed activities from the consortium and mainly from the pilot partners, towards the evaluation of the NOMAD concepts and tools. Through the implementation of the two pilot rounds (2nd & 3rd), more specifications have been applied to the existing pilot application scenarios, new application scenarios have been created by external users and further improvements have been implemented to the tools, based on the feedback gathered during this period. As such, the scope of this deliverable is to:

- Describe the activities performed during the 2nd round of the pilots, where the enhancement of the pilot partners' scenarios took place, their implementation within the re-designed tools of NOMAD platform, as well as the organisation of three workshops, one per pilot partner.
- Describe the activities performed during the 3rd round of the pilots, where external user have been involved in NOMAD experience, by creating their own application scenarios, spanning across different operational domains of interest, and evaluating the NOMAD concepts and tools, by providing valuable feedback, in terms of performance, functionality and usability and potential exploitation.
- Aggregate and classify the overall feedback from the end users interaction with the platform (internally and externally) and communicate the needs emerged to the technical partners, for actions to be taken towards their realisation.
- Consolidate, analyse and present the system evaluation results, by following the updated evaluation methodology.
- Present the involved stakeholders and targeted audience that has actively participated in the project, along with facts and figures from the application scenarios implemented during this period.

1.2 Approach for Work Package and Relation to other Work Packages and Deliverables

WP7 is covering the piloting and evaluation tasks of the project, which seems to become the major focus as the project reached its end. Same as in the 1st version of the current deliverable, reported during the previous period, the relations of it are strong with all the reports of the same WP. More specifically, it is the final version of the "D7.4.1 Nomad Evaluation Report V1" and closely related with "D7.3 Description of the Nomad Evaluation Methodology" where the evaluation methodology to be followed during the entire phase of the piloting had been crafted. Furthermore, its connections are strong with "D7.2 Description of the Pilot Scenarios", as this is the document where the initial pilot scenarios are thoroughly reported. Moreover, it is related with "D7.1 Description of the NOMAD Community Network", where the identification of the targeted audience had been conducted. Finally, the results reported in the current document have provided input in all development tasks, namely "T3.3 A Visual Environment for policy argumentation modeling", "T4.2 Linguistic Analysis", and "T5.2 Visualization prototypes for module support", "T5.3 Visualization prototypes", "T6.3 System Integration and testing"" within WP3, WP4, WP5 and WP6 respectively.

1.3 Methodology and Structure of the Deliverable

As shown in Figure 2, the methodology followed for this, final version of the NOMAD evaluation is split into two core sub-methodologies, one for each round, as there were different needs per phase. As such, in the 2nd pilots' round, the methodology applied consists of almost six (6) steps; from the 1st round pilots' scenarios refinement until the workshop organisation per pilot partner, encapsulating all the actions for using, evaluating and adapting the new versions of the NOMAD tools, from the pilots' partners. It has to be noted here that the focal point of the 2nd round of pilots, was on the activities performed by the pilot users, while moving one step further, the 3rd round of pilots focused on extroversion, meaning that external users have been invited to adopt the NOMAD tools and evaluate the platform on their own

application scenarios. The linkage between these two rounds was the external users' identification, which happened mainly during the organised workshops.

In this context, chapter 2 aggregates the facts and figures as a snapshot from both 2nd and 3rd pilots' rounds, while in the next chapters (namely, 3, 4 and 5) the scenario application details of each pilot (UK, Greek and Austrian) are described, providing all the specifics about the enhancements to the pilots' application scenarios and the organisation of the 2nd round workshops from the pilot partners, along with the feedback gathered from this round. Next, in chapter 6 is showcased the procedures followed in the 3rd round, along with the specifics of the application scenarios created by the external users, across different application domains. In chapter 7, the implementation of the evaluation methodology is presented along with the cumulative, analysed results coming from the pilot partners, the workshop participants and the external users from the 3rd round. Chapter 8 concludes the deliverable, while the annexes that follow provide additional material from the responses on the evaluation questionnaires filled during this reporting period and the results from the additional pilot applications initiated during the 2nd round.

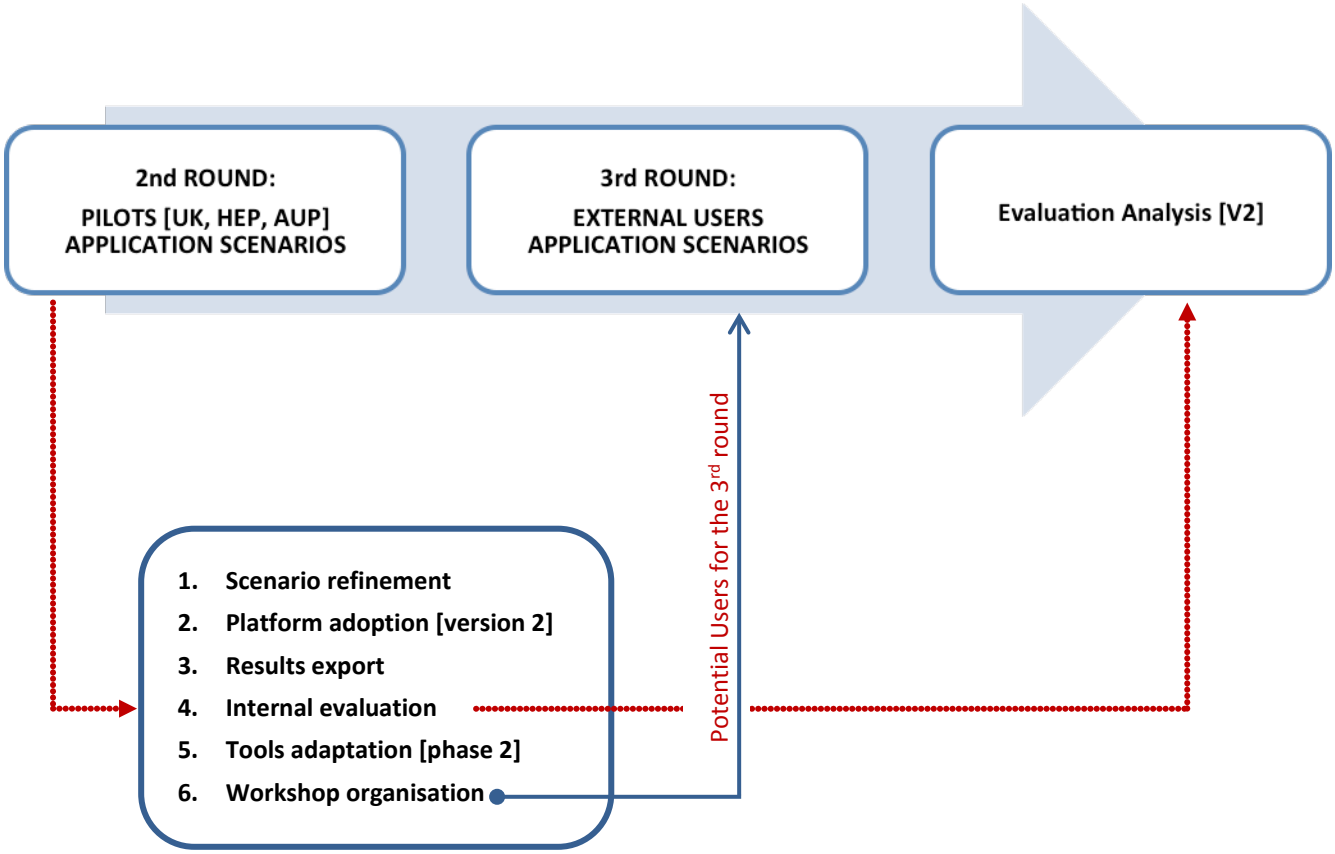


Figure 2: Methodological approach of Deliverable 7.4.2

2. PILOTS 2nd AND 3rd ROUNDS FACTS AND FIGURES

Similarly, as in the 1st pilots' round, all three pilot partners have followed the same methodology for the 2nd pilots' round implementation, as it is depicted in Figure 3 and described here in detail:

- **Scenario refinement**: The **2nd round** is initiated with further specification and enhancement of the pilot partners' application scenarios, coming from the 1st pilots round. Here the pilot partners, utilizing the experience gained during the previous round, drilled in further to their scenarios and/or introduced some new components, within the framework of the widen domain application from the 1st round.
- **Platform adoption**: The output from the previous step has been fed here, where the pilot partners authored their refined application scenarios to the new version of NOMAD Authoring Tool, imported additional sources and ran their models in the newly introduced MySources component, and finally got the results through the re-designed Visual Analytics Tool.
- **Internal evaluation**: Through the abovementioned procedure the initial, internal evaluation of the re-designed NOMAD tools functionality and usability is performed, providing the technical partners with the directions for further improvements and bugs fixing.
- **Tools adaptation**: The technical team of the project classified and implemented the new version of the tools, based on the feedback gathered from the pilots' evaluation, opening the loop of 2nd phase platform improvements.
- **Workshop organisation**: The 2nd round of pilots' workshops is realised during November 2014 and has as goal to link the piloting and external evaluation activities with dissemination, so that to reach out external stakeholders, interested in being involved in NOMAD experience.
- **External evaluation**: The identification of the external users from the 2nd round workshops has triggered the initiation of the **3rd round**, where additional application scenarios have been implemented, by the stakeholders, coming from various operational domains. As such, the implementation steps realised by the external users during this round, can be described as a "*thumbnail*" of the pilots' application steps.

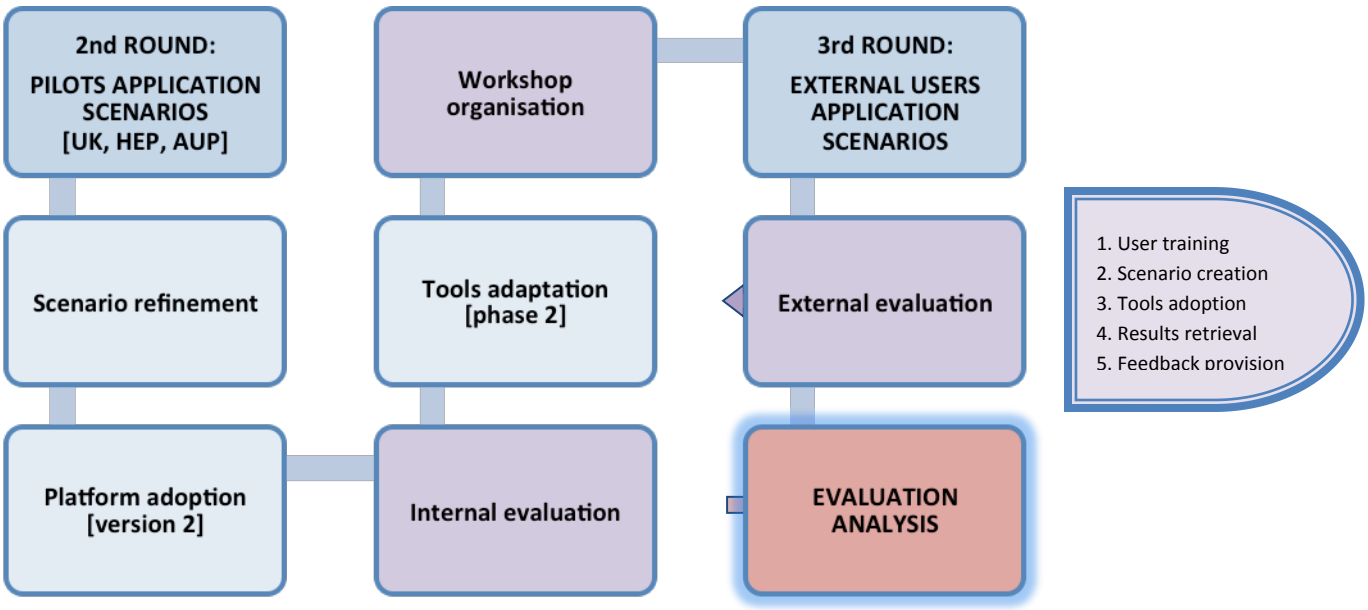


Figure 3: 2nd round strategic approach

Here below are presented the cumulative data concerning not only the 2nd and 3rd pilots' rounds, but also the 1st one, for providing an overall picture about piloting. While, in the next sections there are provided all the details and the specifics of the 2nd and 3rd rounds, which are the ones that ran during this reporting period.

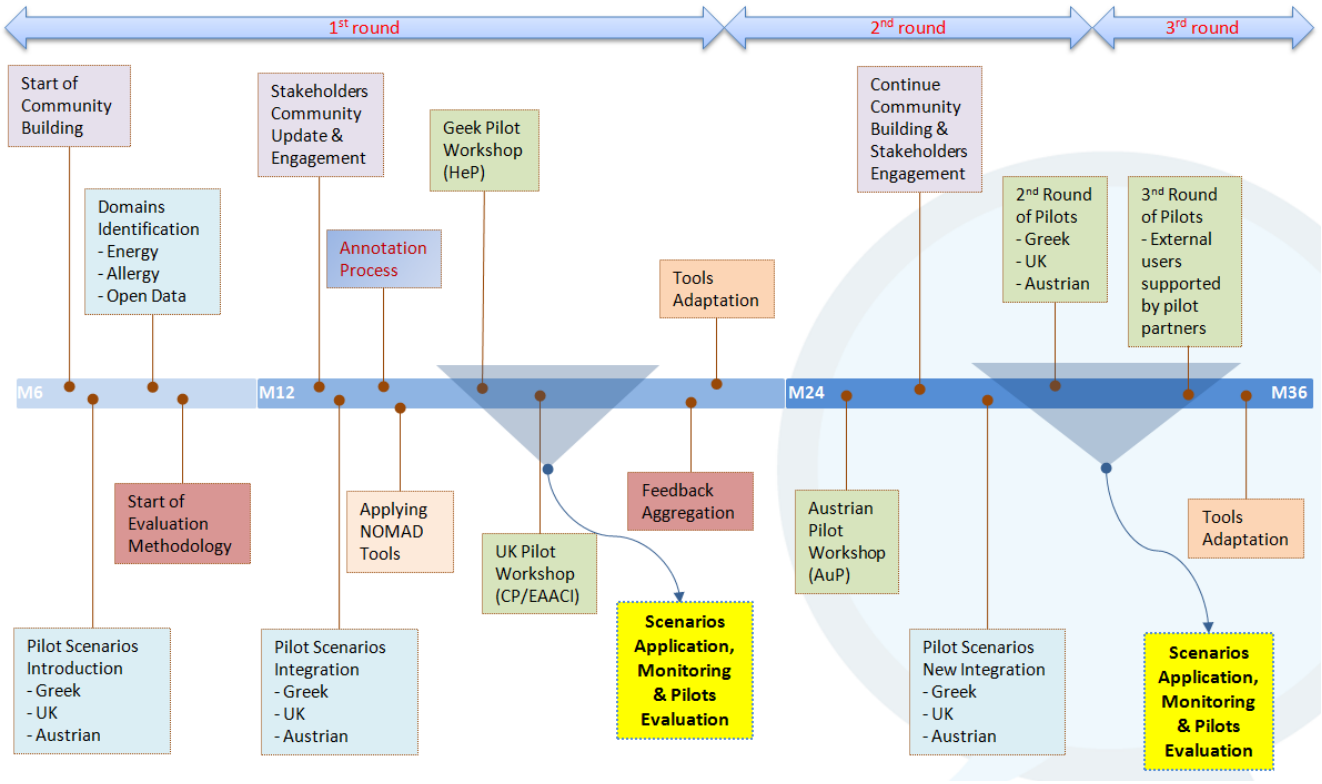


Figure 4: Piloting and evaluation time plan

Table 1: Cumulative information about 1st, 2nd & 3rd pilot rounds

	1st round			2nd round			3rd round
Duration	**M6-M24: 18 months**			**M24-M35: 11 months**			**M35-M36[1]: 2 months**
Users	**CP / EAACI**	**HeP**	**AuP**	**CP / EAACI**	**HeP**	**AuP**	**External Users**
PILOTS' OVERVIEW							
Round Objectives	• Domains identification • Scenarios introduction • Annotation process per domain • Scenarios application to the 1st version of tools • Tools v1 evaluation • Tools improvement • Community building • Workshop organization • Internal evaluation by the pilot organisations members • External evaluation by the workshop participants			• Scenarios enhancement • Scenarios application to the 2nd version of tools • Tools v2 evaluation • Tools improvement • Community building • Workshop organization • Invitation to external users for the 3rd round • Internal evaluation by the pilot organisations members • External evaluation by the workshop participant			• External users engagement • Unrestricted, free but supported trials by external users • Additional application scenarios evaluation, without annotation • Tools evaluation • Tools improvement

[1] The third round actually ended after the completion of the project, since many of the engaged users continued using the tools and maintained communication with the consortium.

Language	English	Greek	German	English	Greek	German	English, Greek & German
Theme	Allergic Diseases Impacts & Immuno-therapy Declaration	Greek Strategy for Energy Planning	Open Gov-ernment Data in Austria	Asthma Partnership & Environ-mental Im-pact on Health	Greek Strategy for Energy Planning	Open Gov-ernment Data in Austria	Various themes based on the user needs *[analytic data to be found in: D.4.2 Nomad Evaluation Report V2, Chapter 6: Additional scenarios applications - round 3]*
Domains	Allergy	Energy	Open Data	Asthma, Health, Environment	Energy	Open Data / Freedom of Informatio n	Telecommunications, Technology solutions for waste management, Political Rights, European Parliament, Multicultural Education, Social Security, Constitution, Parliamentary Transparency, Tourism, Fiscal Policy, Online Allergy Education, Creativity in education, Food 2.0, Alternative Education, Education Policy & Strategy / Scholarships, Agriculture, Justice, Banking, Sharing Economy, Civil Law, Assisted Suicide, Industry 4.0, Literature
Scenario Objectives	Identifica-tion of the multidimen-sional im-pacts of allergic dis-eases in patients' life and the rise of immuno-therapy awareness, as an effec-tive treat-ment for the disease.	Assess the impact of the poli-cies about green energy, renewable energy resources and more explicitly about the wind en-ergy in Greece.	The public debate on open gov-ernment data poli-cies and a coherent freedom of informa-tion act in Austria.	Identify discussions on potential policies for an asthma partnership creation, as well as a strategy in the envi-ronmental impact on health.	Focus on possible policies to be adopted by the Greek govern-ment re-lated with invest-ments and growth models within the Energy Frame-work.	After the first pilot round a draft bill regarding the pilot issue of freedom of informa-tion was sent out for public consulta-tion by the Austrian Federal Chancel-lery. Iden-tify discus-sion on this draft bill.	Various objectives based on the user needs *[analytic data to be found in: D.4.2 Nomad Evaluation Report V2, Chapter 6: Additional scenarios applications - round 3]*
PILOTS' EVENTS							

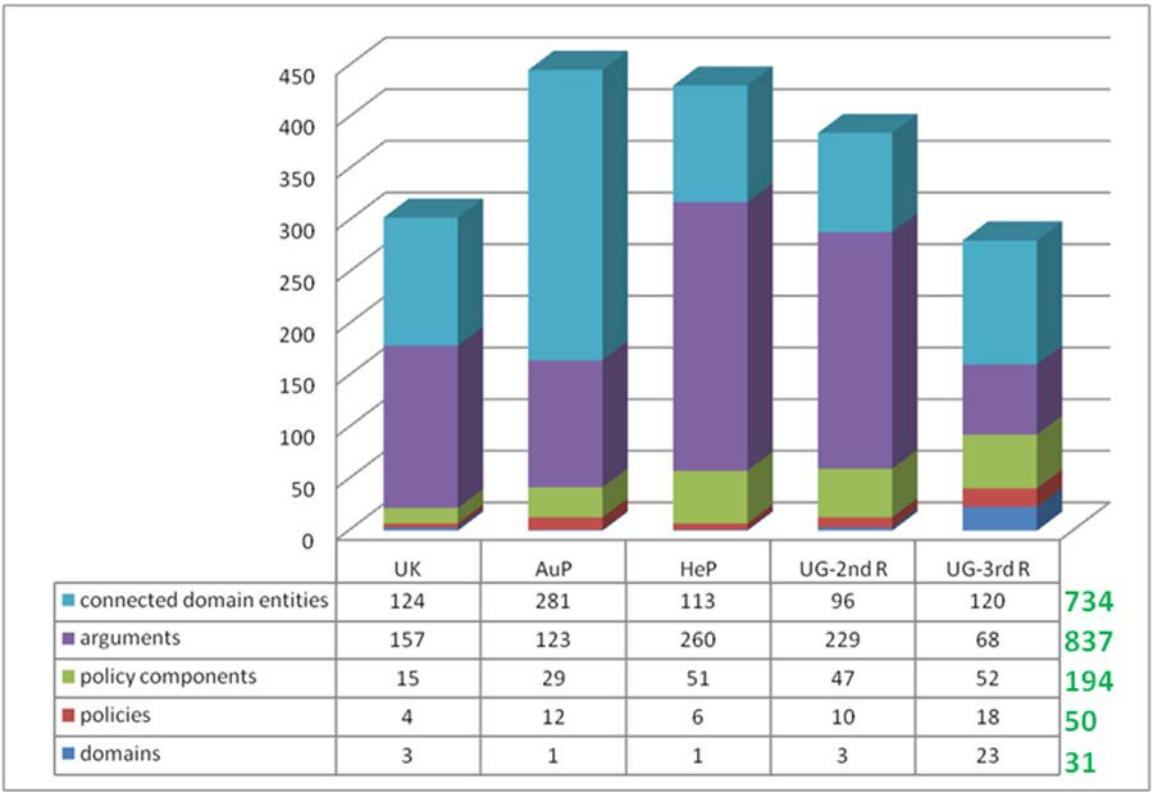
Type	1st round Workshops			2nd round Workshops			Various
Goals	• NOMAD concept presentation • Evaluation of scenarios results per pilot • Tools assessment			• NOMAD concept presentation • Evaluation of scenarios results per pilot • Tools assessment • Dissemination of the project concepts • Identification of external users to engage			• External user training through half-day workshops and remote demonstrations • Support and walk-through the NOMAD tools through teleconferences and face to face meetings • Motivation for participation
Dates	29/11/2013 15:00 – 18:00	22/11/2013 10:00 – 13:00	17/02/2014 13:00 – 16:00	12/11/2014 10:00 – 12:00	25/11/2014 10:00 – 12:00	18/11/2014 09:00 – 12:00	Depending on the event, there where various dates that half-day workshops have been organized, but in general the support it was a continuous, ongoing, personalized process with duration more than 2 months. Indicatively: **CP 2 half-day workshops:** 1. 15/12/2014, 15:00 – 19:00, Athens - Greece 2. 16/12/2014, 10:00 – 14:00, Athens – Greece **AuP half-day workshop:** 1. 20/01/2015, 15:00 – 17:00, Vienna – Austria
Place	Athens – Greece	Athens – Greece	Vienna – Austria	Athens – Greece	Athens – Greece	Vienna – Austria	Greece, Austria and remotely in various EU countries
Stakeholders' No.	16	25	7	30	33	9	23
Stake-holders' Types	Policy makers, Policy advi-sors, EAACI president, Doctors, NGOs, Jour-nalists, Political scientists, Researchers, Consultants, Strategists, Economists	Policy makers, Policy advisors, Policy re-searcher, Members of the Hellenic Parliament, Officers, Scientific assistants, Represent atives from	Policy makers, legislation advisors, IT consultant, Digital media consultant s, media document ation per-sonnel, archives, document ation, and	Decision makers, policy advisors, health profes-sionals, jour-nalists & bloggers, business analysts, members of NGOs, public body repre-sentatives	Policy makers, Policy advisors, Policy re-searchers, Members of the Hellenic Parliament ,Parliamen tary Offi-cers, Public body repre-	Policy makers, legislation advisors, IT consultant, Digital media consultant s, media document ation per-sonnel, archives, document ation, and	Public administrators and servants, political scientists, policy advisors, journalists and bloggers, scientific consultants, researchers, health professionals, private sector representatives, journalists, etc.

		Greek political parties, NGOs	statistics officers	(e.g. various ministries, social and administrative organisations)	sentatives (e.g. ministries), Scientific advisors, Representatives from Greek political parties, MP associates	statistics officers	

In Figure 5 are presented aggregated numbers for the domains, policies, policies components and domain entities crafted during the 2nd round from the pilot partners, as well as the implementations of the user groups (UG) engaged, from the 2nd and the 3rd round of the pilots.

In Figure 6 a pie shows the distribution of the stakeholders involved in both round of this reporting period, in accordance to the identified targeted audience from the D7.1 deliverable, verifying that quite a balanced distribution of involved external users has been reached.

Finally, in Figure 7 are presented some aggregated evaluation insights gathered from the both 2nd and 3rd round concerning future suggestions and current implementation actions that took place, during this reporting period, based on end-user suggestions. The detailed evaluation information are presented thoroughly in chapter 7 of the current report.



	UK	AuP	HeP	UG-2nd R	UG-3rd R	
connected domain entities	124	281	113	96	120	734
arguments	157	123	260	229	68	837
policy components	15	29	51	47	52	194
policies	4	12	6	10	18	50
domains	3	1	1	3	23	31

Figure 5: 2nd & 3rd rounds models' statistics

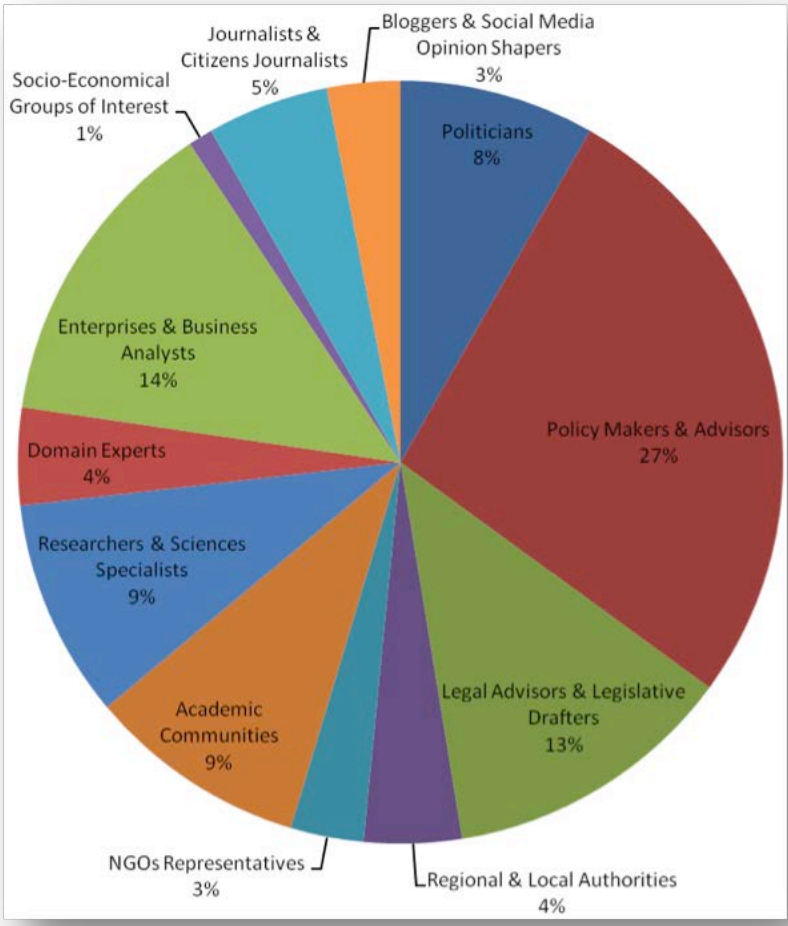


Figure 6: 2nd and 3rd rounds distribution of stakeholders

	Cumulative evaluation insights	Implemented / *Future suggestion*
1	NOMAD concept crystallization	Training, manuals, wizard-like instructions
2	NOMAD background process explanation	Supporting material, F.A.Q. pages
3	Varied needs per targeted groups	*Customised services*
4	Simplification of authoring models	*Reduce complexity – add automations*[1]
5	Results summarization & reporting	*Export capabilities*
6	Extract policy proposals from NOMAD	*Export "list view" to editable document*
7	Identification of experts' position	*Access to closed sources*
8	Regional policies monitoring	*Location based results*
9	Availability of tools	Open registration
10	System responsiveness	Upgrade, Backend process optimisation
11	Insufficient Demographics	Removed / *Stylometry-based estimation*
12	Connect authoring to analytics	Convey results to input
13	Large models manipulation	List view
14	Identification of digital opinion leaders	Filtering sources / *Weighting content*
15	Assessment of uniformity / polarity	Sentiment distribution
16	Detection of new issues	Argument extraction
17	Context of discussion	Segments, access to sources

Figure 7: Snapshot of evaluation insights, implementations and future suggestions

3. UK PILOT SCENARIO APPLICATION – ROUND 2

3.1 Overview

As it is already known, the UK pilot has been implemented by CP (Critical Publics) in close collaboration with EAACI (European Academy of Allergy and Clinical Immunology) and was thoroughly presented in D7.2, as well as in the 1st version of D7.4.1. Its application scenario concerned the domain of **allergy**, where, during the 1st pilots round, the initial version of the NOMAD toolsuite was used to model and monitor policies about: a) the identification of the multidimensional impacts of allergic diseases in patients' life and b) the rise of immunotherapy awareness, as an effective treatment for the disease. Interesting insights had been revealed through the Visual Analytics Tool of NOMAD platform, resulting on setting the ground of focus for this 2nd piloting round. More specifically, as asthma topic it seemed to be discussed more between the patients suffering from allergic diseases, we decided to focus in "**asthma** *branch*" of the domain model "**immunotherapy and allergic diseases**" and further specify the policy model, by defining a new policy for an "**European Partnership on Asthma (EPA)**", in order to monitor the discussion about a potential asthma partnership, with an ultimate goal of promoting self-management plans and reducing the annual deaths from asthma. Moreover, for further enhancing the existing models within UK pilot, we have decided to introduce a new super-domain, called "**health**", with a new policy called "**European Strategy on the Environmental Impact on Health**", in order to identify the specifics of the discussions between citizens, on how informed they are about the environmental impacts on the people health.

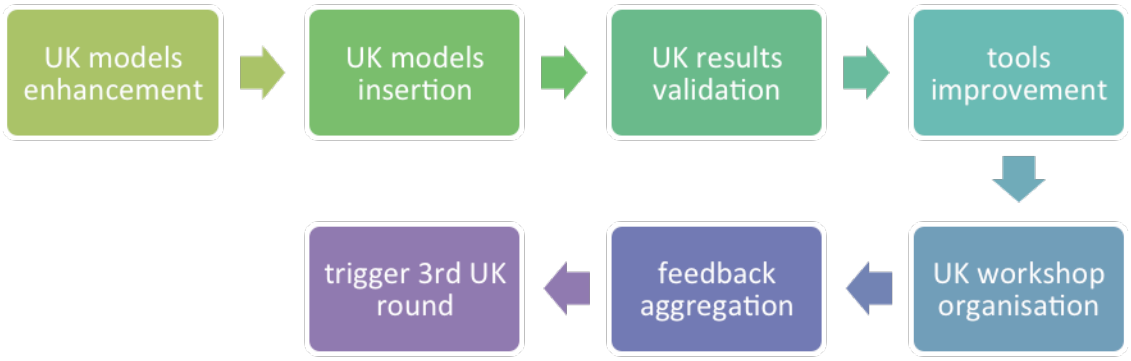


Figure 8: 2nd round pilots' methodology

Figure 8 presents the methodology followed from the implementation of the new specifications of the UK pilot application scenario for the 2nd round, until the organisation of its workshop, which serves as the starting point for the identification of the potential external users for the 3rd pilot round, who were invited to create their own application scenarios through NOMAD. As such, through the interaction of all the involved actors (e.g. pilot partners and external users) with NOMAD platform useful feedback have been collected, for evaluating the overall system and concepts of the project. This feedback has been used for improving the tools' UI and enhancing the provided services running in the backend (e.g. the linguistic pipeline) so that meaningful insights for the decision makers to be extracted, in a way that are understandable and reusable. In particular, the steps of the followed methodology concise of:

1. **Models enhancement** of the application scenarios defined during the 1st rounds of pilots, with further specifications and/or new additions, as already stated above.
2. **Models insertion** of the newly identified domain and/or policy models, along with any additional sources to new version of NOMAD Authoring Tool.
3. **Results validation** for identifying the insights of the UK models, retrieved from the new version of NOMAD Visual Analytics Tool.

4. **Tools improvement** and adaptation by the technical partners, based on the new suggestions and bugs identification, during this round, coming from the pilot partners.
5. **Workshop organisation**, within the framework of the 2nd UK pilot round, for dissemination and evaluation purposes.
6. **Feedback aggregation** from the participants of the workshop concerning multiple aspects of the NOMAD project, which has also been taken into account from the technical partners for the improvement of the platform.
7. **Trigger 3rd round** of the pilot, as this workshop has served as a starting point for the identification of the external users that wanted to be involved in the NOMAD project, by applying their own scenarios of interest in the platform and evaluating the exported results, as well as their overall interaction with the tools.

It has to be noted here that the same methodology has been applied and followed by all the pilots' partners, during the realisation of the 2nd round.

3.2 2nd Round Implementation Models

After the 1st round of the pilots, the Authoring and Visual Analytics have been adapted and re-designed to better support the end-users needs. To this end, the tree based representations of the authored models, have been enhanced to support also multiple interconnections between domain entities and policy components. As such, now the UK Pilot models authored during the 1st round look like below Figure 9Figure 10Figure 11Figure 12. In order to quickly recall the **1st UK pilot round application scenarios**, we list them here:

- **Domain: immunotherapy and allergic diseases**
  - **Policy 1**: Identification of allergic diseases impacts and dimensions
    - **Policy Component 1[2]:** Obtain scientific research results on allergic diseases incidence, prevalence, risks and epidemiological data
    - **Policy Component 2:** Monitor socioeconomic parameters of allergic diseases and the impact in patients' Quality of Life (QoL)
    - **Policy Component 3:** Record the general population opinion for allergies and their treatments from web 2.0
  - **Policy 2**: Immunotherapy integration, as a key component in optimising the allergic diseases cure strategies.
    - **Policy Component 1:** Identify immunotherapy safety, efficiency and cost-effectiveness
    - **Policy Component 2:** Prioritize funding for immunotherapy research
    - **Policy Component 3:** Promote immunotherapy awareness

The main, front-end characteristics of the new Authoring model re-design consist of: a) network mesh representation, for multiple interconnections b) list view representation for facilitating the editing and c) "new terms or arguments found" functionality for elaborating more on the authored models. Furthermore, concerning the new functionality of "*List View*" of the models, as one can noted, it provides numerical data for easily identifying the amount of the entities and statement for each model (e.g. domain, policy). For example, the policy "**Identification of allergic diseases impacts and dimensions**" contains overall 3 policy components, 71 arguments and 50 domain entities correlations, information helpful for extracting cumulative insights for the authored model.

Figure 9Figure 10 are showing a snapshot from the authored UK domain model from the 1st round, in a network representation, as well as in a list view. In the first case (Figure 9), all the authored UK models of the pilot user are being shown in the left vertical pane, in the form of bubbles, and the main area is covered with the domain network of entities along with their connections. Moreover, the "terms found" tab provides to the user suggestions for new terms found during the model running and could be candidate terms of interest to be included for the model enhancement. While, in the second case (Figure 10) a more readable version of the same model is being offered, for identifying basically the entities of the model and not the connections between them.

[2] The term "Policy Component" is equivalent to the term "Sub-policy" used in previous reports.

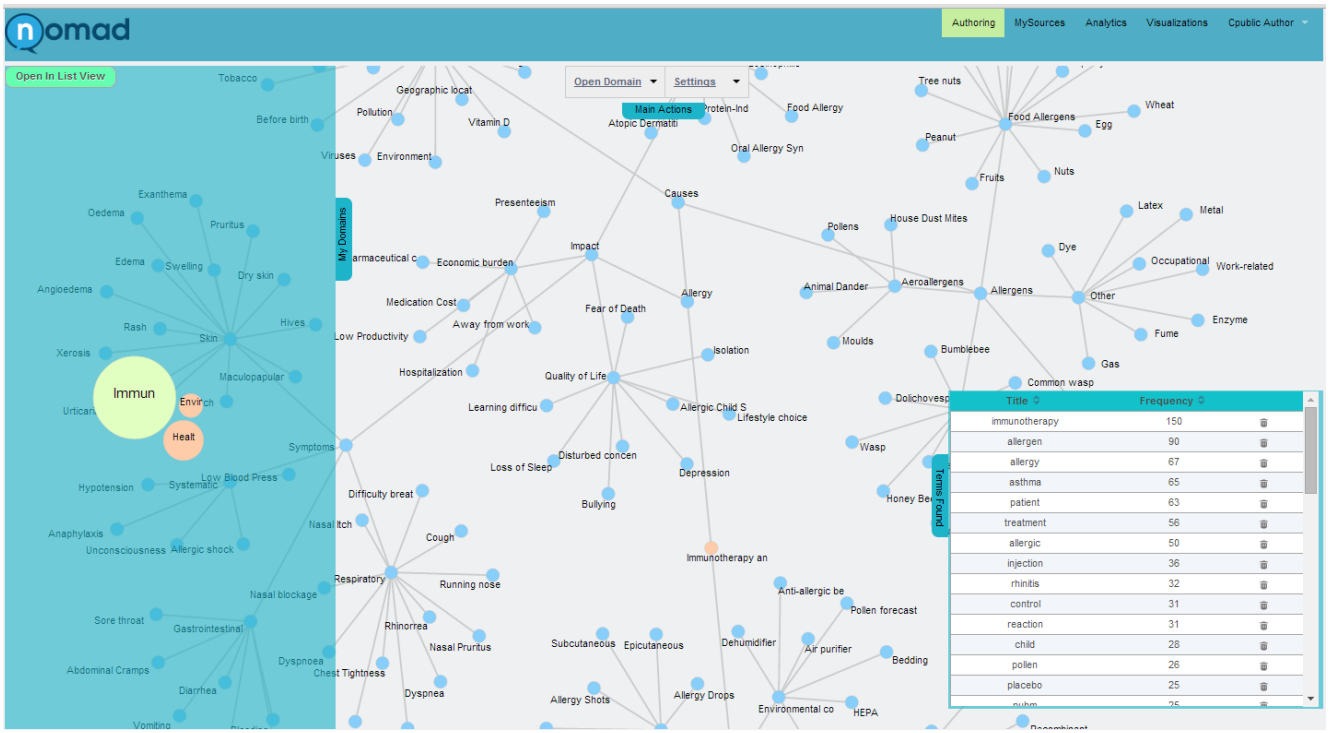


Figure 9: 1st round: UK domain model - New representation

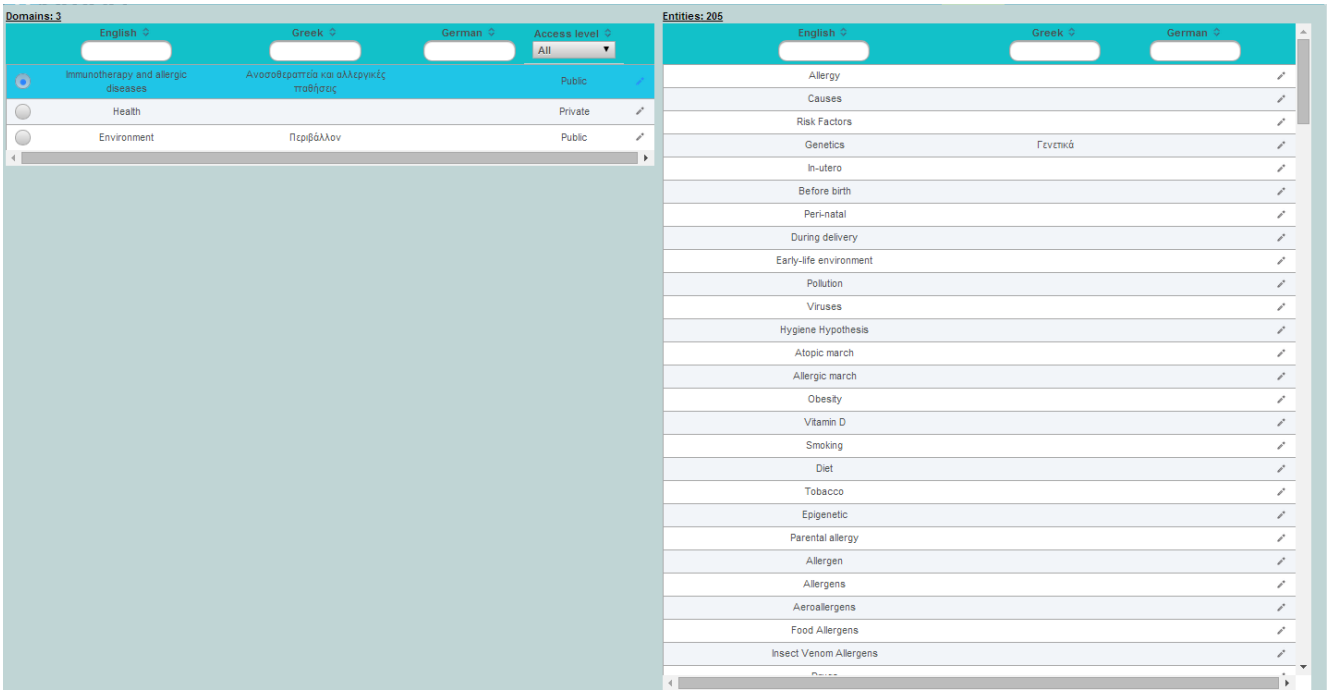


Figure 10: 1st round: UK domain model - List view

As for the Figure 11Figure 12, in the same sense as before, the more complex policy model is depicted in the main area of the tool, having different colours for the policy, policy components, arguments (positive, negative, neutral) and the interlinked entities (blue nodes) coming from the domain model, enabling in this way the linkage of the domain and policy models and making each policy model to belong to at least one domain model. Again, here we have the "found arguments" tab, where new, candidate arguments are presented for being inserted in the authored policy model of the user, if deemed proper, further enhancing the model and re-running it for identifying new dimensions. The list view here presents more information, as it has to do with the density of the policy model, so each time a policy is selected its policy components, its arguments and the associated domain entities are presented in a list view, lacking of course the connections that are provided by the network view.

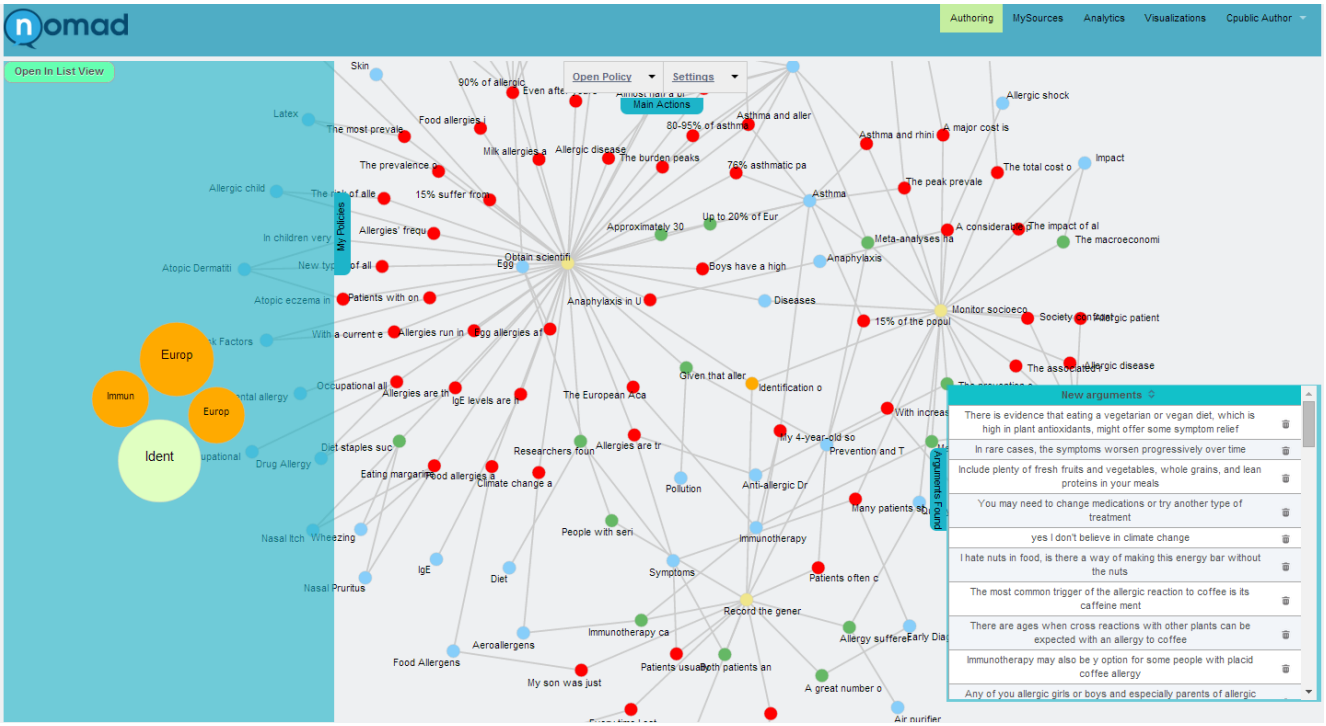


Figure 11: 1st round: UK policy model - New representation

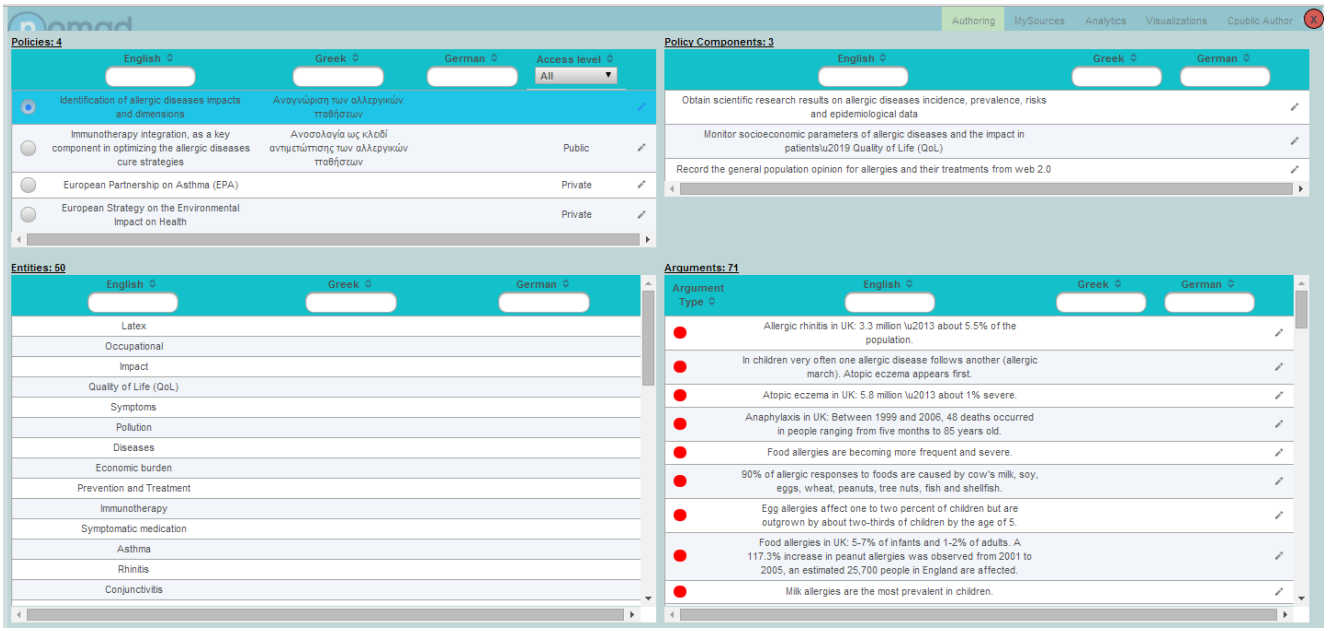


Figure 12: 1st round: UK policy model - List view

As for the re-design of the Visual Analytics tool, it has resulted to a more functional and ease to use tool, that basically: a) facilitates the filtering of the results, b) provides a clearer view of the analysed results of the models, and c) facilitates the validation of the extracted results, a must-have characteristic that most of the users asked for, during the 1st piloting round. Figure 13 shows a snapshot for the new Visual Analytics Tool, concerning a policy authored from the 1st round. As one can easily noted, in the left side column the filtering capabilities of the results are lying, making it easy for the end users to adapt the visualised results, based on their needs, while the rest of the window is reserved for representation of the analysis and the results, providing information about the crawled and/or new potential arguments, the time of posting, the sources type frequency and the sentiment analysis, along with a word cloud with the most prominent and frequently used words found out there in the web, based on the selected model and last but not least the segments from where the argumentation has been retrieved, along with their source reference for further user validation of information consistence.

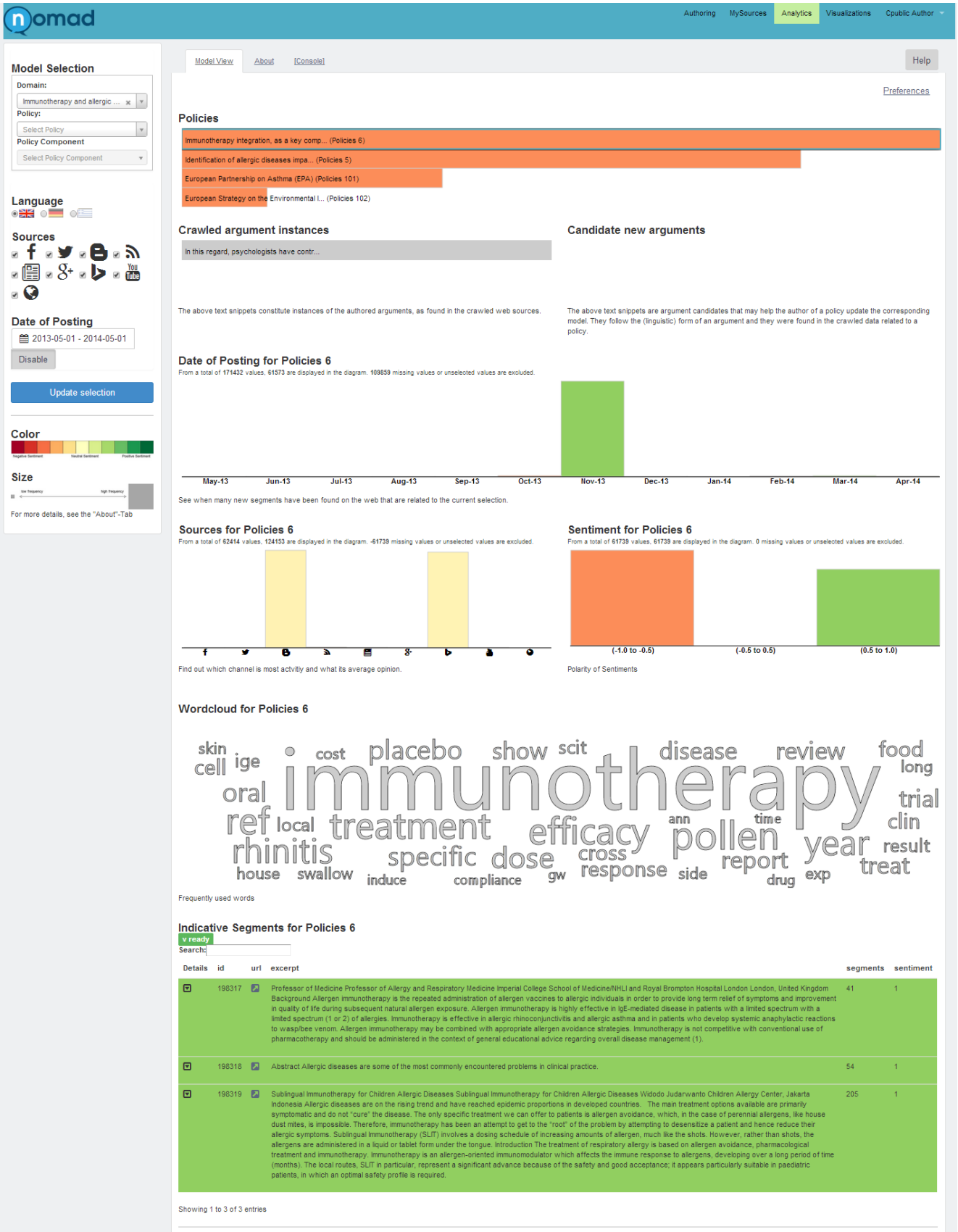


Figure 13: 1st round: UK models results - New representation

Having showcased in short the new look-and-feel of the platform, having as an example the "old" UK models, we can now move on the specification of the 2nd UK pilot round.

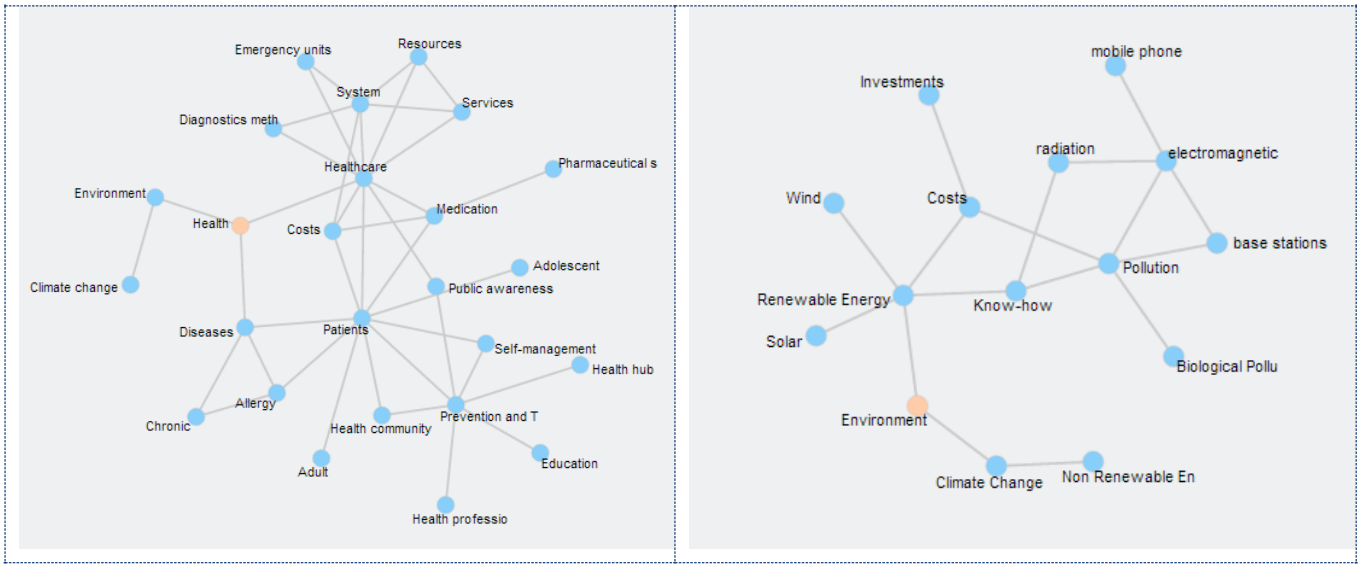
As have already been reported in the overview, the results from the 1st UK pilot round has driven our focus for the 2nd round to further specify UK application scenario and monitor policies concerning the "**asthma**" sub-domain and defining a

policy about a potential **European Partnership on asthma**, for finding out the discussion of the public around topics such as improvement of self-management plans, biological targets prioritisation, innovation and awareness in asthma, etc.

Going one step forward, it was decided to model another policy too, concerning the overall **European strategy for the environmental impact on health**, as it seems to be a hot issue, widely discussed during the last years. This policy it is attached to two different domain models, e.g. "**health**" and "**environment**" domains, which do not exist within the UK pilot and have been created for this reason. More specifically, the health domain plays the role of a "super-domain", in comparison with the allergy one, while the environment domain will borrow entities from the already defined domain on energy of the Greek pilot, in order to serve the necessities of the under discussion policy. The spotlight of this policy is to monitor the public awareness on the environmental parameters and the surveillance methods that might negatively affect the health, in order to reduce the knowledge gap on this issue. Here below are presented in detail the policy and policy components that have been modelled for the 2nd round of UK pilots, and also the domains that these policies are connected to, with an indication of whether this is a newly defined domain model, or already within the UK pilot, coming from the 1st round.

- **Domain: allergic diseases and Immunotherapy**, with focus on the **asthma** branch *[existing domain model]*
  - **Policy**: European Partnership on Asthma (EPA)
    - **Policy Component 1:** Identify asthma stratifications among different demographic groups
    - **Policy Component 2:** Optimise health and care systems for patients with asthma
    - **Policy Component 3:** Improve diagnostics and self-management plans for asthma treatment
    - **Policy Component 4:** Prioritise biological targets for reducing asthma attacks
    - **Policy Component 5:** Reduce the annual level of deaths from asthma
    - **Policy Component 6:** Prioritise research, innovation and awareness in asthma
- **Domains: health, environment** *[newly defined domains model]*
  - **Policy**: European Strategy on the Environmental Impact on Health
    - **Policy Component 1:** Promote awareness on environmental parameters affecting population health
    - **Policy Component 2:** Reduce the knowledge gaps on (non-) biological pollutants, electro-magnetic fields and radiation, and other parameters that affects negatively health
    - **Policy Component 3:** Develop of surveillance methods, communication, education and public information about potential environmental risks on citizens' health

These new UK pilot specifications have been imported to the new version of NOMAD Authoring and are presented through a set of figures that follows right below.



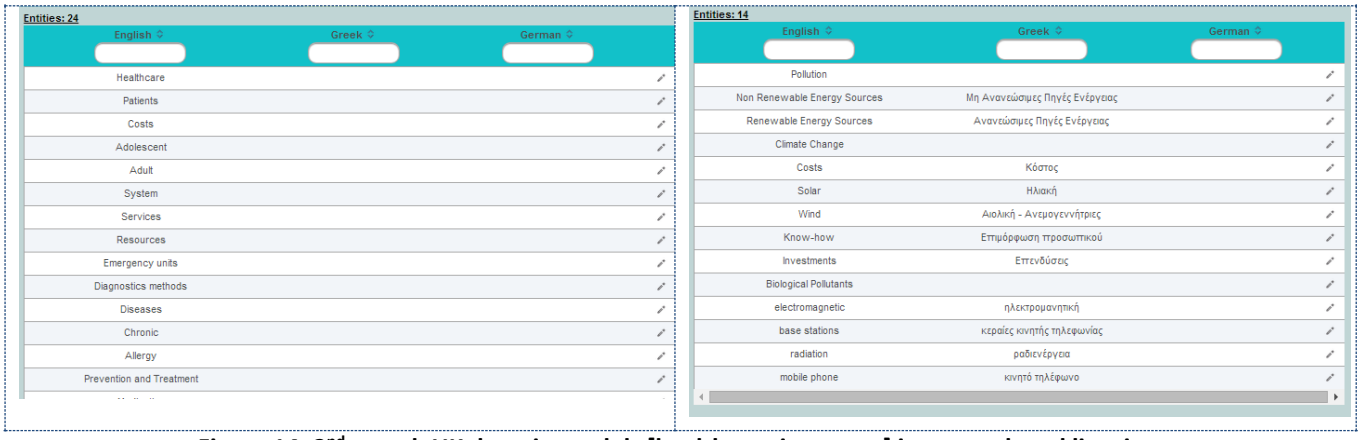


Figure 14: 2nd round: UK domain models [health, environment] in network and list view

Figure 14 shows the newly defined domain models for the UK Pilot, authored during the 2nd round, while Figure 15Figure 16Figure 17Figure 18 presents some screenshots from the newly authored policy models, both in network and list view.

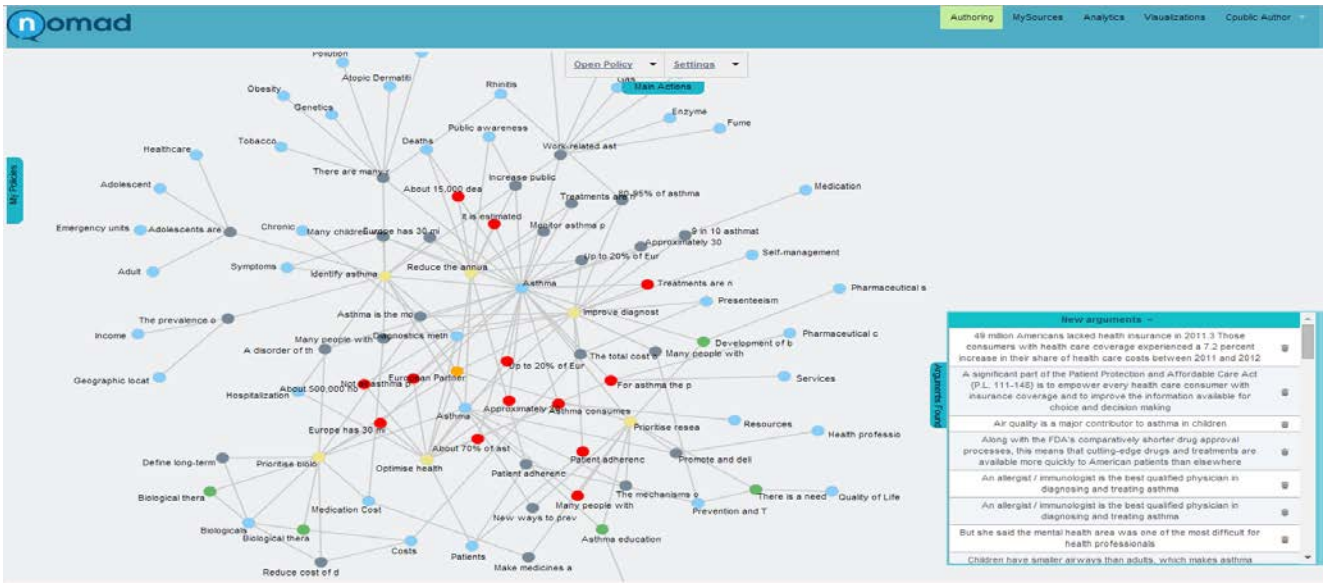


Figure 15: 2nd round: UK policy model - European Partnership on Asthma (EPA) [network view]

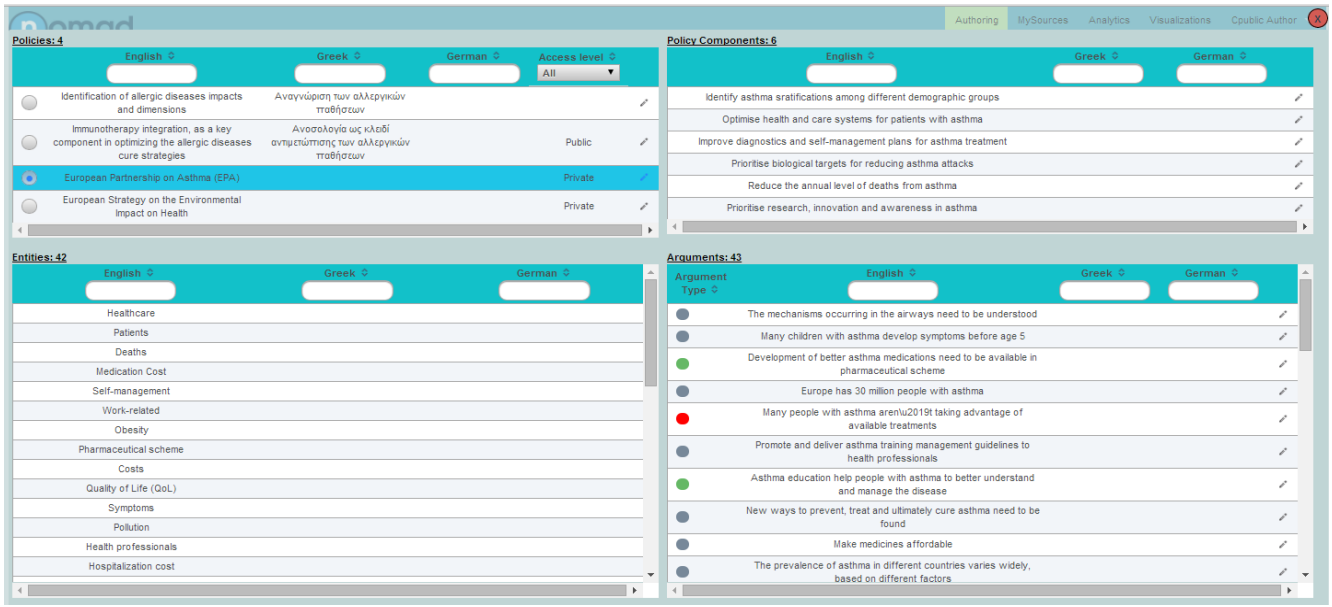


Figure 16: 2nd round: UK policy model - European Partnership on Asthma (EPA) [list view]

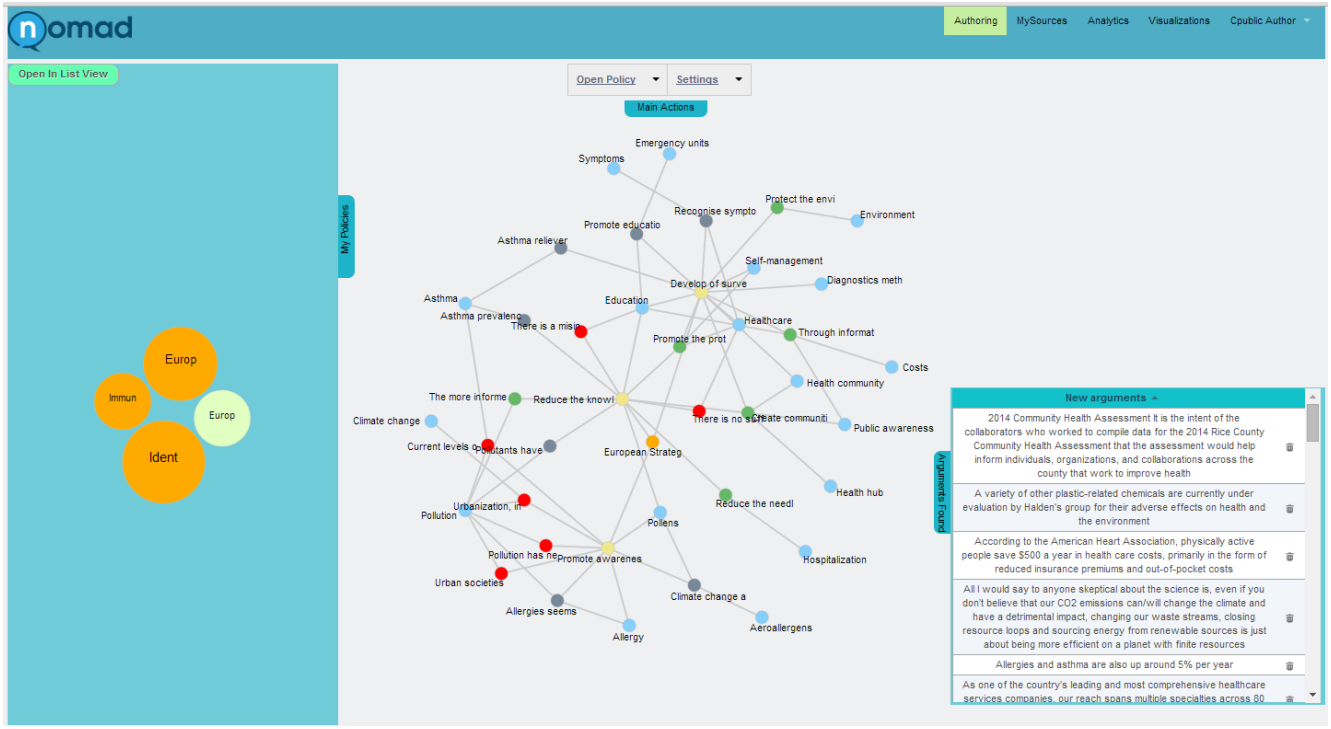


Figure 17: 2nd round: UK policy model - European Strategy on the Environmental Impact on Health [network view]

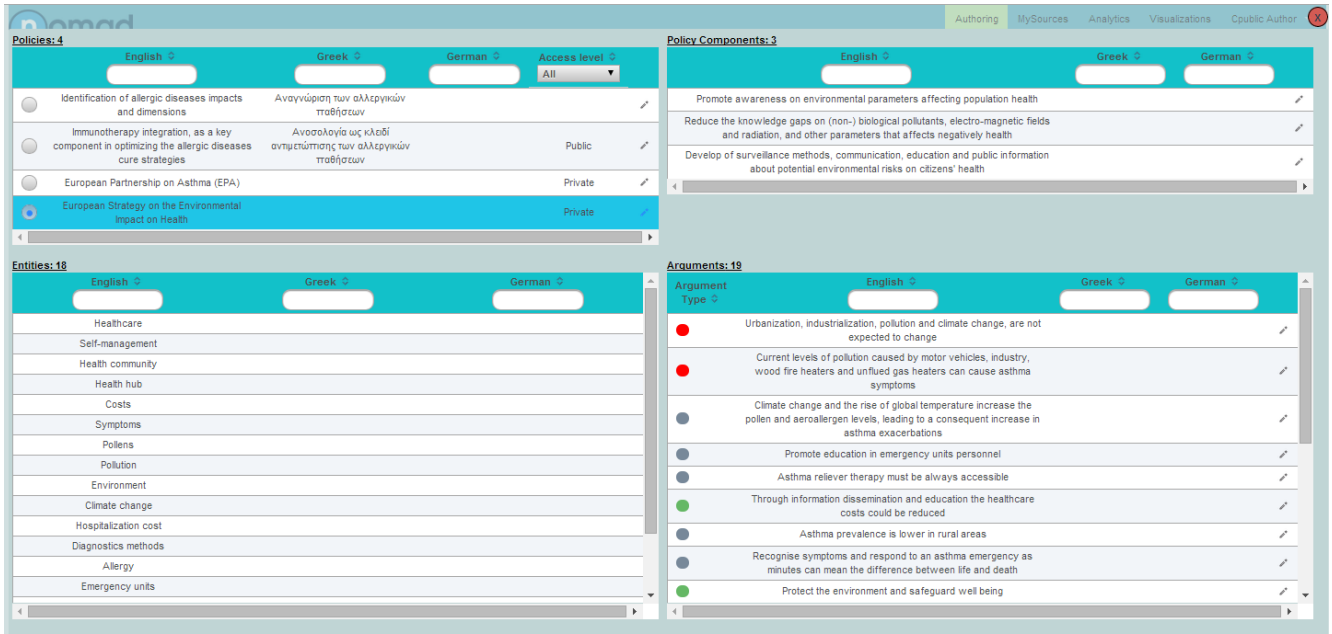


Figure 18: 2nd round: UK policy model - European Strategy on the Environmental Impact on Health [list view]

In the Table 2Table 3 that follow, are presented some overall statistics, concerning the authored models of the UK pilot within the NOMAD platform, during 1st and 2nd rounds. As such, one can easily identify the number of domain entities counting each domain model, and during which pilot cycle has been realised. In the same sense, for the policy models are given numeric data concerning their policy component, arguments and the associated domains, domain entities number, as well as the round of their implementation.

Table 2: UK pilot – Overall domain models

A/A	Domain models	Domain entities	Rounds
A.	Immunotherapy and allergic diseases	205	1st
B.	Health	24	2nd
C.	Environment	14	2nd

Table 3: UK pilot – Overall policy models

A/A	UK Pilot - Policy Models	Policy components	Arguments	Entities	Associated domains			Rounds
1.	**Identification of allergic diseases impacts and dimensions**	3	71	50	**A**			1st
2.	**Immunotherapy integration, as a key component in optimizing the allergic diseases cure strategies**	3	24	14	**A**			1st
3.	**European Partnership on Asthma (EPA)**	6	43	42	**A**	**B**		2nd
4.	**European Strategy on the Environmental Impact on Health**	3	19	18	**A**	**B**	**C**	2nd

Of course, it has to be noted that during this authoring procedure the tool has been thoroughly tested by CP and EAACI, in order to find out any inconsistency and/or improvements, for bringing the tool closer to the end-user needs. Finally, by this "internal evaluation procedure and tools adaptation" that has been followed by all pilot partners, the last step has been taken so as to move towards the 2nd round workshop organisation.

3.3 2nd Round Workshop Organisation

The aim of the 2nd UK workshop, "**Policy Formulation and Validation via NOMAD**", held on November, 12th, 2014, 10:00-12:00 at HeP premises, was to present the NOMAD approach on formulation and validation of policy making through crowd sourcing, and to assess its usefulness for decision makers and its potential adoption from multiple types of organisations, as an innovative and value-adding ICT platform for the inclusion of public opinion in the formulation of policy making, thus enhancing open and co-operative governance.

The organisation of the event has been prepared carefully, as its goal was to interconnect piloting with dissemination and exploitation, in order to a) present the new version of the NOMAD platform, b) showcase application scenario results not only from UK pilot but generally, c) reach out as many stakeholders as possible, and d) involve external users to the NOMAD experience in the 3rd round.

Starting with identifying the targeted audience from each of the NOMAD categories of potential stakeholders, CP and EAACI had drilled down to their private and social networks to find out possible participants. Moreover, press releases and invitation articles have been published to different media sources (e.g. tovima.gr, reporter.gr, palo.gr, inewsgr.com, hleianews.gr, dou.gr, axortagos.gr), apart from the project's official website and social networks, so that more people to be informed for the event. To facilitate the express of interest from unknown people, CP with the help of AEGEAN had created an online registration form. Approximately 60 personal email invitations have been sent out and all the aforementioned effort resulted in 45 individual registrations during the invitation phase, while the external participants of the event were finally 30. It was a pleasant surprise that the audience covered a wide range of targeted NOMAD stakeholders, spanning from decision makers across different operational domains and health professionals, to journalists & bloggers, business analysts, members of NGOs (e.g. Place Identity NGO), and lots of public body representatives (e.g. various ministries, social and administrative organisations), thoroughly listed in Table 4 and in Figure 20.

In parallel with the identification of the targeted audience for the workshop, the material (e.g. invitation letter, press releases, online registration form, agenda, directions, etc.)[3] communicated through email and social media had to be carefully prepared, in both languages (English and Greek), for supporting the formality and professional approach of the event.

Wednesday,
12 November 2014
09:30-12:00
Office Facilities Building
of Hellenic Parliament
GROUND FLOOR
22-24, Amalias Avenue,
Athens – Greece

WORKSHOP **Policy Formulation and Validation via NOMAD**

Workshop Scope

The **"Policy Formulation and Validation via NOMAD"** workshop is organised in the context of NOMAD, an ICT project for Governance and Policy Modeling co-funded by the EC under FP7. During the last three years of its implementation, we have developed an innovative toolset for decision-makers –by employing techniques on data and opinion mining– that will enable them to understand citizens' opinion, arguments and needs as expressed in Web 2.0, and help them shape their policy-making agenda. NOMAD vision is to"**change the way policies are designed, decided and enforced**".

The workshop aims to present the NOMAD approach on formulation and validation of policy making through crowd sourcing, and to assess its usefulness for decision makers and its potential adoption from multiple types of organisations. Results from the pilot applications developed during the course of the project, pertaining to healthcare, energy and open data, will lay the foundations for deliberation among representatives of entrepreneurial groups, public entities, and NGO members.

Programme

09:30 – 10:00	**Participants arrival – Coffee/Tea**
10:00 – 10:10	**Welcome – Introduction to NOMAD**
	The workshop will begin with an address by **Costas Koutras**, *NOMAD Coordinator*, and the first screening of the NOMAD official video.
10:10 – 10:30	**The NOMAD experience**
	Barbara Kapourani, *Digital Intelligence Consultant at Critical Publics*, will present the workshop's objectives and expected outcome, as well as results from pilots, across different operational domains, with a special focus on the healthcare sector.
10:30 – 11:00	**NOMAD Tools Demonstration**
	Aggeliki Androutsopoulou, *Research Associate at the University of the Aegean*, will demonstrate the NOMAD platform, showcasing the tool's functionalities.
11:00 - 12:00	**Evaluation and Open Discussion**
	An open discussion will be held during which participants will be invited to evaluate and assess NOMAD added value to the decision making process.

Figure 19: 2nd round: UK workshop agenda snapshot

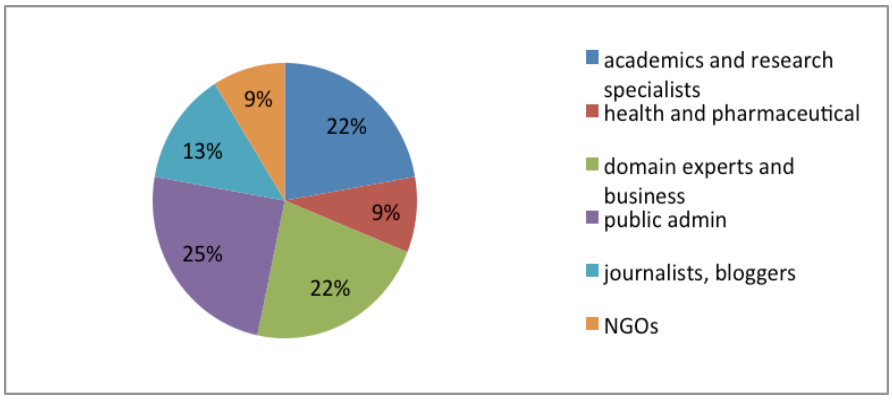


Figure 20: 2nd round: UK workshop participants' categories

[3] All material is available in D8.3.2 Support Documents - Pilot workshops material

Table 4: 2nd round – UK pilot workshop participants

A/A	Name Surname	Organisation
1	AGGELIKI ANDROUTSOPOULOU	UNIVERSITY OF THE AEGEAN
2	ANASTASIA SPILIOPOULOU	INDEPENDANT CONSULTANT
3	ANASTASIOS ZAFEIROPOULOS	UBITECH LTD
4	ANDREAS PANAGOPOULOS	JOURNALIST-BLOGGER
5	ANGELIKI CHAREMI	OGA
6	ANNA KALLIANI	CRITICAL PUBLICS
7	ANNA TRIANTAFILLOU	ATC
8	ASIMINA XENOU	MINISTRY OF CITIZEN PROTECTION
9	BARBARA KAPOURANI	CRITICAL PUBLICS
10	CHARALAMPOS ALEXOPOULOULOS	UNIVERSITY OF THE AEGEAN
11	CHRISTOS TSAPAKIDIS	M MEDIA SA
12	COSTAS KOUTRAS	UNIVERSITY OF THE AEGEAN
13	DEMINA MASOULA	CRITICAL PUBLICS
14	DIMITRA SYROU	AEGEAN UNIVERSITY
15	DIMITRIS KORYZIS	HELLENIC PARLIAMENT
16	DIMITRIS MALLAS	IMERISSIA
17	EIRINI VAVOURI	UNIVERSITY OF AEGEAN
18	ELEFTHERIA DIMAKOPOULOU	UNIVERSITY OF AEGEAN
19	ELENI KONTOSI	KANTOR QWENTES
20	ELINA MAKRI	JOURNALIST
21	EURIPIDIS LOUKIS	UNIVERSITY OF AEGEAN
22	EVANGELIA PAPATHANASIOU	UNIVERSITY OF AEGEAN
23	FILINIS KYRIAKOS	CRISIS OBSERVATORY (ELIAMEP)
24	GEORGE KIOMOURTZIS	NCSR DEMOKRITOS
25	GEORGE VASILAKIS	KANTOR QWENTES
26	GEORGIA KOUMANIOTI	MINISTRY OF MERCANTILE MARINE
27	GEORGIOS PETASIS	NCSR DEMOKRITOS
28	INO VEI	HELLENIC HOPE
29	IOANNA BLOUTI	MINISTRY OF EDUCATION
30	IORDANIS MILIONIS	JANSSEN PHARMACEUTICAL SACI
31	KARYDI KONSTANTINA	ATHENS MUNICIPALITY, MAYOR OFFICE
32	KERRY KAIDANTZI	ATHENS INFORMATION TECHNOLOGY
33	LAMPROS KALOGIROS	ALLERGIST / EAACI MEMBER
34	MARIA MARGELI	OGA
35	MARIA-ANTONIA TSOUTSOURA	MINISTRY OF INTERIOR
36	NIKOS MANIADAKIS	NATIONAL SCHOOL OF PUBLIC HEALTH
37	NIKOS MOUMOURIS	CRITICAL PUBLICS
38	NIKOS PAPADOPOULOS	EAACI, UOA
39	PANAGIOTIS MARKIDIS	PROTO THEMA NEWSPAPER
40	PETROS GAVALAKIS	MINISTRY OF ADMIN. REFORM AND E-GOVERNANCE
41	ROI HAIKOU	ELEFTHEROS TYPOS
42	SOFIA MICHALAKI	CRITICAL PUBLICS
43	STEPHANIA XYDIA	PLACE IDENTITY NGO
44	STYLIANI GALANI	MINISTRY OF FINANCE
45	STYLIANI KARAGIANNI	IKA-ETAM ADMINISTRATION

Throughout the whole invitation & preparation phase, the communication with the targeted audience of the workshop had gone through several stages, by sending out an email every week, for motivating them to register, for reminding the dates and for revealing step by step more information about the event (e.g. firstly the goal and to whom it is targeted, them the date and place, next the agenda and directions to reach the venue, etc).

As a final step for the preparation phase, the material[3] for the workshop day has been prepared (e.g. presentations, questionnaires, participants' lists, etc) and everything was ready for the realisation of the event. The workshop started with a short introduction of NOMAD's values and challenges and right after, the NOMAD video has been showcased for the first time. Next, the core presentation of workshop followed, which described the idea behind NOMAD, its objectives and functions, as well as the workshop objectives and the pilots' outcomes, with a direct invitation to the 3rd round of the pilots. The presentations closed with a platform demonstration, showcasing the tool's functionalities, while a fruitful discussion has started between the participants and the consortium partners. Suggestions, questions and other remarks have been gathered, along with the filling of the questionnaires, which are presented in detail at the sections to follow. Moreover, as one of the event's goal was to identify users for the 3rd round of the workshop, a form (also available online) has circulated between the participants, in order to fill in their intention for being involved in the NOMAD experience and create their own application scenarios.

Figure 21: 2nd round: UK workshop day photo

After the event completion, a selection of the presentation material have been adapted accordingly and sent to the participants. Moreover, additional material for the NOMAD website and a press release that had been disseminated to the social media and news portals have been created, so that the successful outcome of the event to be reported and the invitation for the 3rd round to be broadcasted.

3.4 2nd Round Results

The assessment of the results as well as of the NOMAD platform usability started with the implementation of the UK pilot application scenarios enhancement (internal evaluation) and continued with the feedback gathered from the workshop participants (external evaluation). The overall feeling in both cases was that the idea behind NOMAD is really promising

and of great interest in different application domains. Moreover, in comparison with the 1st version of the tools, the current, re-designed versions of the tools appear to be better in terms of usability and enhanced functionalities.

During the internal evaluation, it goes without saying that, many bugs and system inconsistency have been revealed and communicated to the technical partners for proper actions to be taken towards their solutions. To this end, in order to facilitate the communication between the pilot and technical partners, it was decided to use of ASANA tool, which gave us the possibility to report the needs, the errors and the issues rose during the tools' usage, to assign the tasks to the appropriate technical partner and to monitor the progress of their execution. This tool has been adopted and used by all project partners, throughout the remaining period of project.

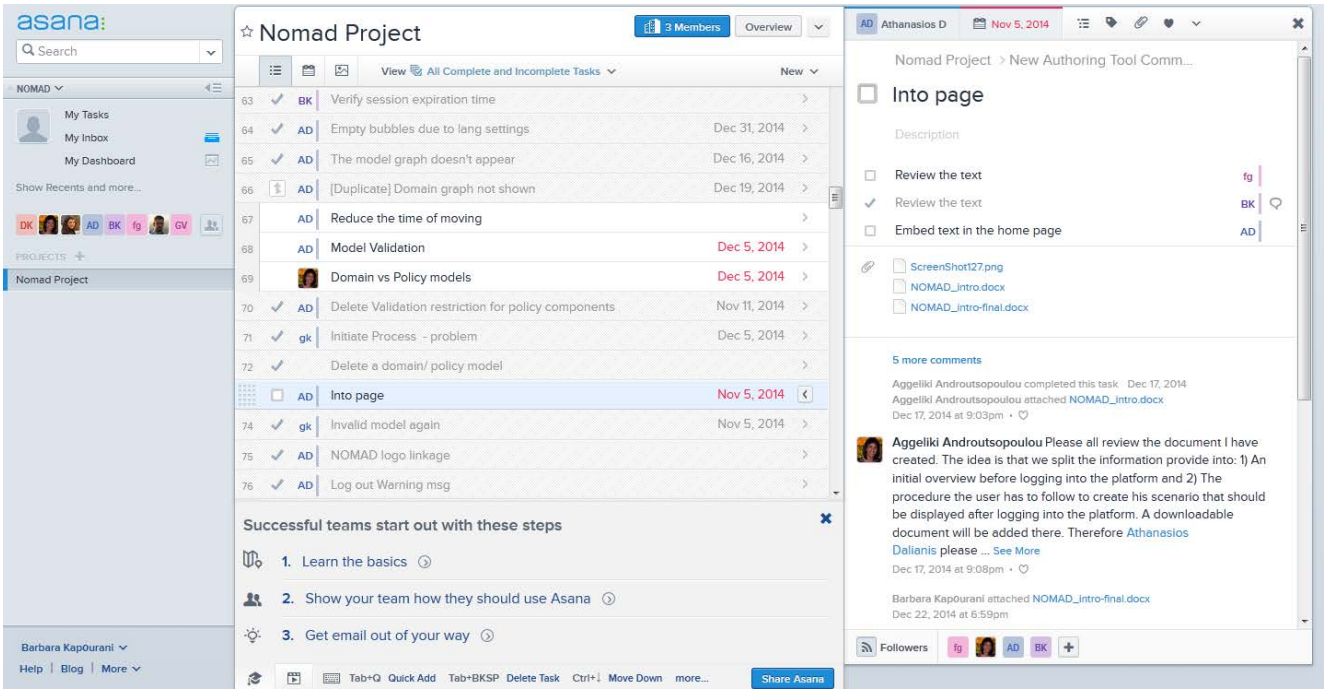


Figure 22: ASANA Teamwork Environment

Concerning the results extracted for the new specifications applied to the UK pilot scenarios, interesting insights have been provided through the Visual Analytics Tool. Here are reported some of them, indicatively:

- The "European Partnership on Asthma (EPA)" policy is discussed much more in the web continuum, in comparison with the "European Strategy on the Environmental Impact on Health" one, during the last 6 months, with some positive picks on August and December 2014.
- The most discussed policy component for the asthma partnership is the self-management plans along with the care systems optimisations, while the prioritisation of the research and biological targets comes last in the row.
- Concerning the argumentation authored for the asthma partnership, it is quite interesting that almost all of them are somehow discussed, but with different sentiment, in different periods in time.
- Lots of discussion between the patients focuses mainly in the symptoms, while the treatment actions seem to come after, leaving there a gab to be filled by appropriate actions.
- The "European Strategy on the Environmental Impact on Health" policy seems to attract many discussions, increasingly, during the last 3 months, with special focus on the more vulnerable population groups (children) that can have negatively affects to their health from the climate change.
- Among the authored policy components of the EU strategy under investigation, the development of surveillance methods, communication and education about the potential environmental risks on citizens' health is the most prominent and positively argued at the end of 2014, throughout various source types, e.g. blogs, Google+, RSS, etc.

- The most frequently used words among the patients discussions concerning both policies under examination seems to be the healthcare costs, system and patients rights and insurance, based on the government and/or state/country filter, revealing in this way the focus that has to be given in a proper policy construction.
- Some of the studies containing arguments for the health care costs, quality and utilisation, as well as the global warm and climate change have been brought from the platform, helping the users to enhance their policy models and re-run them for further insights.

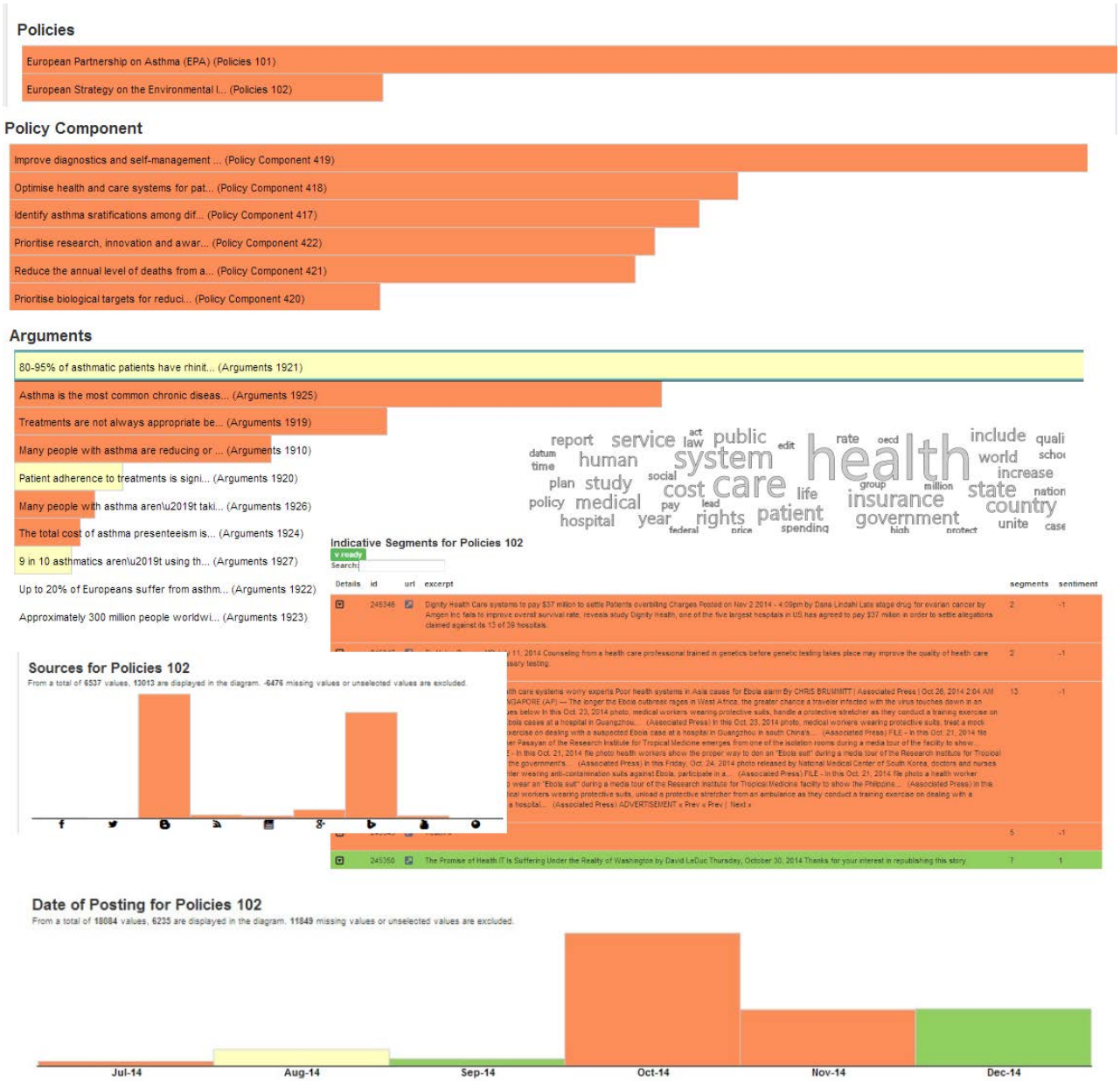


Figure 23: 2nd round: UK pilot scenarios - Cumulative results

As for the external evaluation of this round, during the workshop different issues have been raised and valuable remarks have been gathered from the participants, with the main feedback to be reported below:

- Some of the bluer issues that participants were sceptical and asked for answer were the reliability of sources from where the data are gathered, as well as the dependence of results on the way web discussions are formed, as the argumentation on the web is complex and difficult to be exported. As a result of this discussion was the suggestion for adding a rating system to the imported sources and/or the usage of a score system for the automatic categorisation of the sources containing arguments.
- The usability of tools and the need of making more procedure automated, so as a minimum of the user effort to be required for authoring a valid model has been also discussed a lot among the consortium and the participants

of the workshop. The desire here was to use more sophisticated methods for authoring the domain and policy models, with automatic insertion and correlations between the models, auto-suggestions for the ontology representation of the world and easier way of model formulation.

- The crawling mechanism that is invisible to the end-user, as well as the sentiment insights have drew the attention, with questions about how the sentiment is being calculated and whether the crawling is performed continuously for the results to be automatically updated. The technical partners attending the event have provided all the answers to these issues, making the attendees satisfied for the followed mechanism.
- Interestingly enough the stakeholders were eager to learn more about the exploitation models that would be followed after the end of the project and the various application domains that NOMAD platform could be used, in order for them to be further engaged in it.

Concerning the additional features that, through the discussion, have been revealed as "must-have" for the attended stakeholders groups, these are in short listed here:

- Location based results, so that it is easy to find out what is discussed in a specific region.
- Weighted opinions, as it is important to differentiate the experts' opinion from the general public ones. The same concept has to be applied to the content with massive reproductions.
- Focused observation capability, so that a specific community or specific source type (e.g. blogs, social media accounts), of special interest, can be monitored separately in comparison with the rest of the web continuum.
- Digital opinion leaders to be discovered in a way (e.g. if variants of the same arguments are retrieved).
- Import/Export capabilities, so as to be easy to import model ontologies and export results in a summarised, printed format to be used for presentation purposes.
- Access to closed sources, real time results and automatic retrieval of an ontology (from the results) were some other "nice-to-have" characteristics.

As a concluded remark, it can be stated that the 2nd round of the UK pilot has been successfully implemented, with valuable feedback gathered, opening the way to further elaboration of the NOMAD platform, so as to cover as many different targeted audience as possible. It seems, from the workshop, that there were a genius interest on most of the functionalities that NOMAD performs, but usefulness is a point that a potential commercial product has to focus on, in order to minimise the authoring interaction with the platform and maximising outreach and efficiency of the results. Nonetheless, the expression of interest for the 3rd pilot round has been overwhelming, as almost 10 out of 30 external participants of the event would like to adopt NOMAD platform in their work procedures and try it out on their own scenario applications that have been identified at the end of the event, through tete-a-tete discussion with the consortium partners. Some of the identified domains of interest were: constitution reform, fiscal policy, parliamentary transparency, online allergy education, waste management technologies, telecommunications, tourism web technologies, multicultural education, Greek social security and innovation in education.

Finally, it is important to mention here that the personalized, focused contacts that have been made during the 2nd UK pilot round, have resulted in the identification of organisations/initiatives that NOMAD could potentially create synergies with (e.g. DemocracyOS, VouliWatch and PlaceIdentityGr) and/or exploiting NOMAD platform afterwards. Some of these organisations weren't able to attend the pilots round, but the pilots' partners have been committed to maintain an open communication line and assist the interested parties, even after the project end.

4. GREEK PILOT SCENARIO APPLICATION – ROUND 2

4.1 Overview

The domain and policy models of this round were focussed on the energy policy of Greece as a whole, taking into account the results of the 1st round, where a lot of useful comments, suggestions and remarks have been provided by the pilot users. Hellenic Parliament project team has updated the whole pilot, using most of the existing sub-policies, as reported in the previous project deliverables. After a thorough research on possible policies that could be adopted by the Greek government on the subject of energy, the team of researchers carried on with the preparatory stage of our models' creation once more, as an added value to the work done in the previous stage. The traditional form of policy presentation was our basis for the NOMAD models, used also in the 1st round of NOMAD pilot. As recognised in an earlier project phase, NOMAD platform could provide an overview of the energy in Greece, covering all the possible aspects.

For this reason the whole "Energy framework" has been examined, adding a lot of new policies and sub-policies with their supporting arguments as well. In order to have an overview of the energy framework in Greece 6 alternative policies have been identified at this stage:

1. *Reduction in Fossil Fuel Dependence*
2. *Increase RES Penetration to heating/cooling*
3. *Increase RES penetration to electricity networks*
4. *Energy Investments*
5. *Exploit own HC sources*
6. *Growth model for Greece*

Based on the 1st round results, new specifications of the 2nd pilot round and its goals have been derived. Using the energy framework as basis for creating a big policy model, HeP working team proceeded to the new pilot round set-up, adding the following issues:

- Use new arguments from the previous round results to improve policy models, adding new arguments from an extensive research on the web.
- Extensive use of the new Authoring Tool as basis to:
    - Change Policy Model easily
    - Open multiple models
    - Edit changes and save for further analysis
    - Add new sub-policies as outcome of the previous pilot
- Identify the policy trends analysis from the visualisations
- Try to find reliable results drilling on sources
- Check the intensity of the arguments and their connection with the policies
- Export the results in a user friendly format
- Compare the policy arguments with the visualisation results
- Have a clear overview of the policy domain and the selective policies with one UI

By adding new policy components in the new policy model, the user could have an overview of the energy domain and the energy policy in Greece, having all the related domains in a repository as library plus the most 'hot' concepts, policies and sub-policies in the area. Consequently, a new user scenario at this stage could be summarized in the following lines, as a story telling:

A user wants to check the new trends in the energy sector (e.g. EU financial and energy crisis, new pipelines from East to West, possible investments in energy sources, new drills, oil extraction in Western Greece and Crete, role of consumption and the oil price, the renewable energy sources, independency of Greece in energy sector, energy efficiency measures, etc).

The ultimate scope is a New Energy Plan for Greece assessing once more the RES penetration and evolution in comparison with Hydro Carbons and Oil, identifying the role of Natural Gas. For this reason the user adds new policy components and arguments in selected new sub-policies. Comparing the results of the 1st pilot especially in field of RES with the new pilot results, the user could identify the new trends and not only.

The user is seeking to identify new arguments verifying that Energy Sector can undoubtedly be an important driver of economic growth, since it is the lifeblood of the global economy – a crucial input to nearly all of the goods and services of the modern world. Is it possible to manage resources for truly sustainable economic growth, so Greece could rapidly becoming one of this century's greatest players in the field?

4.2 2nd Round Implementation Models

Having "Energy Framework" as the main policy model as reported before, six (6) Policy models were either enhanced or created from scratch, with one domain model to support them node-wise.

1. *Reduction in Fossil Fuel Dependence*
2. *Increase RES Penetration to heating/cooling*
3. *Increase RES penetration to electricity networks*
4. *Energy Investments*
5. *Exploit own HC sources*
6. *Growth model for Greece*

The existing domain model titled "Energy", was transferred in the new version of the Model Authoring tool, so all the possible domain entities were available to the users. In the following figure extracted from the NOMAD authoring tool, it is presented the whole energy domain model.

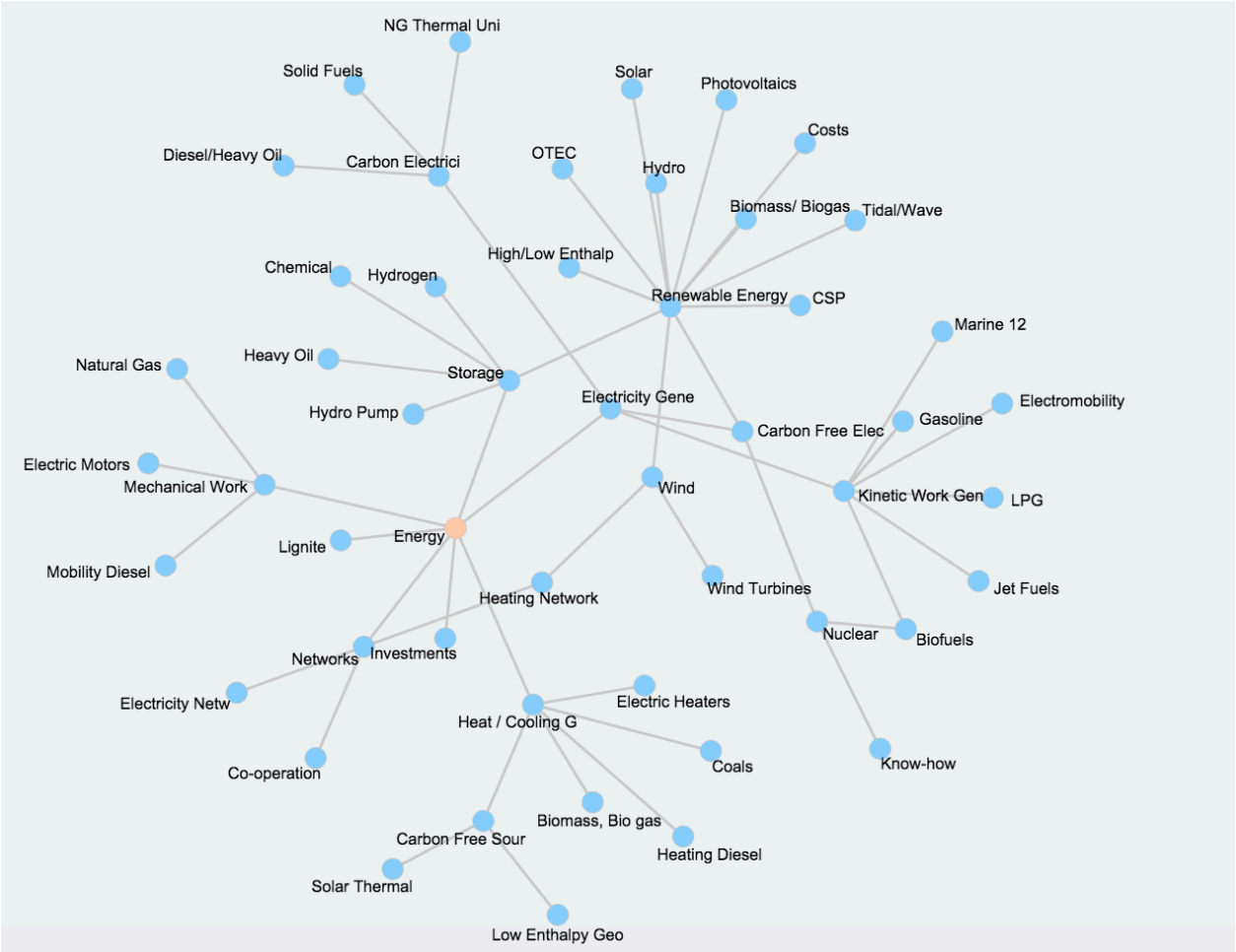


Figure 24: 2nd round: Greek domain model - "Energy"

The most extensive, by far, of all Policy Models is the “Energy Framework” model, in which it was attempted to create a concise representation of what a policy maker might require, while panning out the first stages of their policies. It includes the main policy components we desired, in as a straightforward manner as possible, in accordance with the policy modelling specifications.

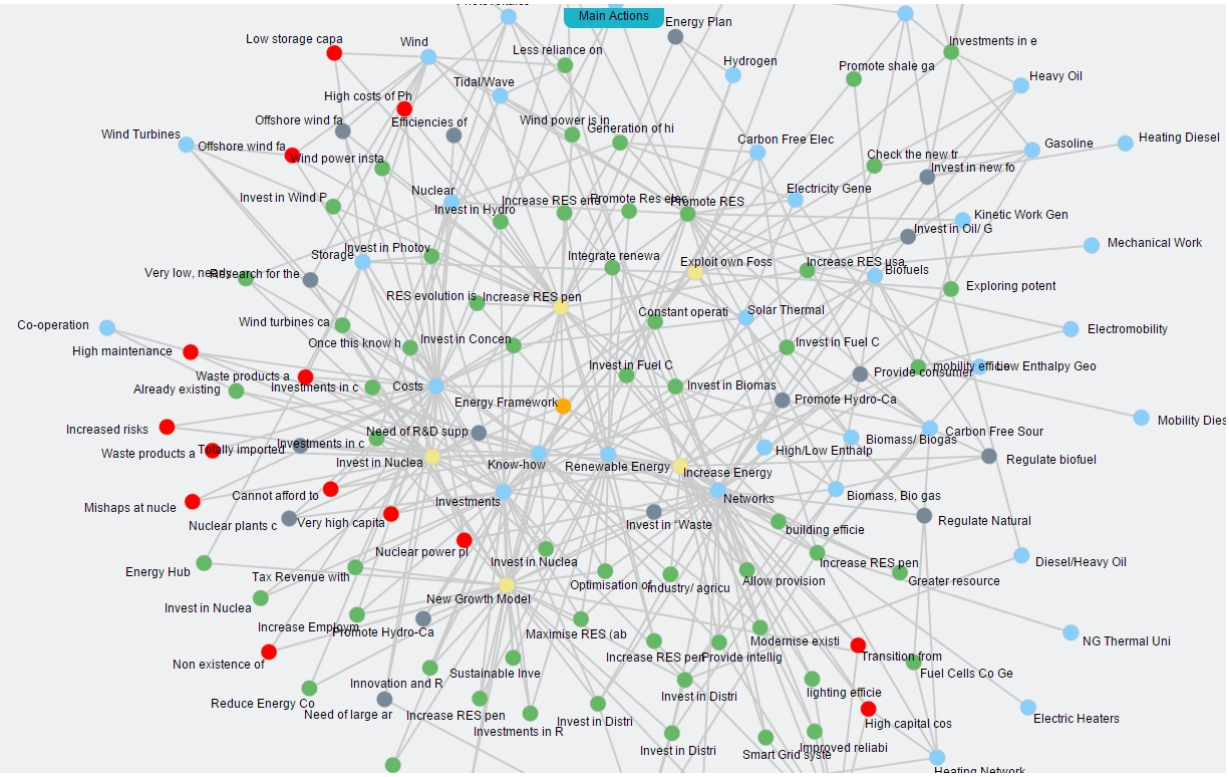


Figure 25: 2nd round: Greek policy model - “Reduction in Fossil Fuel Dependence”

The second model is titled “*Reduction in Fossil Fuel Dependence*”. For this model we broke down our original policy model and selected one of our original sup-policy as the basis in which we added our arguments. We progressed with the creation of this model after being brought to realize we get the complicated results when using larger scale models. For that reason, we decided to break our larger, original model (“Energy Frame work”) to its sub-policies and use those as the central policies for the creation of new, smaller models.

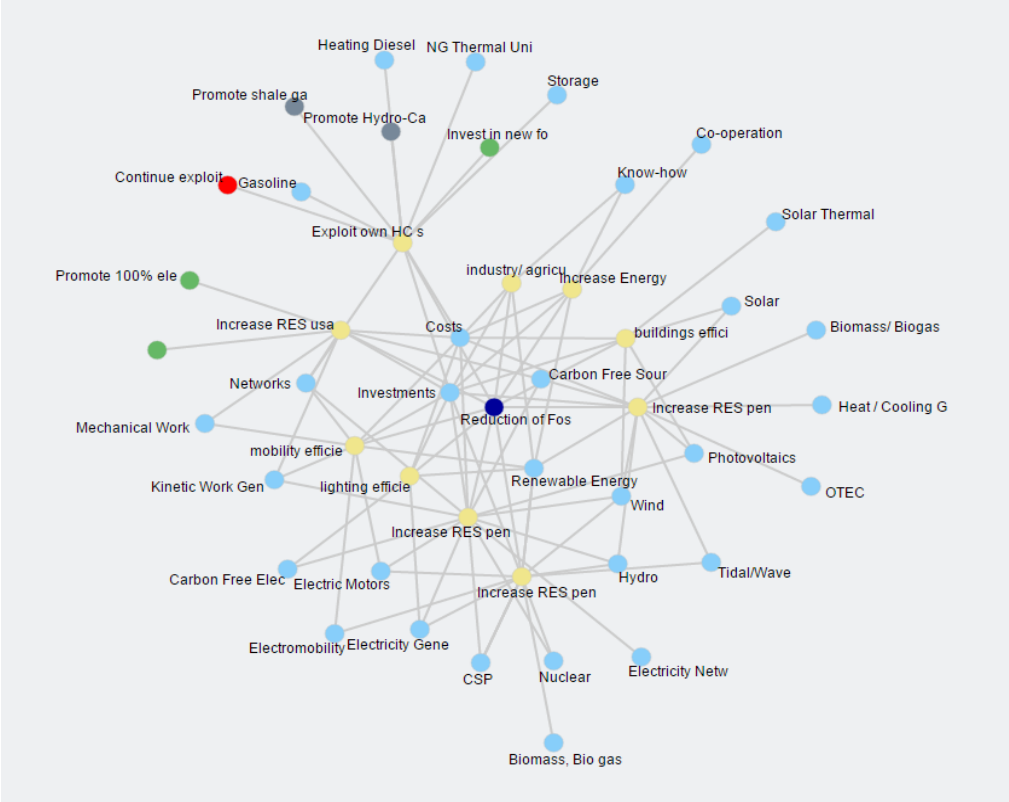


Figure 26: 2nd round: Greek policy model - "Reduction in Fossil Fuel Dependence"

The third model is titled "*Increase RES Penetration to heating/cooling*". Following the pattern of the previous model, it is based on a sub-policy of the "Energy Framework" model.

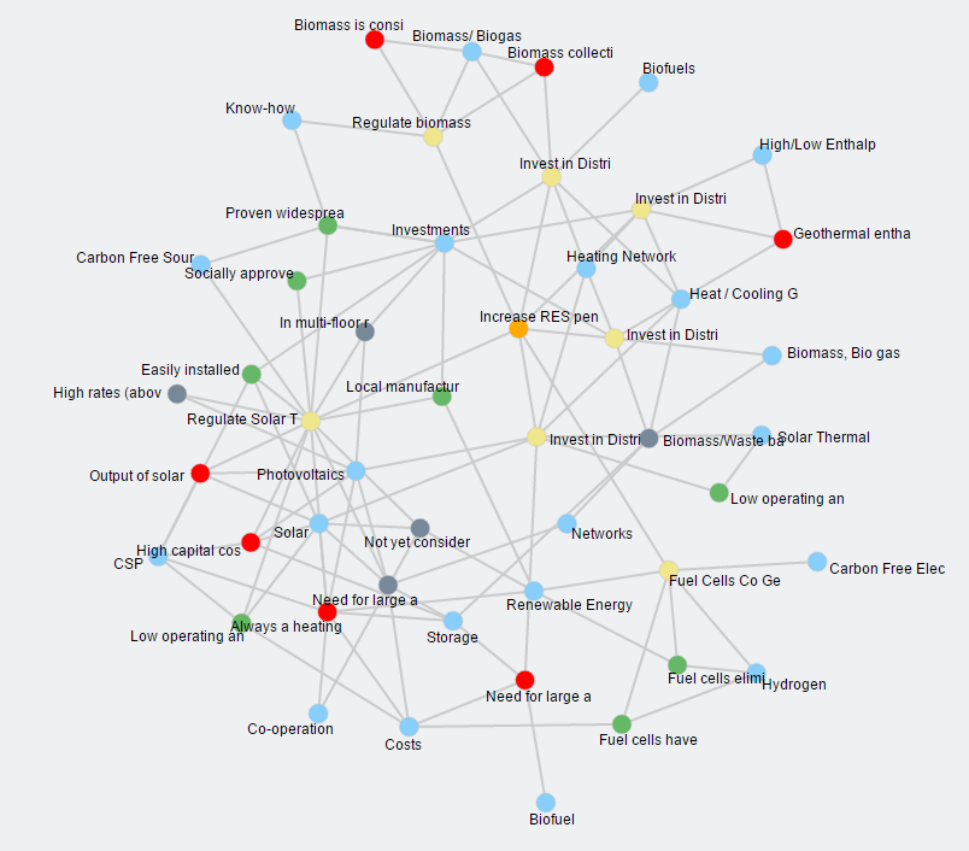


Figure 27: 2nd round: Greek policy model - "Increase RES penetration to electricity networks"

The fourth model of the same category is titled "*Increase RES penetration to electricity networks*". It is the second most extensive model and, after our results from running "Energy Framework" was attained (see 4.4 2nd Round Results), was broken down to even less extensive models.

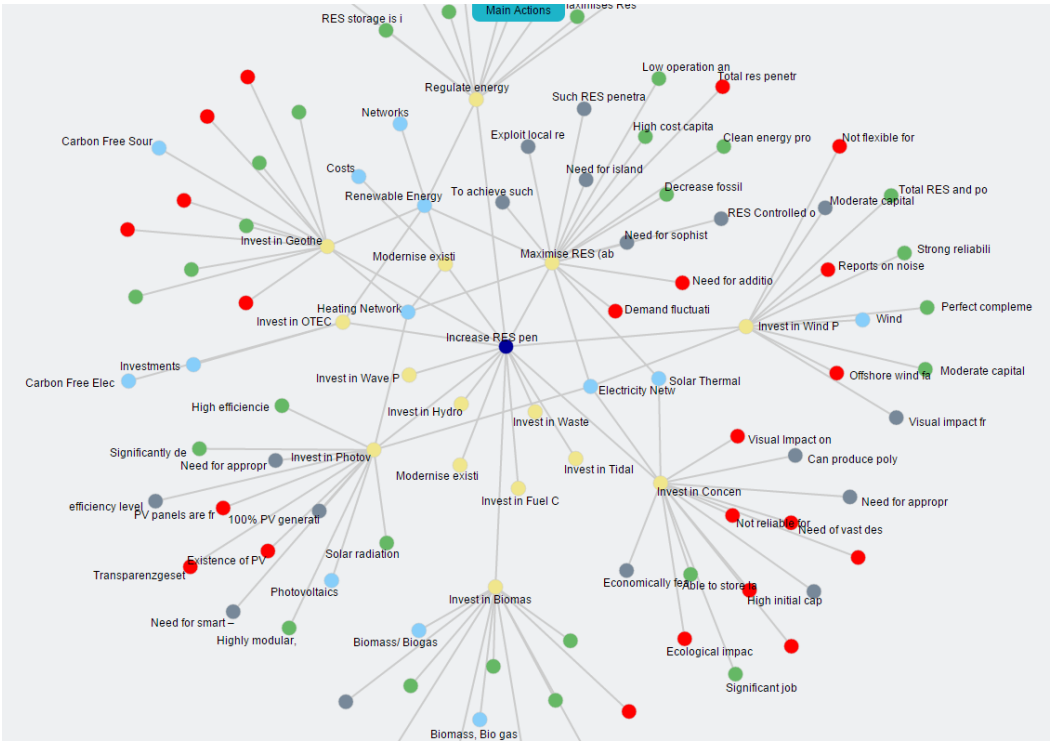


Figure 28: 2nd round: Greek policy model - "Increase RES penetration to electricity networks"

The fifth model is titled "Energy Investments" and presents a more succinct view, and our suggestions, of the possible financial development in the field of Energy.

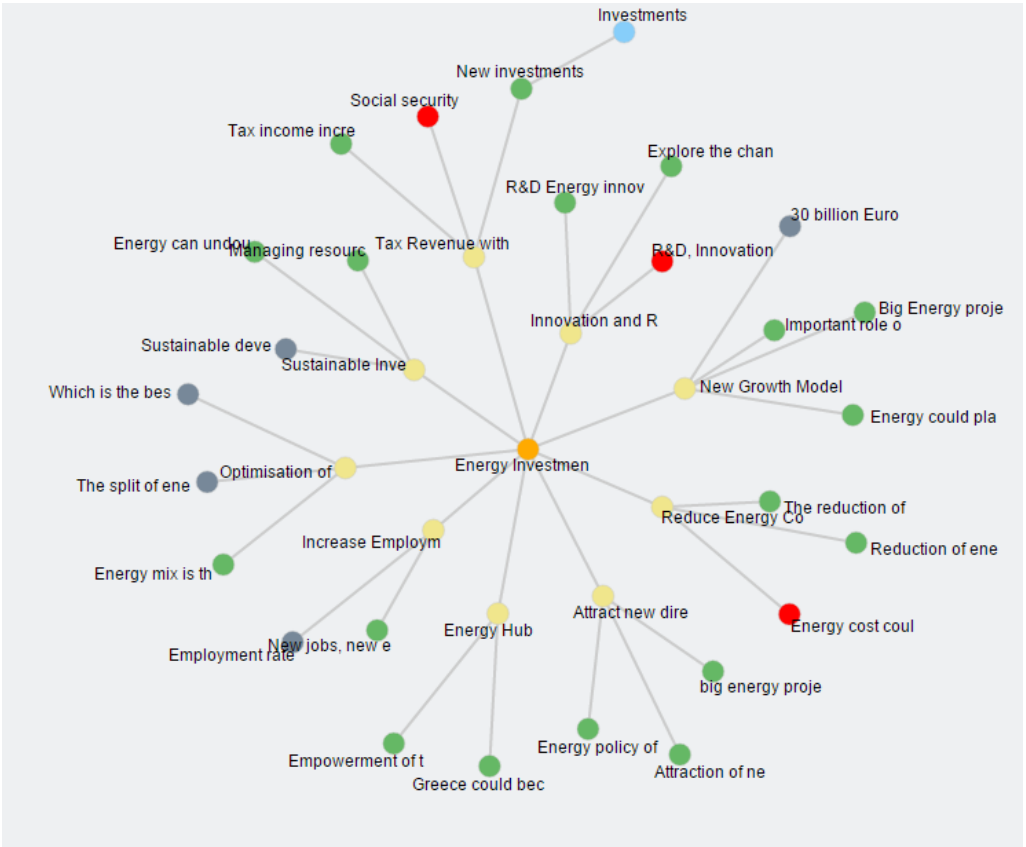


Figure 29: 2nd round: Greek policy model - "Energy Investments"

Finally, the sixth model is titled “Exploit own HC sources”, presenting an alternative exploitation of our existing energy resources and our thoughts on cutting down costs in that area.

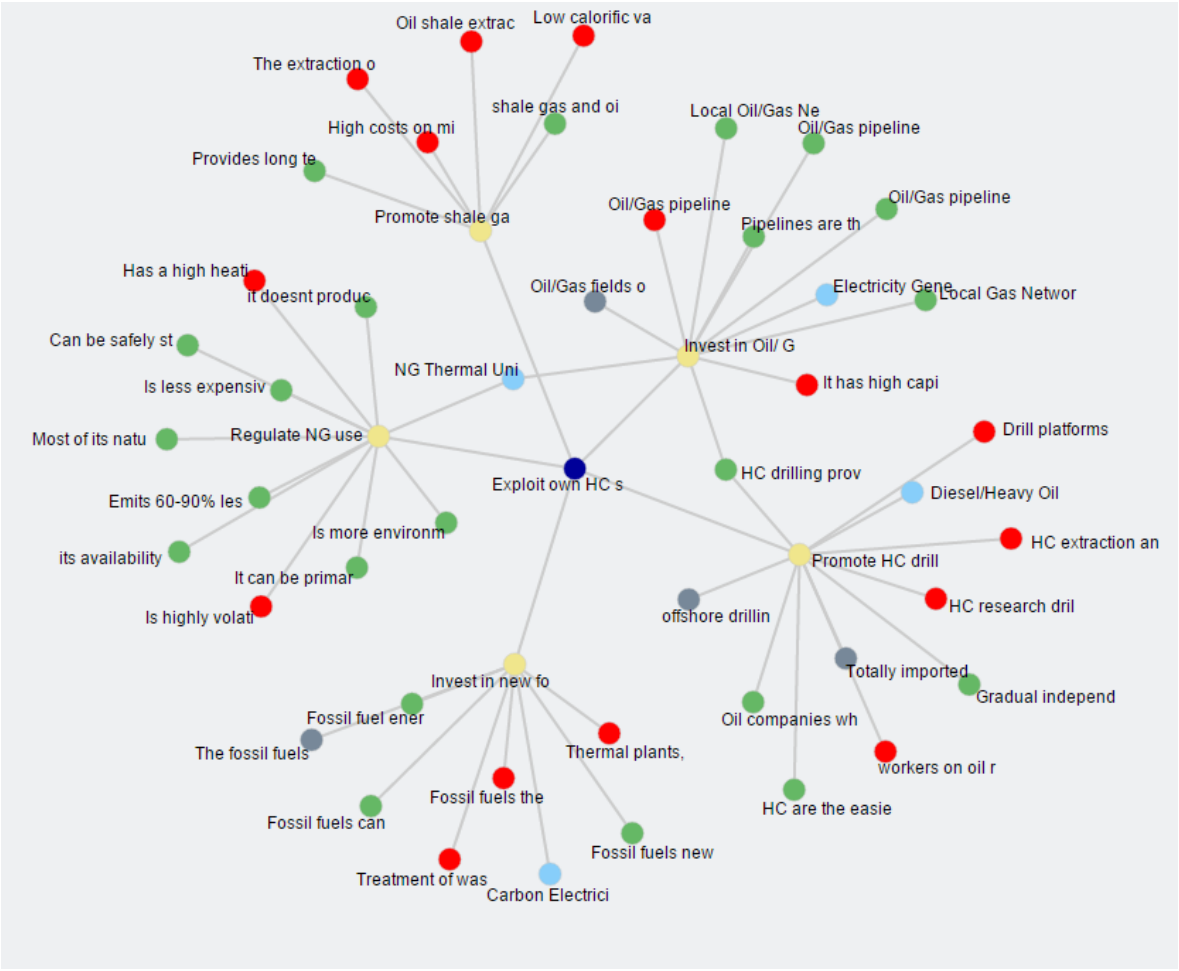


Figure 30: 2nd round: Greek policy model - “Exploit own HC sources”

The user could have an overview of the existing energy framework, the most updated policies, the sub-policies in one single list, as well. The arguments supporting the abovementioned policies could be easily adapted, using the new authoring tool capabilities.

Despite those models producing more concise arguments, we found that it would be difficult to apply them on the work of the average policy maker, especially since nodes and arguments cannot be reused as they are or copied to formulate new, composite models for the sake of comparison.

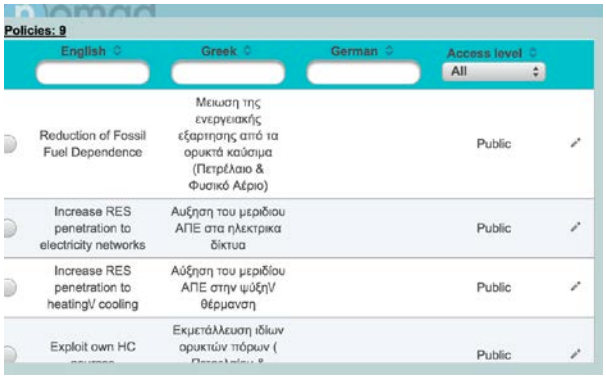


Figure 31: 2nd round: Greek policy model - List view

Table 5: Greek pilot – Overall domain models

Domain model	Domain entities
Energy	50

Table 6: Greek pilot – Overall policy models

A/A	Greek Pilot - Policy Models	Policy components	Arguments	Entities
1.	**Reduction of Fossil Fuel Dependence**	10	6	30
2.	**Increase RES penetration to electricity networks**	15	75	14
3.	**Increase RES penetration to heating, cooling**	7	20	21
4.	**Exploit own HC sources**	5	41	4
5.	**Energy Investments**	9	26	1
6.	**Energy Framework**	5	92	43

4.3 2nd Round Workshop Organisation

The validation and evaluation of the NOMAD platform has been done again during the following events:

- Selected focus groups for Greek pilot set-up, validation and customisation
- Selected technical workshops for pilot scenarios finalization, assisting to maintain a NOMAD community inside Hellenic Parliament, using the 1st workshop contacts (organized November 2013)
- Selected dissemination events (e.g. newsletter distribution in parliamentary officials, NOMAD community building, use of the Hellenic Parliament portal for NOMAD events announcement, direct e-mails)

Through the organisation of several project meetings, HeP project team attracted internal and external project users for the 2nd round of the pilot and the final project workshop organization.

The European Programs Implementation Service of the Hellenic Parliament organized its final workshop for NOMAD project in Hellenic Parliament premises at 25.11.2014 with rather successful results, as a lot of useful information gathered during the project presentations sessions by the project team, where the 33 participants (external) had the opportunity to express their ideas, suggestions, comments, participate in a live formulation of a domain/policy model and give their valuable feedback. During the workshop the project team (HeP, AEGEAN University, and Critical Publics) presented once more the NOMAD project and the role of the project pilots. The workshop participants had the opportunity to have hands on, on-line pilots testing for the evaluation of NOMAD Platform capabilities.

During the workshop the project team made several presentations with focus on the NOMAD overview, vision and overall objectives, presentation of the Greek pilot, live demonstration of project tools, presentation of the validation scenarios. Finally, the project team in collaboration with the participants implemented a live scenario, having an open discussion and a fruitful NOMAD toolsuite evaluation. Moreover, the implementation of selected policy scenarios by the participants (e.g. education policy), assisted the project partners to gather useful tips though an open discussion for the NOMAD tools evaluation. It was a rather successful workshop at the final stage of the project also for the broader dissemination of the project activities and the presentation of the Greek pilot results.

It must be noted that we had around 22 new participants in our workshop, comparing with the previous ones from several institutions, organizations and public bodies as well. In the following list of participants (Table 7: 2nd round – Greek pilot workshop participants), you can notice their identity and position.

Table 7: 2nd round – Greek pilot workshop participants

A/A	Name Surname	Organisation
1	Athanassios Papaioannou	Secretary General of HEP
2	Yannis Tsagadopoulos	HEP (Committee on European Affairs)
3	Georgia Makropoulou	HEP (Scientific Council)
4	Vasilios Svolopoulos	HEP
5	Pavlos Giamas	HEP
6	Konstantinos Abazis	HEP
7	Nikos Papadopoulos	HEP
8	Dimitris Vasileiou	HEP (Scientific Council)
9	Alkmini Papadimitriou	HEP
10	Dimitris Papadimitropoulos	HEP
11	Konstantina Rapti	HEP
12	Eleni Kanellopoulou	HEP (Scientific Council)
13	Katerina Zampeli	SYRIZA Parliamentary Team
14	Ilias Koromilas	General Secretariat of the Hellenic Government
15	Tania Dionisopoulou	Hellenic Parliament Scientific Service
16	Evangelia Spanoudaki	Hellenic Parliament
17	Evangelos Longos	Ministry of Agliculture
18	Mara Aspioti	Hellenic Open University
19	Kostas Margaritou	Hellenic Parliament Associate
20	Nancy Routzouni	Ministry of Administrative Reform
21	Stratos Mavroidakos	General Secretariat for the Coordination of the Hellenic Government
22	George Palamarizis	DIMAR, DAEM
23	Lefterris Papadopoulos	HEP
24	Panagiota Smyrnioti	Hellenic Parliament
25	Myron Giannakakis	General Secretariat of the Hellenic Government
26	Vasiliki Georgakopoulou	General Secretariat for the Coordination of the Hellenic Government
27	Nikolaos Bousios	General Secretariat for the Coordination of the Hellenic Government
28	Vasilis Bayiokos	Hellenic Parliament Scientific Service
29	Fotini Pantiora	SYRIZA Parliamentary Team
30	Dimitra Kosmopoulou	HEP (Scientific Council)
31	Angeliki Kapsampeli	HEP
32	Vasiliki Dalakou	Ministry of Administrative Reform
33	Irini Stafyla	DAEM

There was presence from 2 ministries, all the scientific services of the Hellenic Parliament, the presence and the active participation of the General Secretary of the Hellenic Parliament, the team of Prime Minister office, executives from the General Secretariat of the Hellenic Government, 3 political parties, the municipality of Athens, parliamentary officers in key positions, scientists in the field and several associates of the MPs.

Finally we have managed to identify the participants' interest to run the 3rd pilot sessions in different domains, so it approximately 10 new free pilot sessions were planned until the end of the project. During the workshop the project team managed to evaluate the project results, broadening the target audience, approaching as well possible NOMAD users for the 3rd round of pilots.

Figure 32: 2nd round: Greek workshop day photo

4.4 2nd Round Results

During the implementation of the 2nd round of NOMAD, several unexpected issues cropped up. The main issue during this round was the completion of the models based on the NOMAD authoring tool specifications, adding too much required nodes and arguments.

The first mode, tried to run thought the NOMAD program was the "Energy Framework" policy model. As it depicted the most realistically accurate representation of the whole policy making process in the energy field, it was the most promising one. The results from the initial evaluation phase are the following:

- The arguments produced were often focused on words other than our key words (such as "storage", "development", "network"). Those words were indeed included in the model but resulted in the arguments being focused on, for example, social networking, instead of the energy networks the users hoping for. 3-4 users believe this is the result of NOMAD's inability to differentiate between **key words** and words simply repeated throughout a model by necessity. Using one worded nodes appears to alleviate that problem somewhat, without completely solving it.
- The visualisation of the **big model** was difficult for HeP authors to follow, after the nodes' inclusion, despite the fact that it started with five sub-policies. Maybe simpler models are more than welcome at this stage.
- In terms of **usability**, the user interface has been **improved** since the 1st round workshop very well and a lot of improvements have been made in the authoring tool and the visualisation tool.
- Lack of **explanation** is still problem for inexperienced users.
- **No clarity** about the algorithms using the authoring tool input and the users input until the visualisation results explanation.

- **Missing demographic** information requested from several users in the previous rounds, workshops, focus groups, etc.
- The **intensity of the arguments** and their connection with the policies is more than welcome at this 2nd round.
- **Time trend analysis** found in the 2nd pilot phase assists the policy maker to understand the policy evolution over time.
- "Big"paragraphs are not readable in the Authoring tool sometimes, so smaller phrases should be preferred.

Figure 33: 2nd round: Greek pilot - Policy view A

- It was discovered that the **less extensive the model,** the more precise the arguments mined, even though the users believe that the average policy maker would be better served with the optimal use of a more extensive model.

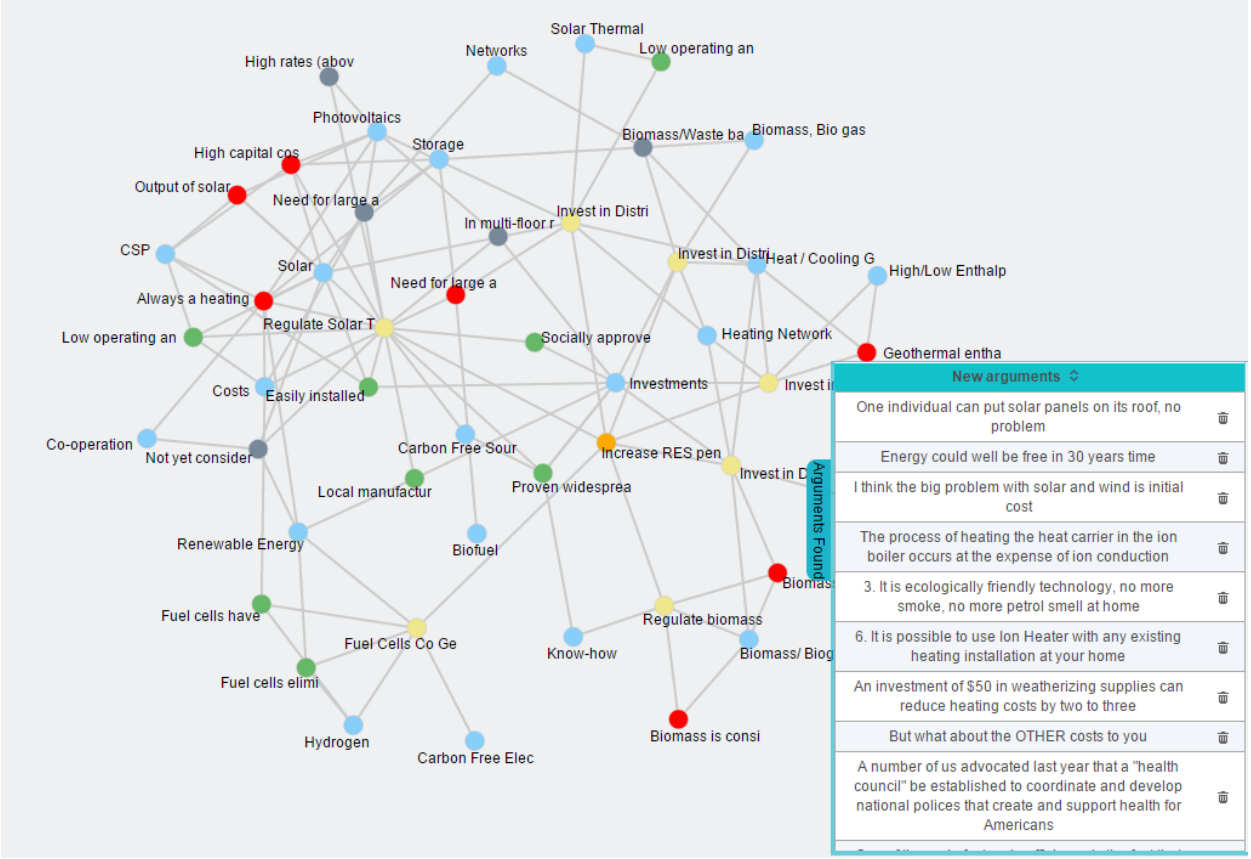


Figure 34: 2nd round: Greek pilot - Policy view with new arguments found

- User initial issues with the validation of models were solved well into the implementation of the 2nd round's models, as the "My Sources" page of NOMAD started indicated the **measures needed to be taken** for the completion of the models.

Model Name	Model Type	German Status	Greek Status	English Status	
Energy	domain	100.00%	100.00%	100.00%	Initiate Process
Copetineness of agricultural products	domain	0.00%	0.00%	0.00%	Domain entities are less than 10!
IKY	domain	100.00%	100.00%	100.00%	Initiate Process
test	domain	0.00%	0.00%	0.00%	Domain entities are less than 10!
	domain	100.00%	100.00%	100.00%	Initiate Process
Books	domain	0.00%	0.00%	0.00%	Initiate Process
Reduction of Fossil Fuel Dependence	policy	100.00%	0.00%	100.00%	Policy component(s) with no arguments!
Increase RES penetration to electricity networks	policy	100.00%	100.00%	100.00%	Argument(s) with no entities!
Increase RES penetration to heating/ cooling	policy	100.00%	27.27%	100.00%	
Exploit own HC sources	policy	0.00%	0.00%	0.00%	Argument(s) with no entities!
Energy Investments	policy	0.00%	0.00%	0.00%	Argument(s) with no entities!
Energy Framework	policy	100.00%	100.00%	20.00%	
IKY	policy	100.00%	100.00%	100.00%	Initiate Process
Speeding up criminal procedure	policy	100.00%	100.00%	100.00%	Initiate Process

Figure 35: 2nd round: Greek pilot - MySources view

- With the need to add arguments to each policy component (hoped that a more wide search for the public's opinion on a proposed policy and its sub-policies would have been possible) the models become **complicated** and the arguments mined become diluted by irrelevant information. Such was the case with "Energy Framework" policy model where half the arguments found were focused on peripheral subjects other than the central issue. Possible solution could be the split of policies and sub-policies in **more simple models**.

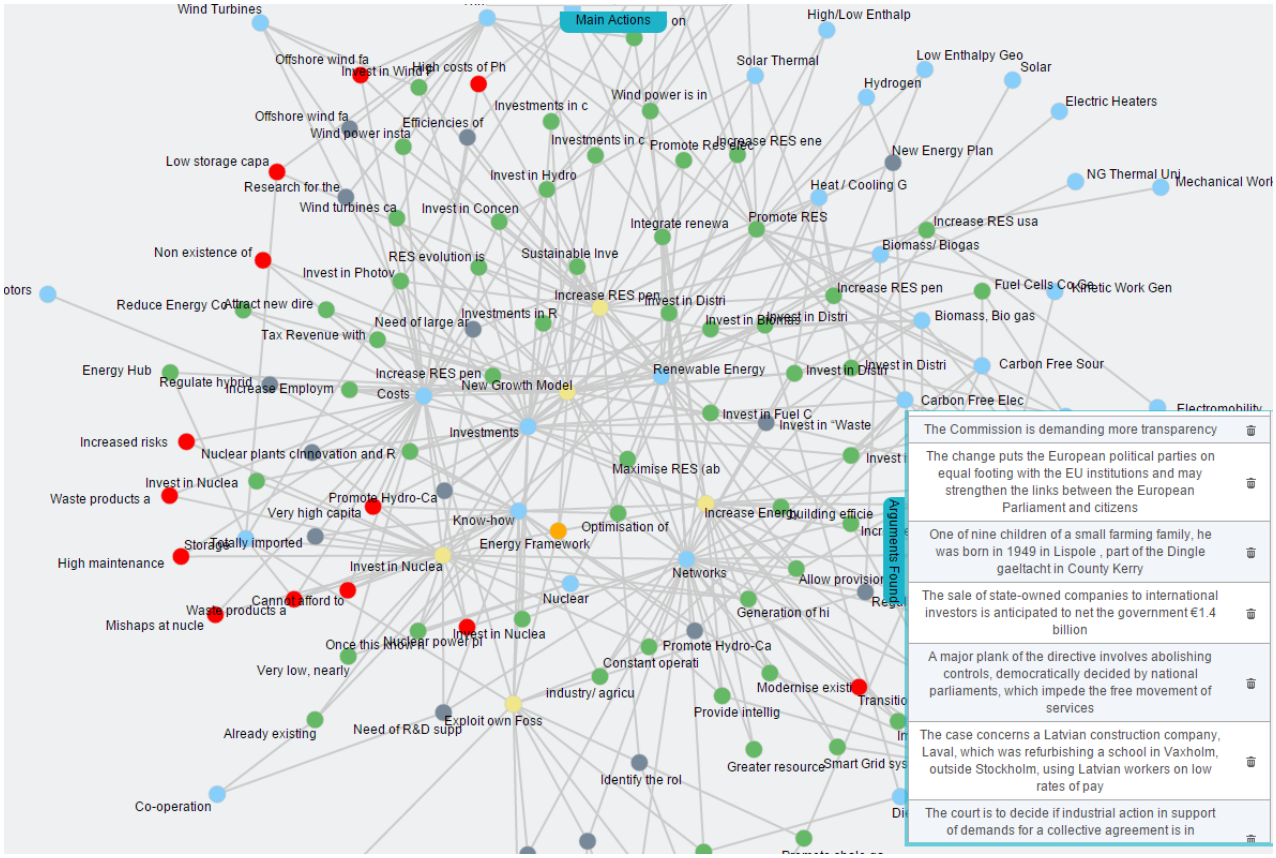


Figure 36: 2nd round: Greek pilot - Policy view B

- During the implementation phase, some users also discovered that all previous public domain and policy models were unavailable for new users, forcing them to create new nodes to support their policies. Technical partners solved this problem, **adding new functionalities** in the tool having all the models on board, but the customisation of this functionality needs more effort.
- 1-2 users found the inability to drag and drop (or indeed copy) parts of our models counter-productive and time-consuming, as it forced them to recreate entire policy components and their arguments when trying to create models for comparison between policies. Maybe the average policy maker will be discouraged by that fact, so an **experienced administrator** should support them in several stages of an application creation.

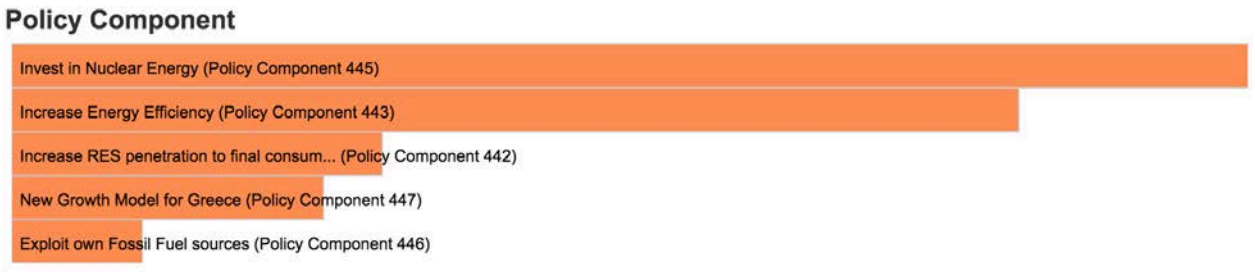


Figure 37: 2nd round: Greek pilot - Comparison between policy components

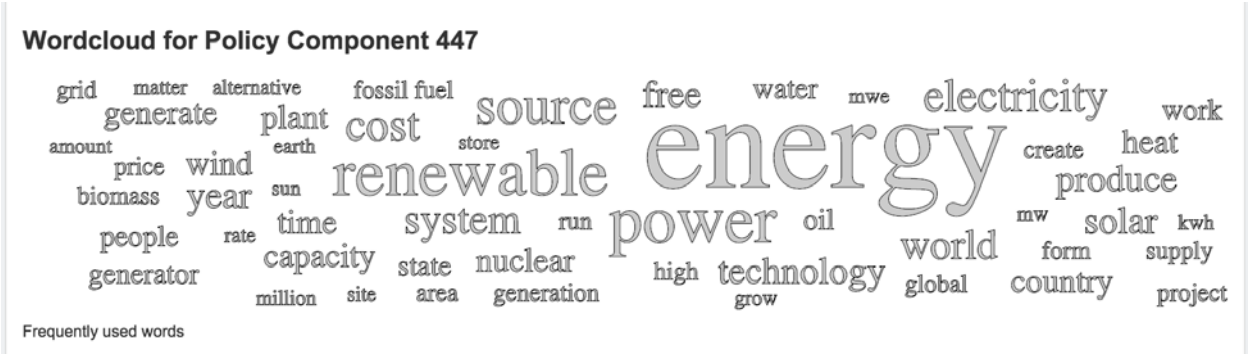


Figure 38: 2nd round: Greek pilot - Frequently used terms

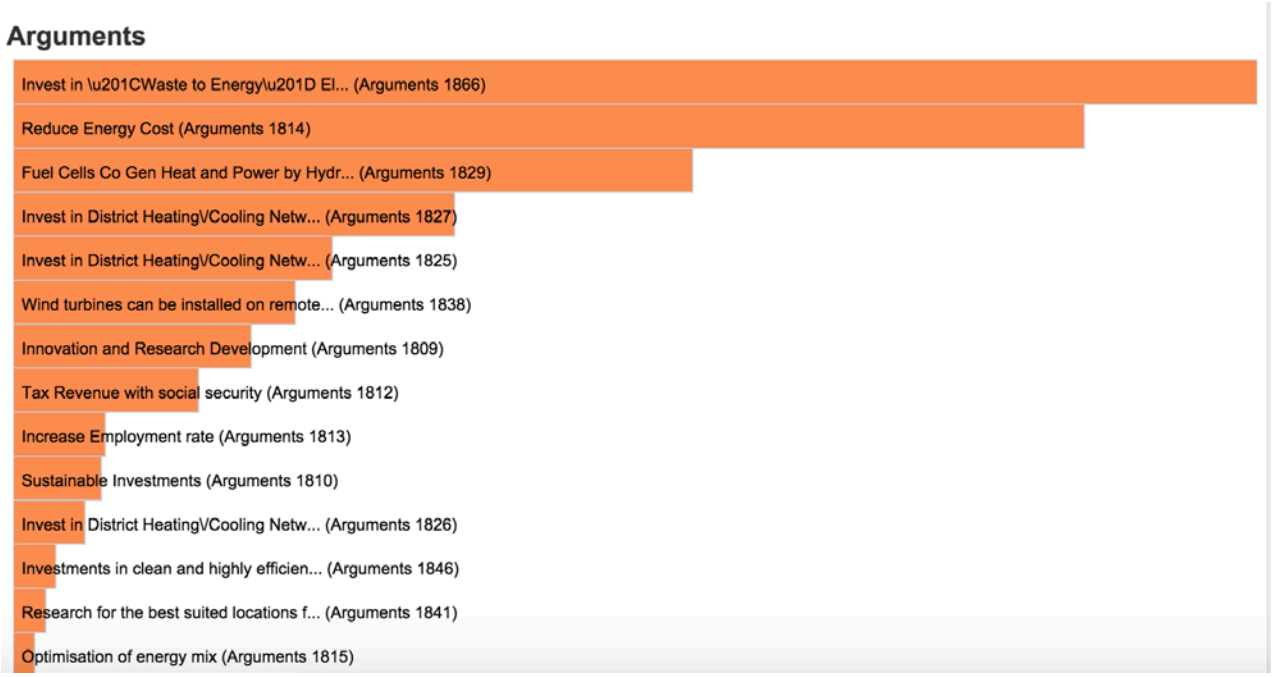


Figure 39: 2nd round: Greek pilot - Arguments comparison

Figure 40: 2nd round: Greek pilot - Results view

Going to the results representation, the nuclear policy seems to be the most important issue, but this statement **is not understandable** to the users. On the other hand **irrelevant arguments** are considered as most crucial ones due to "wording". Finally the sentiment analysis sometimes **is not clear** to the users. On top of that the segment analysis is helpful to an experienced user, as this functionality **is still an added value** in the NOMAD Tool-Suite, as the user could **check the reliability** of results.

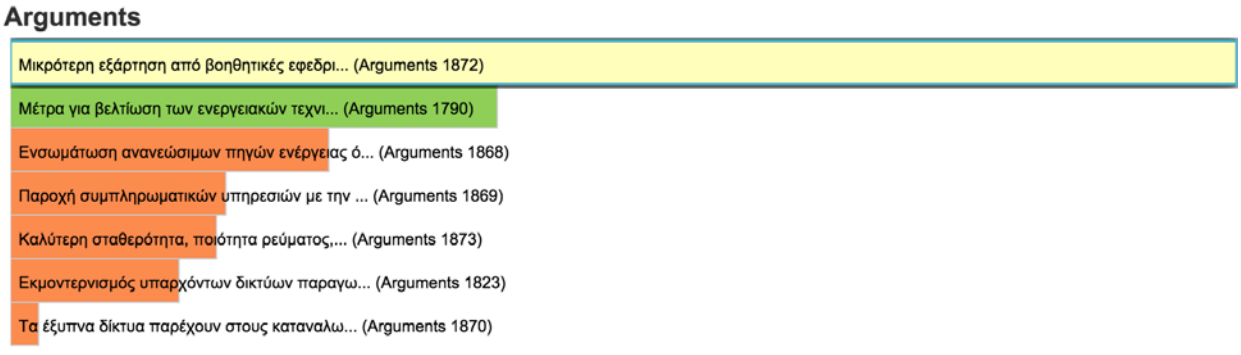


Figure 41: 2nd round: Greek pilot - Comparison between arguments in Greek

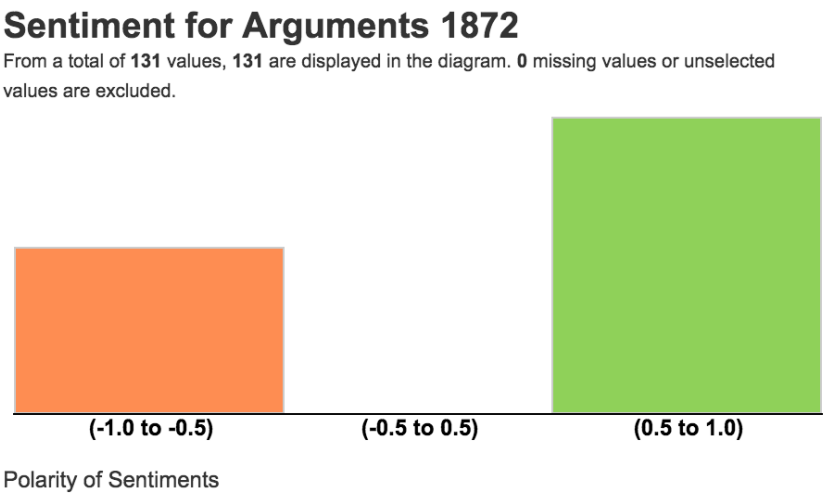


Figure 42: 2nd round: Greek pilot - Sentiment distribution

The more detailed arguments seem to have better feedback but the user should spent a lot of time to understand the segment analysis. During this round, the project team made a lot of attempts for the completion of all the policy models, updating them, incorporating the comments derived from the users, the focus groups, the external users, in such a way that they would benefit the policy maker. As the users' **familiarity** with the platform increased, the project team invited individual users who wished to work in a **Greek environment**, mining information regarding the public opinion on various subjects, policies and sub-policies related to their interests, keeping them as the main user community. It must be noted that the Greek arguments were not very well connected with the policy themes. With both those parameters in mind the project team endeavoured to cater to prospective users' needs, working with the NOMAD tools, forming a viable environment for their research towards the **improvement** of the NOMAD platform as a whole.

Indicative Segments for Arguments 1771

c ready

Search:

Details	id	url	excerpt	segments	sentiment
	301541		παραγωγή ηλεκτρικής ενέργειας	1	-1
	332622		παραγωγή ηλεκτρικής ενέργειας	2	-1
	282854		δ) Την αγορά και εγκατάσταση αποκεντρωμένων συστημάτων παραγωγής ηλεκτρικής ενέργειας που βασίζονται σε Ανανεώσιμες Πηγές Ενέργειας (φωτοβολταϊκά, μικρές ανεμογεννήτριες) και συμπαραγωγής ηλεκτρισμού και ψύξης-θέρμανσης με χρήση φυσικού αερίου ή ανανεώσιμων πηγών.	1	-1
	266618		παραγόμενη ποσότητα ηλεκτρικής ενέργειας από τις ΑΠΕ καλύπτει κατά 90% τις εσωτερικές ανάγκες του εργοστασίου	3	-1
	307989		το κόστος μεταφοράς της ηλεκτρικής ενέργειας	1	1
	307991		το κόστος μεταφοράς της ηλεκτρικής ενέργειας	1	1
	293650		μεταφορά ηλεκτρικής ενέργειας από του παραγωγούς στους καταναλωτές	1	-1
	293376		το κόστος μεταφοράς της ηλεκτρικής ενέργειας	1	1

Figure 43: 2nd round: Greek pilot - Segments in Greek

To sum up, the users would wish for the option of selecting specific key-words (perhaps in the form of hash tags) that would make argument mining more precise. Some users hope that the authorisation issue has been resolved once and for all and expect that NOMAD will continue on its way of becoming more user-friendly by allowing every user access to the

public domains so they can be reused. We would also suggest that, at least, the policy components and their attached arguments and nodes, would be made reusable for each author, privately, thus allowing them the creation of composite models without the need to re-type entire models. Maybe the solution is to have simple policy models, with predefined entities so the authoring tool could be visible. On top of that, the arguments should be containing better information or wording assisting the NOMAD tools.

All these models were composed and ran in efforts to produce more to the point arguments that could add something to the prospective user's search. It must be said that, in this scale, the program runs smoothly, producing the desired information. The greatest hurdle encountered, however, during this round of implementing NOMAD, had more to do with the program failing to adapt to the environment it was being used for rather than it being unable to authenticate or implement larger scale models.

Finally, an indicative list of useful suggestions emerged from the workshop:

- Create basic domain models as library with 21 domains of EUROVOC terminology http://eurovoc.europa.eu/drupal/?q=node/555, assisting the future users.
- Simple policy models having no more than 5 nodes are more than welcome for inexperienced users.
- The absence of GOOGLE as search engine was noticed as drawback.
- NOMAD platform could use public consultation results from selective web-sites (e.g. OpenGov) directly and feed back the legislative process.
- NOMAD tools are more than appropriate in the ex-post analysis of the laws implementation assisting the governmental control by the parliamentarians.
- NOMAD platform sustainability is an issue that we have to take care of it, so it is up to Hellenic Parliament team to promote it, update it and keep it as a permanent toolsuite in European Programs implementation service premises.
- Double or multiple models could provoke problem or misunderstanding to the users, so an experienced toolsuite assistant or administrator could be very useful.
- What about exploitation plan, is it feasible or not? NOMAD platform will exist after the project ending?
- How we handle the multiple posts? Is there any plan? Maybe the intensity of these posts could be used as a critical factor.

5. AUSTRIAN PILOT SCENARIO APPLICATION – ROUND 2

5.1 Overview

The 2nd pilot round served the purpose of comparing the version of the NOMAD platform available by November 2014 with the first version that was evaluated in the 1st pilot round in February 2014, thereby assuring the progress made since then, but also identifying the remaining needs for improving the tools.

This comparative approach was the reason to invite the same group of evaluators to the workshop that has already attended the 1st one. This group of evaluators consisted of representatives of the staff units of the Austrian Parliamentary administration responsible for the matters related to the project, in particular for information management and IT development and support.

While the main differentiation in the workshop design was in the enhanced availability of the NOMAD tools, in particular of the Analytics tools that had not yet been fully available and therefore couldn't be thoroughly evaluated in the 1st pilot round, to facilitate the technical evaluation the use case for the pilot was also further specified in preparing the workshop. To that end, the progress in the "real-life" policy-making process as to the policy domain chosen for the pilot was taken into account: after the 1st pilot round a draft bill regarding the pilot issue of freedom of information was sent out for public consultation by the Austrian Federal Chancellery. The policy components contained in the mentioned draft bill were modelled within the NOMAD authoring environment to be able to support another crawl to collect reactions and arguments related to this specified policy model. Additionally, new pertinent web resources were introduced to improve the relevance of the crawl.

5.2 2nd Round Implementation Models

As stated above the policy models for the 2nd pilot round has been modified to reflect the changes in the policy context in Austria, while the domain remain the same, i.e. "Open Data". After the 1st pilot round a draft bill regarding the pilot issue of freedom of information was sent out for public consultation by the Austrian Federal Chancellery.

New Policy

Legal claims to access to information held by government agencies (draft government bill by Federal Chancellery)

Policy component

- The organs of the federation and the provinces are obligated to publish information of general interest, in particular decrees, statistics, experts opinions and surveys
- Everyone has a legal claim to access to information held by organs of the federation and the provinces if there is no specific reason to keep this information secret
- Information has to kept secret only for reasons of foreign and integration policy, national security, defence, preparation of decisions and justified individual interests

Arguments

- Ensuring transparency of government action
- Ensuring access to information

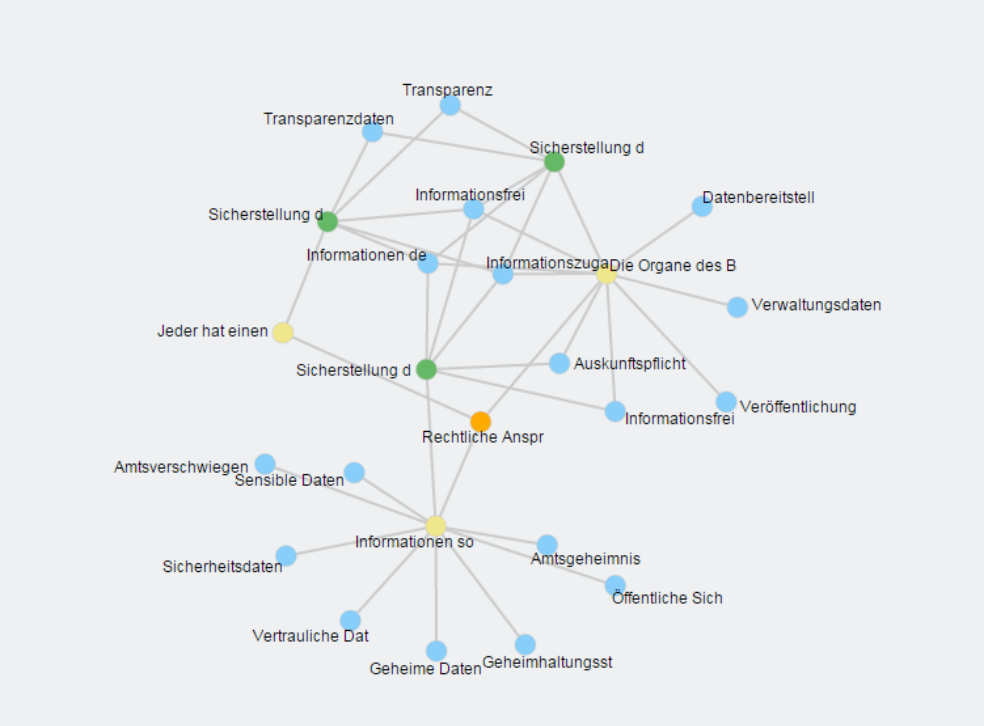


Figure 44: 2nd round: Austrian pilot - New policy model

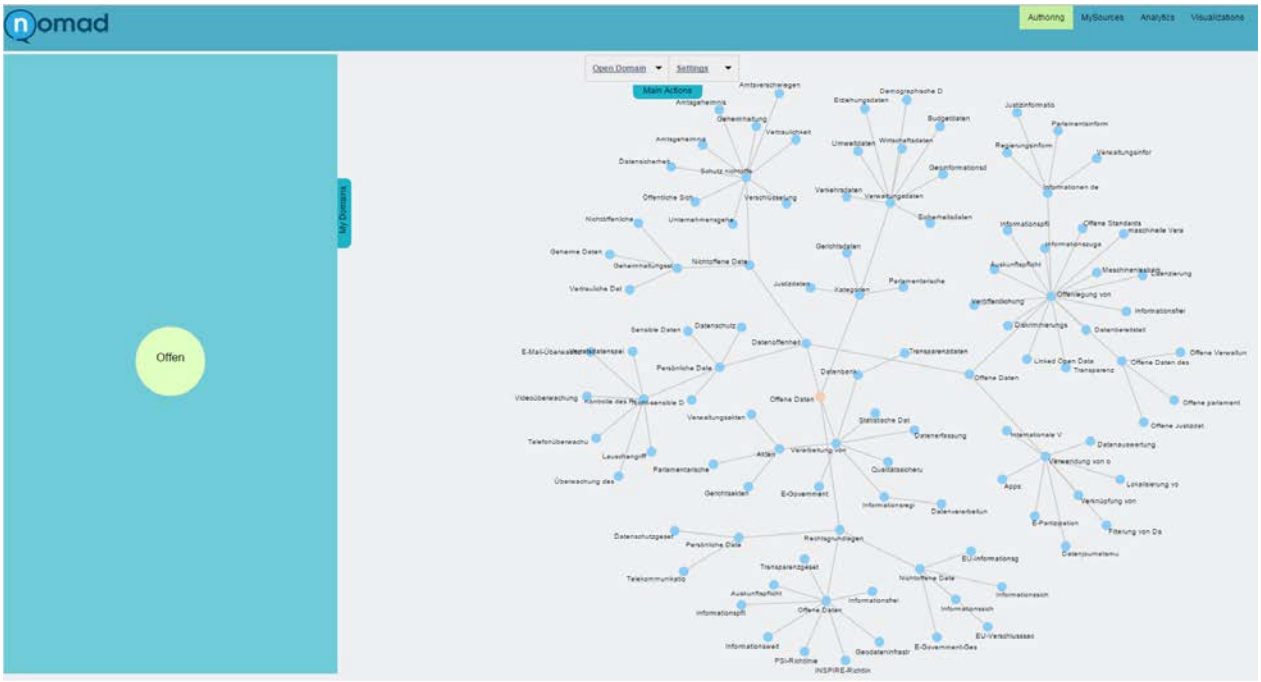


Figure 45: 2nd round: Austrian pilot - Domain of Open Data/Freedom of Information

Table 8: Austrian pilot – Overall domain models

Domain model	Domain entities
Open Data	106

Table 9: Austrian pilot – Overall policy models

A/A	Austrian Pilot - Policy Models	Policy components	Arguments	Entities
1.	Make Open Data useful	1	4	10
2.	Public sector bodies should make their information available for re-use	1	2	33
3.	Open Government means Open Data	1	2	21
4.	The government should promote Open Data	3	18	40
5.	Remedy corruption	1	1	24
6.	Spread use of Open Journalism	2	7	9
7.	Make Open Data popular	12	78	61
8.	Make political action transparent and comprehensible	1	1	18
9.	Make Open Knowledge popular	1	1	19
10.	Open the data of art and culture	1	2	11
11.	Protect Open Data	2	4	17
12.	Legal claims to access to information held by government agencies (draft government bill by Federal Chancellery)	3	3	18

5.3 2nd Round Workshop Organisation

The AUP 2nd pilot workshop was organised by the Austrian Parliamentary administration (AUP). The workshop took place in the IT training room of the Austrian Parliamentary administration on 18 November 2014. It was attended by staff members of the organizational units responsible for information management and IT support, i.e. the IT department, the department for digital media and corporate design, the media documentation, the parliamentary library, the department for archives, documentation, and statistics, and also by a staff member of the Fraunhofer Institute for Computer Graphics Research (IGD). There was a set of 9 people who attended the workshop. Representatives of other technical project partners were present to answer questions arising.

The concept of the internal workshop, whose participants included colleagues that had already attended the 1st workshop in February, focused on the improvements made since then, in particular with regard to the Authoring Tool. The second major objective was to introduce and work with the Analytics Tool. That is why we invited a colleague from Fraunhofer to present and explain the Analytics Tool.

The session was introduced by a presentation on the general issues of policy making in the arena of Web 2.0 as well as on the overall NOMAD concept and the project potential. Then, the various NOMAD tools (Authoring Tool, MySources, and Analytics Tool) were presented and demonstrated online.

The workshop participants had the opportunity to get acquainted with the tools in a more playful way. The workshop leader demonstrated the Authoring Tool, MySources and the Analytics Tool, and after an open discussion about the current status of the NOMAD application tools, the workshop participants created their own NOMAD accounts, one domain and one valid policy model. Finally, the users completed the questionnaires prepared by AEGEAN and translated into German by AUP.

Table 10: 2nd round – Austrian pilot workshop agenda

FOCUS GROUP AGENDA		
08:45 – 09:00	Participants arrival – Coffee	**All**
09:00 – 09:10	Welcome session & outline of meeting agenda	**AUP**
09:10 – 09:45	**NOMAD overview and progress** • Overview of NOMAD: potential and overall objectives • Project progress	**AUP**
09:45 – 10:45	**NOMAD Tools: Presentation and online demonstration** • Authoring Tool: new version • My Sources Module: Linguistic pipeline • Analytics Tool	**AUP** **Fraunhofer**
10:45 – 11:30	**Interaction with NOMAD platform** • Interacting and testing: Authoring Tool – Policy formulation and validation Analytics Tool	**All**
11:30 - 11:50	**Open Discussion** • Feedback & evaluation questionnaires	**All**

Table 11: 2nd round – Austrian pilot workshop participants

A/A	Name	Organization	E-mail
1	Elisabeth Adamiat	AUP	Adamiat Elisabeth <Elisabeth.Adamiat@parlament.gv.at>
2	Holger Böck	AUP	Holger Böck, Mag. <Holger.Boeck@parlament.gv.at>
3	Franz Gutsch	AUP	Gutsch Franz, Mag. <Franz.Gutsch@parlament.gv.at>
4	Gerhard Horecky	AUP	Horecky Gerhard, Ing. <Gerhard.Horecky@parlament.gv.at>
5	Hendrik Luecke-Tieke	FRAUNHOFER IGD	Hendrik Luecke-Tieke, Bsc.-Inf. <hendrik.luecke-tieke@igd.fraunhofer.de>
6	Ronald Mayerhofer	AUP	Ronald Mayerhofer, BA <Ronald.Mayerhofer@parlament.gv.at>
7	Ulrich Oprendek	AUP	Oprendek Ulrich, Mag. <Ulrich.Oprendek@parlament.gv.at>
8	Guenther Schefbeck	AUP	Schefbeck Günther Dr. <Guenther.Schefbeck@parlament.gv.at>
9	Stefan Taferner	AUP	Taferner Stefan, Mag. <Stefan.Taferner@parlament.gv.at>

Figure 46: 2nd round: Austrian workshop - Online demonstration of "Authoring Tool"

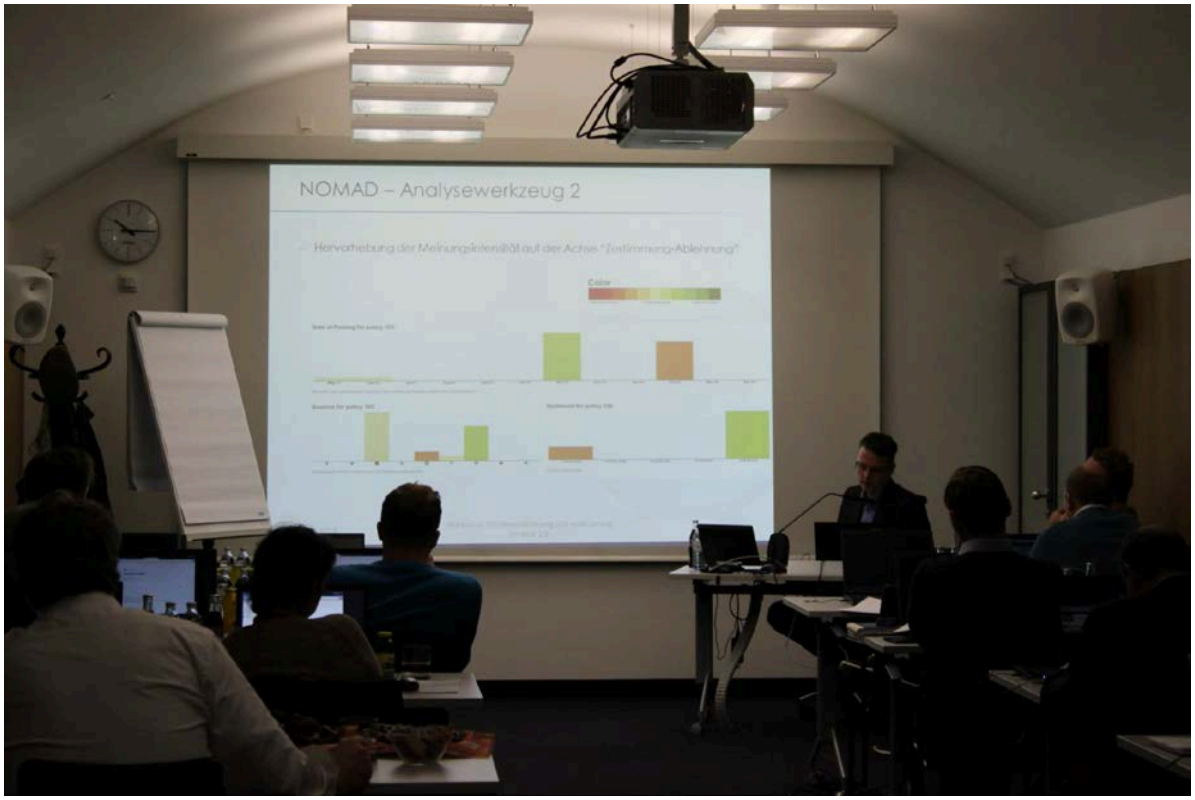


Figure 47: 2nd round: Austrian workshop - Online demonstration of "Analytics Tool"

5.4 2nd Round Results

The improvement in the platform component in particular with regard to usability, was recognised and acknowledged by the workshop participants, on the basis of the comparison with the status the platform had achieved at the time of the

first workshop. Within the framework of the improved environment of the platform, many valuable recommendations for further improvement were received.

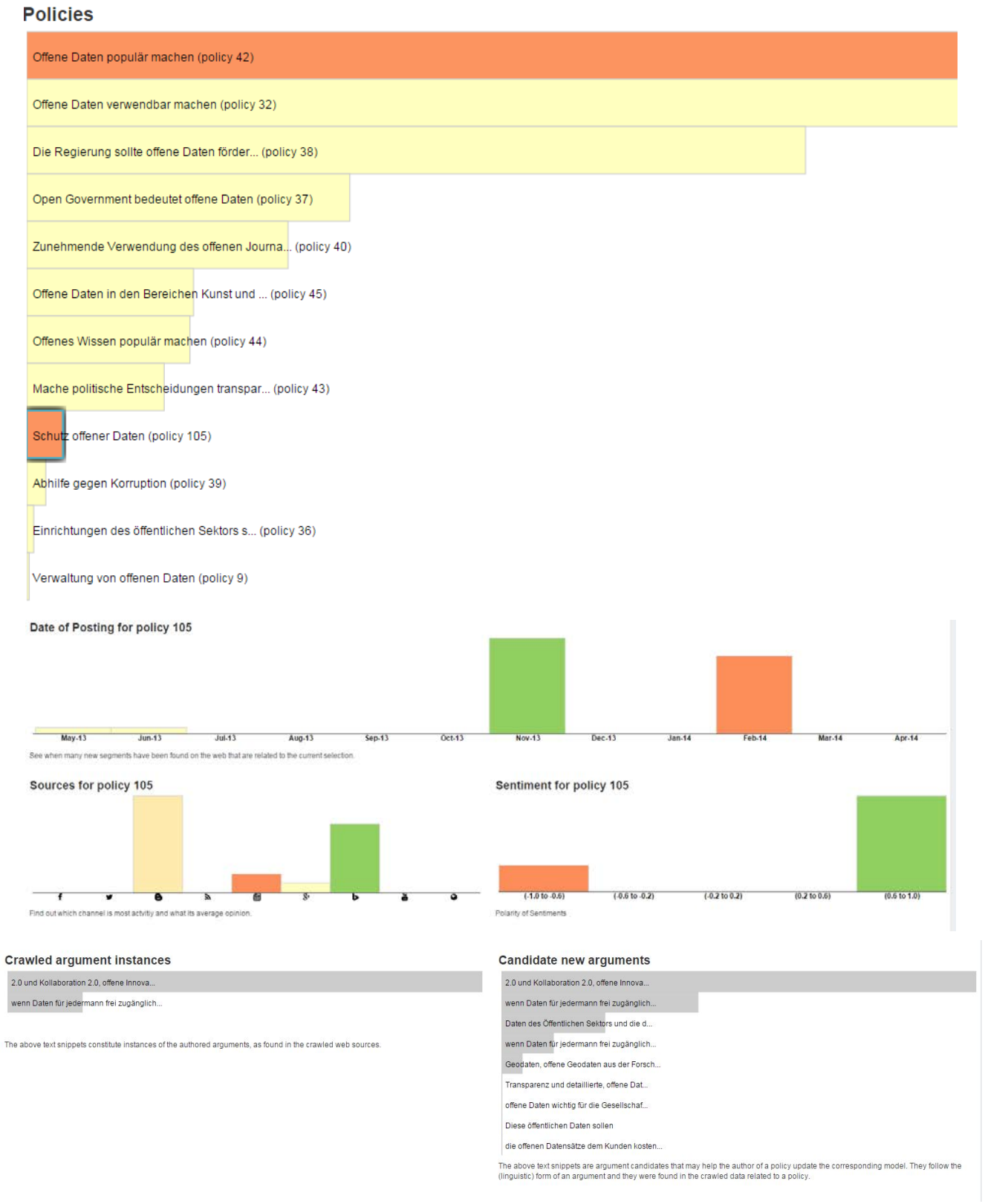


Figure 48: 2nd round: Austrian pilot scenarios - Cumulative results

The main issues identified both by the workshop users and the internal evaluation by AUP is summarised in the following points:

Main Issues

- In terms of usability, the user interface has been improved since the 1st round workshop. Yet there are several usability issues to be tackled, e.g., the missing list view in the Authoring Tool (not added yet during the workshop) and the moving graphs in this tool that make it difficult to use the graph view to conceive and process the models.
- Even though there is some user guidance available, these aids need to be improved and made context sensitive. In addition to pure guidance, explanation of the applied algorithms is required to assist the users in making best possible use of the tools.
- To make the results of NOMAD based surveys more evaluable, the validity of the aggregated results has to be confirmed by making transparent the processing in relation to how NOMAD operates in the background.
- Having in mind the need of policy makers to obtain a quick overview of the survey results, visualisation is an approach of utmost importance. That is why further improvement of the visualisation functionalities is desirable.

General Comments

- No clarity about the algorithms used to evaluate the sources, underlay them meaning, establish relations between concepts and segments, and rank the hits – thus, scepticism about the reliability of the results.
- Missing demographic information.
- Missing approach to process audiovisual sources.
- Guidance and explanation: Even though the new information layer in the Crawling Module represents some progress in user guidance, generally more guidance, e.g., explanations accompanied with practical examples, would be required.
- More available model status (public – semi-public – private): In conceiving domain and policy models, collaborative efforts should be supported by the platform; such support could be provided by a diversification of the model statuses: public (reading and writing access), semi-public (reading access), and private.

Authoring Tool

- List view essential to conceive domain and policy models but not yet realised – graph view only required to add non-hierarchical relations, i.e. to develop the tree into a matrix concept for a domain/policy. The list view, as it was introduced between the second and the third pilot workshop, is only subsidiary to the graph view, whereas the user requirement formulated before would have suggested a paradigm shift making the list view the primary environment for conceiving the models and giving the graph view only the subsidiary function to enter non-hierarchical relations between concepts, in order to develop the tree structure of the model into a matrix structure. However, even the current status of realisation of the list view could easily be improved by adding filtering functionalities to the tables containing policy-components, arguments, and domain entities.
- A matrix concept for a policy model implies a way to indicate differentiated qualifications of arguments in their relations to different policy components – that is why it is required to qualify the edges but not the nodes representing the arguments as favourable or unfavourable.
- To switch from the tree to the matrix concept of a domain or policy it would be useful to have an alert available that would indicate domain concepts or arguments used repeatedly in the tree.
- Difficulty to assign domain concepts to the arguments and the policy components in the policy model – the domain concepts first have to be exported from the domain model into a list (“reusable nodes”) that crashes once the users leaves the module.
- Limitation of the number of characters to name the nodes makes it nearly impossible to assign understandable names to them.
- The validator has to be configured in a way that allows it to provide the user with information about the reasons for a model not being considered valid.
- The context sensitive user guidance uses text boxes that are overlapping the section of the user interface required for entering information – the text boxes better appear in a specific section or frame.

- Authoring Tool Guide (Help page): The validation rules/requirements should be explained and a printable pdf-file would be desirable.

MySources – „Crawling Module“

- More options are desirable to define a crawl (selection of source types, definition of crawling period, selection of source languages, etc.).
- More definition of selectable source types is needed.
- For sake of efficiency in defining a crawl it is essentially required to be able to copy existing “My Sources” lists.

Analytics Tool

- Explanation is needed on the function of word cloud to refine the hit list.
- Algorithm to calculate sentiments should be described.
- To select resources from the hit list it would be useful to indicate the sentiment value of the extracted segment already in the list.
- The hit list obviously displays just a small selection of the whole collection of relevant resources crawled (up to 300, out of collections of more than 10.000 resources) – the user could define the selection criteria as well as ranking criteria.

Briefly summarizing the results, it may be stated that the participants generally were convinced of the promising potential of the NOMAD concept although they recognised usability barriers with respect to the technological tools. The overall assessment of the NOMAD potential was even better than in the final phase. Detailed comments in particular suggested improvements concern user guidance as well as in the semantic methods and tools to select and interpret the resources.

6. ADDITIONAL SCENARIOS APPLICATIONS - ROUND 3

The 3rd pilots' round emerged from the three trial applications (European Elections, Waste Management in Peloponnese, Alternative Tourism) implemented during the 2nd round of pilots on different domains (see deliverable D7.4.1 NOMAD Evaluation Report v1). This was the first experimentation of the project with non-familiar, external users, whose results of these applications are included in Annex B: Results from the Additional Scenarios of the 2nd Round. Based on the findings from this activity, we enlarged the preliminary idea, adapting the initially prescribed steps to a concrete "free pilots" methodology and engaging a wide range of stakeholders from the NOMAD community. During this cycle, users were free to develop their own applications on their fields of interest, interacting with the final NOMAD prototype, while project partners had only supporting and consulting role. This resulted to a variety of scenarios with their relevant domain and policy models that are enumerated in Table 12.

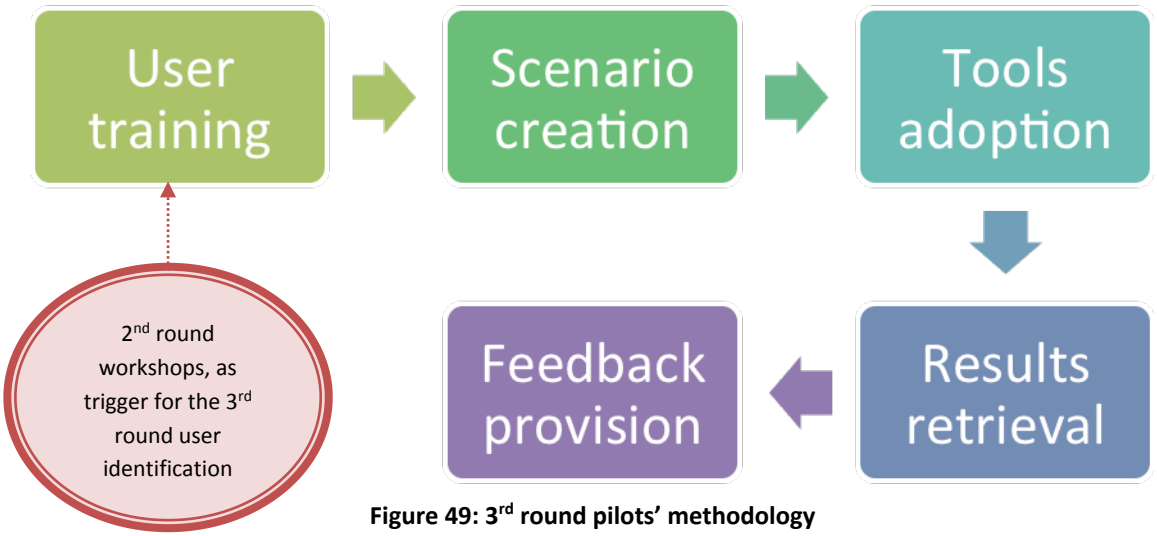


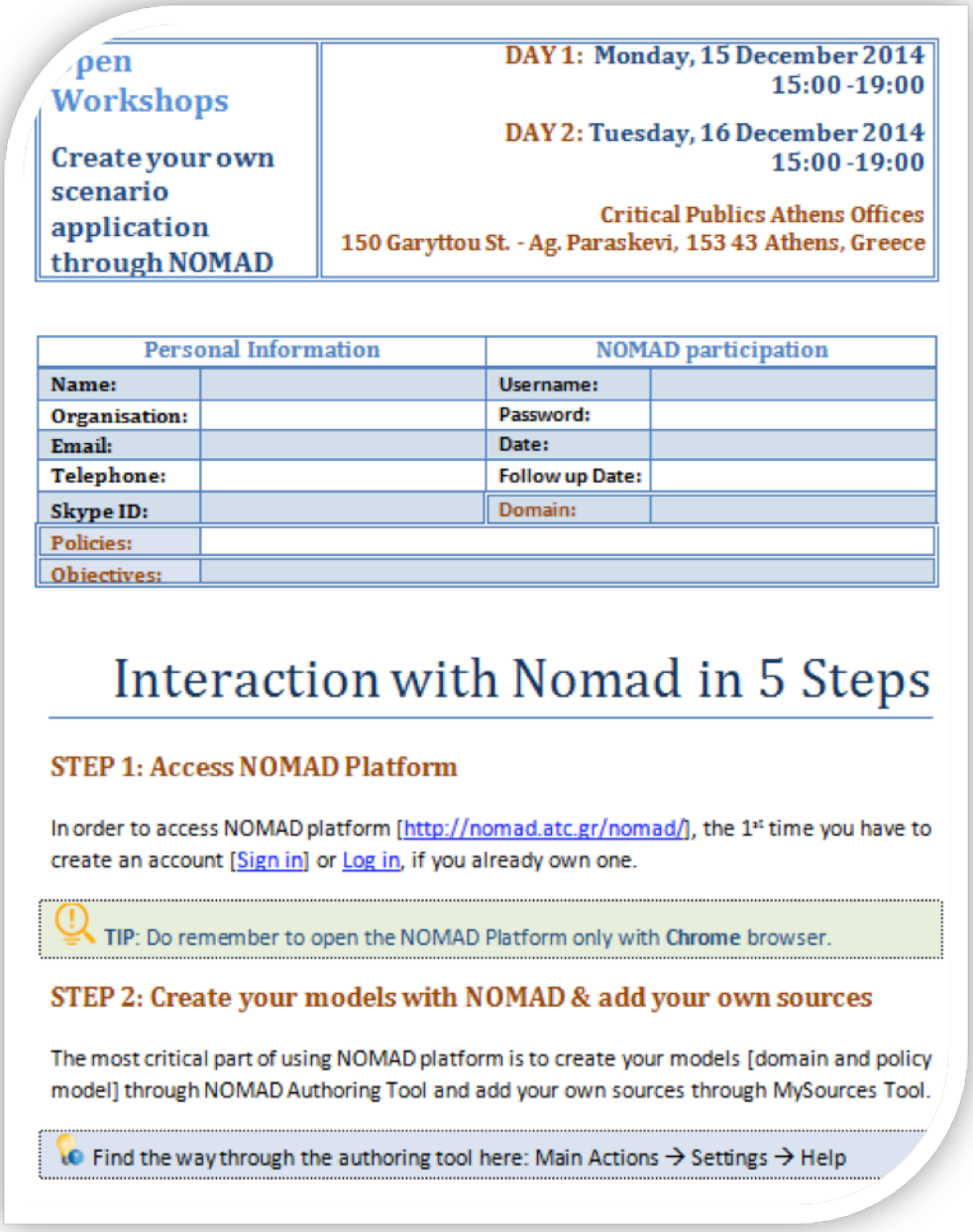
Figure 49: 3rd round pilots' methodology

Concerning the 3rd round methodology followed for these "free pilots", Figure 47 depicts it thoroughly, enhancing and supporting the overall evaluation phase of the project with external feedback. As the idea behind this round is to invite external users to implement their own application scenarios with NOMAD tools, the round was initiated and triggered by the identification of these stakeholders, mainly from the workshops organised by pilot partners during the 2nd pilot round. It is important here to identify that, the implementation steps realised by the external users during this round, along with the provided support by the pilot partners throughout the whole time, can be described as a "*thumbnail*" of the pilots application, e.g.:

- **User training**: All external users have been individual trained and supported throughout their interaction with NOMAD platform, by different means (e.g. half-day workshop participation, conference calls and Skype arrangements, tet-a-tet meeting, etc),
- **Scenario creation**: The identification of the application to be modelled, was a result of the user's operational domain and interest, which has resulted to the determination of the specifics required by NOMAD requirements; e.g. definition of the objectives, domain and policy models, and indicative sources.
- **Tools adoption**: The users, with the help and support from the pilot partners have authored their application scenarios within NOMAD Authoring tool and inserted their own sources through MySources tool, initiating in this way the usability feedback provision of the platform.
- **Results retrieval**: After the run of their models, users have retrieved the crawled and analysed data through the Visual Analytics Tool of the platform, moving towards the quality evaluation of the presented results.
- **Feedback provision**: Their interaction with the platform has been constantly monitored and supervised by the pilot partners, so that to be properly recorded and reported for evaluation purposes. As such, apart from the

filling of the questionnaire, the evaluation of the external users has been gathered also through personal interviews and discussions, thoroughly reported in the upcoming sections.

As such, after the identification of the external user that has been volunteered to participate into the NOMAD experience, pilot partners have started to create the supporting material for facilitating the interaction of the external users with the platform and support the users throughout this round. For this purpose, a user template has been produced (see Figure 50) along with a tutorial for creating their account in the NOMAD platform, serving as a basis for the user training period to follow. Each pilot partner has followed different ways for supporting the external users, such as, tete-a-tete meeting, (open) workshops, Skype conferences etc, based on the needs and the availability of the stakeholders. During these meetings the pilot partners have helped each of the external users to elaborate on their domain of interest and apply the NOMAD concept on modelling their policies. Afterwards, the external users have created their own accounts in NOMAD platform and started to build their application models, with the continuous support from the consortium, whenever was needed.



pen Workshops

Create your own scenario application through NOMAD

DAY 1: Monday, 15 December 2014
15:00 -19:00

DAY 2: Tuesday, 16 December 2014
15:00 -19:00

Critical Publics Athens Offices
150 Garyttou St. - Ag. Paraskevi, 153 43 Athens, Greece

Personal Information		NOMAD participation	
Name:		Username:	
Organisation:		Password:	
Email:		Date:	
Telephone:		Follow up Date:	
Skype ID:		Domain:	
Policies:			
Objectives:			

Interaction with Nomad in 5 Steps

STEP 1: Access NOMAD Platform

In order to access NOMAD platform [http://nomad.atc.gr/nomad/], the 1st time you have to create an account [Sign in] or Log in, if you already own one.

TIP: Do remember to open the NOMAD Platform only with Chrome browser.

STEP 2: Create your models with NOMAD & add your own sources

The most critical part of using NOMAD platform is to create your models [domain and policy model] through NOMAD Authoring Tool and add your own sources through MySources Tool.

Find the way through the authoring tool here: Main Actions → Settings → Help

Figure 50: 3rd round – User template snapshot

As a result, many models have need created in the NOMAD platform, from various operational domains, such as constitution reform, fiscal policy, parliamentary transparency, online allergy education, waste management technologies,

telecommunications, tourism web technologies, multicultural education, Greek social security, food 2.0, innovation in education, scholarships, civil rights, industry 4.0, assisted suicide, European Parliament, etc. Table 12 presents the complete list of the 23 application scenarios that have been crafted by the external users, along with information on the models domains and policies, the purpose of the trial and the organisation and/or position of the stakeholder. Moreover, Figure 51 and Figure 52 provide indicatively some screenshots from the external users' models, while Figure 53 presents some cumulative results from the external users results.

Table 12: 3rd round – Application scenarios of external users

A/A	Organisation, Position	Domain	Policies	Objectives
1	Newspaper, Journalist	Telecommunications	Monitor public awareness on mobile telephony	What are discussed about the antennas of the mobile telecommunications? Are people aware of the health implications?
2	Newspaper, Journalist	Technology solutions for waste management	Promote awareness among citizens for recycling	How can technology help on the waste management? Are citizens aware of the right recycling means?
3	Journalist	Political Rights	Advocacy of the needs of citizens Development of participatory processes	The debate on the democratic deficit - comparison between 6 countries. Where is Greece compared with other Western European, Balkan and Mediterranean European countries?
4	European Media Network, Journalist	European Parliament	Increase the awareness on the role and activities of the European Parliament Committees	Are people aware of the Committee's activities? What they discuss about the objectives of each Committee?
5	Ministry of Education, Government official	Multicultural Education	Utilization of educational programmes of European resources Implementation of Multicultural Education	What are the means for strengthening multicultural education? How is the transformation of the neighbourhood schools in comparison with the abolishment of the multicultural ones?
6	Social Security Organisation, Public servant	Social Security	Modernisation of the Social Security system [Rationalisation of the Social Security system	Proposals for the Improvements on the Social Security System
7	NGO, Policy consultants	Constitution	Citizens participation in Constitutional Reform	Which are the means of participation to the constitution reform (e.g. referendum, deliberation, workshops, assembly, etc) discussed more

A/A	Organisation, Position	Domain	Policies	Objectives
				among different citizen groups?
8	NGO, Decision maker	Parliamentary Transparency	Intergenerational Justice	How can we secure the next generation resources through constitution? How are the multiple dimensions of intergenerational justice perceived in online fora?
9	Technology Institute, Private sector representative	Tourism	Use of internet to organise a trip Use of apps during visiting places	See information about a platform they are developing for Tourism. How web apps for tourism are perceived from citizens.
10	Research and Educational Institute, Political scientist	Fiscal Policy	Fiscal policy on Greek Church wealth	High taxation of movable and immovable property of the Greek Orthodox Church
11	Health Association, Health professional	Online Allergy Education	Promote online education on allergy and health related issues	How the online education is conceived by the citizens, concerning the medical/allergy field.
12	University, Researcher	Creativity in education	Promote creativity in educational programmes	Education domain: Promote creativity in schools Focus on creativity can reshape education and make its application more stimulating.
13	Company (SME), Scientific consultant	Food 2.0	Sustainable Food Policy	Which are the impacts and the argumentation discussed online, concerning tourism and gastronomic development? How can positively affect the public health the investment on a sustainable food policy?
14	University - Political Scientist	Alternative Education	Increase of non-formal education	Dissemination of science through culture.
15	General Secretariat of the Hellenic Government	Education Policy & Strategy / Scholarships	Increase State Scholarships Foundation funding programmes	Potential improvements in the State Scholarships Foundation services. What benefits are more preferable by citizens?
16	Ministry of Agriculture, Public administrator	Agriculture	Increase competitiveness of agriculture products	Determination the relation between quality and product cost.
17	Parliamentary Officer	Justice	Reducing input / output in criminal procedure system	Criminal proceedings, identify them, analyse them, classify and taxonomy towards acceleration of criminal cases completion.
18	Journalist	Banking	Correlation between the economy and	Observation of the implications in the economy from the

A/A	Organisation, Position	Domain	Policies	Objectives
			banking system	banking system and deposit outflows.
19	Research Center	Sharing Economy	Regulation framework of the sharing economy	To strike the right balance between measures in favour of newcomers of the "sharing economy" paradigm and the interests of incumbent players.
20	Civil servant	Civil Law	-	Discussion on this topic in social media sources.
21	Civil servant	Assisted Suicide	Legalisation of Assisted Suicide	What are the common pro and contra arguments for the legalisation?
22	Video Journalist	Industry 4.0	Industry 4.0	Discussion on this topic in social media sources.
23	Researcher	Literature	Books	Which books the students like to read.

After the models creation, through the Authoring tool, some of the users had added indicative sources of interest to be monitored, through the MySources tool, and all of them have initiated the process of crawling and analysing the aggregated data. When the analysis has been completed, along with the support from the pilot partners, they have retrieved and evaluate the results from the Visual Analytics tool and identify the potential added value of NOMAD usage to their use cases. It is worth mentioning here that during this interaction of the external stakeholders with the platform, many issues and tools' inconsistencies have been identified and fixed, in collaboration with the technical partners. For this purpose, a new online tool, called "ASANA", has been used among the consortium partners, for smoothening and facilitating the communication and the teamwork, as the communication via email, seemed to be insufficient on tracking all the emerged issues for optimising the NOMAD platform usability.

The close monitoring and support provided to the external users during this round has revealed valuable insights, concerning the platform usability, the overall NOMAD concept, the potential, wider adoption of the NOMAD tools from various stakeholders and further exploitation plans to different operational domains. Through questionnaires and personal interviews, it was identified that the external users have accepted the NOMAD project with enthusiasm and that they would definitely use it in their operational domain, on various topics. Moreover, they really liked the filtering features of the results representations, as well as the way that the results are presented and the ability to reach the source of the segments, for validation purposes. What seems a bit difficult to interact with, was the authoring, as they would prefer more automation during their interactions, even though they understand the complexity for modelling the policy concepts. Furthermore, an obstacle of acceptance was the efficiency of the results, making the users a bit reluctant. All the details from the aggregated and documented feedback are presented thoroughly in the following chapter.

Overall, the external users' interaction has started from the end of the workshops of the 2nd pilots round, e.g. approximately mid November 2014 and finalised early February 2015. As such, the duration of the the 3rd round was more than two months. During this period the aforementioned users had received personalised assistant and support, through various and different ways, depending on each case needs. Initially, some half-day, open workshops have been organised, from some pilots partners (e.g. CP, AUP) in order for the external users to participate and start playing with the tools. During these workshops, the attending users had the chance to discuss, with the pilot partners, their application domains of interest and the way their ideas could be transformed into the modelling restrictions of the NOMAD platform. Moreover, they had the chance to see an on-site, live walk-through the system, create their accounts and start modelling their policy and domain models. For the most of these workshops' attendants, this was their initial interaction with the

platform. After the workshops, they continued to interact with the tools and finalised their models and source insert from distance (e.g. home, office), as the NOMAD platform is a web-based, online system. The communication bus with the pilot users, during their interaction it was always open and in case they had difficulties, they could send email, call or Skype us for further assistance and questions' answering. After the completion of their models and the initiation of the models' run, a new meeting was arranged with each user so that we could support them in the walk-though of their own application results and interaction with the Analytics tool. Some of the users decided to come in the pilot partner's premises to discuss the results and to provide the overall feedback, while others had decided to make the communication remotely, e.g. through phone, Skype.

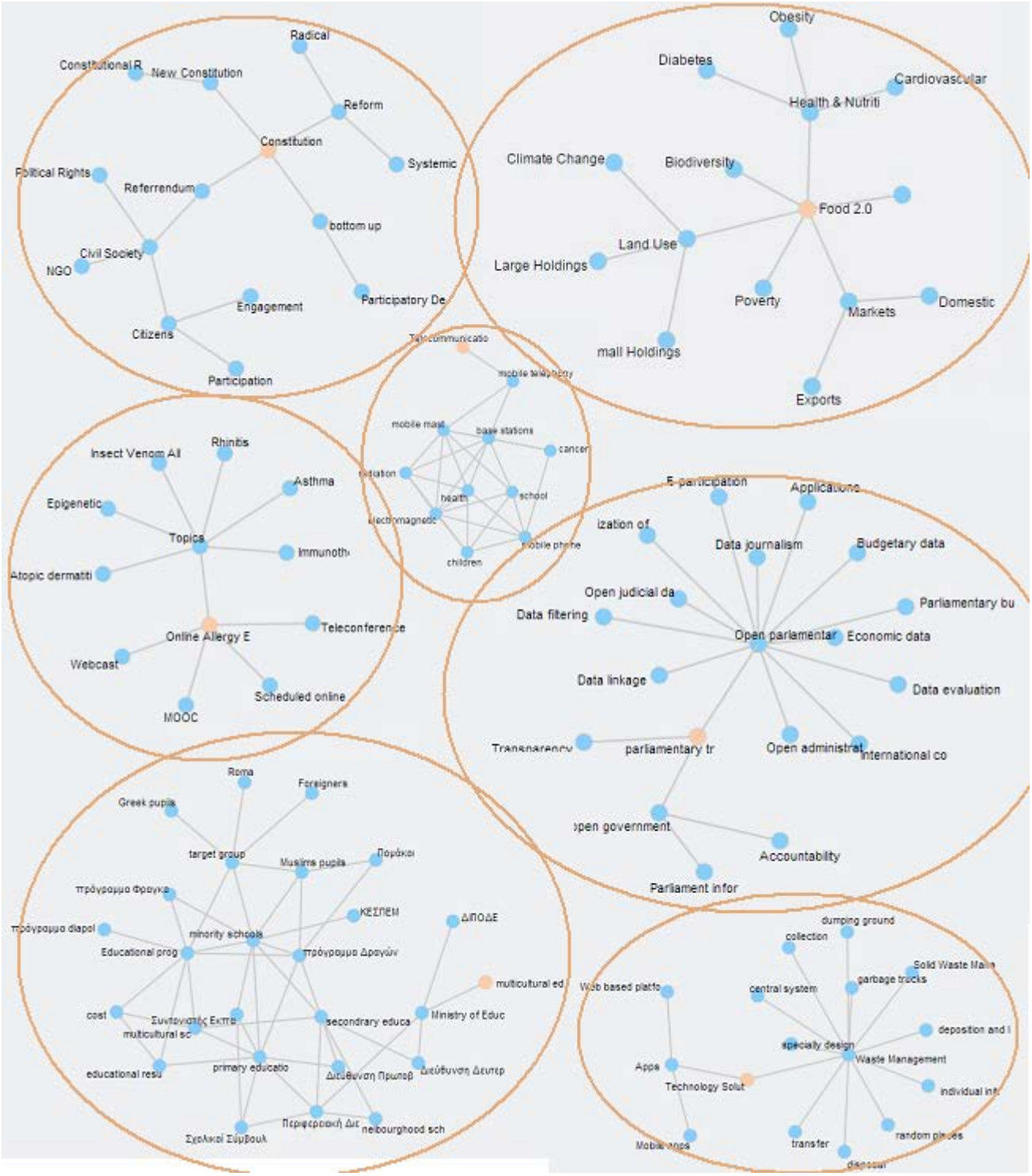


Figure 51: 3rd round – Indicative external users' domain models

Figure 52: 3rd round – Indicative external users' policy models

For the engaged stakeholders that did not have the chance to attend the half-day workshops organised, the support and assistance provided by the partners was entirely remotely, though the methodology followed was exactly the same as before. As such, also in these cases, a preliminary discussion about their ideas to be models had been followed by the actual implementation of their ideas in the platform, under our supervision. Any problems occurred, again have been resolved via remote communication and after the first models' results of these users have been brought from the NOMAD tools, another conference call has been scheduled for interpreting the results. These users, again had took their time to interact more with the platform and when they were ready we had re-arranged a final call for gathering their evaluation and overall experience with the NOMAD ecosystem.

It could be estimated that the average time that each of these users had interacted with the platform and engaged in the trial is 6 to 12 hours in a 3-week time range. As one can easily identify, the engaged stakeholders, had not only evaluated the system through the completion of a questionnaire (which was provided to be filled offline or online), but also through personal interviews and discussion. Moreover, their interaction had revealed bugs, errors and inconsistencies, which had been addressed in regular basis from the technical partners. It can be concluded that, this round had provided valuable insights for the project and had shown the commitment of the consortium to it.

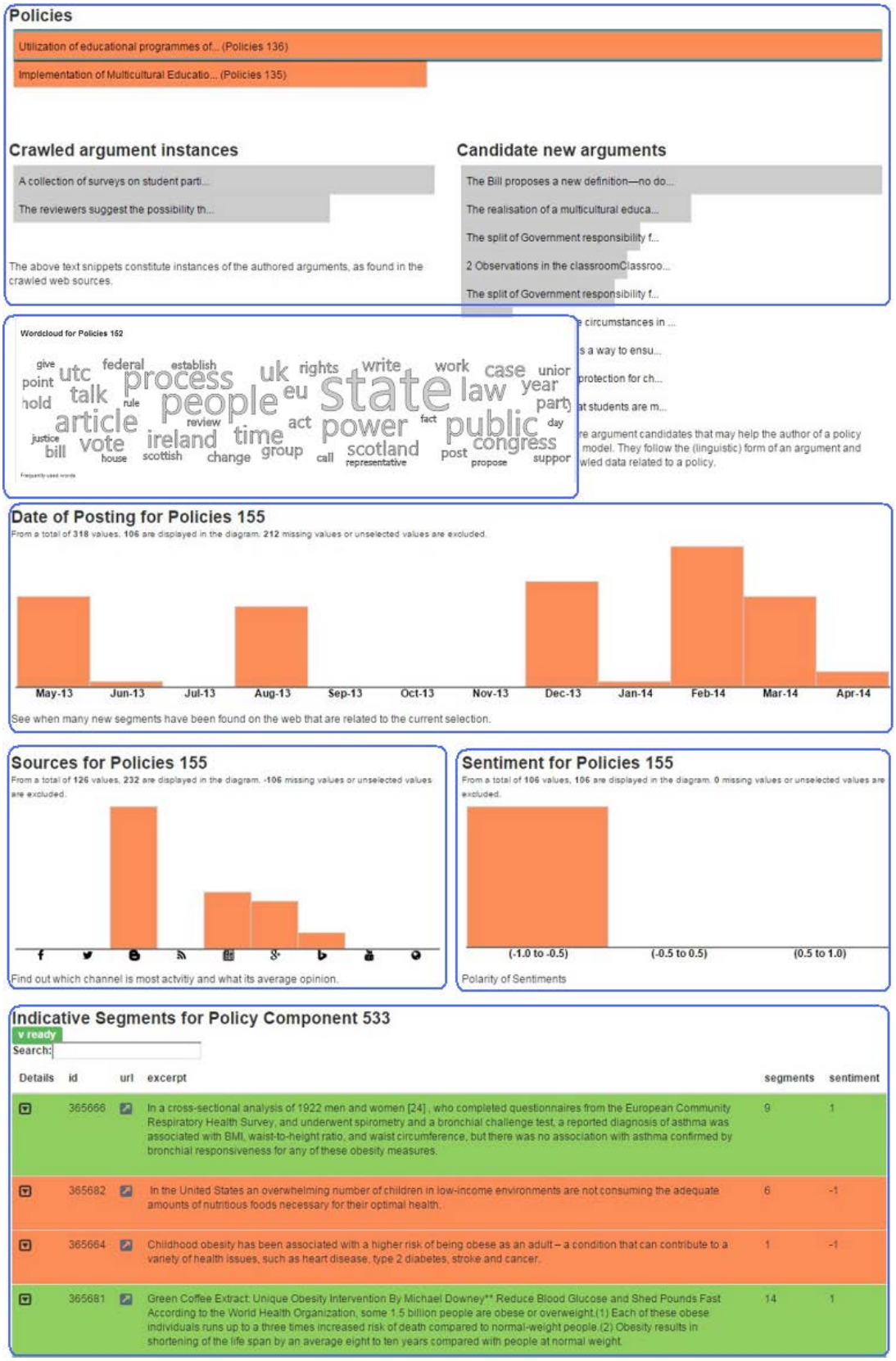


Figure 53: 3rd round – Indicative external users' results

7. FINAL EVALUATION ANALYSIS

7.1 Overview

Following the implementation of the NOMAD evaluation methodology, all activities described above have been monitored. In particular, the evaluation framework applied during the 1st pilot round has been updated to fit to the needs of the 2nd and 3rd round in order to conclude the project's evaluation results. Therefore, the current section presents the data gathered and analysed during the final NOMAD evaluation cycle. The results coming from each pilot have been consolidated to sum up the overall feedback from the last stage and provide a cumulative view on the project outcome.

The questions on which the overall evaluation has attempted to answer are the following:

- How would potential users **exploit** the showcased capabilities in policy formulation and what other features would be expected by them to support their competences in different stages of the decision making process?
- How do users **assess** the overall platform and its individual components, in terms of usability, ease of use and presentation?
- What else capabilities would be **expected** from a platform like NOMAD?
- Is the crowdsourcing concept **feasible** through a platform like NOMAD?

The following table summarises the total feedback received by evaluators and the actions carried out by the NOMAD partners to address it:

Table 13: Overview of the evaluation feedback and actions taken

	Feedback	Reaction	Further suggestions
Technological	Guidance needed	Help pages, Tooltips, Guided Tours Workflows, Examples Instructions	Context-sensitive guidelines
	Transparency of the background process	FAQ section	
	Availability of tools	Open Registration	
	Analytics - Low time response	Increase responsiveness	
	Insufficient demographics	Remove demographics	Stylometry-based analysis to estimate writer demographics
	Complexity of Analytics	Wizard-like UI	
		Redesign Analytics module (clearer workflow)	
	Graph representation of models	Redesign of Authoring Tool	
	Connect authoring with results	Propositions of domain terms and arguments in	

		Authoring Tools	
	Less Effort and time required – Authoring More automation	Reusability of models	Import ontologies Collaborative model creation
	Difficulty in handling large models	List View	
Crowdsourcing	Reliability of sources Directed posts and reproductions Manipulation of online audience	Filtering, Access to sources	Weighting of the extracted content
	Sample Representativeness Quality of speech / argumentation found	Quantitative information Sentiment distribution	Access to closed sources Statistical information
Political	Lack of revealing new subjects	Identification of new arguments Indicative segments presentation	Suggestions on additional sources
	Documentation needed	Export models	Export capabilities Summarising reports
	Regional policies		Location-Based Sources
	Distinguish experts from general public Identify target groups		Linguistic analysis for identifying and distinguishing involved actors and experts in policy formulation

Some of the above points have been elaborated in the previous version of the current report. However, in the following sections we report the additional feedback received in the final evaluation round, as well as the end users' perception on the latest project developments to meet their needs.

7.2 Implementation of the Evaluation Methodology

One of the characteristics of the NOMAD Evaluation Methodology is the fact that it has been dynamically evolving in parallel with the piloting activities execution and conformed with the specifications posed by them.

The following Figure 54 shows how the application of the evaluation methodology was unfolded, i.e. the focus and the main subject of evaluation of each stage and the tools used for gathering data.

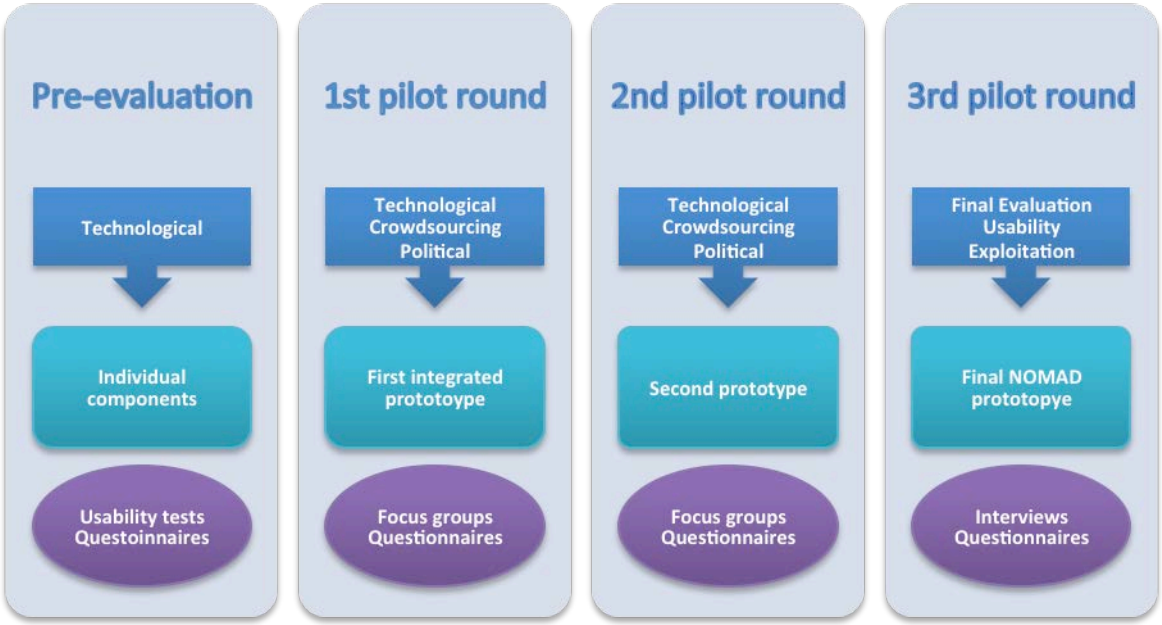


Figure 54: Implementation of the NOMAD Evaluation Methodology

Initially and when the first versions of the individual components were ready, internal usability tests were held and questionnaires were distributed to assess them from a technological perspective. The results from this phase were utilised for the implementation of the first integrated prototype, which was assessed both internally with the 1st pilot round scenarios and externally by the focus group participants under the three prescribed evaluation dimensions. Accumulating this feedback, approximately on M24 where the 1st round of the pilots had ended, the project moved to a second version of tools addressing the new requirements emerged. The validation of these took place in the 2nd round of pilots, which had the same form with the first; however the refined pilot results and tools have been assessed. In parallel, the evaluation approach was updated (reported in the updated version of D7.3 NOMAD Evaluation Methodology) to address the latest technical developments and utilise the insights provided from the previous evaluation phase. In particular, a smaller questionnaire was created focused on the newly introduced NOMAD offerings and the problematic aspects already identified. While the technological evaluation was applied to the platform as whole, more emphasis was placed in the crowdsourcing and policy formulation applicability of the NOMAD concept. Finally, during the 3rd round, which was addressed to external users, apart from the three evaluation dimensions, aspects on the usability of the final version of tools and the exploitation of the offered capabilities by the involved stakeholders and their organisations were examined, through observation and personal interviews.

Regarding to the changes with respect to the previous questionnaire:

- The `system responsiveness' indicator could not be actually assessed, as most of the users' interactions were going through several cycles of initiation to the methodology and the basics of (domain and policy) modelling. The results were brought back and evaluated at a subsequent stage; thus, there was no objective sense of the system responsiveness. Furthermore, the set of technical benchmark indicators defined within WP4 are arguably adequate for the purposes of technical assessment and an overlap with a similar entry in the questionnaire was not necessary.
  Performance indicators have been measured in the individual technical work packages. More specifically, system responsiveness has been measured through the NOMAD performance tests within the NOMAD testing framework (see deliverable D6.2 NOMAD Final Integrated Prototype) while the accuracy of Linguistic Analysis components through the experiments conducted within WP4. The improvement in system responsiveness was also validated through the observation of users in the working sessions organized during the third round, after the additional computational capacity reserved for the NOMAD infrastructures.

- The `human capacity' indicator was intended to capture a very important aspect of the NOMAD overall evaluation; namely, whether the institution/ organization of the user possesses the human capacity for taking

advantage of the technologies brought into play through NOMAD, and whether the institution would be `willing' to invest the resources (*manpower, learning curve, training time*) for integrating the NOMAD methodology and platform into the tools of usage in its regular business activities. This is absolutely important.

The problem with this kind of questions in a likert-type questionnaire is twofold: (i) users tend to react in accordance with the ` *social desirability bias*' (tending to answer in ways that draw a favourable picture for their organization), (ii) users do not want to spend time to think seriously on such deep and `difficult' questions and tend to agree with the statement they are presented (`acquiescence bias'). During the first cycle of evaluation we received a lot of comments from the users filling in the questionnaires, in particular with respect to the distortion of item (ii) above. Thus, it seemed to us that this was not a useful way of assessing this aspect of NOMAD applicability.

7.3 Analysis

In alignment with the first version of the current deliverable (D7.4.1 NOMAD Evaluation Report V1), the analysis of the results are presented herein through qualitative and quantitative metrics on the three perspectives of NOMAD evaluation framework (deliverable D7.3); the technological perspective, the crowdsourcing component of NOMAD, the political perspective. The data gathering techniques remained the same (questionnaires and focus group discussions), while additional sessions took place with the 3rd round users, who executed their individual NOMAD scenarios. The updated questionnaires, prepared for this phase, are presented in the updated version of D7.3 NOMAD Evaluation Methodology (V2) and the detailed results are included in Annex A: Questionnaire Results.

7.3.1 Technological Evaluation

Keeping the focus on the usability aspect, the emphasis of the technological evaluation was placed on the comparison between the previous and current version of tools. Since both visual environments of NOMAD components have been refined according to user requirements emerged in the 1st round, potential users from the 1st round have participated again in the evaluation sessions to validate and compare them. With respect to this, the improvement of tools and user interfaces was recognized, yet there were several usability aspects that have been partially tackled during the final implementation phase. The rest of them have been identified in order to be addressed in a further exploitation of the platform.

Even though the available guidance, users still need further context sensitive guidelines and explanations, especially on the components that run in the background such as the Crawling services. Albeit the latest has been reflected through the MySources interface in the last version of tools, users suggested more clear view on the functionalities supported there and more options to define and monitor crawling and analysis (clear selection of source types, definition of crawling period, selection of source languages, copy and import a list of sources, more information on the processing status, etc.).

Many remarks were made about the new Authoring tool, the component with which the users interact more. Although users were able to learn how to use the tool after receiving instructions, the effort required to create models was more than expected. Therefore, capabilities for automating users' input there such as importing domain ontologies or the creation of a repository of a set of domains that can be conceived collaboratively or merged with similar ones and used by several public administrations were proposed. The most difficult and not understandable part in this process is the connection between the domain and policy model (assign domain concepts to the arguments and the policy components in the policy model by exporting firstly the nodes into a "reusable nodes" list) for which the "drag and drop" functionality offered in the previous version of tools was preferable. The list view addition, used during the 3rd round, facilitated the work of users, since graph view is difficult to handle in cases of big models. In fact, some users expressed their preference to make the list view the primary environment for conceiving the models and giving the graph view only the subsidiary function, by adding functionalities in the list view. In this case of large models, it is also difficult to identify issues falling to validation restrictions; therefore user needs more information on the reasons preventing a model to be valid. Taking the above into consideration, smaller applications with simple models are preferable, since they require less effort and are more focused. Help pages and tooltips are welcomed by potential users, since they provide guidelines, however sometimes they are distracting them. For that reason, platform offers the capability of deactivating them. A very positively perceived new element was the suggestions provided in the authoring interface process (frequent domain

terms and argumentation) that relates the authoring process with the results provision, since it helps users populate their models.

The major improvement in the ease of use was noticed in the Visual Analytics component. It seems that the redesign and new implementation of the module, met users expectations. Users are now capable of understanding the workflow for navigating in the results, for which the embodiment of the guided tour inside the visualization component helped. So, it was confirmed that since the platform is addressed to users maybe not familiar with ICT tools, a less complex and intuitive environment is necessary. The enhancements concerning additional visualisations, responsiveness added as per request of the previous round feedback satisfied the users. For example, the addition of indicative segments linked to the initial sources are efficient in revealing the context of discussion, although users asked for selection criteria and as well ranking criteria as a further development instead of the arbitrary display of a subset of the collection of resources. In addition, having in mind the need of policy makers to obtain a quick overview of the survey results, for instance, the requirement of exporting capabilities mentioned again during the 1st round was posed again. Finally, regarding the display of the Argument Summarisation, which was one of the last developments in the NOMAD platform, a clearer distinction between candidate and authored arguments was requested.

Besides the comments made on the individual components, the questionnaire targeted to the assessment of the NOMAD integrated platform as a whole and with respect to the newly introduced features (new visualisations and segments provision). The innovation of NOMAD was examined against the relative advantage and compatibility and trial ability and compared with the previous round results. As shown in , all indicators have been improved, apart from the relative advantage of NOMAD when compared with more traditional approaches. NOMAD ease of use, one of the identified weaknesses, has been partially addressed through the new versions of tools as shown through the increase of its evaluation metric. However, it is evident that it is an issue that needs further improvement. The fact that users considered that more guidance and less effort are needed has confirmed that. A point of convergence was the trial ability aspect, since it was generally noticed that potential users were in favour of trying NOMAD through smaller applications, before adopting to in larger scale issues.

Table 14: Metrics on the technological indicators

Technological Evaluation					
Indicator	**Indicator Benchmark**	**Value (1st Round)**	**Value (2nd Round)**	**Value (3rd Round)**	**Scale**
Relative Advantage	>3	**3.94**	**3.60**	**3.83**	1-5
Compatibility with policy formulation	>3	**3.54**	**3.80**	**3.83**	1-5
Compatibility with policy makers needs	>3	**3.57**	**3.53**	**3.65**	1-5
Trialability	>3	**3.89**	**4.10**	**4.00**	1-5
Ease of use	>4	**3.02**	**3.52**	**3.35**	1-5

7.3.1 Crowdsourcing Evaluation

During the 2nd and 3rd round we focused on the two main aspects that have been identified already from the first round as inhibitors of crowdsourcing applicability, i.e. reliability and representativeness. These two issues have been addressed through the new features added in the NOMAD tools, as requirements emerged from the first evaluation round; filtering and accessing the sources and the context of the initial content, quantitative information on the extracted arguments and content, sentiment distribution. Furthermore, the visualization of demographic information has been removed, although desirable by users, to avoid credibility risks, due to the insufficiency of publicly available data. However, evaluators confirmed the first round results, identifying issues affecting the quality of results related with the available online resources rather than the platform capabilities. Again the inquiry is whether the results represent the public opinion and sentiment, but now crowdsourcing capability of the platform is doubted due to two aspects: a) the quality of speech in terms of the language used and proportion of argumentation found in online discourse (for that statistical information was asked) and b) the posts which are directed and may have many reproductions on purpose, thus biased. With respect

to the first it is believed that the selection of sources is critical, thus it was suggested to expand NOMAD crawling services to closed sources as well, since it is believed that arguments of better quality can be found there. Another suggestion was that the platform could help users to widen the initial sources selection, by providing additional sources where policies are discussed. With respect to the latter users referred to the existence of "pyramid blocks" in web, i.e. main blocks that define directions/opinions and influence other blocks. The same issue applies also with the press releases that are usually republished in multiple websites or advertisements and detraction on a product in the private sector. Therefore, the different types of findings should be weighted. In general, it was believed that in order to make the reliability more assessable, the validity of the aggregated results has to be confirmed by making transparent the processing. This is again related with the absence of clarity about the algorithms used to crawl the sources and establishing connections between policies and segments. In addition, users would like sometimes to focus on the comments made on posts rather than the content of the post itself, therefore an indication to make this distinction is needed.

The above issues are also validated through the questionnaire replies of the evaluators. Although the values of the respective indicators are higher, the quality and applicability of the crowdsourcing results is criticized against the objectivity and representativeness of the crowd.

Table 15: Metrics on the crowdsourcing indicators

Crowdsourcing Evaluation					
Indicator	**Indicator Benchmark**	**Value (1st Round)**	**Value (2nd Round)**	**Value (3rd Round)**	**Scale**
Representativeness of the results	>4	**3.43**	**3.33**	**3.57**	1-5
Objectivity of the results	>3	**2.63**	**3.23**	**3.35**	1-5
Quality of the results	>3	**2.89**	**3.27**	**3.35**	1-5
Applicability of the results	>3	**3.86**	**4.10**	**3.91**	1-5

7.3.2 Political Evaluation

The final NOMAD prototype has been reformed to meet the policy making needs emerged during the previous evaluation phase. Therefore, political evaluation has been adapted to consider the utilisation of the new capabilities offered the NOMAD system in policy formulation. Consistently with the first round results, the usefulness of NOMAD in policy formulation was validated. In particular NOMAD usage was characterized as *"valuable during a discussion and consultation on a legal provision that could use public consultation results directly and feed back the legislative process".* Hence, the need of an exploitable summative form of the results was highlighted.

It was widely agreed and confirmed through the indicators () as well that the system provides a view on the level of discussion and public sentiment over time, and can focus on specific blogs/communities/persons through a subset of user defined sources. However, currently it cannot distinguish the results coming from experts against general public. It is believed that opinions should be weighted based on the reputation of the author. Furthermore, according to the users, digital opinion leaders can be identified through NOMAD, only if variants of an initial position are detected in different sources. Therefore, although it is believed that homogeneity can be recognized or not, it seems difficult to automatically spot specific target groups.

Some propositions for improvements have been suggested by potential users. For instance, when a regional policy is under development, stakeholders want to observe the discussions on local sites and media. NOMAD can support this only in the case of users knowing and are able to insert the specific sources they want to monitor. To cover all cases, location based results are requested to identify what is discussed on the region of interest. A drawback of the system is the inability of monitoring rapidly evolving political events and discussions, since it cannot provide real time results.

Concerning the early stages of the policy making process, it was revealed that the NOMAD Authoring tool is an exploitable asset as it can be used as a policy modelling tool, assisting policy makers define and structure prospective policies. This was clearly evident during the third round, where users did not rest on existing policy documents, instead tried to form their policies under investigation on the spot. Although it was difficult for them to perceive the required

structure, after the provided guidance they were convenient to transform their ideas to the policy graph. To leverage this, the default use of Authoring tool can be reversed, by the automatic creation of a document from the policy model. Another relevant suggestion was to retrieve automatically ontologies from the results instead of flat list of terms. In the rest cases, where there exists a specific policy (either applied or candidate), user has to know very well the policy under investigation, as it is believed that the quality of the results depend on the user input.

Part of the newly introduced indicators was devoted to the one of the drawbacks perceived during the previous round, i.e. the inability of identification of new issues. The new capabilities added to the system have been assessed with respect to their usefulness in the policy formulation, with the major one to be the provision of new arguments and information against them. With particular emphasis on their early identification new issues, proposals, arguments are well perceived, while again there are moderation against the detection of different sub-groups.

In general, it was concluded that NOMAD can measure the noise (positive or negative) made by different citizen groups, but the utilization of results depends on the user, so the critical thinking of policy maker is essential for the interpretation of results.

A major issue with respect to policy formulation is personal data protection. Since policy opinions belong to sensitive data, NOMAD platform provides aggregated anonymised data on sentiment analysis. NOMAD users can have an overview of public opinion, on the existence of tendencies and different sub-groups but cannot identify the personal identities of the sources of them. However in order to ensure that non personal information can be identified through the context of the text or revealed through linking with public data, a number of anonymisation techniques should be used. Within the NOMAD project we focused on the effort of improving the accuracy of results. We have made every attempt to hide personal identity but do not have used anonymisation techniques. Nevertheless, this is a small step to be added in the tailor-made products, if requested. To verify if any principal is violated, the Data Protection Authorities (DPAs) of the three pilot countries were addressed during the project, through a letter submission to each of them. Although it was generally stated that their responsibility is to judge and intervene only in concrete specific legal claims raised by individuals, they did not raise any issue. However the Greek DPA advice the employment of anonymization techniques and the declaration of processing personal data to the DPA (following the prescribed process) including notification of users.

Table 16: Metrics on the political indicators

Indicator	Indicator Benchmark	Value (2nd Round)	Value (3rd Round)	Scale
Evaluation of the degree to which society is interested in a policy (existing, or under formulation)	>3	**4.33**	**4.27**	1-5
Evaluation of citizens' feeling against a prospective or existing policy	>4	**3.87**	**3.91**	1-5
Identification of evolution /change of interest (on a particular policy) and/or attitude/sentiment over time	>3	**3.97**	**4.04**	1-5
Identification of uniformity in sentiment and/or ability to locate sub-groups with different attitudes against a policy statement	>3	**3.30**	**3.91**	1-5
Identification of digital opinion leaders	>3	**3.50**	**3.74**	1-5
Identification of groups having high interest in the policy, strong influence, or extensive knowledge about its topic	>3	**3.73**	**3.83**	1-5
Identification of relevant issues posed by citizens or relevant needs of them	>3	**4.03**	**3.87**	1-5
Identification of proposals for improving it or solving its	>3	**3.70**	**3.65**	1-5

problems				
Identification of new arguments	>3	**3.77**	**4.22**	1-5
Identification of new emerging relevant issues in the society or relevant needs	>3	**3.73**	**3.91**	1-5
Identification of new emerging proposals in the society for improving it or solving its problems	>3	**3.53**	**3.70**	1-5
Evaluation of the level of interest/discussion in the society against an argument	>3	**4.13**	**4.09**	1-5
Evaluation of the attitude/sentiment of society against an argument	>4	**4.00**	**3.78**	1-5
Evaluation of the evolution /change of interest (on a particular policy) and/or sentiment over time against an argument	>3	**3.87**	**3.96**	1-5
Identification whether there is uniformity/homogeneity with respect to this attitude/sentiment, or there are sub-groups with different attitudes/sentiments against an argument	>3	**3.47**	**3.70**	1-5
Locate the main groups expressing positive or negative opinions about an argument	>3	**3.50**	**3.78**	1-5

Since the political evaluation indicators have changed radically, it is not possible to include the previous round evaluation results in the above table. However, to provide a comparative overview on the three evaluation dimensions, the following graph depicts the evolution of the indicator metrics calculated as mean values of all indicators for each evaluation phase. The potential of NOMAD in policy formulation remains the highest evaluated, while the most ambiguous perception, the crowdsourcing ability showed the greater improvement. It can be concluded, that the latest developments of the project were positively considered by the evaluators, although there is still ground for enhancements on the identified aspects.

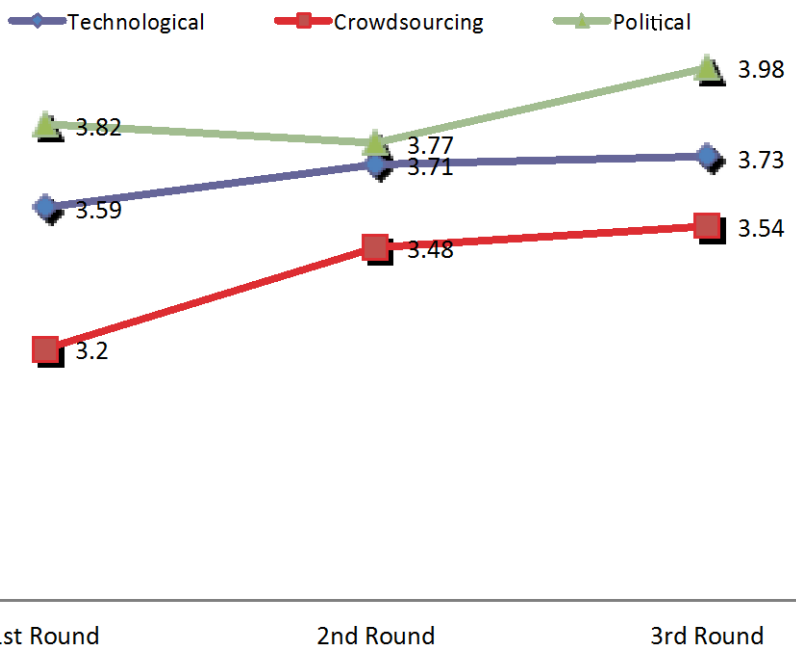


Figure 55: Evolution of the Evaluation Indicators metrics (mean values)

The above quantities metrics have been calculated through the answers of the questionnaires filled in by the evaluators, who have participated in each pilot round. The number of questionnaires filled per round is presented in the following table.

Table 17: NOMAD Questionnaires answered per pilot round

	1st round	2nd round	3rd round
Questionnaires	35	30	23
		Total: 53	

Regarding the type of stakeholders engaged during the second and third pilot round, the reader is referred to Table 1, while the distribution in terms of occupation of the questionnaires responders is cumulatively presented in Annex A: Questionnaire Results.

7.4 Evaluation Conclusions

If we have to summarize succinctly the points of `*success*' and the points of `*failure*' within this 3-years research project, we will probably opt for the following points:

The NOMAD project has promised a methodology and a platform for argument-centered, policy-related, non-moderated crowdsourcing that will

- Extensively and correctly mine the Web 2.0 channels for arguments expressed in favour (or against) a proposed policy and its components (objectives, measures, etc)
- Identify the sentiment (positive, negative, neutral) expressed in the deliberation mined, with respect to this argument
- Identify the public stance, as related to various characteristics of the deliberation process and its contributors (time frame, age spans, etc.)
- Trace similar arguments (linguistically, content-wise, etc.) mark and summarize the wealth of argumentation expressed in the social web.

The results show that our effort has been technically successful in these objectives.

- The web mining process is meaningful and successful. The text passages, arguments and deliberation items returned are (with a high probability) overall relevant to the policy discussed.
- The arguments traced are correctly analyzed and summarized.
- The public sentiment is more or less correctly depicted.

Yet, this has been achieved at a significant methodological cost, which of course is the `price to pay' for an attempt to combine a multitude of advanced technologies (web mining, argument analysis, Natural Language Processing, conceptual modelling and ontology engineering) and put them to work.

- The modelling phase requires a lot of work for the non-expert.
- The methodology seems complicated especially for non-exerts, mainly with respect to the modelling part, which requires much effort. Despite the guidelines, tutorials and explanations provided, support is needed while using the tools, hence the system remains not too easy to use. This was rather obvious in the external users interaction and reflected in the technological evaluation during this phase
- Although the policy-relevant and the argument-centered extensive search of the social media has been successful and the overview of public stance can be extracted, however the quantity of results is highly depended on the user input. One, has to proceed to `focused' – but not too narrow – models, to obtain clear-

cut results. Moreover, an iterative procedure seemed to provide significantly better-quality results, although this is not something a final user will appreciate.

- Policy makers experienced difficulties in interacting with the tools, but grasped rather easily the policy modelling concept, while journalists, were more familiar with the technologies used but tended to simplify the complexity of the methodology. Therefore, it is proposed that customised solutions on NOMAD capabilities should be offered as services that meet the needs of each specifically targeted user group.
- Two factors hindering the crowdsourcing applicability were revealed. Firstly, evaluators were reluctant to trust the results and thus to leverage them at policy formulation. Furthermore the results often validated issues that users already knew and arguments in favor or against them, rather than new emerging issues, which is one of the enablers of crowdsourcing.

As a conclusion, we can say that the final NOMAD prototype has met the overall project objectives, although there are certain aspects that need further improvements for spreading its usage as a decision making tool and turning it to a commercial product.

8. CONCLUSION

The overall evaluation procedure has pass through several implementation steps and it has revealed valuable insights for the project and the research outcome. Different, adapted strategies and means have been followed by the pilot partners in order to implement the various piloting rounds, so that the NOMAD toolsuite is tested and thoroughly evaluated internally and externally; not only by the pilot partners but also external users. Furthermore, the activities performed during the last reporting period has lead to the further improvement of the tools and also the identification of potential synergies and exploitation cases of the project.

Summing up the evaluation findings, it can be concluded that the overall feedback for the NOMAD concepts and tools was positive, while the spotlights of the evaluation were the comments for the authoring tool usability, the guidance needed and information provision about internal tools procedures and used algorithms. More specifically, it was observed that the NOMAD concept and its applications are perceived very positively by a broad spectrum of users. They identify opportunities for utilising the NOMAD capabilities for monitoring public opinions and performing qualitative and quantitative analyses. However, a correct interpretation of this concept is prerequisite before users moving to the actual usage of the NOMAD platform. One of the most interesting observations was that external users needed continuous guidance and support before and while interacting with the tools. To address this, NOMAD consortium prepared general guidelines for the procedure of building a NOMAD scenario and embedded assisting features in every component of the platform.

Moreover, it was observed that potential users had certain questions about different aspects of the NOMAD operation. These questions have been reoccurring since the 1st pilot round and came up by them during the 2nd and the 3rd round as well. To address this, a section of “Frequently Asked Questions” has been added to the platform. These clarifications concern issues such as crawling, sources and the analysis algorithms run in the background and help users in making best possible use of the tools.

NOMAD application should be as simple as possible for the targeted users, who usually can devote limited time and effort. The complexity has been reduced following the users’ needs accumulated on the 1st pilot round and several usability issues that emerged through the continuous internal and external feedback have been tackled during all implementation phases. The involved user groups have also spotted the weaknesses of NOMAD, providing directions to address them. In fact, the project has reacted to the feasible ones, while the remaining consist valuable input for further extension of the NOMAD. It should be mentioned here that the major concerns refer to the applicability of the crowdsourcing concept due to the reliability issues.

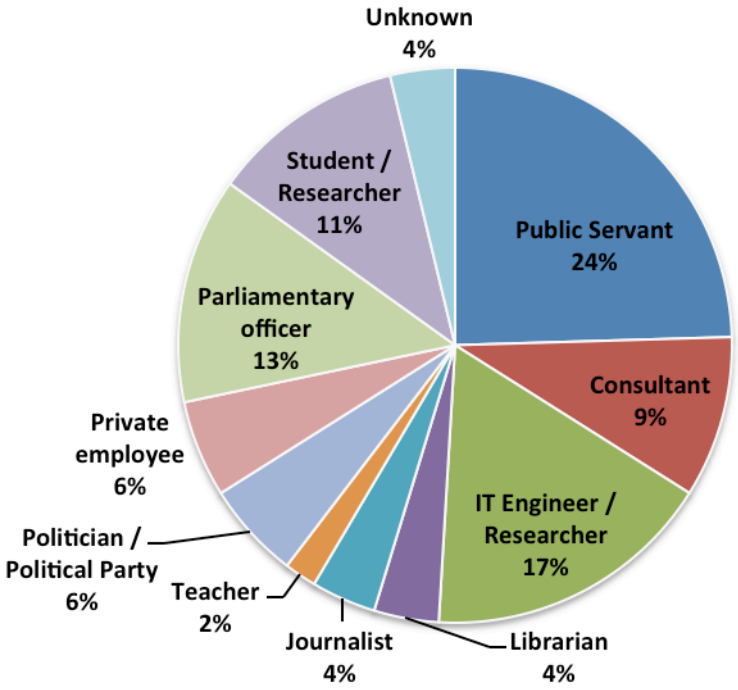
Finally, people who participated in the pilots rounds have identified opportunities for synergies and further exploitation of the NOMAD tools. Nonetheless, it was revealed from their suggestions and propositions, that there are improvements that will encourage and facilitate this exploitation, such as functionalities that could facilitate the authoring task (import functionalities), and the consumption of the results (export and summarization). Furthermore, according to their occupation they stated different models of exploitation, e.g. as a tool for monitoring a specific list of sources/communities, for searching on the quality of arguments, for aligning marketing campaigns to the issues discussed on web or providing feedback to legislative procedures.

In general, it is concluded that NOMAD capabilities are useful for a wide range of stakeholders, not only policy makers, and can have various application in the public as well as in the private sector.

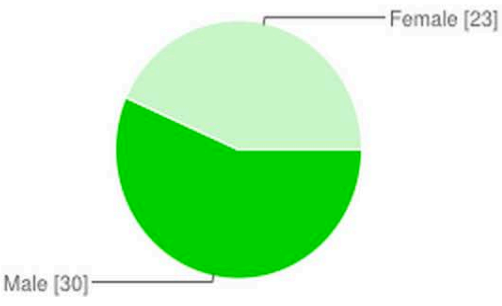
9. Annex A: Questionnaire Results

Personal Information

Occupation

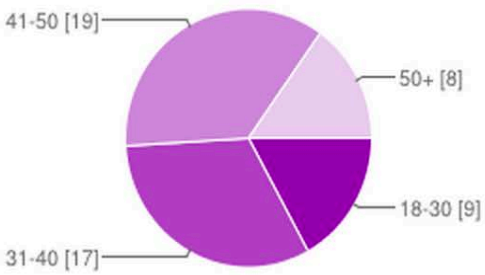


Gender



Male	**30**	57%
Female	**23**	43%

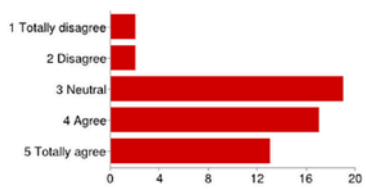
Age



18-30	**9**	17%
31-40	**17**	32%
41-50	**19**	36%
50+	**8**	15%

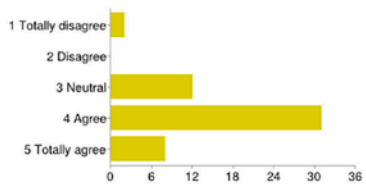
Technological Evaluation

Is better than other existing traditional or electronic methods used for similar purposes in public policy formulation process [Answer the following questions concerning NOMAD viewed as an innovation:]



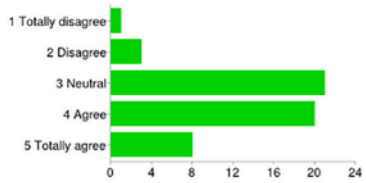
1 Totally disagree	2	4%
2 Disagree	2	4%
3 Neutral	19	36%
4 Agree	17	32%
5 Totally agree	13	25%

Is compatible with the public policy formulation processes, as they are applied in European countries or in European Commission, and can be integrated in these processes [Answer the following questions concerning NOMAD viewed as an innovation:]



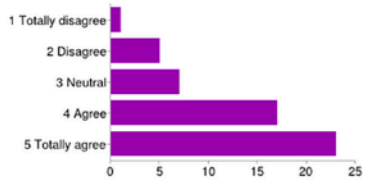
1 Totally disagree	2	4%
2 Disagree	0	0%
3 Neutral	12	23%
4 Agree	31	58%
5 Totally agree	8	15%

Is compatible with the needs, the mentalities and the values of people designing and applying public policies [Answer the following questions concerning NOMAD viewed as an innovation:]



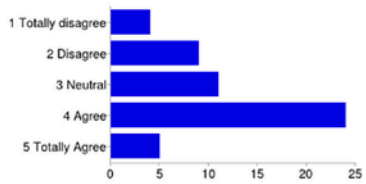
1 Totally disagree	1	2%
2 Disagree	3	6%
3 Neutral	21	40%
4 Agree	20	38%
5 Totally agree	8	15%

Can be initially applied in small or medium scale applications in policy making before proceeding to a larger scale application [Answer the following questions concerning NOMAD viewed as an innovation:]



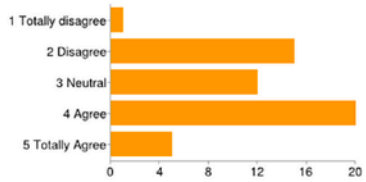
1 Totally disagree	1	2%
2 Disagree	5	9%
3 Neutral	7	13%
4 Agree	17	32%
5 Totally agree	23	43%

The NOMAD platform is in general easy to use [Answer the following questions concerning the ease of use of the NOMAD system]



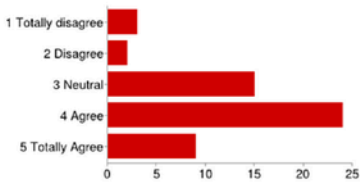
1 Totally disagree	4	8%
2 Disagree	9	17%
3 Neutral	11	21%
4 Agree	24	45%
5 Totally Agree	5	9%

The whole approach is in general easy to apply and does not require extensive effort [Answer the following questions concerning the ease of use of the NOMAD system]



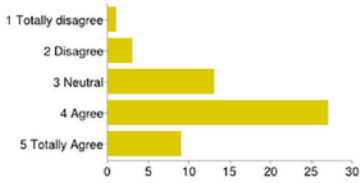
1 Totally disagree	1	2%
2 Disagree	15	28%
3 Neutral	12	23%
4 Agree	20	38%
5 Totally Agree	5	9%

The visualizations are easy to understand [Answer the following questions concerning the ease of use of the NOMAD system]



1 Totally disagree	3	6%
2 Disagree	2	4%
3 Neutral	15	28%
4 Agree	24	45%
5 Totally Agree	9	17%

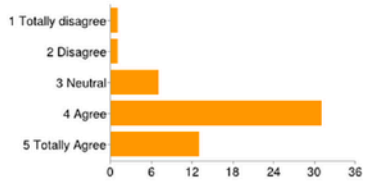
The exact text segments from the initial sources (e.g. concerning each policy, each word in the wordcloud and each argument) are useful and provide a further and deeper insight [Answer the following questions concerning the ease of use of the NOMAD system]



1 Totally disagree	1	2%
2 Disagree	3	6%
3 Neutral	13	25%
4 Agree	27	51%
5 Totally Agree	9	17%

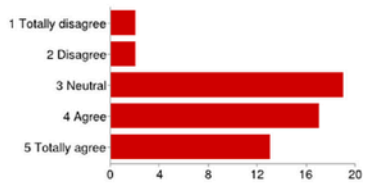
Crowdsourcing Information

The synthesis of these results can contribute positively to the policy formulation in the particular sector (e.g. energy / health sector / Open Data) [Answer the following questions concerning the crowdsourcing capability offered by NOMAD]



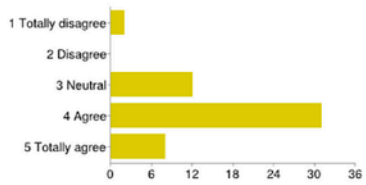
1 Totally disagree	1	2%
2 Disagree	1	2%
3 Neutral	7	13%
4 Agree	31	58%
5 Totally Agree	13	25%

Is better than other existing traditional or electronic methods used for similar purposes in public policy formulation process [Answer the following questions concerning NOMAD viewed as an innovation:]



1 Totally disagree	2	4%
2 Disagree	2	4%
3 Neutral	19	36%
4 Agree	17	32%
5 Totally agree	13	25%

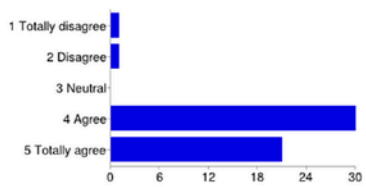
Is compatible with the public policy formulation processes, as they are applied in European countries or in European Commission, and can be integrated in these processes [Answer the following questions concerning NOMAD viewed as an innovation:]



1 Totally disagree	2	4%
2 Disagree	0	0%
3 Neutral	12	23%
4 Agree	31	58%
5 Totally agree	8	15%

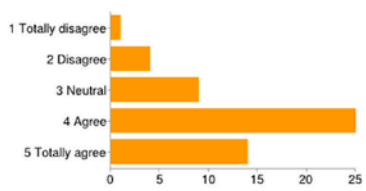
PoliticalEvaluation

the level of interest/discussion in the society [To what extent the approach is useful in the formulation of public policies for the following:]



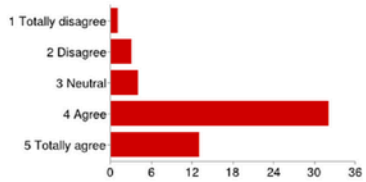
1 Totally disagree	1	2%
2 Disagree	1	2%
3 Neutral	0	0%
4 Agree	30	57%
5 Totally agree	21	40%

the attitude/sentiment of society (positive – neutral - negative) [To what extent the approach is useful in the formulation of public policies for the following:]



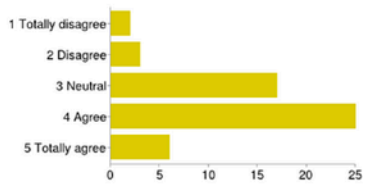
1 Totally disagree	1	2%
2 Disagree	4	8%
3 Neutral	9	17%
4 Agree	25	47%
5 Totally agree	14	26%

the change over time of interest/discussion and attitude/sentiment [To what extent the approach is useful in the formulation of public policies for the following:]



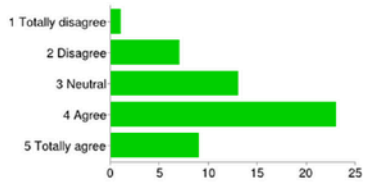
1 Totally disagree	1	2%
2 Disagree	3	6%
3 Neutral	4	8%
4 Agree	32	60%
5 Totally agree	13	25%

whether there is uniformity/homogeneity with respect to this attitude/sentiment, or there are sub-groups with different attitudes/sentiments [To what extent the approach is useful in the formulation of public policies for the following:]



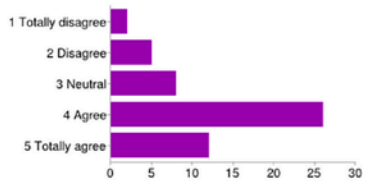
1 Totally disagree	2	4%
2 Disagree	3	6%
3 Neutral	17	32%
4 Agree	25	47%
5 Totally agree	6	11%

digital opinion leaders [null]



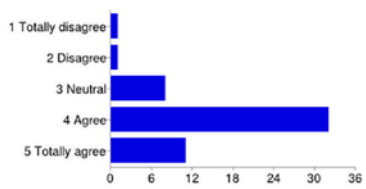
1 Totally disagree	1	2%
2 Disagree	7	13%
3 Neutral	13	25%
4 Agree	23	43%
5 Totally agree	9	17%

groups having high interest in the policy, strong influence, or extensive knowledge about its topic [null]



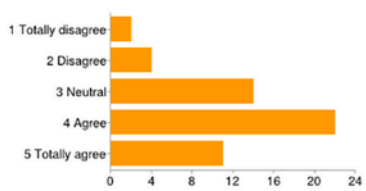
1 Totally disagree	2	4%
2 Disagree	5	9%
3 Neutral	8	15%
4 Agree	26	49%
5 Totally agree	12	23%

relevant issues posed by citizens (with respect to the policy) or relevant needs of them [null]



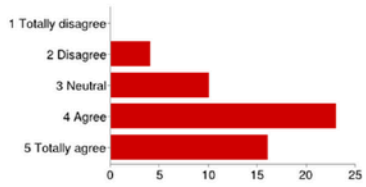
1 Totally disagree	1	2%
2 Disagree	1	2%
3 Neutral	8	15%
4 Agree	32	60%
5 Totally agree	11	21%

proposals for improving it or solving its problems [null]



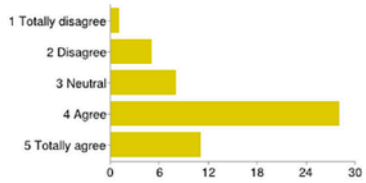
1 Totally disagree	2	4%
2 Disagree	4	8%
3 Neutral	14	26%
4 Agree	22	42%
5 Totally agree	11	21%

new arguments (positive or negative ones) about it [null]



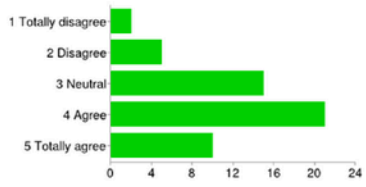
1 Totally disagree	0	0%
2 Disagree	4	8%
3 Neutral	10	19%
4 Agree	23	43%
5 Totally agree	16	30%

new emerging relevant issues in the society or relevant needs [null]



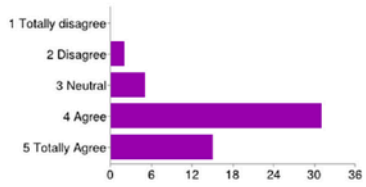
1 Totally disagree	1	2%
2 Disagree	5	9%
3 Neutral	8	15%
4 Agree	28	53%
5 Totally agree	11	21%

new emerging proposals in the society for improving it or solving its problems [null]



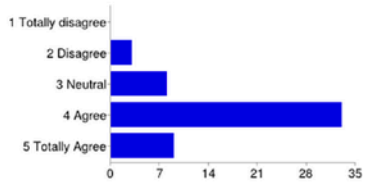
1 Totally disagree	2	4%
2 Disagree	5	9%
3 Neutral	15	28%
4 Agree	21	40%
5 Totally agree	10	19%

the level of interest/discussion in the society [null]



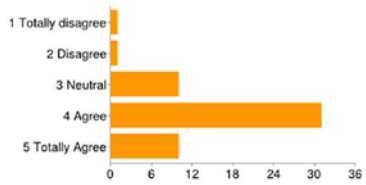
1 Totally disagree	0	0%
2 Disagree	2	4%
3 Neutral	5	9%
4 Agree	31	58%
5 Totally Agree	15	28%

the attitude/sentiment of society (positive – neutral - negative) [null]



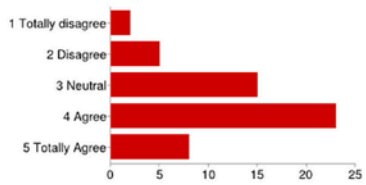
1 Totally disagree	0	0%
2 Disagree	3	6%
3 Neutral	8	15%
4 Agree	33	62%
5 Totally Agree	9	17%

the change over time of interest/discussion and attitude/sentiment [null]



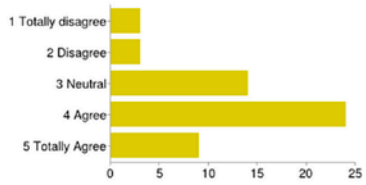
1 Totally disagree	1	2%
2 Disagree	1	2%
3 Neutral	10	19%
4 Agree	31	58%
5 Totally Agree	10	19%

whether there is uniformity/homogeneity with respect to this attitude/sentiment, or there are sub-groups with different attitudes/sentiments [null]



1 Totally disagree	2	4%
2 Disagree	5	9%
3 Neutral	15	28%
4 Agree	23	43%
5 Totally Agree	8	15%

the main groups expressing positive or negative opinions about it [null]



1 Totally disagree	3	6%
2 Disagree	3	6%
3 Neutral	14	26%
4 Agree	24	45%
5 Totally Agree	9	17%

10. Annex B: Results from the Additional Scenarios of the 2nd Round

10.1 Waste Management in Peloponnese

10.1.1 Summary

Wastes are now one of the major environmental issues of our country and a major concern to the society but Greece still failing to comply with the promises for the closure of uncontrolled waste disposals and Peloponnese is considered the most problematic region. Using NOMAD we tried to crowdsource local opinions about the main concerns in the Peloponnese.

10.1.2 Description of the application

Wastes are now one of the major environmental issues of our country and a major concern to the society. They are serious risks to ecosystems and human health. The modern perception of the problems arising from wastes is based on the design and implementation of an integrated system specialized for their management.

Despite the European convictions Greece still has approximately 70 illegal landfills in operation, while under rehabilitation are other 223 illegal waste landfills. Failing to comply with the promises for the closure of uncontrolled waste disposals, Greece faced a second sentence by the European Court that resulted in a highly daily fine of 54,450 euros.

The Peloponnese region, has neither XYTY nor burial site but only ΧΑΔΑ, and thus is considered the most problematic region throughout Greece in the subject of waste management. After the contest for the management of solid waste, TEPNA Company was proclaimed as the provisional contractor for the construction of Peloponnesians' integrated waste management.

Waste management in Peloponnesus involves an increment in recycling by 35% and it is expected that gradually all illegal waste dumps will be closed, which, in addition to the environmental impact they have, they also entail financial penalties for our country. TEPNA is having a race for the immediate start of the implementation project that will mean an end to the appalling image of Tripoli-and its neighboring regions due to the large amount of wastes they possess. In accordance with the timetable set, TEPNA will begin the construction of three ultra-modern waste treatment plants, an equal number of landfill waste spaces and two transfer centers, following the strict standards of the European Union**.**

This project, which has a budget of approximately 160 million euros, will give a long-term solution to a huge environmental, social and economic problem that Peloponnese region is facing and it will be the first project of this kind that evolves in Greece. The construction period of the project is 24 months, and by the 10th month from the signing of the contract TEPNA begins the temporary management of waste thereby giving a lawful first solution to a major environmental problem in the region.

10.1.3 Models

To implement the application we parted wastes' into three categories: solid waste, liquid waste and waste gases and we studied their subcategories. Afterwards we described the respective policies for each category separately. More generally we gave particular attention to Peloponnesians' region policy regarding waste management, the temporary waste management and the recycling plan**.**

Models Processing Status

Model Name	Model Type	German Status	Greek Status	English Status
Waste management	domain	88.89%	100.00%	88.89%
Solid Waste Managment	policy	100.00%	55.56%	100.00%
Liquid Waste Management ways	policy	100.00%	88.89%	100.00%
The Politics of the Peloponnese Region Waste Management	policy	22.22%	100.00%	100.00%

Our group followed the following working method. In a one months' time-frame we tried to gather as many more sources we could from various local and national information sites, social networks and sites belonging to the parties involved, mainly in the Greek language. Afterwards we separated the resources found in both positive and negative giving respect to the views and arguments they had and an effort was made to spread them in equal quantities.

For the next step we decided to focus on the Peloponnesian region and while we were working on it we noticed what appeared to be two main different directions for dealing with the waste problem. One was suggested by the temporal regional authority and Terna Company and the other was suggested by the opposition. It was clearly that they all wanted to solve the same problem but each one of them was suggesting a different method.

There is enough debate throughout the Internet regarding this context and we would like to see the overall trend. To do so we used the Nomad software as the final step of our project to see what information we could obtain.

10.1.4 Domain model

We separated domain in three sub-domains. The first and bigger sub domain was for wastes and for its manufacture we searched extensively in public studies that have been carried out and describe how waste management is done as well as in drafts relating to the same subject and finally we considered on the study and announcement of the contest itself for waste management in the Peloponnese region. The second domain was for the description of the Peloponnese Region where we have described the structure of hierarchy and appositions, of geography, and of persons in accordance with the official organization charts of P.P.

Finally the last domain was regarding the hierarchical structure of the European Union only in the field of wastes as stated in various articles that described the problem.

10.1.5 Policy model

Studying the problem, we decided to divide the project into three policies. The first two were more general while the third was more specific. The first in general lines regarded the management of solid waste, while the second regarded water wastes management. Finally the third and most specific was related to solid waste management in the region of Peloponnese.

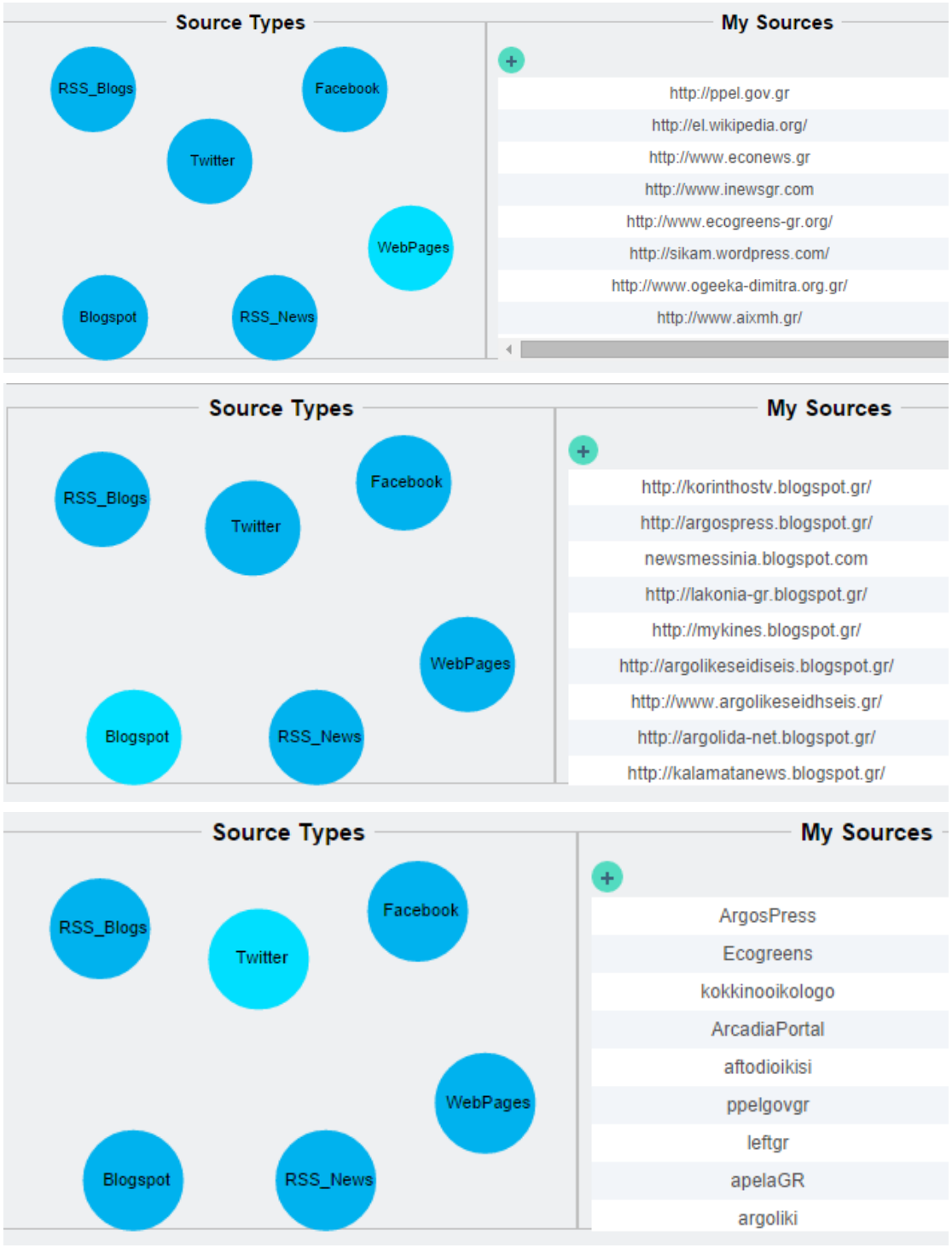
The first two policies mainly deal with the technical solutions for waste management and they record the qualities of each solution, for example, solutions concerning environmental protection and their minuses according to their viability and cost.

For sources we used various ecological sites that give emphasis on the new technological solutions.

The third major policy as we previously told concerns the management of solid waste in Peloponnese. This policy was based mainly on the competition specifications about the waste management in Peloponnese and the various announcements of the Peloponnese region and the political opposition.

Here we have tried to collect positive and negative arguments from both camps, which are the political opposition and the political partition and we tried to equally distribute them in every branch. For sources we used local blocks, the official sites of the government and politics' opposition as well as the official consultation site of the contest where there were too many independent comments.

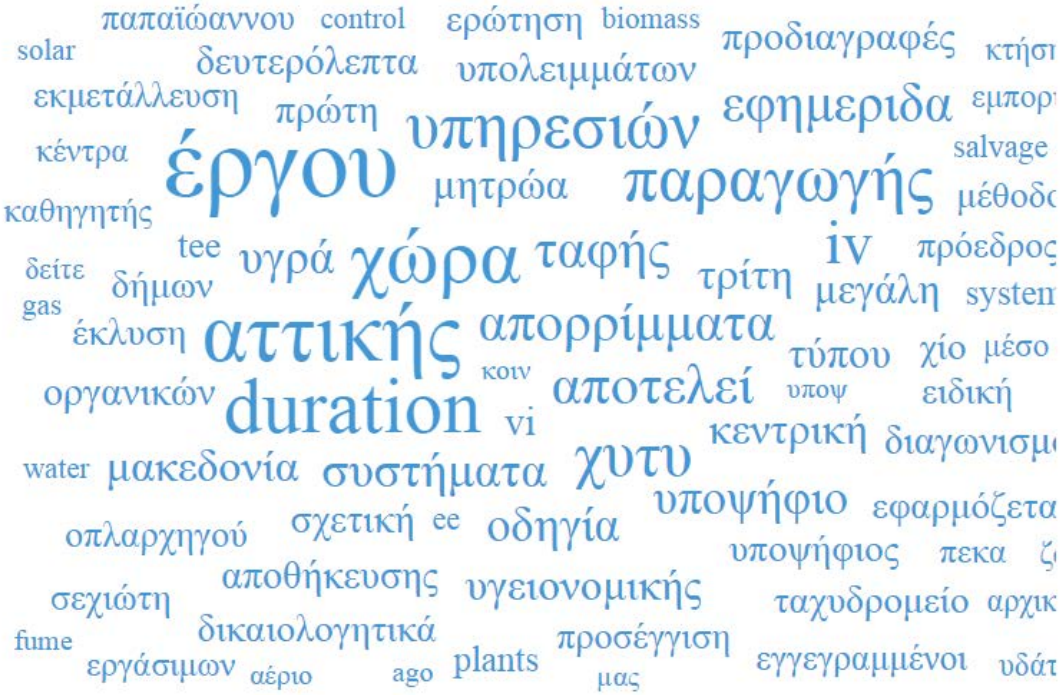
10.1.6 Sources



10.1.7 Results

Policy: Management of solid waste

Main Discussion Terms for "Management of solid waste" policy



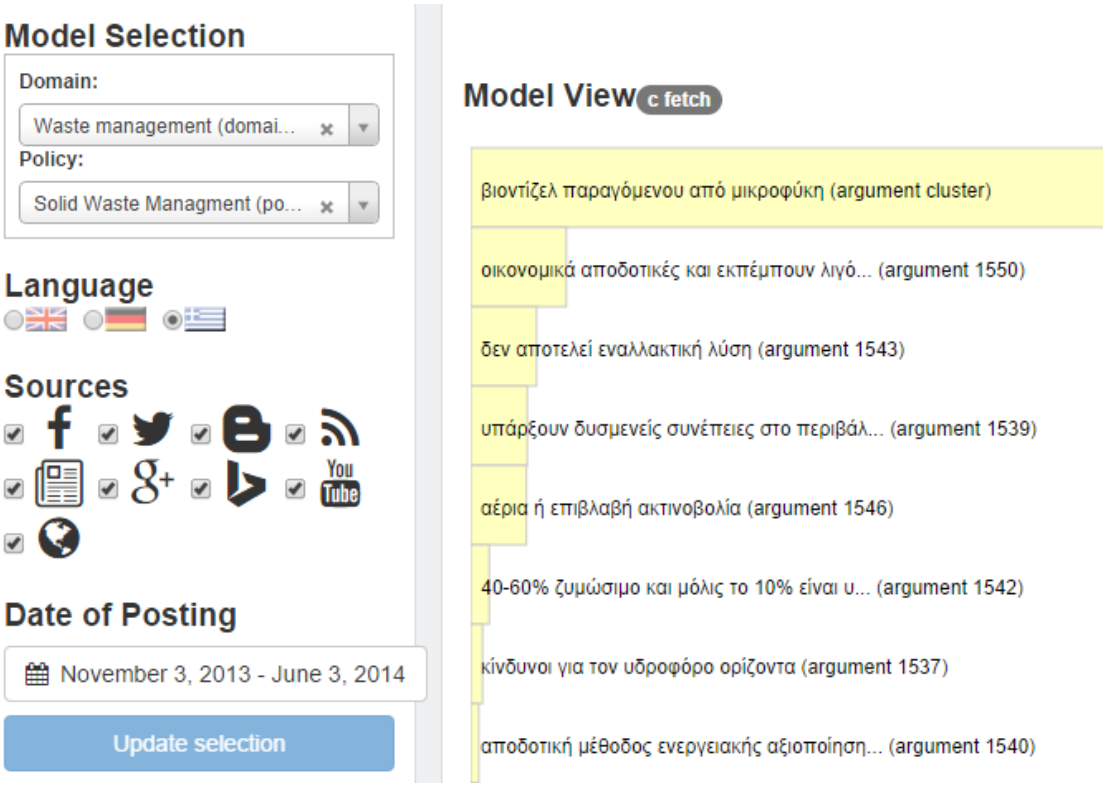
Looking at the results that we got what we observe in the two general policies is that the debate is around the limitation of emissions of carbon dioxide and that stands out the most in our results. Other considerations that we observed within the results are about cost-effective solutions for clean electricity generation. A considerable fact is that the arguments are completely positive or completely negative and there is nothing intermediate or neutral.

What we observe is that the biggest debate occurs when the waste problem comes to the surface and to publicity through some bills that the state is trying to pass and to bring for consultation. Then is where the biggest criticism comes. After that it seems that the debate lasts for three months and that the debate is reduced exponentially each month that passes.

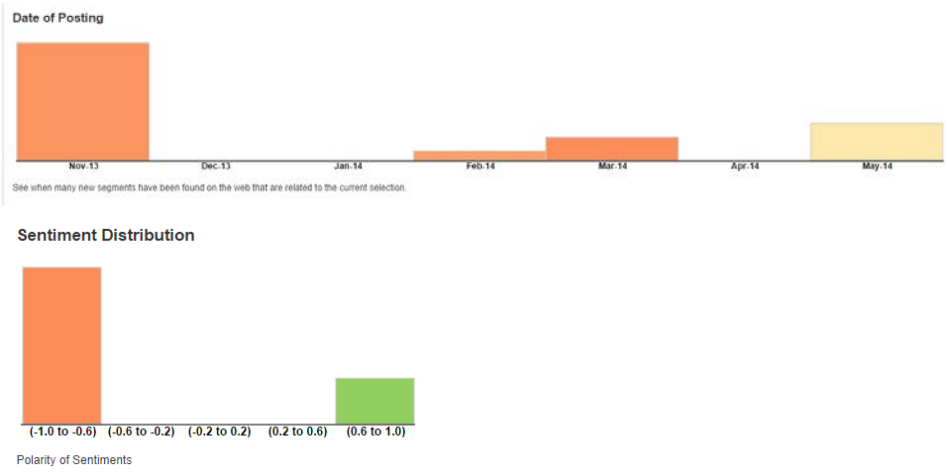
Finally if we focus on the third and greater policy and if we limit the results in between the period of November of 2013 to June of 2014 (the reason is to exclude the noise from the debate of the bill, which was submitted in July) we can also see that in this period the main topic of discussion is the reduction of carbon dioxide emissions and the protection of the environment but at the same time we observe that there is a positive discussion on the possibility of creating new jobs.

We observed that a big percentage of the discussions have occurred during the period of November 2013 as that was the period when the competition for waste management in Peloponnese was announced.

Policy: Management of solid waste period of November of 2013 to June of 2014

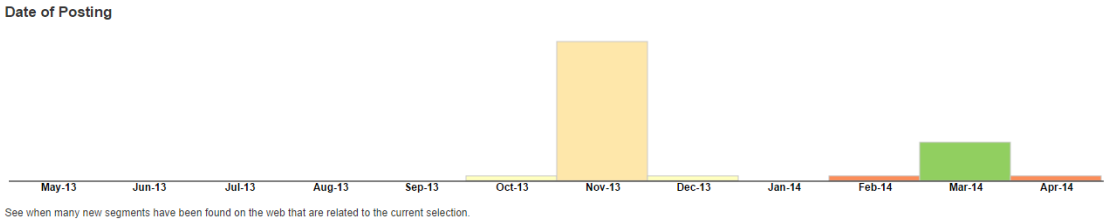


Policy: Management of solid waste in Peloponnese Region period of November of 2013 to June of 2014

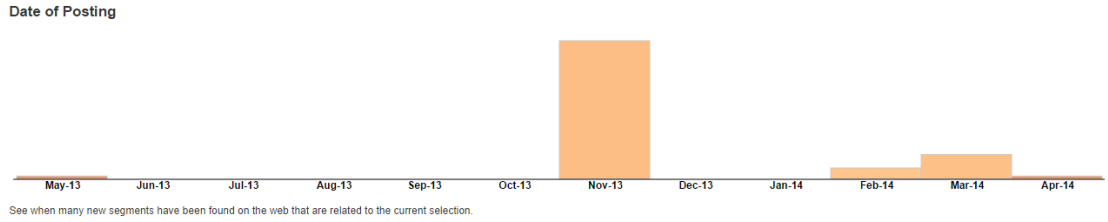


Policy: Management of solid waste in Peloponnese Region period of May of 2013 to May of 2014

Topic: Jobs creation



Topic: Environment Protection



10.1.8 Evaluation remarks

Regarding the methodology it was quite easy to understand and to implement. The way in which the application gives back drafting was also easy. Even though in many cases it would be hard to tell if something is positive or negative. Nevertheless the followed methodology can be applied to several decision making problems and the results could be studied.

Authoring

Authoring for small models suited our projects' needs because it lets you work in a random way in all directions. One problem arises when you work large models with complex connections because the ball nodes begin to be hard to manage. It is difficult to find in a moving environment a node that changes position each time you make a connection and it is difficult to chose the nodes' ball when it is covered with all the connections. Another problem is that when you have large models in this form the computer needs more memory as it tries to fit everything on the screen.

My Sources

The first issue we faced was that we had to insert the same sources in the domain and in all policies. Another issue while we inserted the sources was the fact that there is no check for correct import or a notification on zero results from specific sources that allows you to see if you have made a mistake in the insertion, for example we imported a twitter with the full address because at that time there was no corresponding instruction.

As for the stage of execution if you start the execution of the analysis there is no way to cancel it or to stop it and all languages have to reach 100% to be able to rerun the analysis and in our project everything is stuck together and they do not complete. Yet it would be a good thing if through here or via the Visualization to characterize the sources separately to see the objectivity or the direction the media.

Analytics

Initially we faced some problems with the analytics, but now they became functional and it seems that through them we can take a lot of information and we can filter it in any way we want. So as a conclusion we can say that it's a pretty useful tool.

Overview

Through the tool we saw that we can follow the state of a problem before we actually try to solve it. We can even see at different points of time what concerns people the most for that particular problem. So, studying all these elements we have the opportunity to suggest policies that will have a great influence on public opinion and we can avoid touching issues that if caused a problem they could bring fatal results for a politician or for a reform effort. What's more, on announcing a consultation of a reform we can study what the public opinion expects from this reform so we could follow appropriate policies and even to study the arguments of the political opposition on this reform. You can even use it as an

opposition tool which could give you the opportunity to see what bothers the most in a reform and to use it as an advantage. Finally we must not forget the moral aspect. The purpose has to be the achievement of a political reformation with great and good influence and not just telling people what they want to hear.

10.2 Alternative Tourism

10.2.1 Summary

The main idea of the project was to search the web and have an overall view about Alternative Tourism. More specifically, using the Direction Act of the Ministry of Tourism for Alternative Tourism as a guide, we defined some policies and provided rich, actionable information related on how the citizens perceive those policies, through web 2 tools (forums, social networks, blogs, etc). After authoring the domain entities, policies and arguments (positive, negative, neutral) in the NOMAD platform we had a very thorough analysis on the domain, including argument detection and summarization, sentimental analysis, having categorized and visualized all the results.

10.2.2 Description of the application

Alternative tourism is one of the basic keystones of the government and in extent of the region of Peloponnsisos, for the development of the area and one of the key points to emerge from the economic crisis.

Except of the economic development, the protection of the natural and cultural environment has become an increasingly pressing policy issue in Greek tourism in recent years. The realization that the previous developments had often damaged the basic natural and cultural resources on which tourism is based, has led to an increasing policy emphasis on alternative tourism and spreading away tourism from overcrowded resort areas.

The whole project was based on the direction act of the ministry of tourism for alternative tourism in Peloponnisos. The policies and most of the arguments were derived from this act as well as from other acts from different ministries such as Ministry of Culture, Ministry of the Interior, Ministry of Economics and Ministry of Environment.

The aim of the application was to export several results about

What people think about the alternative tourism in the specific region, either negative or positive?

To identify which of the forms were more likely fitted in the specific region and the reasons why

To identify the opinion of the public to the policies that were decided from the government and how does this change in a reasonable time of year.

At last but not least, we decided to choose this topic because we thought it would be necessary to different organizations and companies dealing with tourism, or sme's that are directly affected for alternative tourism. The Prefecture of Peloponnisos would also be interested in the results of the application in meanings of readjustment of their policies in the direction act of alternative tourism. The languages chosen for the application were Greek and English.

10.2.3 Models

The model created in this application was alternative tourism. We had this domain categorized in several categories depending on the activities it can provide (athletic, agro tourism, religious, cultural, etc.). These subcategories were divided to more specific activities that belong to each of them. The screenshot below, shows an exact categorization of our domain model, with its entities and sub entities.

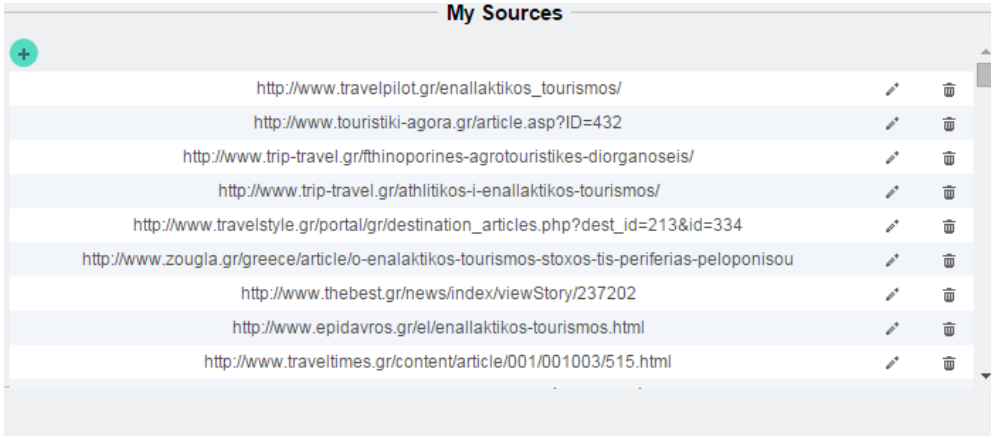
We decided to distinguish and define 3 policies for the domain we chose.

1) Developing the region's economy
2) Natural environment protection
3) Preserving cultural heritage

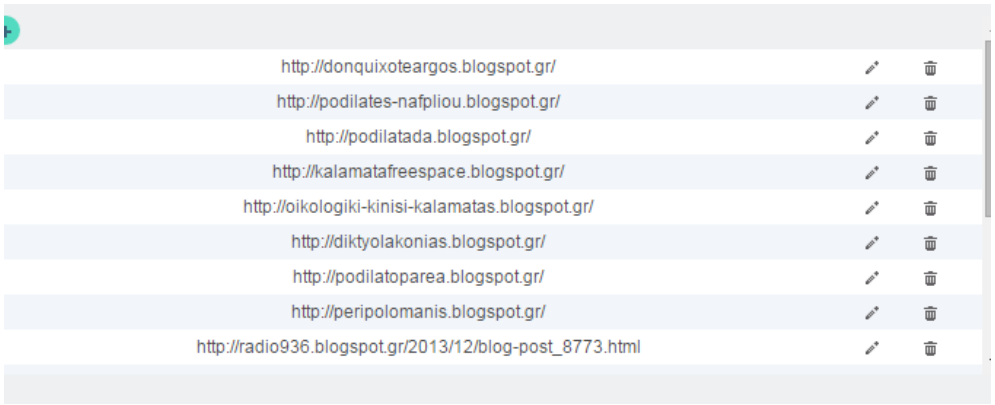
10.2.4 Sources

The screenshot below shows some a sample of the sources imported in the NOMAD platform.

webpages



Blogs



Facebook

10.2.5 Results

10.2.6 Evaluation remarks

The Nomad platform at first was a little bit confusing for the user, but after practicing sometimes we learned how to ply with it. Also the graphical interface of the platform was easy and interactive for people that never used this tool before.

As mentioned before the main topic we chose to deal with was very limited, because it was referred to the alternative tourism just in Peloponnese. At first we believed that the results we will get would not be that much and also did not know if there were the most desirable. But after running it several times and making some changes, every time we got a lot of results (positive and negative) very relative with our topic.

Regarding the methodology it was quite easy to understand and to implement. The way in which the application gives back drafting was also easy. Even though in many cases it would be hard to tell if something is positive or negative. Nevertheless the followed methodology can be applied to several decision making problems and the results could be studied.

Authoring Tool

The authoring tool was somehow “sensitive” and complex. It was very difficult to connect any of the nodes with each other because of their movement. As a result it was very easy to erase the edges between the nodes. Also another aspect with the authoring tool was that the author had to connect with the system several times, because the system was disconnecting again and again. On the other hand, after some practice, the authoring tool was very easy to use for the user!

Analytics

Although at first we did not get the desired results (we knew from the beginning that our topic was somewhat limited). But after some changes in the policy models we got what we wanted! Moreover the result navigation with the use of this module was very helpful.

Suggestions for improvements

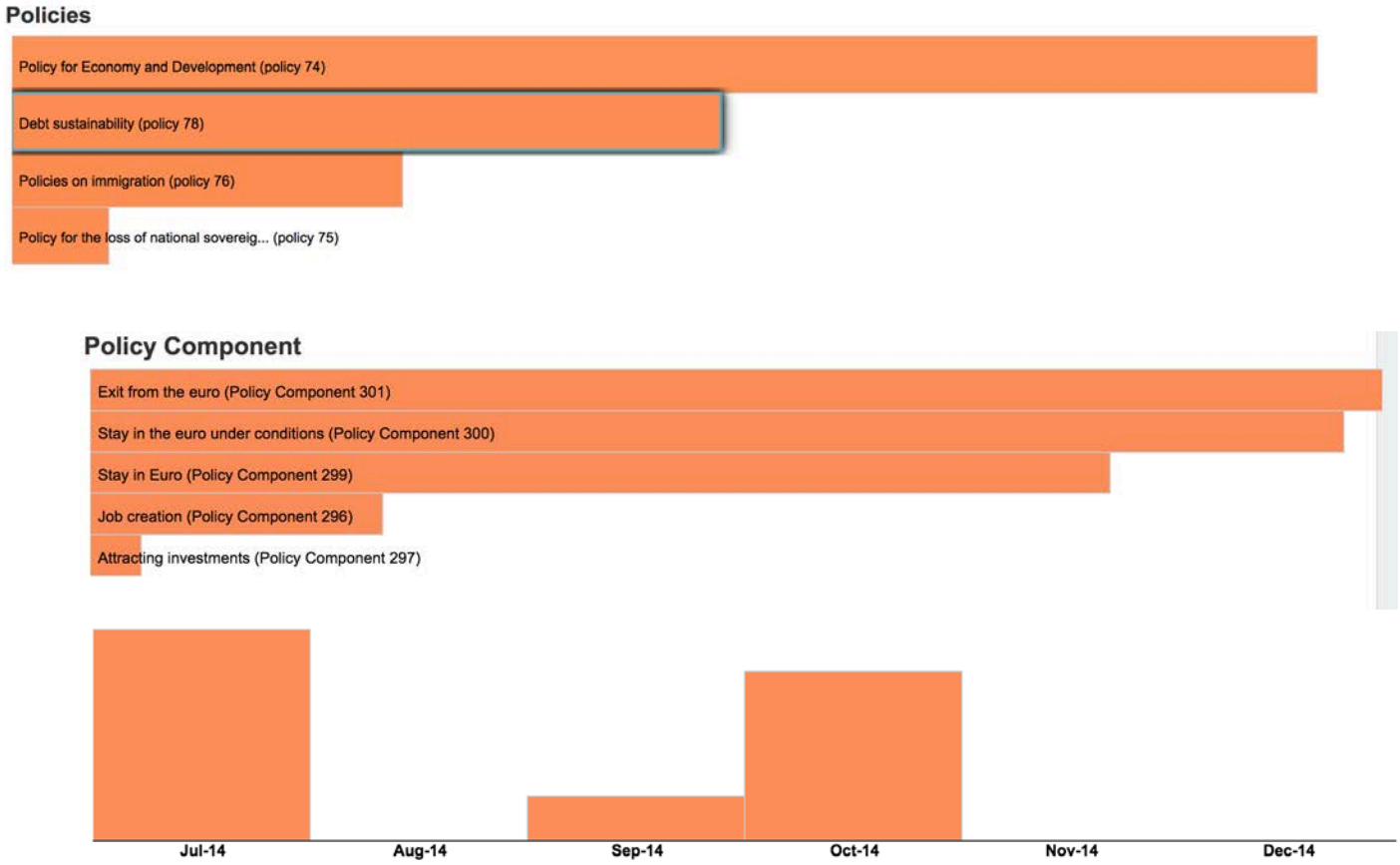
The most important suggestion for this tool, referring to the graph models, is the nodes of any graph to become steady. This improvement will help the authors to create graphs easily than before. Another suggestion for the result improvement would be if the tool contained more languages. So the more languages the nodes are written with, the more results the tool will export.

10.3 European Elections

In case of European Elections Nomad tool was used to draw conclusions about what people are disucussing more and what are the critical issues of concern and may affect the decision at the day of elections. In particular, the development of this model we were able to collect information from the discussions of citizens through news pages and social networking sites in order to discern the arguments and thoughts on key political issues. The Policy Models, were created by separating the proposed policies by main political parties on the most important issues of the Greek society and the corresponding arguments they use to support their policies.

During the scenario development the sources selection included the main news pages (Greek and English content) and some social networking sites of candidates Members showing increased popularity.

10.3.1 Results



☑	211146	↗	The production park was built by Creative and Cultural Skills, the training and development organisation for the creative industries' workforce, in response to a need for over 6,500 new jobs in the live music and theatre industries by 2017.	1	-1
☑	211141	↗	Policies such as agriculture, regional development, energy, transport, the environment, development aid and scientific research all receive EU funding.	1	-1
☑	211140	↗	Second, specific values common to all Christians contribute positively to the development of society.	1	-1
☑	211143	↗	In this situation, the idea of a genuine new foundation of Europe, on revolutionary bases, aiming at solidarity and an economic and political development of all its peoples, with a capacity to change the trajectory of globalization, is at pains to emerge as a way forward with any credibility.	1	1
☑	211142	↗	Government to comment on controversial shoreline bill after European elections PM wants debate to be exhaustive and meaningful Tuesday, May 13, 2014 The Minister of State Dimitris Stamatis revealed that the controversial bill regarding development of shorelines and beaches in Greece will be discussed after the European elections.	1	-1
☑	211137	↗	The European Parliament is responsible for a range of areas from animal rights and the environment to consumer rights and regional economic development.	1	-1
☑	211136	↗	Head of development at Open Europe.	2	1
☑	211139	↗	Richard Cottrell, who has fought against the development of a nuclear power station at Hinkley Point, Somerset, had intended to stand alongside North Somerset councillor Geoff Coombs as the newly formed Campaign West Independent party.	1	-1
☑	211164	↗	Can we expect such a development?	1	-1