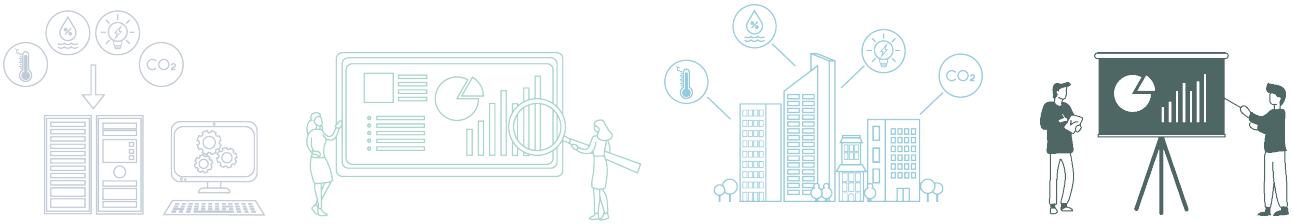
ENERGee Watch

Curriculum and learning material for Course:

Data display, dissemination and validation by local authorities



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Data display, dissemination and validation by local authorities

Introduction

The ENERGee Watch project stems from the existing informal European network of regional greenhouse gas emission observatories managed by FEDARENE whose mission is to collect, monitor, and report Greenhouse gas (GHG) Emissions and implement energy saving strategies and policies.

Many of the structures are governed by a local consortium gathering at least several public authorities and energy data suppliers. They are very often supported by public authorities and integrated within existing regional organisations such as energy agencies or public departments. The value that this type of structure can provide stems from their expertise in data gathering, data analysis, and energy planning.

These observatories contribute strongly towards building a representation of the territorial impact on climate change and a framework for identifying areas of responsibility and priority areas for action. To best serve society, the observation of GHG emissions is a prerequisite before taking any appropriate action. The tasks of an observatory are very diverse. An observation system primary task is to provide data – most often free of charge – and improve knowledge about the territory's current and future situation with regards to impacts caused by climate change (energy and information related to GHG emissions). In some cases, air quality, social, economic or environmental effects on climate change are included. As a result, an observatory will characterise the current situation and the challenges on climate change, identify trends and influencing factors, and define various scenarios to meet any long-term energy and climate targets.

Another role is to analyse and monitor the development of the territory's situation on climate change, by identifying the challenges and by keeping an account of GHG emissions and energy consumption in order to measure the progress. To this end, an observatory will determine both quantitative and qualitative objectives, identify resources and opportunities to take action. Moreover, an observatory provides expertise and advice in policy development and in the decision-making process. Indeed, it tracks progress against fixed objectives, adjusts efforts and focuses on climate action. Lastly, it evaluates the impact of climate action in terms of energy saved and GHG emissions avoided, then providing local stakeholders with a forum for sharing knowledge and experience gained.

The overall aim of ENERGee WATCH is to launch a peer-to-peer learning program to enable regional and local authorities to timely and accurately define, monitor and verify their sustainable actions. The learning process targets regional and/or provincial authorities and their agencies and observatories that are responsible for collecting and overseeing the monitoring of mitigation and adaptation indicators in order to empower them to make use of the best practices learnt.

Regional observatories are powerful tools to implement efficient strategies at local and regional levels. Through ENERGee Watch, the objective is to increase the capacity of data observation across Europe to best support local and regional decisions makers in their fight against climate change.

Data display, dissemination and validation by local authorities

Overall description of the course

Introduction

This course on data display, dissemination and validation by local authorities will educate and provide a sound knowledge base and understanding of the principles and best practices of data communication and presentation. Throughout the course, the participant will learn how to best identify their target audience and the key considerations to make in order to communicate a message, through the use of data, most effectively. Alongside this, the key modes of data communication will be identified with a detailed breakdown of how these modes can be replicated for any respective geographic area and audience.

More specifically, this course will cover how to identify the key factors that determine how to disseminate data (regulations, targets, usage, etc.), how to identify the key recipients and stakeholders, identifying their needs and expectations, collecting data and getting it into the required format, some methods and tools to represent and illustrate data patterns and messages in data (graphs, Sankey diagrams, maps etc.) and finally how to efficiently disseminate this data and the subsequent messages (technical reports, newsletters, online tools, etc.)

Here in Auvergne Rhône-Alpes, within the association, our purpose is to serve the territories as a reliable and impartial source of information relating to the performance of the region on climate and energy-related topics.

Course objectives

- To know your audience and their ultimate needs
- To better appreciate the role that data can play in making decisions
- To recognise how data visualisation can be a persuasive tool
- To assess the best data display method for the objective, audience and desired response
- To manipulate data to suit different representation styles
- To understand the different data dissemination and display options available

Topics

The topics are organised in a way to accompany the participant from a general understanding of the key principles behind communicating and presenting data, to being able to implement certain data representations themselves in a range of styles to meet a variety of needs.

What determines effective communication of data?
- Requirements imposed and regulations for data distribution and communication.
- Who are the stakeholders and what audience is being targeted? What level of knowledge do they have?

Identifying the information needs of the end-users
- What type of information is important?
- At what level of detail?

Data manipulation and presentation in an effective manner
- What types of data presentation are there?
- Identifying the positives and negatives of each type of data presentation.
- How to best prepare data to be manipulated and communicated for these modes of data display.

Implementing data display tools
- A step-by-step instruction of how to generate specific types of data display and the tools required.
- Specific examples of implementation (charts/ graphs, Sankey diagrams, geographical representation, online display).

An insight into TerriSTORY®, an online tool to accompany territories in following and achieving their energy and climate objectives
- TerriSTORY® and its creation.
- Key data inputs required.
- How can this tool be used at a European level for other organisations and territories.

Different modes of data dissemination
- How to evaluate the best method to communicate data
- Different types of data dissemination available
- What to consider when creating a communication package (newsletter, technical reports, etc.)

Mentors

Thomas Knight is a project manager in the Territorial Intelligence and Observatory team at **Auvergne Rhône-Alpes Energie Environnement** (AURA-EE) since the beginning of 2020. Thomas is responsible for the quality and accuracy of the energy-related and economic calculations for the regional energy and climate data observatory (ORCAE) and is an active participant in the development of an online data tracking tool for the territories of the region; **TerriSTORY®**.

In his role as a project manager, he is regularly faced with data presentation challenges. In working on multiple tools such as TerriSTORY® and the data observatory, it is necessary to think about who the recipient of any publication will be and how to best present data, whilst fitting any pre-defined requirements.

Target

This course is for professionals that work regularly with data and are either required to, or wish to learn more about how to, present data in a succinct and detailed manner. The aim of this course is to identify how to best communicate a dataset or to portray certain messages in the data.

Throughout the course we will treat the key topics necessary to ensure effective and complete communication of data and information. Some current challenges that this course could rectify include; a lack of interaction with recipients of datasets, the misunderstanding of datasets, difficulty in portraying messages that are in the data, a requirement for datasets to be communicated in a particular way, a need to find more innovative/representative data visualisation methods or simply an interest to develop links with existing innovative tools.

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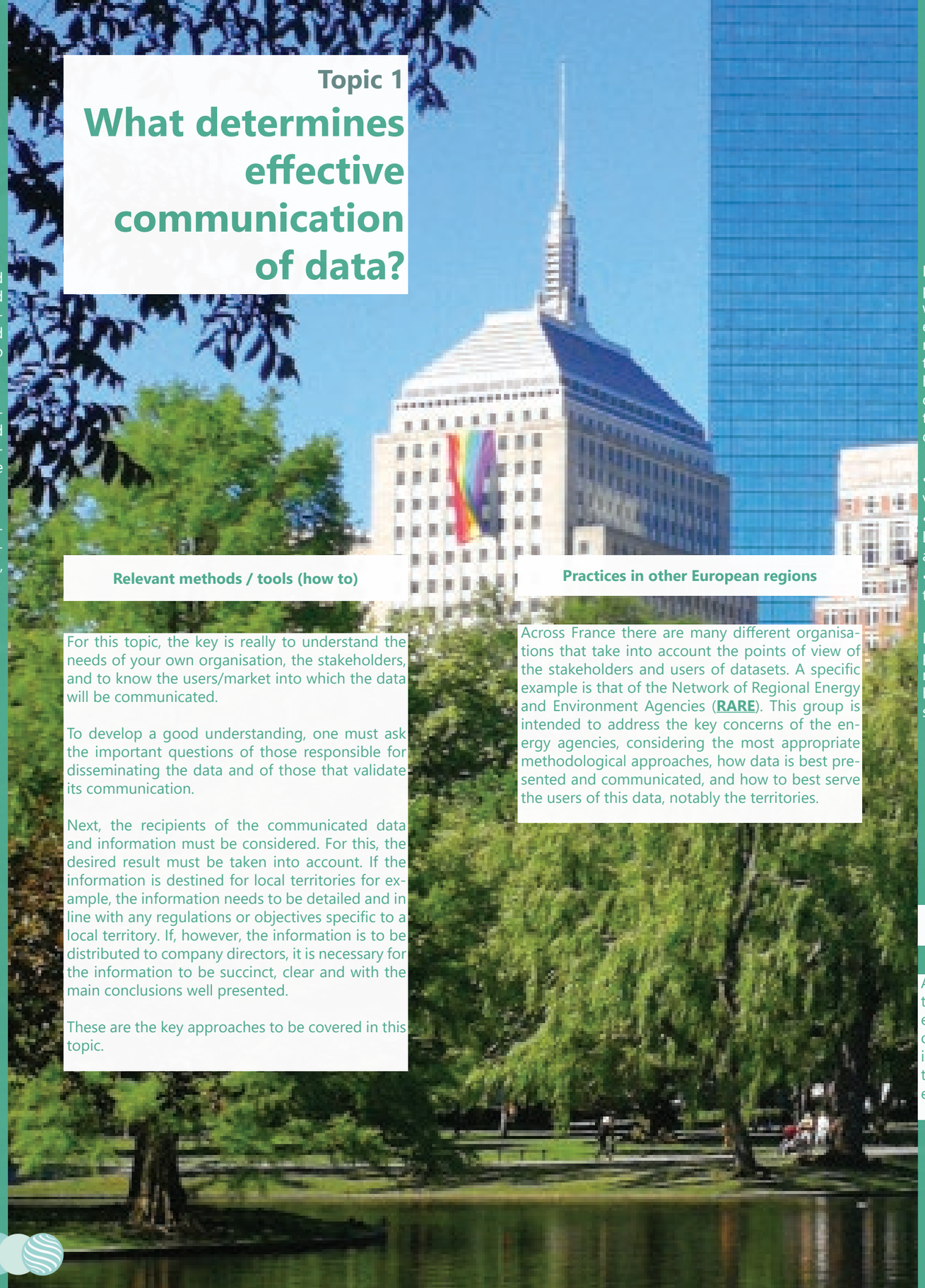
Thomas Knight

Territorial Intelligence and Observatory team
Project Manager at AURA-EE

Topic 1

What determines effective communication of data?



Description of the topic (what)

This topic concerns the initial identification of the best and most effective mode of data display, dissemination and validation for a given recipient. The basis is to firstly identify any regulations or impositions on the collection and processing of data in a particular region or area and to identify the best practises.

Following this, it is of great importance to target the stakeholders who should be considered and/or who are affected by any dissemination and communication of data. It is necessary to keep in mind their contributions, needs and the potential consequences.

Finally, identifying the audience is crucial in communicating a dataset or information of any kind. If this is not outlined well, then there can be rather large consequences, notably a loss of time and money.

Relevant methods / tools (how to)

For this topic, the key is really to understand the needs of your own organisation, the stakeholders, and to know the users/market into which the data will be communicated.

To develop a good understanding, one must ask the important questions of those responsible for disseminating the data and of those that validate its communication.

Next, the recipients of the communicated data and information must be considered. For this, the desired result must be taken into account. If the information is destined for local territories for example, the information needs to be detailed and in line with any regulations or objectives specific to a local territory. If, however, the information is to be distributed to company directors, it is necessary for the information to be succinct, clear and with the main conclusions well presented.

These are the key approaches to be covered in this topic.

Practices in other European regions

Across France there are many different organisations that take into account the points of view of the stakeholders and users of datasets. A specific example is that of the Network of Regional Energy and Environment Agencies (**RARE**). This group is intended to address the key concerns of the energy agencies, considering the most appropriate methodological approaches, how data is best presented and communicated, and how to best serve the users of this data, notably the territories.

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In order to serve the territories well as a reliable and impartial source of information, it is necessary to understand what the regional government, the regional ministry of energy (Ademe), our members and the territories want and need. Throughout the year, we undertake many workshops to adapt what we offer to best suit the needs of these stakeholders. For example, there are various working groups for our online tool, TerriSTORY®. These regular meetings between stakeholders (internally called "Pilot Committees") cover many topics including;

- Which climate and energy indicators are the most relevant.
- How to integrate territorial strategies into the tool to allow territories to better track their contributions to national and regional targets.
- Which areas are required to be further developed (indicators, sectoral coverage etc.).

Integrating the ideas of the key stakeholders reinforces the power that an organisation has in sharing data and information. The better the understanding of what the stakeholders and users need, the more effective the data dissemination and usage.

Link(s) with other courses

Across all of the four learning courses, the presentation and communication of data is not only present, but necessary. In the collection and verification of energy or climate data, the identification of who is concerned is of critical importance to ensure that the correct data is collected and treated in an adequate manner, taking into account the end-users.

Topic 2

Identifying the information needs of the end-users

Description of the topic (what)

Topic 2 builds upon what was learned throughout the first topic; identifying and communicating with the stakeholders and end-users and helps to identify what type of information, and at what level of detail, is most important.

As previously identified, it is important to align the type of data display to the audience and those of whom will utilise the information communicated. Depending on these needs and requirements, the information needs to be processed and presented in a clear and concise manner.

Particularly for the end-user, the use of the information needs to be considered. For example, if data is intended for a group of territories to adapt their energy and climate planning, the information communicated needs to be relatively specific. Whereas, if the information is to provide a general overview the detail is not as important as providing the key messages that the information provides.

We will use a couple of examples currently in use to identify how data presentation can differ depending on the recipient.

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To identify an example, the energy and climate data observatory (ORCAE) that is produced by AURA-EE produces various publications for different needs of the end-users whether that be short newsletters or in-depth profiles for each territory or for specific energy and climate matters.

Relevant methods / tools (how to)

Ideally, the participant will already have identified the target audience for the data presentation and communication. If this is the case, more focus can be put on adapting the data presentation to the type of recipient (company, local territory, politicians, etc.).

The primary methods used would be to understand the information the most important to these target groups or end-users. In doing so, this will help to construct a framework for how to best display information for each respective end-user.

Practices in other European regions

There are various other observatories in France and across Europe with similar approaches; allowing the needs of the user to guide the dissemination and presentation of data. Some examples include the regional observatory of Brittany (OEB) in France, the Technical Chamber of Greece Energy Observatory (**link**) and the setting up of a Regional Steering Committee as part of the Zlin Region Energy Monitoring Centre in Czechia (**link**).

Link(s) with other courses

In determining the needs of the end-user, there is a strong link between this course and Course: Indicators, and strategies on adaptation to climate change, due to its complex content and the high demand for climate adaptation information.

Topic 3

Manipulating and presenting data

Description of the topic (what)

Throughout this topic, the different forms of data representation will be identified, detailed and their benefits and drawbacks assessed depending on each use case.

With such a large array of data display and communication options available, it is necessary to understand the approach in choosing the most effective and the message wishing to be communicated. This will be accompanied by an evaluation of the strengths and weaknesses of each mode of dissemination.

These modes of data communication and representation will be explained in detail from developing simple charts and graphs to creating detailed systems analyses, including Sankey diagrams and mapping data points.

Finally, participants will be educated in how to best prepare a dataset to be used in such forms, including the validation of all data requirements, the format and the final presentation.

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At AURA-EE, we use a combination of online tools and in-house expertise for such things as the Sankey diagram or graphical representations, as seen in TerriSTORY® and ORCAE.

More specifically in **TerriSTORY**, there are large databases of data inputs and assumptions to which we apply code in order to create the online graphical and mapping visualisations.

Relevant methods / tools (how to)

The primary tools and methods that will be identified and discussed will be directly linked to each mode of data representation. For such presentation modes as a Sankey diagram or through our online tool TerriSTORY®, there will be a need to firstly manipulate the data into the correct format, then to use a specialised tool to create such representations. At AURA-EE, to create Sankey diagrams, we utilise the tool **e-Sankey**. Alternatively, the representations in TerriSTORY® are created from scratch using a combination of data series and coded scripts.

Link(s) with other courses

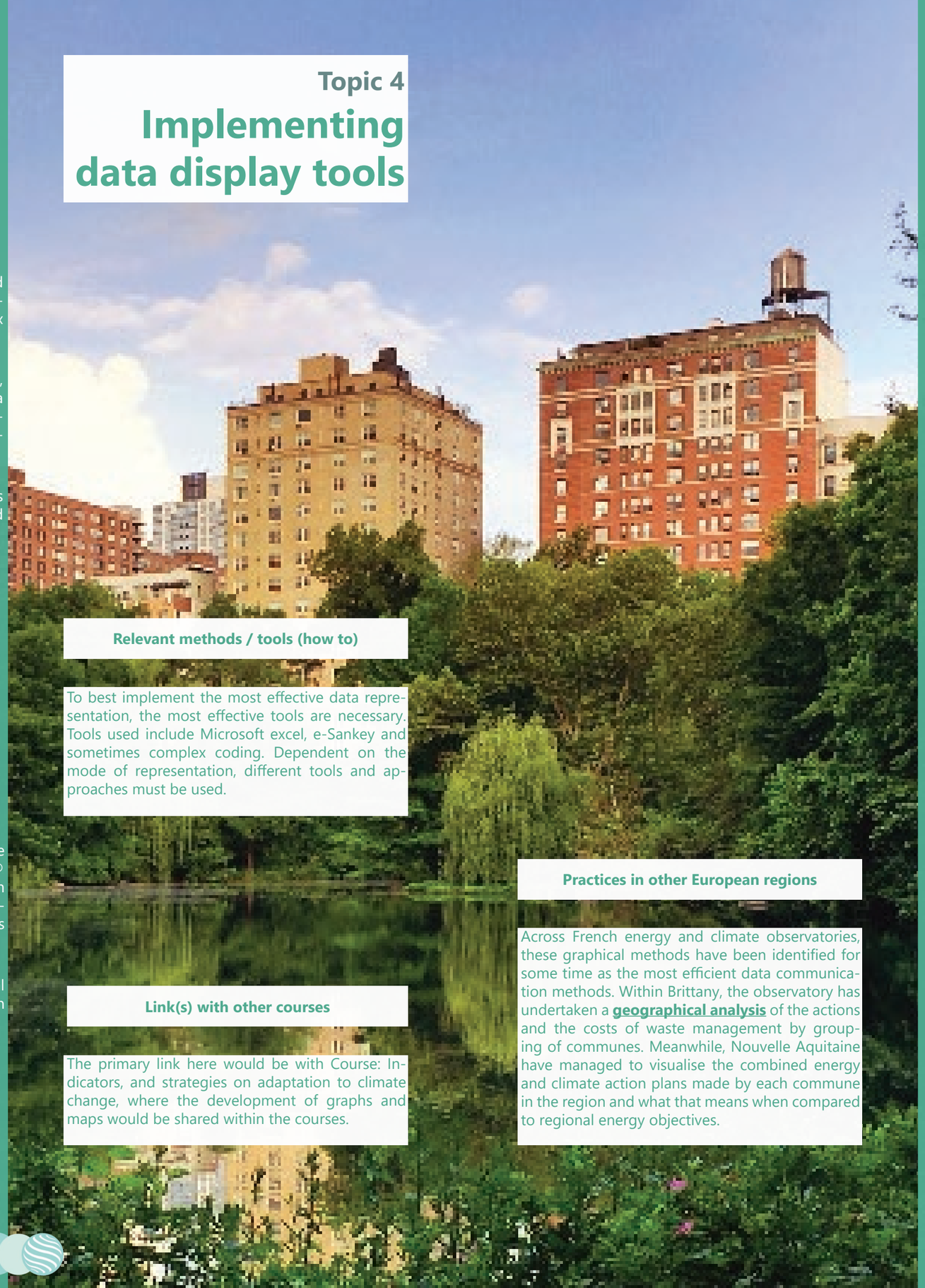
This topic has a strong link with all three other courses, where the management of data is present in all courses, particularly the collection and validation of data.

Practices in other European regions

Throughout France, there are multiple regions that are now aligning their data dissemination practises with, and integrating them into, TerriSTORY® to best serve the territories they represent. These so far include the regions Occitanie and Nouvelle Aquitaine, both of which are coming to the end of development, with increasing interest from other French regions.

Topic 4

Implementing data display tools



Description of the topic (what)

The primary objective of this topic is to clearly identify and demonstrate different modes of data display and representation. From simple graphs and charts to more complex methods such as linking data with an interactive map.

To best explain how to implement these different options, it is also necessary to know how to manipulate the data into a suitable format (Topic 3). This will facilitate the process of developing and replicating different data presentation options.

Throughout, the topic will provide a step-by-step guide as to what is efficient data presentation, best practises, and the implementation of:

- Graphs and charts
- Sankey diagrams
- Visual representations of energy potentials
- Geographical mapping
- Integration of an online visualisation tool (TerriSTORY®)

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In Auvergne Rhône-Alpes, all representation methods are employed across a variety of mediums. Firstly, TerriSTORY® demonstrates a host of data representation options from key energy and climate indicators combined with geo-location, simple charts and graphs, interactive graphs and its integration into an online platform.

The observatory (ORCAE) makes use of primarily graphical representations and tables to express the messages within data sets.

Relevant methods / tools (how to)

To best implement the most effective data representation, the most effective tools are necessary. Tools used include Microsoft excel, e-Sankey and sometimes complex coding. Dependent on the mode of representation, different tools and approaches must be used.

Link(s) with other courses

The primary link here would be with Course: Indicators, and strategies on adaptation to climate change, where the development of graphs and maps would be shared within the courses.

Practices in other European regions

Across French energy and climate observatories, these graphical methods have been identified for some time as the most efficient data communication methods. Within Brittany, the observatory has undertaken a **geographical analysis** of the actions and the costs of waste management by grouping of communes. Meanwhile, Nouvelle Aquitaine have managed to visualise the combined energy and climate action plans made by each commune in the region and what that means when compared to regional energy objectives.

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Description of the topic (what)

The focus of this topic is the primary online data visualisation tool of AURA-EE, TerriSTORY®. This free to use online tool was created to fill a gap in the market for a simple to use, bottom-up energy and climate data tracking and visualisation tool made for the region by the regions.

TerriSTORY® requires many data inputs to create the diverse data display. These key inputs and the processes required will be identified and discussed as well as the primary functions of the tool, starting from early on in its development, to where it is today.

The tool is there to facilitate the integration of multiple regions, to provide a broader picture of the energy and climate situation in each region or country, comparing this to desired objectives

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TerriSTORY®, as identified, is an all-round tool with a wide array of data visualisation examples. In Auvergne Rhône-Alpes, it has been functioning since 2018 and since then has developed many new functionalities.

Topic 5

TerriSTORY®, a deeper insight

Relevant methods / tools (how to)

The methodology used within TerriSTORY is relatively complex with each function requiring separate analysis of data with a specialised approach (**TerriSTORY® presentation** – in French).

In developing this online tool, many hours of discussions have taken place with key stakeholders, who make up a consortium of members, to identify the role that TerriSTORY plays and what developments are to be made (**Signature of the consortium** – in French).

Link(s) with other courses

This topic has potential links with that of the data collection and verification courses, due to the need for the appropriate data and the assurance that it is in the necessary format to be processed and implemented in TerriSTORY®.

Practices in other European regions

Currently, TerriSTORY is active in two other regions, Occitanie and Nouvelle Aquitaine, both at different stages of development. The addition of these two regions was thanks to the service that TerriSTORY offers to territories in tracking and easily visualising the current and future trajectories of the region and the territories that it is made up of.

There exist other online data visualisation tools. One such example is that of **Energiluppen**, created by the northern Sweden energy agency (**Energikontor Norr**).

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Topic 6
Data dissemination

Description of the topic (what)

Throughout this topic, the modes of data and information dissemination will be highlighted as well as the important role that it plays. It is important to first identify the needs of the end-user (as previously covered in Topic 2) and choosing the mode of representation (Topic 4), before identifying the best medium for the information to be communicated. This also depend on who the end-user is (politician, student, expert etc.). Other considerations are such things as the timeframe of delivery and the financial budget available.

Multiple modes of communication are to be covered including textual documents (newsletters, technical reports, etc.) to presentations and more data heavy publications (excel data sets).

Each of these considerations require different approaches and preparatory steps to ensure the information and message is communicated in an effective and clear manner to the user.

ENERGee Watch Partner Expertise

Within Auvergne Rhône-Alpes, we publish many forms of documents of a range of platforms.

Within ORCAE, there are technical reports written at a regional level and a territorial level to details the key figures and trends over the past years, this is accompanied by simple historic datasets to support the messages communicated.

Covering multiple work areas, newsletters also serve the public to inform them of advancements in certain projects or to provide an update of any changes that can be expected in the future.

Alternatively, the agency website has a multitude of resources to discover, alongside TerriSTORY, the online tool available to all, free of charge.

Relevant methods / tools (how to)

Depending on the type of data dissemination, the method and tool requirements differ. For newsletters and reports, a good standard of writing in a detailed fashion is necessary, simply using a tool such as Word. Yet an ability to simply summarise the messages in the document is also a necessity to ensure that those not wanting to go into the details of a report can extract the key points discussed.

When communicating data sets, depending on how much the data has bee processed, Excel will allow the organisation of the data. Such data nonetheless needs to be presented in a clear and concise manner.

Practices in other European regions

Similarly, other regional energy agencies choose the mediums of newsletters, datasets, and websites to best communicate the information. This is not a consistent practise with some regions better than others.

Link(s) with other courses

This topic has links with all other learning courses. As the dissemination of information is so important for all energy data matters, there is a strong common interest for all participants and course leaders.

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The ENERGee Watch project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no. 892089.