



The HuT

Architecture of demonstrator's data portal

Deliverable D1.3

DEVELOPED WITHIN
WP1 Demonstrators' arena, T1.3 Local data portals

AUTHORS

Elisabeth Hoffstad Reutz (NGI); Luca Piciullo (NGI); James Strout (NGI)

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Project Coordinator	Michele Calvello UNIVERSITA DEGLI STUDI DI SALERNO mcalvello@unisa.it
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1. Background

1.1. Introduction

The goal of task T1.3 of Work package 1 is to ensure that "*Each demonstrator will have a data portal to share information across stakeholders enabling participatory and two-way communication*".

These data portals will operate as virtual platforms for the Local DRR nexus Forums (L-DRRnF). Most of the demonstrator sites have existing resources and a portal for data management and dissemination, although these may vary in capacity and functionality.

This deliverable aims to review the current implementations for each demonstrator, including what data, information, and functionality they currently have available, identify the wishes and needs for further development at each demonstrator site, and to identify which improvements and developments are relevant in the context of The HuT. Through this review it will be possible to develop a general template describing the preferred architecture of the demonstrator's data portals.

The data presented was gathered by administering a questionnaire (Annex A) to each demonstrator. The questionnaire covered a variety of important topics, including current end-to-end warning systems, existing knowledge, sensor networks, weather forecasting, and the demonstrators' desired content for the data portal. The responses from the demonstrators have been collected and organized in this document. The synthesis of these responses will form the template.

1.2. Using this document

The *Architecture of demonstrator's data portal* template is intended to map and get an overview of the different demonstrators: current state of art and needs. The aim is to clarify what is needed within each demonstrator and where to focus, in the creation/updating of the data portals. For the sub-sections "State of the art" and "Needs for the web portal" the answers have been subdivided into technological and societal aspects. The sub-section "Future actions" attempts to highlight what can be done within The HuT to improve the current state of art of each demonstrator.

The Conclusion groups the demonstrators as a function of their current data portals. Three categories have been identified.



2. Demonstrator sites

2.1. Demonstrator 1: Valencia, Spain

Valencia is suffering from droughts and heatwaves that challenge the municipal services and cause discomfort to inhabitants. Through The HuT the demonstrator aims:

- to develop co-design approaches for the implementation of adaptation measures favoring their social acceptance;
- to increase the awareness within the communities about weather-induced events by providing educational material;
- to permit a higher involvement of communities in relation to risk identification and the management of associated protection measures.

2.1.1. State of the art

Technological aspects

Demonstrator 1 has an existing web page in use, but this was not created specifically for the demonstrator and needs to either be updated or possibly re-designed as a brand-new web page.

There is a functional network for monitoring water status and temperature in the demonstrator site. Some of this information may be shared if relevant for stakeholders. The monitored variables are:

- Water pH, temperature, and conductivity
- Water dissolved oxygen at different depths
- Nutrients and chlorophyll in the water
- Rainfall and reservoir storage
- Air temperature

Dataset for previous observations of precipitation and temperature are available, only recent data is available for water quality.

Societal aspects

The demonstrator is not involved in issuing warnings to the public. Water related warnings for the water utility company in the area might be a possibility.

2.1.2. Needs for the data portal

A general need is to have the data portal available in Spanish, English and perhaps Valencian.

Technological aspects

Demonstrator 1 wishes to include

- Information related to previous historical hazardous events that have occurred in the demonstrator.
- A heat map for the city.
- Possibly weather forecasts, but this must first be discussed with local authorities and stakeholders.
- Information/data on water quality and quantity, but with restrictions on access rights.

Demonstrator 1 does not wish to include observed and real-time weather/impact data at this stage.



Societal aspects

There are currently no plans to issue warnings, or to include emergency plans, or warning actions.

2.1.3. Future actions

There are several actions needed:

- Demonstrator 1 has an internal decision to make regarding the strategy to either create a new web-portal or update the existing portal used by the research group.
- The data portal must be translated into the desired languages.
- The portal needs to be modified to allow the additional data/information to be added. Note though that the status of the water quality data needs to be decided (restricted/open).
- The demonstrator should in collaboration with local authorities and stakeholders assess the need for new monitoring networks. These will represent an expansion of the network, but no new variables are expected to be monitored.

2.2. Demonstrator 2: Val d'Aran Region, Spain

The Val d'Aran Region is affected by different precipitation-induced hazards like floods and landslides, often exacerbated by predisposing factors like forest fires or soil dry conditions. Through The HuT the demonstrator aims:

- to improve the integration between monitoring and modelling for the development of predictive tools to be used in early warning systems;
- to make information available to decision makers and stakeholders by a web-based tool;
- to increase the awareness within the communities about extreme climate events.

2.2.1. State of the art

Technological aspects

Demonstrator 2 has a preliminary version of a web-portal, but which needs to be improved.

There is a functional monitoring network within the demonstrator site, and some of the monitored data is publicly available. Monitored variables are:

- rainfall,
- snow height,
- soil moisture, and
- discharge.

Societal aspects

The demonstrator is involved in issuing warnings with a limited capacity. Information about monitored weather and/or hazard is available on a public website, although there is no well-established system for communicating alerts. The demonstrator has an early warning system which is a prototype of the Catalan landslide early warning system. This system has four warning levels.

2.2.2. Needs for the data portal

The data portal is wanted to be available in Aranese, Catalan and Spanish.

Technological aspects

Demonstrator 2 wishes to include:



- Information related to previous historical hazardous events that have occurred in the demonstrator.
- Available preliminary landslide and flood susceptibility/hazard maps.
- Information on observed and real-time weather/impact data.
- The need for forecasted weather is being discussed, however this information may not be publicly available.

Societal aspects

It has not been decided whether warning messages are to be included on the data portal. One idea is to provide warning messages only to the emergency centre in Val d'Aran. It is not planned to include emergency plans or warning actions.

2.2.3. Future actions

Demonstrator 2 has a preliminary data portal that needs to be improved. It has been specified that the improvements will focus on the forecast capacity and the development of user interface. The web-portal must also be translated into the desired languages, and the desired information must be added. Some of the monitored data is non-public, and if it is to be included on the web-portal an agreement with the data owners must be arranged.

The demonstrator plans to install new monitoring networks within The HuT, such as rain gauges, weather stations and soil moisture sensors. During The HuT it is also planned to improve rainfall and soil-moisture inputs (both monitoring and rainfall-runoff modelling) for the early warning system.

2.3. Demonstrator 3: Lattari mountains, Campania Region, Italy

The municipalities in the demonstrator area are affected by different weather-induced hazards, posing severe threats to the population and assets, such as severe storms, debris flows and flash floods after heavy rainfall, rockfalls and forest fires. During The HuT the demonstrator aims to:

- improve the assessment and the observation of weather forcing and associated impacts at the ground;
- increase the risk awareness among the stakeholders, including tourists, which are often completely unfamiliar with such hazards;
- support the development of climate-proofing design and planning.

2.3.1. State of the art

Technological aspects

A regional web-portal is available; it is directly managed by the Regional Civil Protection. In this regard, there is no room for a direct update or improvement of such infrastructure.

There is a regional functional monitoring network of meteorological variables and data is available in real time (with a time resolution of 1 hour, coarser than that sample time, 10 minutes). Monitored variables are

- precipitation,
- temperature,
- wind,
- solar radiation, and
- river discharge.



Historical data is also available (temperature, precipitation and river discharge in digital format since 2000s while, for previous periods, they need to be scanned).

Societal aspects

Warning messages, emergency plans and warning actions, are available at a municipal level in the demonstrator area. Daily warnings are published on a public web page for all affected municipalities. The received warning triggers a response in the municipality which can initiate appropriate measures (e.g., closing public parks, schools or limiting the access to the most vulnerable areas). A web app is used to notify the exceedance of rainfall thresholds, note though that this is a limited access app that is only available to Municipal Administrations. Warnings are issued if the rainfall exceeds the corresponding threshold of 2-, 5- and 10- years return period of different durations according to the hydro-geological hazard of interest (i.e., landslide or flood). Three thresholds are used respectively for: alert (yellow), pre-alarm (orange) and alarm (red). The warning provides insights about actions people should take.

2.3.2. Needs for the data portal

The data portal is desired to be available in Italian.

Technological aspects

The ambition is to develop a data portal serving multiple users and informing decisions over different time horizons. The main expected users are technicians and administrators in municipalities. The main goal of the portal is supporting decision making during the hectic emergency stages.

Information in the data portal should include:

- real-time data related to weather forcing (precipitation) and associated impacts (river discharge), as provided by the official regional observation network and complemented by additional data sources (e.g., IoT devices installed in The HuT framework);
- weather forecasts and radar data;
- geo-referenced information layers concerning the most susceptible and vulnerable areas, areas previously affected by the hazards, local criticalities (e.g., temporary scaffolding).

The latter data are expected to be uploaded to the data portal, during peacetime, by municipal technicians or exploiting the reporting of "Human Sentinels". In this regard, the data portal should be able to collect and process such information, on the basis of consolidated frameworks already largely used for citizen science applications. Moreover, the data portal should permit the storage of the main documents concerning the Municipal Civil Protection (hazard and risk maps, Municipal Civil Protection Plan, pickup points).

A part of such information could be made available, in open access, to local communities.

During peacetime, the data portal is expected to run as desktop and (lighter) mobile app while, during, the emergency stage, the mobile app will be preferred.

Societal aspects

The meaning of warning messages, the emergency plans and the expected warning actions must be included in the non-restricted area of the data portal. It is also desired to include educational material on the different components of end-to-end early warning system for decision makers.



2.3.3. Future actions

The idea is to improve the experience of data/information exploitation by using the same repository for the different time horizons (from early warning systems to land use planning), and aggregating several information already available on different data sources.

The demonstrator plans to install a new monitoring network within The HuT. Variables to be monitored are

- precipitation,
- temperature,
- soil moisture,
- river discharge.

During The HuT it is also planned

- to improve the understanding about the performances of simulation chains currently adopted for weather forecasting,
- to test the usefulness of information freely and easily available from Copernicus Services or NASA,
- to develop approaches to cover time scales not adequately considered by the regional early warning system.

2.4. Demonstrator 4: Vilnius, Lithuania

Vilnius is affected by urban flooding with increasing frequency. The main causes of this are the increased occurrence of heavy rainfall events and an inadequate drainage network. During The HuT the demonstrator aims:

- to improve the monitoring and the forecasting of heavy rainfall events that trigger flooding;
- to support the climate-proofing design of drainage networks accounting for uncertainties associated to the forecasts;
- to increase the awareness within the communities about the urban flooding issue.

2.4.1. State of the art

Technological aspects

Demonstrator 4 already has an existing portal.

The demonstrator does not have its own monitoring network. Partial data of precipitation is available, and past observations of hourly rainfall data and radar data; however, these data legally belong to a different institution and the data is not fully open to the public. However, there are open data alternatives such as re-analyses or private gauges that could be used on the data portal.

Societal aspects

The demonstrator does not issue warnings, and it is not planned to organize an operational warning system during the project. However, warnings on severe weather phenomena are issued at municipality level by a national agency, where the hazard are divided into four color categories. The warning system provide a warning about severe meteorological or hydrological phenomena, the expected place and time of its occurrence, and the possible extent of the impact.



2.4.2. Needs for the data portal

The data portal is desired to be available in Lithuanian.

Technological aspects

Demonstrator 4 wants to include:

- information related to previous historical hazardous events that have occurred;
- to include maps with information about flash floods in the city;
- observed weather/impact data.

Note that information about forecasted and real-time weather/impact data is not wanted on the data portal.

Societal aspects

It is not planned to include warning messages, emergency plans, or warning actions in the portal.

2.4.3. Future actions

Demonstrator 4 has an existing portal, which can be expanded to include The HuT by creating a separate page with the desired information. Concerns have been raised about the capacity of the existing portal to store big amounts of data.

The demonstrator has no plans to install new monitoring networks within The HuT. During The HuT it is planned to improve estimation of rainfall intensity that may generate floods, since the resolution of historical extreme rainfall is insufficient. It is also desired to improve the forecasts for rainfall intensity, and climate projection data for extreme variables, as they have low reliability. There is a need of expertise from The HuT partners.

2.5. Demonstrator 5: Schleswig-Holstein State, Germany

Schleswig-Holstein State is affected by sea level rise, extreme rainfall, and their cascading effects on flooding risks in the low-lying coastal areas. The coastal area is also more sensitive to extreme temperatures such as heatwaves and cold spells. During The HuT the demonstrator aims:

- to increase user-oriented capacity building on responding to early warning and long-term resilience;
- to increase the awareness of decision-makers and communities about the expected variations of weather-induced risks;
- to innovatively engage different sectors of the society that are usually not involved.

2.5.1. State of the art

Technological aspects

Demonstrator 5 does not have an existing web-portal.

There is a functioning network of warning systems at a national level, but municipalities do not have their own.

Societal aspects

The demonstrator is not involved in issuing warnings. However, there is a warning system at a national level.



2.5.2. Needs for the data portal

The data portal is desired to be available in English and German.

Technological aspects

Demonstrator 5 wishes to include

- information related to past historical hazardous events that have occurred in the demonstrator,
- a system to share photos/videos of artistic interventions, and narrative-based climate information.

It is not specified whether information on susceptibility/hazard maps, forecasted, observed and real-time weather/impact data should be included.

Societal aspects

It is not specified if warning messages, emergency plans, or warning actions are to be included.

2.5.3. Future actions

Demonstrator 5 does not have an existing web-portal, this must be developed from scratch. Desired information should be added to the web-portal in the desired languages. Material about historical events can be collected from the locals. Information about narrative-based climate information is to be co-developed with local users.

The demonstrator plans to do high resolution mapping for flooding and sea-level rising, based on a dynamic exposure model. The demonstrator does not plan to carry out specific activities related to improving the estimation of weather forecasting.

2.6. Demonstrator 6: East fjords of Iceland

The East fjord is affected by severe landslides. During The HuT the demonstrator aims:

- to improve the monitoring and modelling of rainfall patterns that trigger landslide events;
- to improve dissemination of data and information to inhabitants;
- to encourage a higher involvement of communities in risk identification;
- to improve the modelling of the different components of the risk.

2.6.1. State of the art

Demonstrator 6 does not have an existing web-portal.

Technological aspects

There is a functioning network of sensors in the demonstrator site, and the monitored data is available to be used within The HuT. Monitored variables are temperature, precipitation, wind, snow depth, groundwater level, as well as soil movement, deformation, and formation of cracks. There is some available data from past observations

Societal aspects

The demonstrator is involved with issuing warnings, and the institution is responsible for changing the warnings. The warnings for weather, avalanches and landslide are (or are to be) given as colour coded forecasts. All forecasts and warnings are issued on the Icelandic Met Office webpage. Warnings can also be spread to news agencies, Civil protection and through social media. The purpose of the warnings is to let the public and/or bodies responsible for actions to



know about the possible upcoming hazard, making it possible to minimize the damage through preparedness.

2.6.2. Needs for the data portal

The data portal is desired to be available in Icelandic, English and a Nordic language.

Technological aspects

Demonstrator 6 wants to include:

- information related to previous historical hazardous events that have occurred in the demonstrator;
- hazard maps for avalanches and landslides are also wanted on the portal;
- forecasted, observed and real time weather/impact data.

Societal aspects

Warning messages for several hazards are wanted on the data portal, in addition to emergency plans. It is not specified if warning actions are wanted on the portal or not.

The demonstrator wants additional information on the data portal regarding natural hazards:

- Reports from various sources that might be of use for residents in the context of natural hazards.
- Information about the emergency management system in Iceland.
- Important information to the residents about actions to be taken before, during and after a hazardous event.
- Learning material and guidelines for schools and other childcare actors about risk, mitigation, preparedness, response, and recovery.

2.6.3. Future actions

Demonstrator 6 does not have an existing web-portal but plan to develop this themselves. The portal will be made in the desired languages, and the wanted information will be added. The demonstrator would share his experience and expertise with other demonstrators within The HuT.

The demonstrator has no plans to install new monitoring networks. It is planned to carry out activities related to improving precipitation forecasting.

2.7. Demonstrator 7: Tisza River Basin, Hungary

Almost 56% of the Tisza River Basin is threatened by floods, but the frequency of events related to inland excess water, and droughts and water scarcity is also significant. During The HuT the demonstrator aims:

- to homogenize the modelling approaches for pluvial flood risk at the municipal level;
- to support decision-makers with scientifically robust and ready to use tools;
- to have a clearer understanding about the economic viability of damage risk reduction solutions to be implemented.



2.7.1. State of the art

Technological aspects

Demonstrator 7 has a mobile application, and this contains information about defence against pluvial floods. The app includes risk maps and weather forecasts for precipitation.

There is not a functioning network of sensors in the demonstrator. However, precipitation is monitored by an organisation, and this information is communicated through summary reports.

Societal aspects

The demonstrator is involved with issuing warnings. Summary reports about precipitation exists. Warnings are provided through a mobile application and are based on a threshold set for each municipality. The mobile application can send push notification to users in case of a high amount of forecasted precipitation and contain information about emergency plans, and a contact list of people to be called in case of pluvial flooding and protection against it. The purpose of the warnings is to prepare for potential actions.

2.7.2. Needs for the data portal

The demonstrator will not develop a new data portal, but will continue to work on their own app through The HuT.

2.7.3. Future actions

The demonstrator will continue to work on their mobile application.

The demonstrator has no plans to install new monitoring networks for The HuT. During the project it is planned to develop a method to assess the impact of precipitation.

2.8. Demonstrator 8: Ogliastra, Sardinia Region, Italy

Ogliastra is affected by heatwaves, droughts, and fires. These hazards combined have more negative impacts than each hazard alone. During The HuT the demonstrator aims:

- to assist policy and decision-makers in the definition of adaptation pathways that are effective in reducing the impacts and costs of fires by applying science-based tools;
- develop viable and fair strategies to integrate damage risk reduction, including early warning systems and nature-based solutions;
- increase risk awareness among stakeholders.

2.8.1. State of the art

Technological aspects

Demonstrator 8 does not have an existing web portal. There is not a functioning network of sensors in the demonstrator.

Societal aspects

The demonstrator is not involved in issuing warnings. The demonstrator aims to provide the science/knowledge needed to assist policy and decision-makers on the co-definition of adaptation and mitigation pathways in the short- and medium term under a changing climate.



However, fire hazard warnings are provided by organisations through bulletins, where the warning is divided into four levels by colour.

2.8.2. Needs for the data portal

The web portal is desired to be in Italian and English.

Technological aspects

Demonstrator 8 wishes to include information related to previous historical hazardous events that have occurred in the demonstrator. Susceptibility/hazard maps for the hazard of interest is also needed. It is also of interest to include information about observed weather/impact. It is not desired to add information about forecasted or real-time weather/impact data.

Societal aspects

It is planned to include warning actions in the data portal, in addition to information about adaptation actions and future fire risk projections. It is not desired to include warning messages, or emergency plans in the portal.

2.8.3. Future actions

Demonstrator 8 does not have an existing web-portal, and it should be developed from scratch in the desired languages. Sources for the information to show on the data portal needs be investigated.

The demonstrator does not plan to install new monitoring networks. The demonstrator does not aim to improve, but rather to analyse fire risk hotspot and exposure mapping under different temporal scales and under different management and adaptation scenarios.

2.9. Demonstrator 9: Dorset, United Kingdom

Dorset is affected by multiple rainfall-induced hazards; intense rainfall, coastal/fluvipluvial flooding, landslide, storms, storm surges, and coastal inundation, which cause significant impacts to communities. Through The HuT the demonstrator aims:

- to leverage new and novel methods in monitoring, nowcasting and weather forecasting to support improved hazard and impact assessment in the short range and into the climate time frame;
- to identify ways to improve hazard identification and impact forecasting under different synoptic conditions;
- to increase the knowledge about the potential impact of climate change on precipitation induced hazards;
- to improve product visualization, information content and dissemination for hazard and impact models.

2.9.1. State of the art

Demonstrator 9 does not have an available web-portal but has web-communication channels that will be used as normal, nothing new is currently planned.

Technological aspects

There is currently not a functioning network of sensors in the demonstrator, but the hope is to install sensors during The HuT.



Societal aspects

The demonstrator does not envision focusing on a specific warning system or issuing specific warnings but making local improvements to communication and dissemination and using new instruments for monitoring and forecasting. Meteorological hazards forecasting is already covered by another institution that issues weather-related assessments and warnings through normal channels/apps. Information about natural hazard assessments is available for people classified for this information. A 'Resilience Direct' portal also exists, where data can be accessed and shared during an 'event', but this portal is restricted.

2.9.2. Needs for the data portal

Demonstrator 9 does not need to create a new portal but intends to use existing dissemination strategies that the end users already are familiar with.

2.9.3. Future actions

Demonstrator 9 does not have an existing web-portal, but instead of creating a new one wants to improve and promote the use of the existing web-communication channels. The aim is to investigate the best ways to consolidate existing tools and to improve communication and dissemination on multiple hazards to stakeholders and to the public.

The demonstrator plans to install sensors during The HuT, to create an operational network to monitor landslide activity. It is also planned to review how to improve the pull-through of meteorological data from a range of timescales to enhance impact-based forecasting.

2.10. Demonstrator 10: Berne Canton, Switzerland

Berne Canton is affected by floods, triggered by rain-on-snow events and local convective rainfalls. Furthermore, compound, and cascading effects often exacerbate the situations, high sediment loads stemming from landslides and riverbank erosion, but also related wood mobilisation, potentially clogging bridges weirs. During The HuT the demonstrator aims:

- to provide reliable guidance to the responsible bodies and citizens from the pre-alert level to the intervention;
- to improve the knowledge and the capacity building about compound and cascading events.

2.10.1. State of the art

Demonstrator 10 already has an existing data portal.

Technological aspects

There is a functional network of sensors in the demonstrator, collecting runoff data from a river. The data is available and covers the period between 2014 and until present. In addition to this, parameters such as precipitation, snow coverage, discharge and water levels in rivers and lakes are monitored by an organisation and can be viewed on an existing internet platform.

Societal aspects

The demonstrator is involved with issuing warnings. Warnings are visualised on a map by five colours and can be viewed on a webpage or app, open to the public. Federal warning can be given via internet (passive), or app with push message and/or email (active). Warnings can also be communicated through sirens (when appropriate), Internet, Smartphone App (with push



function), Email (for authorities), in severe cases by TV. The warnings intend to raise citizen awareness and preparedness, suggesting adaptive behaviours, and increasing individual responsibility for precautionary measures.

2.10.2. Needs for the data portal

Technological aspects

The demonstrator does not aim at creating a data portal specifically for the demonstrator or improving the existing one. Information that can be found on other webpages used by Demonstrator 10 is information about susceptibility/hazard/risk maps, and on forecasted and real-time weather/impact data. No sources of information related to historical data and observed weather/impact data have been provided.

Societal aspects

Demonstrator 10 has information about warning messages. Information on emergency plans and warning measures is not public.

2.10.3. Future actions

Demonstrator 10 already has an existing web-portal, they will not create a new one for The HuT or update the existing one.

The demonstrator plans to install new monitoring networks, to monitor precipitation and current weather. It is also planned to improve the downscaling of precipitation and runoff to local impact.



3. Synthesis and conclusion

3.1. Survey responses

Table 1 provides an overview over what the different demonstrators (DEM) want to include (I) on their data portal, and whether it is given a source from where it can be obtained (O). Y: yes, N: no, M: maybe/uncertain, blank: no answer provided

Table 1: Summary of survey responses

	DEM 1		DEM 2		DEM 3		DEM 4		DEM 5		DEM 6		DEM 7		DEM 8		DEM 9		DEM 10		
	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	I	O	
Have an existing portal	Y		Y		Y	Y	Y		N		N		Y		N						Y
Historical events	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	N					
Susceptibility/hazard maps	Y	Y	Y	Y	Y	Y	Y	M			Y	Y		Y	Y	N					Y
Observed weather/impact	N		Y	Y	Y	Y	Y	Y			Y	Y			Y	N					
Real-time weather/impact	N		Y	Y	Y	Y	N				Y	Y			N						Y
Weather forecast	M	M	M	M	Y	Y	N				Y	Y		Y	N						Y
Warning messages	M	M	M	M	Y	Y	N				Y	Y		Y	N						Y
Emergency plans	N		N		Y	Y	N				Y	Y		Y	N						
Warning actions	N		N		Y		N								Y	N					
Other information		Y								Y	Y		Y	Y							

The demonstrators have been grouped together in three categories based on the level of completeness of the data portal, and the help needed to improve it.

- Category 1 indicates that the demonstrators have good control over their data management needs. This category contains the demonstrators with a well-structured data portal or with a clear idea of how to improve it. This category also contains the demonstrators who do not see a need to create a data portal.
- Category 2 contains the demonstrators that can be adapted to the needs of The HuT by adding some minor additional features or data
- Category 3 contains the demonstrators that might need some help and guidance to create the data portal.

Category 1

Demonstrators 2 and 3 belong to this category. The demonstrators have existing data portals, and they seem to have a good idea about what information to include, and where to collect them.

Demonstrators 6, 7, 9 and 10 can also be placed within this category. These demonstrators have a plan on what type of information to use, and how to provide this information, and do not need help with the creation. Demonstrator 6 will develop the data portal themselves, Demonstrator 7 will continue to develop their app, Demonstrator 9 intends to use already existing dissemination channels, while Demonstrator 10 won't create a new portal, but know where desired information can be obtained from existing portals.

Category 2

Within this category Demonstrators 1, 4 can be placed. The demonstrators do have portals that can be used and need to add a section in which The HuT activities are included. It seems like the demonstrators have an idea about what they want to include on the data portal and where that information can be obtained.

Demonstrator 1 needs to make some decisions about information they may want to include. The demonstrator also needs to decide if they want to use the existing web portal or create a new one. Demonstrator 4 only wants to include a small amount of information on their web-portal.

Category 3

Demonstrators 5, and 8 are within this category. The demonstrators do not have a web-portal. The desired information needs to be gathered, and it is always given where this information can be obtained.

Demonstrator 5 only answered that they want information related to historical events, and narrative based climate information. This information needs to be gathered and created. Demonstrator 8 does not have a web-portal and it needs to be created. Some information is wanted on the web-portal, but information about where this can be found have not been provided.

3.2. The HuT template

The demonstrator sites have a wide range of existing data management and communication strategies, ranging from sophisticated dedicated data portals serving a broad public purpose, to specific data use plans meeting primarily the needs of the demonstrator site as a scientific research activity. This is to be expected as the demonstrator sites are quite varied in purpose and technical content.

In addition, the data management activities are also locally tailored to the specific needs and purposes of the demonstrator and reflect the available experience and technical capacities available to the demonstrator owners.

Due to the above complexity, creating a single, well-defined structural template for the data portals serving the demonstrators under The HuT is impractical. A more appropriate approach is to define sets of recommended functionalities as a basis for The HuT and encourage the demonstrators to decide themselves which functionality should be made available, and in what way they would best manage to implement the functionality. The 'template' is providing a wish list of types of data and functionality that could be implemented.



Table 2 provides a summary of the recommended actions for each demonstrator (DEM) that will help to achieve common functional characteristics among the demonstrator data platforms.

Table 2: Recommended development actions

	DEM 1	DEM 2	DEM 3	DEM 4	DEM 5	DEM 6	DEM 7	DEM 8	DEM 9	DEM 10
Create a web-portal	X		X		X	X		X		
Improve web-portal	X	X		X						
Option to web-portal							X		X	X
Need to decide what info to add	X	X								
Need to find sources to the info					X					
Decide if want to install new monitoring network	X									
Install new monitoring network		X	X		X			X		X
Improve the estimation of weather forcing	X	X	X	X		X	X	X		X

Annex A: The Questionnaire for T1.3

Generalities:

<u>Instructions</u>	
The survey comprises a general section (this sheet) and other 5 task-specific sections	
Fill the cells that are highlighted	Compulsory
	when needed
<u>General information</u>	
Demonstrator number	
Name of Demonstrator	
Demonstrator Leader (project partner)	
Demonstrator co-Leader (project partner)	
Demonstrator co-Leader (project partner)	



	YES/NO	Open-ended answer
Is a data web-Portal already available for The Hut activities to be carried out in your demonstrator?		If yes, please provide the URL of the existing web-Portal and/or additional details
Do you need to update your web-Portal, or to develop one from scratch, for The HuT activities?		
<i>If you answered YES to the previous question, CONTINUE</i>		
Do you need to update your web-Portal (if existing) or need to be developed from scratch?		
What language do you prefer to use in your web-Portal?		
<u>Information you want to include in your DEM web-Portal</u>		***IF YOU ARE INTERESTED IN ONE ITEM AND YOU ALREADY HAVE DETAILS ABOUT WHERE/HOW THE INFORMATION CAN BE RETRIEVED PLEASE PROVIDE THIS INFORMATION IN THIS COLUMN***
Photos or information related to historical hazardous events that occurred in the demonstrator		If yes, when available, please provide additional details
Susceptibility/hazard/risk maps for the weather-induced hazards of interest		If yes, when available, please provide additional details
Observed weather/ impact data by available networks or implemented in The HuT		If yes, when available, please provide additional details
Real-time weather/impact data by available networks or implemented in The HuT		If yes, when available, please provide additional details
Weather forecast		If yes, when available, please provide additional details
Warning messages		If yes, when available, please provide additional details
Emergency plans		If yes, when available, please provide additional details
Warning actions		If yes, when available, please provide additional details
Other data/information to be shared		