Evidence-based communication platform: Sustainable Trade Hub

MATS Deliverable 6.3

MATS
making agricultural trade sustainable

Summary

Deliverable D6.3, the MATS Sustainable Trade Hub, is the core instrument for enabling and encouraging the communication, interaction and knowledge exchange between sustainable trade stakeholders. It is also the venue from which MATS research results are published and made available for discussion and analysis by the community. The deliverable itself is the MATS website accessed at: https://sustainable-agri-trade.eu. It will be constantly enriched with content and updates stemming from MATS work and community feedback. The present report accompanies the deliverable, and acts as the main summative presentation of the scope, design rationale and technological foundation of the Hub. As the Hub evolves, the report will also be updated to reflect its status. It will also be extended to provide links to relevant technical assets used within MATS, including the conceptual model for resource annotation, the analytical components for information summarisation, and the visualisation modules connected to the MATS database.

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[1] R = Report, P = Prototype, D = Demonstrator, O = Other

[2] PU = Public, CO = Confidential, only for members of the consortium (including the Commission Services)

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Introduction

The MATS Sustainable Trade Hub is foreseen as the core instrument for connecting the project with relevant decision-makers, stakeholders and initiatives.

The scope of the interactive platform is two- fold: to act as a centralised knowledge hub for policymakers, CSOs, decision-makers in private sectors, and researchers interested in the project work; and to facilitate the discussions between such stakeholders.

Regarding its function as a data and knowledge resource, the interactive platform is the central provider of information for the project, its scope, its activities and its progress towards the designated objectives. Simultaneously, it is a repository of information and knowledge stemming from the execution of the project's 15 case studies (WP3), the system assessment toolbox (WP2, WP3), the analysis of institutional, regulatory and legal frameworks (WP4), the transition pathways (WP5) and information targeted at civil society and policy dialogues (WP6).

The Sustainable Trade Hub is an online platform available and regularly updated at: https://sustainable-agri-trade.eu. The present document accompanies the relevant D6.3 deliverable and constitutes the main reference point for the architecture and structure of the Hub. It will be updated throughout the duration of the project, in accordance with relevant changes in the Hub website, in order to preserve the accuracy and integrity of the provided information.

In more detail, the report summarises the intended scope of the Sustainable Trade Hub, summarises its design and structure, and provides details on the organisation of information and the management of knowledge sources and data within the platform. Furthermore, it provides an overview of the platform's architecture, the applied technical choices and used technologies and the functionality incorporated to monitor and assess the Hub's reach and impact.

Sustainable Trade Hub Scope

The design of the MATS Sustainable Trade Hub is primarily informed by two factors: 1) the needs and expectations of the targeted audiences and 2) the coverage and nature of the information and data to be incorporated in the Hub. The following subsections summarise the analysis process for these two aspects that led to the concretisation of the Hub's structure and the organisation of the underlying knowledge.

Targeted audience

The identification of the key audiences (actors) that the Hub should address, in conjunction with their expressed requirements for the Hub, was the subject of T6.1, *Review of the Information Needs of Key Actors* and semantic framework and the corresponding D6.1 deliverable, *Information Needs of Key Actors*. The study was conducted via an online survey distributed to the MATS partners' networks. The elicited actor types are summarised in Table 1.

TABLE 1: MATS ACTOR TYPES

Actor Types
Academia / Research
Technical experts
Non-governmental organisations
Other private sector (processors, transport)
Government / policy making
Traders
Multilateral / international organisations
Agricultural workers
Farmers and farmers associations
Financial institutions

Similarly, the survey collected the actors' expressed interest on the different facets of MATS, with the following MATS focus areas declared most relevant to their work.

Relevance of MATS focus areas
Understanding linkages
Designing transition pathways
Providing a repository of data and research
Creating spaces for joint work and discussions
Understanding policies and regulations
Providing a toolbox

Scope of information

Taking into account the needs of the contacted stakeholders, the informational points of the MATS project itself, and the range of data associated with MATS activities, we identify the following information items as the required coverage for the Sustainable Trade Hub.

1. **Project Info**: General information on the project, its objectives, its methodology and its consortium members
2. **Case Study Info**: Information on the scope and objectives of each case study, responsible and collaborating parties, data to be used and produced, results and insights
3. **Project Outcomes**: Scientific results (publications, datasets) and project deliverables
4. **Community Info**: News and updates from MATS and the broader sustainable trade community
5. **Relevant datasets**: Data assets used or produced by MATS case studies, and metadata descriptions for them

The Sustainable Trade Hub aims to cover all the information points above, in the context of a user-friendly, intuitive interface that allows the building of comprehensive yet simple user journey for its intended audiences. The following sections present the Sustainable Trade Hub's design towards fulfilling this objective.

Sustainable Trade Hub Structure

Taking into account the presented positioning of the Hub in terms of addressed audiences and information needs, a layered structure for the different information foci was produced and is incrementally operationalised as the relevant data become available. In short, the Sustainable Trade Hub comprises the following main areas:

1. About section
2. MATS Case Studies
3. MATS Outputs
4. Community
5. Events
6. MATS Knowledge Hub

The areas are accessible at all times from a top menu bar (see Fig. 1), starting with the Hub's home page. The menu also incorporates the search functionality integrated on the website, allowing users to search for website content (as opposed to the search functionality of the Knowledge Hub, described in the next section).
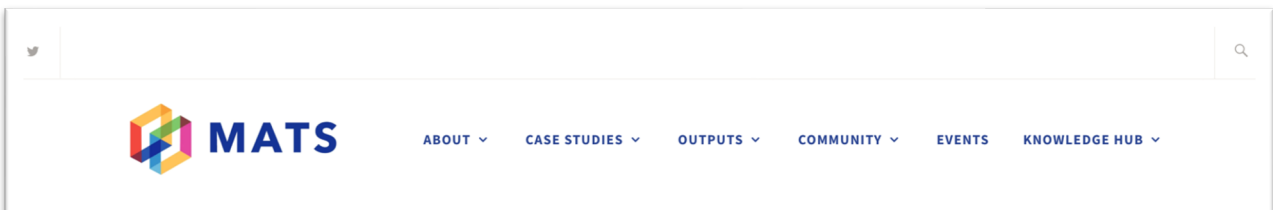
FIGURE 1: MATS TOP-LEVEL MENU

The home page itself provides access to major information items around the project (project and consortium overview, case studies) and incorporates quick-views for the most recent news and events related to MATS, as well as for the project's Twitter feed[3] (see Fig. 2).

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[3] https://twitter.com/MATS_H2020

FIGURE 2: HOME PAGE QUICKVIEW

The following subsections present in detail the design and coverage of each area. An exception is the MATS Knowledge Hub, which is presented in a distinct section that includes our approach for conceptualising and visualising data relevant to MATS.

About Section

The About section serves as the acquaintance point with the MATS project. It comprises five distinct sections (see Fig. 3) that presents the project's vision, the members of the consortium, the members of the project's advisory group, a summary of the MATS approach, and the contact information of the MATS coordinator, respectively.
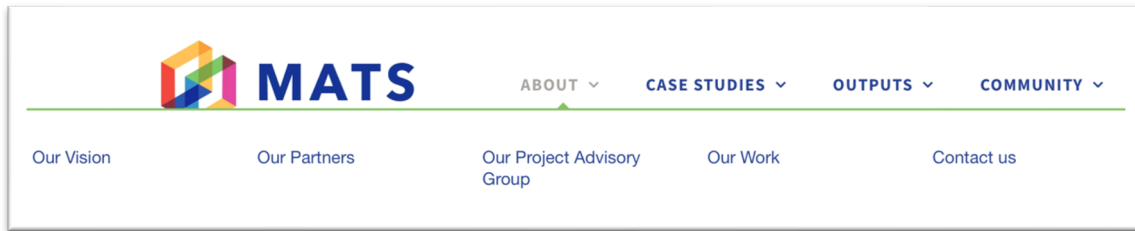
FIGURE 3: ABOUT SECTION SUB-SECTIONS

MATS Case Studies

The Cases Studies section provides two means of perusing information on the MATS studies.

The first one, accessed via the *Overview* sub-menu option, presents the list of case studies comprising some basic information and links to a more detailed, structured description for each individual study (see Fig. 4).

Case Studies Overview

| Number	Topic	Key aspects	Main focus	Leading partner(s)
1.	Effects of trade on commercialisation and processing of food products	Improving the livelihoods of smallholder farmers through trade and food value chains; localisation of food systems, strengthening of territorial markets	Uganda, Tanzania	University Helsinki with Moshi Co-operative University and Makerere University
2.	Trade, resilience and social sustainability: oats value chains in the Nordics	Resilience of trade-dependent food value chains in the context of intra-EU agri-food trade and social sustainability; sustainability and equity	Finland, Sweden, EU	University Helsinki
3.	Trade, sustainability and environmental linkages in Finnish dairy production	Mapping the linkages of dairy production and dairy trade with environmental externalities and production of ecosystem services	Finland, EU, trade partners	University Helsinki
4.	Accessing export markets with high quality/social/ environmental standards	Standards and market access; challenges related to WTO Rules and Regulations and/or EU requirements; strengthening of territorial markets	Sub-Saharan Africa	Economic and Social Research Foundation
5.	Role of agricultural inputs and policy regulation in sustainable value chains	Emerging markets; poultry chains; role of policy regulation regarding animal welfare, inputs and trade; competitiveness, sustainability, livelihoods	Ghana	Technical University of Madrid
6.	Farm gate prices and sustainable business models: towards living income	Experiences, obstacles, impact and lessons learned from a multistakeholder initiative on sustainability standards in the cacao sector	EU, Côte d'Ivoire	Oxfam Wereldwinkels

FIGURE 4: CASE STUDIES OVERVIEW LIST

The case study page includes a more extensive description for the study, i.e., the *Case Study Profile*, along with its linkages to relevant Sustainable Development Goals. As each study progresses, this will be the place where findings and developments will be presented along with relevant data hosted and presented in the context of the Knowledge Hub. The Case Study Profile incorporates the following information points for each study:

a. Case Study Title
b. Case Study Leader (Person, Organisation, Contact Information)
c. Case Study Local Partner(s): participants from institutions and organisations local to the geographical scope of the study
d. Geographical focus and scale
e. Product and market focus
f. Key stakeholders
g. Main questions addressed by the case study
h. Short description
i. Key relevant government/legal/institutional frameworks
j. Key relevant policy frameworks
k. Relevant competitiveness-related issues
l. Methodology
m. Data collection methodology
n. Expected Impact

These are organised in conceptual panels within the Case Study Overview page, which allows users to quickly obtain information on the study and its aforementioned features. Further linkages to the data and methods used by will be added as the Case Studies progress, and as detailed in the Knowledge Hub section.

FIGURE 5: CASE STUDY #1 OVERVIEW SNIPPET

The second modality for viewing MATS case study information is accessed via the *Browse by SDGs* menu option (see Fig.6). The option leads to a grid comprising the seventeen Sustainable Development Goals. By hovering each SDG icon, the user can view how many MATS case studies address the particular Goals and click on the icon to view the list of Case Studies relevant to the SDGs.

FIGURE 6: SDG MATRIX WITH NUMBER OF RELEVANT MATS CASE STUDIES

For each case study in the list, links to its description and the remaining relevant SGDs are provided to facilitate quick browsing across SDGs (see Fig.7).

FIGURE 7: MATS CASE STUDY LIST RELEVANT TO SDG 2 - ZERO HUNGER

MATS Outputs

The Outputs section provides access to two major types of MATS results, namely scientific publications and the project's deliverables as described in the Grant Agreement (see Figs. 8 and 9). As the outputs become available, the relevant lists will be populated with links to the relevant resources, in accordance with the MATS Data Management Plan.

Publications

1. (Not yet available) Sanders, A. K. Intellectual property in digital agriculture. Law, Innovation and Technology. DOI: 10.1080/17579961.2022.2047522

FIGURE 8: MATS PUBLICATIONS LIST

Deliverables

✓ **WP1 - Mapping linkages**

D1.1 Discussion paper and infographic(s) on the links between agricultural trade, investments, environmental sustainability and human well-being
D1.2 Discussion paper and infographic(s) on trends in agri-food trade
D1.3 Discussion paper and infographic(s) on the role of sustainability goals in trade rules
D1.4 Webinar to discuss the results of WP1

✓ **WP2 - Frameworks, indicators and tools**

D2.1 Set of indicators for assessing the sustainability impacts of agricultural trade
D2.2 Synthesis of model-based studies
D2.3 Sustainable Trade Toolbox (update M36)
D2.4 Analytical framework

✓ **WP3 - Assessing linkages**

D3.1 Methodological guidelines and reporting template
D3.2 Online database of sustainable trade case studies
D3.3 Report and Policy Brief on the results of the integrated model-based assessment
D3.4 Common data pool on sustainability standards and competitiveness
D3.5 Summary report on case study results
D3.6 Discussion paper on sustainability standards and competitiveness
D3.7 Synthesis of assessment findings in the form of two discussion papers (evolving into scientific articles and policy briefs)

✓ **WP4 - Institutional, regulatory and legal frameworks**

D4.1 Synthesis of findings on the impact of institutional frameworks from the set of 15 case studies
D4.2 Discussion paper on mechanisms that can ensure that EU policies are coherent with SDGs
D4.3 Discussion paper on the political economy of trade regimes
D4.4 Webinar 'Policy Coherence for Sustainable Development'
D4.5 Summary paper on the role of institutional, regulatory and legal frameworks

✓ **WP5 - Transition pathways and policy recommendations**

D5.1 Vision of sustainable trade regimes (Webinar and Policy Brief)
D5.2 Discussion paper and set of infographics on transition pathways
D5.3 Discussion paper on the feasibility of changes in trade relations and instruments
D5.4 Set of Policy Briefs with recommendations for improving the sustainability impacts of trade regimes

✓ **WP6 - Dialogue, dissemination and exploitation**

D6.1 Information needs of key actors
D6.2 Enhanced engagement strategy and civil society–stakeholder–policy dialogue
D6.3 Evidence-based communication platform: Sustainable Trade Hub
D6.4 Civil society–stakeholder–policy dialogue, incl. two high-level policy workshops (EU, Africa)
D6.5 Suite of dissemination materials

✓ **WP7 - Project management and communication**

D7.1 Minutes of General Assembly
D7.2 Communication plan
D7.3 Communication toolkit with a suite of templates for all project communication
D7.4 Data management plan

FIGURE 9: MATS DELIVERABLES LIST PER WORK PACKAGE

Community

The Community space aims to provide content linking the MATS Sustainable Trade Hub with developments in the broader sustainable trade community. It incorporates two sections, the *MATS Blog* and the registry of *Key Institutions and CSOs*.

The MATS Blog hosts curated articles and announcements from members of the MATS consortium (see Fig. 10). It is the place where detailed information is given about MATS-related actions and initiatives.
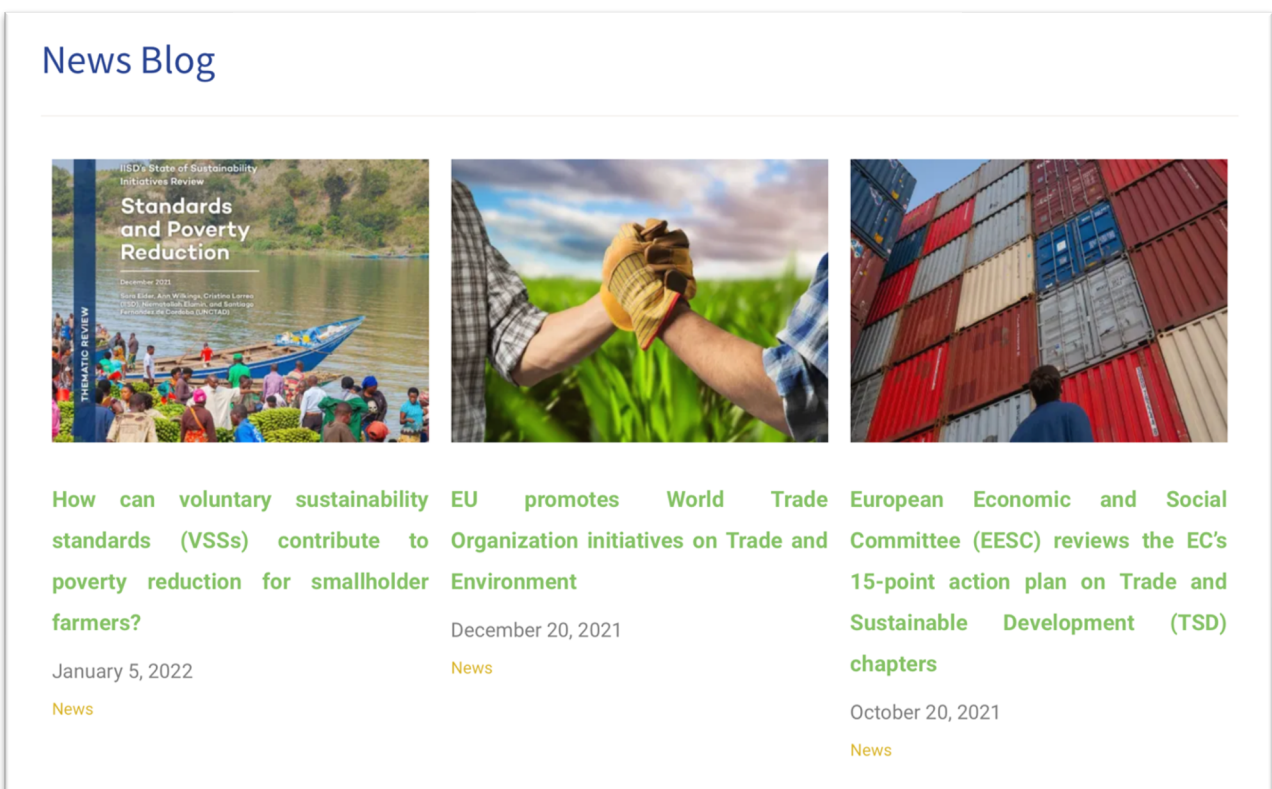

FIGURE 10: NEWS BLOG PANEL

The Key Institutions and CSOs registry is a list of important actors and entities in the Sustainable Trade Ecosystem. A brief overview for each registry entry is provided, along with links to relevant online sources for each entity.

Key institutions and CSOs (in alphabetical order)

Directorate General For Trade Of The European Commission (DG Trade)

The European Union manages its trade and investment relations with non-EU countries through its trade and investment policy. DG Trade oversees implementing the common trade policy of the European Union. Responsibilities cover trade in goods and services; the commercial aspects of intellectual property, such as patents, public procurement and foreign direct investment.

Read More

Fair Trade Advocacy Office (FTAO)

The FTAO speaks out on behalf of the Fair-Trade Movement for Fair Trade and Trade Justice with the aim to improve the livelihoods of marginalised producers and workers in the South. The FTAO is a joint initiative of Fairtrade International, the World Fair Trade Organization and the World Fair Trade Organization-Europe. Its mandate is to advocate for EU policies in support of Fair Trade and Trade Justice and to strengthen the FTAO and the Fair-Trade networks and their members' capacities to interact with and maintain an ongoing dialogue with the EU Institutions.

Read More

FIGURE 11: KEY INSTITUTIONS & CSOS REGISTRY

Events

An important aspect of the community-centric approach of MATS is the organisation and attendance of relevant events. Hence, a distinct Hub area is dedicated to the provision of information about upcoming and held events, including summaries and insights provided by MATS researchers (see Fig. 12).

FIGURE 12: MATS EVENTS AREA

MATS Knowledge Hub

The Knowledge Hub is the data-focused area of the MATS Sustainable Trade Hub. From there, Hub users can acquire further details on the methods and processes followed by the MATS Case Studies along with the data used and generated by each case study, and discover additional, external data sources relevant to the domains relevant to MATS and sustainable trade in general.

Data Management

Data objects ingested in the Knowledge Hub are annotated using constructs defined in the MATS Semantic Model. The annotations cover on the one hand inherent characteristics of the data object such as its type, its spatiotemporal coverage, and its provenance. Furthermore, context-aware constructs indicating for example the processes and methods used to generate the data, and their applicability/relationship with different sustainable trade value chain stages are also used to build a comprehensive *metadata record* for the data object. The records are indexed within the Knowledge Hub, with the index empowering the Hub's data search function. MATS Search enables the discovery of data assets based on multi-faceted criteria via the definition of composite filters over the values of the aforementioned characteristics of the asset. For example, users can search for statistical data on wine trade for the last 10 years in European countries by setting up the appropriate values in the respective metadata fields to filter the MATS knowledge base.
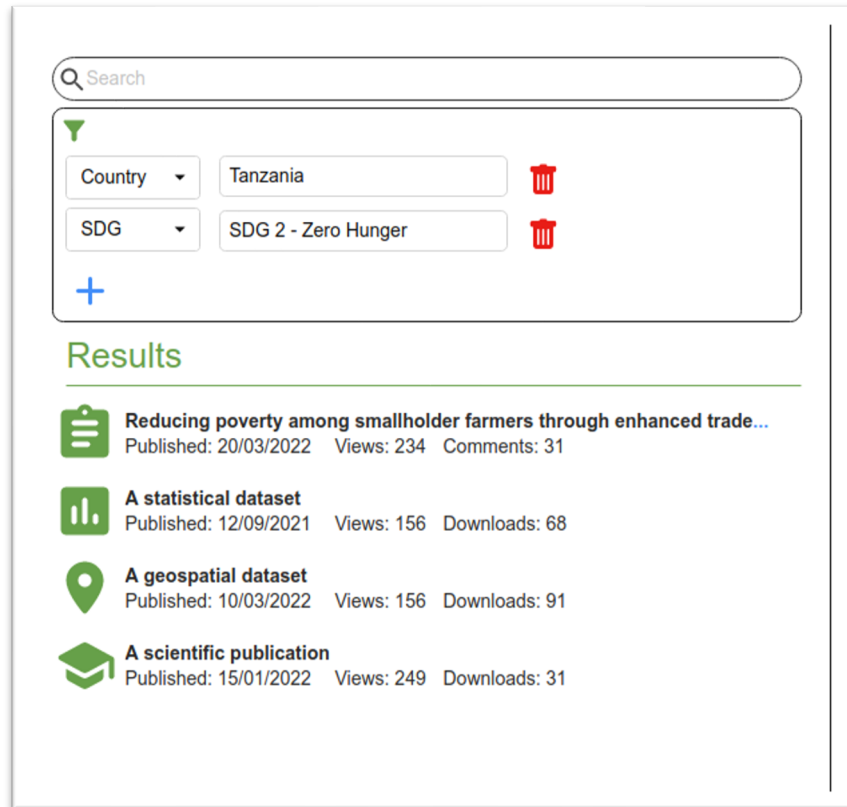
FIGURE 13: SEARCHING / FILTERING IN MATS KNOWLEDGE HUB

In addition to isolated data discovery, through the Knowledge Hub users will also be able to view data in the context of *Data Stories*, build their own stories, and comment on existing ones. The MATS data stories are comprehensive narratives discussing a specific problem, use case, experimental setting or any other sustainable trade-related study where different data and methods are combined to provide evidence or insights. MATS case studies and discussion papers are indicative data story examples and will be the first ones to be incorporated in the Knowledge Hub.

Each data story comprises *narrative* and *data* elements under a unified story line. Data are presented via appropriate visualisations, with links to the original data objects accompanying the visualisation.

Additionally, this deep, dynamic linkage of the visualisation objects with the underlying data allows for the examination of alternate scenarios using the same data assets. This is realised by providing users the ability to apply different filters or set different values for free variables in the dataset feeding a chart or diagram. The degrees of freedom allowed are naturally dependent

on the nature of the underlying data as well as their coverage. At this moment, scenario building functionality is restricted by the requirement for the underlying data to already include the results deriving from the different settings of factors and variables. A fully on-the-fly computation is an important challenge in itself and outside the scope of MATS. However, the modular architecture of the MATS technical solutions does not prohibit the incorporation of such capabilities in the future.

Apart from textual and visual data-driven visual, the data story may of course incorporate multimedia content (images, video and audio) within its narrative, which must also be annotated to be incorporated in the Knowledge Hub's searchable index.

Commenting Functionality

Data Stories, as one of the core instruments for promoting the dialogue between different actors, allow the incorporation of comments on the available data stories. Hub visitors can comment on the available data stories and discussion threads can be initiated and extended under the commenting mechanism integrated in the Hub. Discussions are stored in the Hub and associated with the data story they refer to, to further contextualise the study and provide pathways for additional analysis and extensions of the story.

User Registration

While commenting does not require from the user to be a registered member of the Sustainable Trade Hub, user registration is mandatory for being able to design and submit new Data Stories. The foreseen registration mechanism will require minimal information to be provided (essentially an email, a username and a password), with optional profile info to be filled at the user's discretion. User information will be securely stored in the Hub Infrastructure and will not be shared or distributed in any form. Before the registration functionality becomes available, a detailed user agreement will be formulated in accordance with data governance laws and regulations and will be integrated in the registration process.

Technologies

Development Assets

The MATS Sustainable Trade Hub incorporates a broad range of Web and ICT technologies to develop the different components required for implementing and operationalising the described structure.

The website is built using the WordPress Content Management System[4], which provides extensive customisation and extension functionalities, along with the ability to install custom plugins for incorporating bespoke functions and views on the website.

The plugins to be developed in the context of MATS use the following components and libraries:

1. User Interfaces: React[5] JavaScript library
2. Data visualisation library: amCharts[6] JavaScript library
3. Persistence mechanisms: Internal WordPress database (MySQL) for user information and authentication parameters, NoSQL solution (MongoDB[7]) for storing the raw data, Elasticsearch[8] index for searching over the data
4. Metadata records maintenance: MongoDB for storing the record files, Elasticsearch index for searching over the records

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[4] https://wordpress.com
[5] https://reactjs.org
[6] https://www.amcharts.com
[7] https://www.mongodb.com

[8] https://www.elastic.co/elasticsearch/

FIGURE 14: MATS SOFTWARE STACK

Impact Assessment Assets

To estimate the reach and impact of the Sustainable Trade Hub, a series of visibility and usage monitoring tools have been incorporated on the website. In more detail, SEO plugin supported by the underlying WordPress installation have been activated to obtain metrics for site and individual page visits, number of downloads for available resources, navigation patterns in terms of visited pages sequences and time spent on each page, etc.

Conclusion

The present report showcases the design and structure of the MATS Sustainable Trade Hub, along with the principles informing the methodology for incorporating data-driven analyses in its Knowledge Hub and fostering dialogue by the broader community. As the Hub is populated with further content, its interaction and visualisation paradigms are expected to be re-evaluated and adapted to refined requirements and observed usage patterns. The Hub and its accompanying documentation will be timely updated to accommodate changes, feedback, and new information towards fully covering the needs and expectations of the community.