





ADVANCED DATABASE FOR BIOMATERIALS WITH DATA ANALYSIS AND VISUALI-SATION TOOLS EXTENDED BY A MARKETPLACE WITH DIGITAL ADVISORS

Grant Agreement: 101058779

D4.2 Database and Marketplace Application Frontend and Backend (Phase 1)

(Additional Document to the Demonstrator)

DISCLAIMER: While the BIOMATDB Biomaterial Marketplace, Biomaterial Database and the Knowledge Base represent the actual deliverable, this document is an additional, public report intended to show the development progress of the solutions.



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	Clust-ER Health (CLUSTER), Italy
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Executive Summary

This deliverable is a demonstrator and therefore mostly consists of screenshots, showcasing the development progress of the different components of the solution. A distinction is made between three main components: biomaterial marketplace, biomaterial database and the knowledge base. Each of these has their own chapter illustrating the progress made so far. Overall, the current status of the different components has been achieved within the expected time-frame. The essential views and layouts have been developed. The placeholders currently used to fill the marketplace with content will in the next phases be replaced with details, products and images of authentic suppliers.

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1 Introduction

This demonstrator serves as a comprehensive overview of the current implementation status of the developed solutions within the BIOMATDB project. The subsequent content of this document aims to show the ongoing development progress mainly in form of visual representations.

1.1 Overview

The project encompasses three primary categories of solutions, each designed to address specific needs within the biomaterial ecosystem:

Biomaterial Database

Development wise, the Biomaterial Database can be divided into two key components: the frontend and the backend. The frontend presents a user-friendly interface for accessing and exploring biomaterials, while the backend is responsible for the provision of data for the frontends, including harvesting, extraction and pre-processing of biomaterial-related data.

Biomaterial Marketplace

The Biomaterial Marketplace aspires to offer a holistic platform containing diverse modules. The frontend serves as the user interface, providing a gateway to the marketplace's offerings. The backend, also named AdminBase, powers the operational functionalities of the marketplace and consists of a supplier and an administrator panel. Furthermore, the Advisors aim to provide guidance to users in terms of EU Project Collaborations and Fundings.

Help System and Knowledge Base

Recognising the significance of accessible support, various help systems across all developed solutions are foreseen. These systems are designed to empower users by providing comprehensive documentation, troubleshooting guidance, and insightful resources to navigate through the applications effectively.

1.2 Relation to other tasks and deliverables

This deliverable is related to the following other BIOMATDB tasks and deliverables:

Receives inputs from:

Deliverable	Due Date	Input for D4.2
D3.1	28.02.2023	Advanced biomaterial database, data tools, marketplace and digital advisors concept
D3.2	31.05.2023	Database, data processing methods, tools and web application mar- ketplace and specifications (Phase 1)
D3.3	30.06.2023	Web application backend and frontend specifications (Phase 1)
D4.1	30.06.2023	Database and web application system architecture (implementation status report)

Table 1. D4.2 Input from other tasks and deliverables

Provides outputs to:

 Table 2. D4.2 Output for other tasks and deliverables

Deliverable	Due Date	Output from D4.2
D4.3	31.08.2024	Database and marketplace application frontend and backend (Phase 2)
D4.4	31.10.2024	Data integration, content creation and label integration report
D4.5	31.10.2024	Online knowledge base (KB) with manuals, FAQ, and screencast video tutorials

1.3 Structure of the deliverable

The structure of this additional report outlines the current developmental stage of the BIOMATDB solutions, with individual chapters dedicated to distinct components. Chapter 2 presents the Biomaterial Database, encompassing the data backend and frontend interface. Chapter 3 showcases the Biomaterial Marketplace, detailing backend and user-centric frontend design. Lastly, Chapter 4 focuses on the Knowledge Base, presenting the status of the different views.

2 Biomaterial Database

2.1 Data backend

2.1.1 Database

The Biomaterial Database will be document-oriented and will use Elasticsearch, which works well with searches and filtering of large and unstructured data. Elasticsearch serves as a centralised NoSQL database, functioning as a search engine. It is ideal to manage large and unstructured datasets efficiently, facilitating fast queries and searches within these vast collections of data. The platform offers a distributed, multi-tenant-enabled full-text search mechanism, accessible through an HTTPS web interface. Additionally, it employs schema-less data, eliminating the need for document and index interconnections [1]. The Biomaterial Database and Biomaterial Marketplace are both set to leverage Elasticsearch for their operations.

All PubMed articles and their metadata (MeSH, title, authors, journal, etc.) were already uploaded to Elasticsearch. As can be seen in Figure 1, this amounts to 34.5 million publications. Figure 2 and Figure 3 show some query examples that can be performed.

In next steps, the automatically extracted relevant terms as well as other useful categorisations (is the article biomaterial related, is it coming from one of the selected journals, study type, etc.) will be added to each article.

pubmed_v3* ∨ = ⊕	Q Filter	your data using KQL syntax
Q Search field names	⇒ 0	34,508,108 hits
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t chemicals.text		Document
t chemicals.ui		
✓ Available fields [©]	349	[Poor dietary diversity leading to malnutrition among children and adolescents is a serious public health problem in Ne e_ids.text [34601510, 10.33314/jnhrc.v1912.2255] article_title Effect of an Educational Intervention on Dietary Divers
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Figure 1. Elasticsearch features and user interface

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t authors.affiliation_infos.affiliation	Documents Field statistics
t authors.affiliation_infos.identifiers.so	Sort fields
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r authors.sufflx	Rows per page: 100 ∨ (1 2 3 4 5

Figure 2. Results from querying documents that contain the term 'biomaterial' in their title





2.1.2 Relevant terms

The Named Entity Recognition (NER) annotation task for the Biomaterials Database will build on previous efforts involving chemical and biological entities, focusing especially on the chemical composition of biomaterials, to create a comprehensive dataset. Pre-annotations will be made by leveraging systems rooted in this previous work and will serve as foundation for the manual review, which biomaterials experts will refine to ensure accuracy and relevance (see Figure 4). These experts will play a critical role in the development of updated guidelines tailored to the field, facilitating the meticulous labelling of the new pre-annotated texts. The process of refining these pre-annotated documents will be carried out using Brat, an intuitive web-based text annotation tool enhanced by the capabilities of Natural Language Processing (NLP) technology.

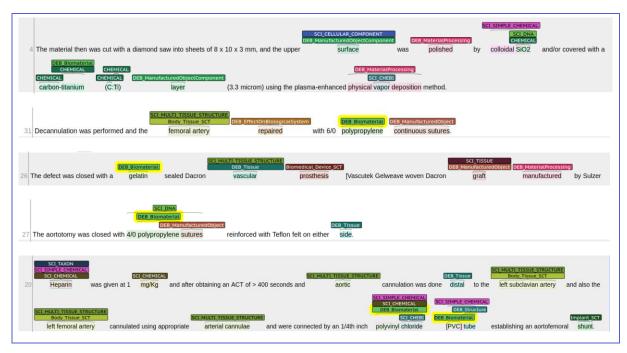


Figure 4. Examples of pre-annotations given by different models to catch possible relevant terms.

2.1.3 Metadata curation and classification

The aim of this process is to select relevant scientific abstracts related to materials and biomaterials and classify them according to pre-defined labels in order to later apply natural language processing tools to extract valuable information (namely named entities, relationships, etc..). This required an extensive analysis of the available materials, existing resources and their relevance and usefulness to the project.

In terms of the classification step, three different types of classification are performed in this data curation process: (A) Metadata Classification, (B) Content Classification and (C) Relation Classification: Text Semantic Annotation/Biomaterial Named Entity. Both metadata and content classification will use Prodigy software, an annotation tool and platform developed by Explosion AI, which is used to create annotated data for machine learning models and to train custom NLP systems. In this case, biomaterials experts are responsible for manually annotating the article abstracts and associated metadata to create the annotated dataset needed to train the classification systems. Figure 5 shows an example of the Prodigy user interface.

prodigy 🗸	TITLE: 'DESIGN AND BIOMECHANICAL TESTING OF PEDICLE SCREW FOR OSTEOPOROTIC IN 22558840)	ICIDENTS.' (PMID:
PROJECT INFO DATASET biomaterial_type_v2 SESSIONI martin RECIPE textcat-manual VIEW ID choice PROGRESS THIS SESSION 0 TOTAL 0 HISTORY	In this study, geometrical features of pedicle screws have been modified and their performance Performance analysis has been made in terms of pull-out strength and torsional strength. The investigated are core diameter, holes drilled normal to screw axis, angle between sequential ho between holes. Three different core diameter have been studied, which are 4 mm (normal core (medium core diameter) and 5.5 mm (high core diameter). Distance between sequential holes is such that there is either one hole per pitch or one hole per two pitches. Angle between sequent degrees or 120 degrees. According to the test results, the screw, with medium core diameter (the hole per two pitches with 90 degrees angle between sequential holes, has exhibited the optime considering torsional strength and pull-out strength requirements. Its torsional strength is slig when Grade 40 polyurethane foam was used as bone simulating material, its pull-out strength undrilled normal core diameter screw, which is already being used in surgical operations. The fi this best performed screw has also been found satisfactory according to the related standard. also tested on a calf vertebra and a promising result has been obtained.	parameters oles and distance diameter), 5 mm has been arranged tial holes is either 90 5 mm) containing one um performance htly higher than and, is as good as, an atigue performance of
	Not	1
	Other	2
	metallic	3
	polymeric	4
	ceramics	5
© 2017-2023 Explosion (Prodigy v1.11.7)	natural × × ✓ ←	6

Figure 5. Example Prodigy's interface for biomaterial type content classification

2.2 Data frontend

The data-frontend is progressing well, the essential views have already been setup or layouts have been defined. Currently, the web-app works with dummy data to showcase its functionality and to prepare everything for the actual data.

Some features which have to wait until the actual data is ready are e.g., the search and visualisations. However, for both, the basic setup is already done and can be quickly adapted to the possibly new data (structures).

Currently implemented are (structurally):

- The start page including search
- The dashboard including some visualisation with dummy data
- Biomaterial list view
- Biomaterial detail view
- Literature view
- Event view
- Project view

The demonstrator for the frontend will be accessible via https://devbiomaterialdatabase.com.

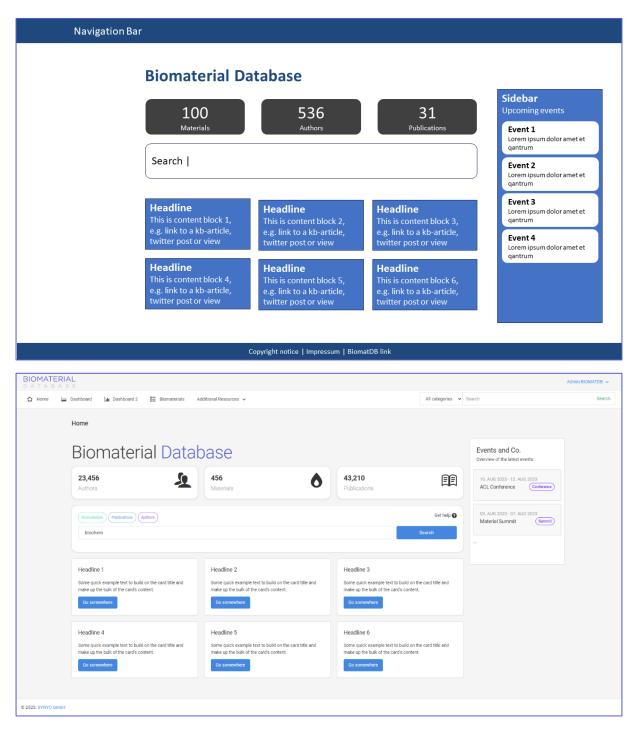


Figure 6. Biomaterial Database start page layout and current implementation

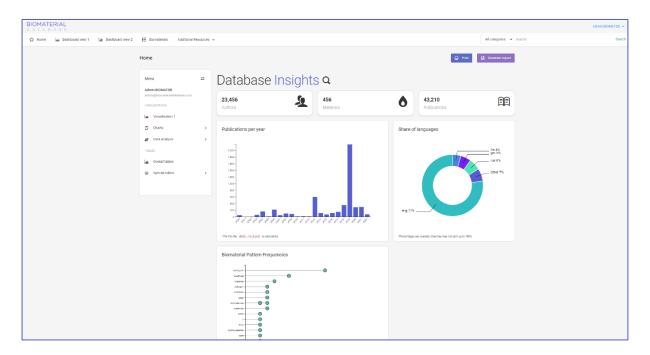
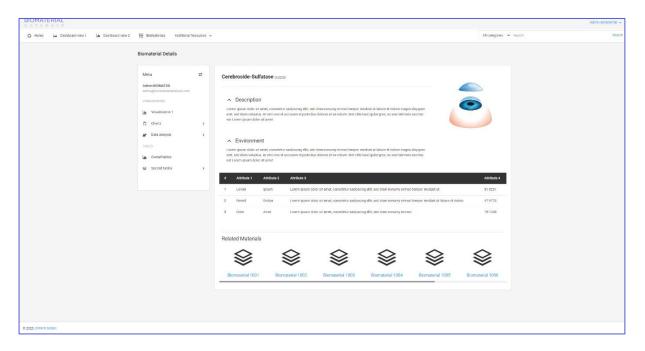


Figure 7. Dashboard view

Admin BIOM/									MATE
	Search	All categories 👻		esources 🛩	Addition	E Biomatorials	Lat Dashboard view 2	Dashboard view 1	Home
		🖓 Print 🕞 Concrute report				Biomaterials			
		Search		=		Filter			
	1	Paga	rials			CHECK BUTTONS Checked Unchecked			
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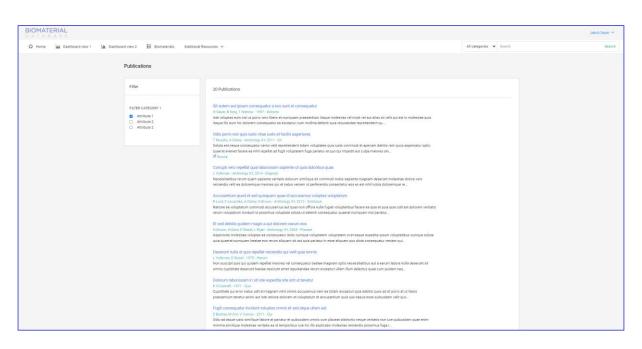


Figure 10. Literature list view

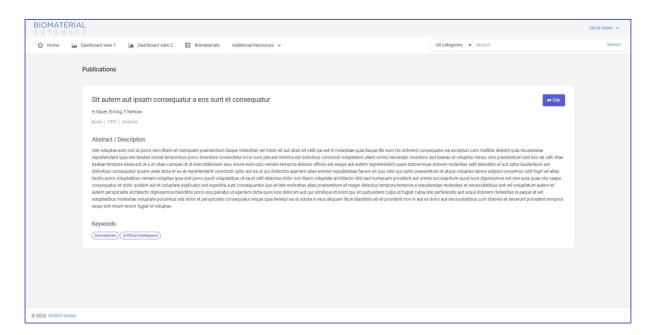


Figure 11. Literature detail view

BIOMATERIAL						Jakob Seper 🗸
DATABASE	view 1 👍 Dashboard view 2	Biomaterials	Additional Resources 👻		All categories 👻 Search	Search
	Projects					
	Filter		3 Projects			
	FILTER CATEGORY 1 FILTER CATEGORY 1 Attribute 1 Attribute 2 Attribute 2		BIOMATDB =	BIOMATDB Advanced Database for Biomaterials with Data Analysis and Visualisation Tr Advisors Programme HOR2ON Coordinator: SYNYO GmbH	ools extended by a Marketplace with Digital	
			BIOMATDB 🛃	BIOMATDB Advanced Database for Biomaterials with Data Analysis and Visualisation Tr Advisors Programme HORZON Coordinator: SYNYO GmbH	ools extended by a Marketplace with Digital	
			BIOMATDB	BIOMATDB Advanced Database for Biomaterials with Data Analysis and Visualisation To Advisors Programme HORZDN Coordinator SYNYO OmbH	ools extended by a Marketplace with Digital	
© 2023. SYNYO GmbH						

Figure 12. Project list view

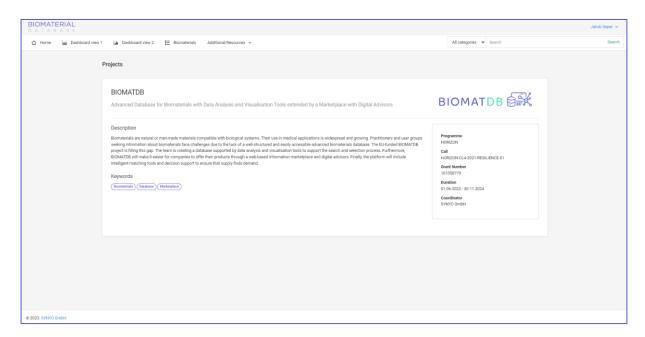


Figure 13. Project detail view

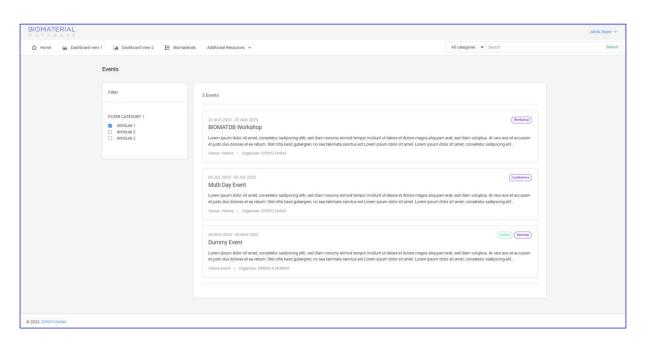


Figure 14. Event list view

BIOMATERIAL DATABASE			Jakob Seper 👻
🛆 Home 🔛 Dashboard view 1	🕍 Dashboard view 2 🗄 Biomaterials Additional Resources 🤟	All categories 👻 Search	Search
E	vents		
	BIOMATDB Workshop 22 Aug 2023	(Weekshoop)	
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© 2023, SYNYO GmbH			

Figure 15. Event detail view

3 Biomaterial Marketplace

The frontend and backend components for the Biomaterial Marketplace are basically in place. At the moment, first versions are available on development servers and will undergo further internal testing before including external partners to the process. To demonstrate the functionalities, sample data has been added for the implemented modules. Still to be deployed on a development server are the Advisors.

Concluding, the implementation status of the Biomaterial Marketplace is the following:

Frontend

- All modules foreseen for Phase 1 in place
- Development version live on https://devbiomaterialmarketplace.com (restricted access)

Backend (Adminbase)

- Supplier panel in place
- Development version live on https://biomaterialmarketplace.devadminbase.com (restricted access)

Advisors

• To be finalised and deployed on development server

3.1 Supplier Panel (AdminBase)

BioMaterial Marketplace		
Dashboard		
Dashboard		
Products (3)	+ Add	I Product
Hyaluronic Acid Category: Raw Biomaterials	Bioactive Dental Imp Ophthalmic Intraocu CHINGION Medical Devices CHINGION Medical Devices	
Services (2) Medical Advisory Critistry: Advisory	A A Biomaterial Supply C Crispon: Transportation	dd Smrke
Documents (1) * RAIBIODY SPECIALIST When the second sec	+ Aas	Dorument



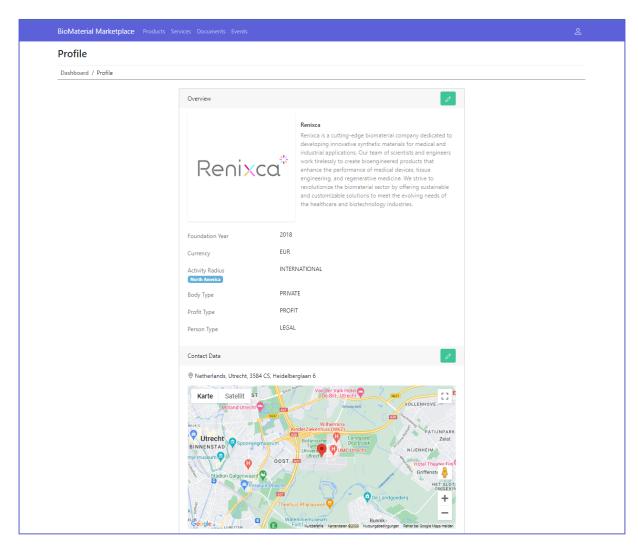


Figure 17. AdminBase organisation profile

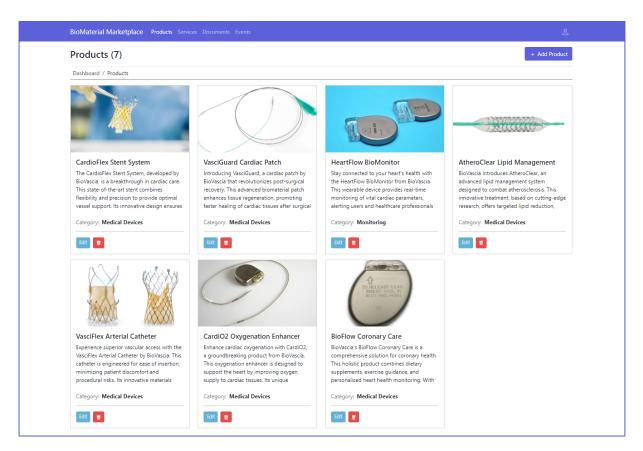
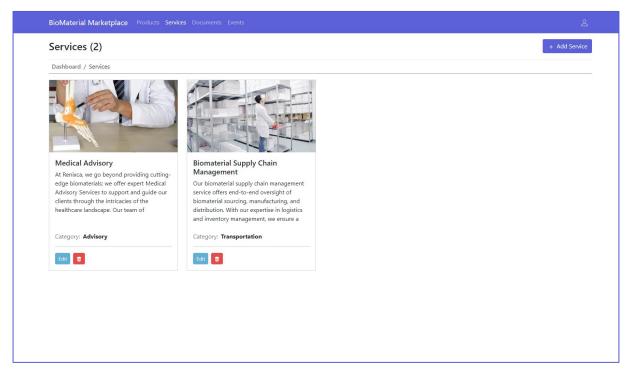


Figure 18. AdminBase product overview

BioMaterial Marketplace Products Se		
Add Product		
Dashboard / Products / Add Product		
	Name	
	Enter Name	
	Product Category	
	Select 🗸	
	Technology Readiness Level	
	Select 🗸	
	Launched	
	Description	
	Enter Description	
	Product Image	
	+ Add Image	
	+ Auu image	
	Save	







BioMaterial Marketplace Products	Services Documents Events	ද
Add Service		
Dashboard / Services / Add Service		
	Name	
	Enter Name	
	Service Category	
	Select 🗸	
	Service Price Currency	
	Select 🗸	
	Description	
	Enter Description	
	// Service Image	
	+ Add Image	
	Save	

Figure 21. AdminBase service form

BioMaterial Marketplace	roducts Services Documents E			
Documents (3)			+ Add Document	
Dashboard / Documents				
HART INFORMATION	<section-header></section-header>			
page count: 1 brochure	page count: 4 brochure	page count: 8 brochure		

Figure 22. AdminBase document overview

BioMaterial Marketplace Products Se	rvices Documents Events	
Add Document		
Dashboard / Documents / Add Document		
	Document Name	
	Enter Document Name	
	Туре	
	Select V	
	Document Language	
	Select V	
	Publish Year	
	Enter Publish Year	
	Upload Document	
	Datei auswählen Keine ausgewählt	
	Save	

Figure 23. AdminBase document form

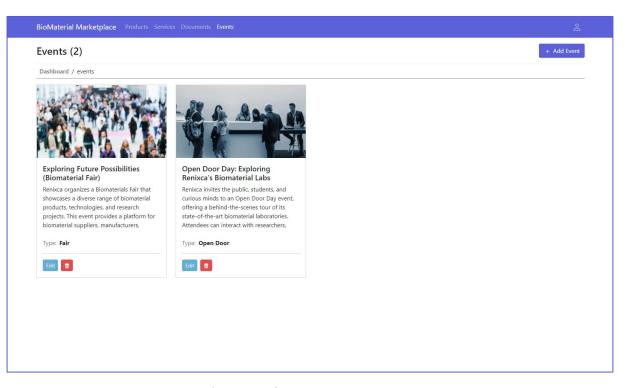


Figure 24. AdminBase event overview

BioMaterial Marketplace Products Se	rvices Documents Events		
Add Event			
Dashboard / events / Add Event			
	Name		
	Enter Name		
	Event Type		
	Select		×
	Start Date	Start Time	
	25.08.2023	Enter Start Time	
	End Date	End Time	
	25.08.2023	Enter End Time	
	Indoor/Outdoor		
	Select		~
	Description		
	Enter Description		
	Target Group		
	Enter Target Group		
	Organiser Info		
	Enter Organiser Info		
	Country		
	Select		×
	City		
	Enter City		

Figure 25. Adminbase event form

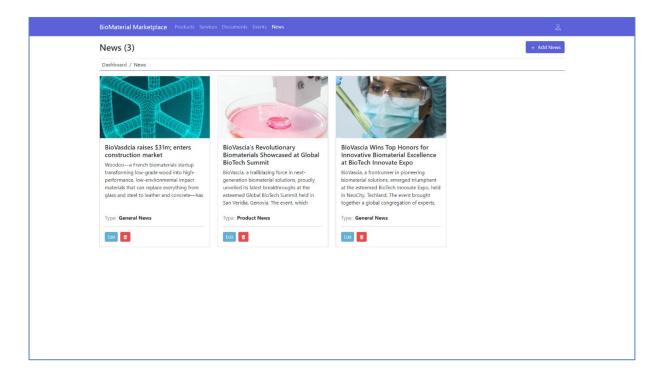


Figure 26. Adminbase news list

BioMaterial Mari	ketplace Products Services Documents Events News	
Add News		
Dashboard / New	s / Add News	
	Headline	
	Enter Headline	
	News Type	
	Select 🗸	
	News Content	
	Enter News Content	
	Organiser Info	
	Enter Organiser Info	
	li l	
	News Image	
	+ Add Image	
	Save	
	Save	

Figure 27. Adminbase news form

3.2 Frontend

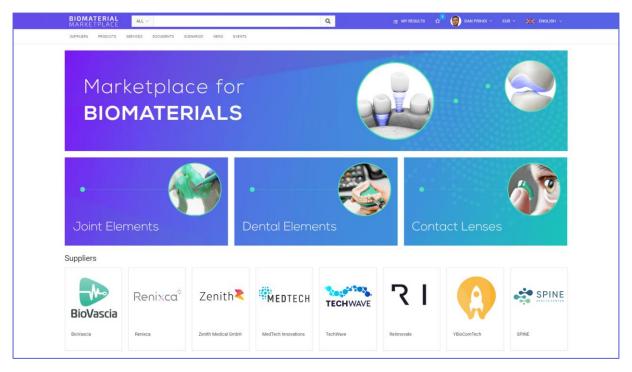


Figure 28. Biomaterial Marketplace start page

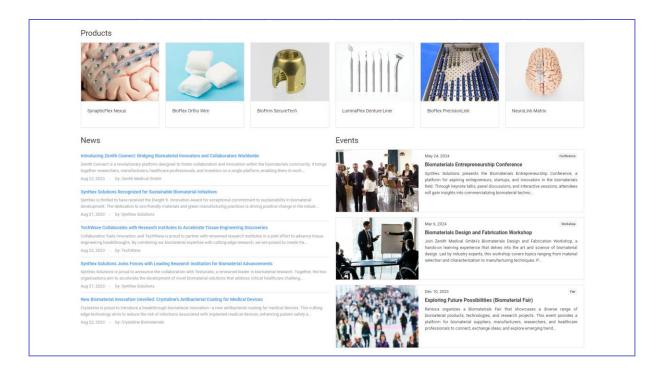


Figure 29. Continued Biomaterial Marketplace start page

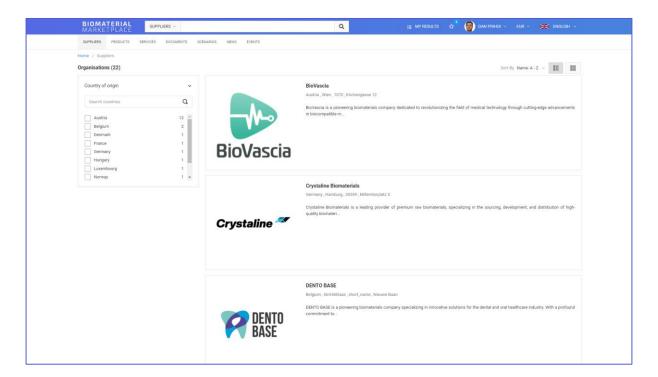


Figure 30. Supplier list view

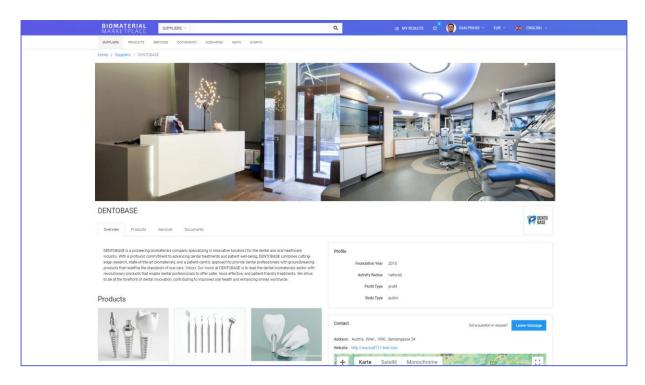


Figure 31. Supplier detail view

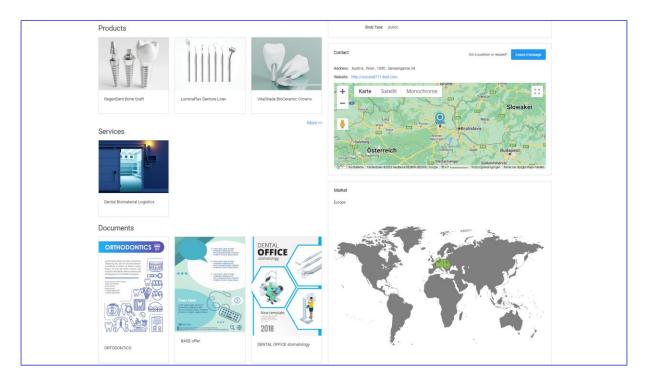


Figure 32. Continued supplier detail view

Uper seconds Image: Control of Organizations Image: Control of Organization Image: Control of Organizations Image: Control of Organization Image: Control of Organ	roducts (6)			Sort By Name A-Z 🗸 🔢 🔡
Control Provided by BovYascia Organisations Image: Control parameter in the control at the	Categories	~	Organisation: BioVascia X Remove All	
Organisations Image: Construction of Constructions Image: Construction of Con	Biomaterials	6		
Image: Service as a servic	Organisations	~		BioVascia introduces AtheroClear, an advanced lipid management system designed to combat atherosclerosis. This innovative treatment, based on cutting-edge resea
Contry of origin Image: Control in the image: Contro in the image: Control in the image: Contro in the image	Search Organisations	Q		
Bit/Effect Construct Care Nutlexcost Nutlexcost Pender Pender <td></td> <td>6 *</td> <td></td> <td></td>		6 *		
MadTech Insolutions 1 MadTech Insolutions 7 MadTech Insolutions MadTech Insolutions Provided by BavYaccia MadTech Insolution for coronary health. This holistic product combines dividary applements, e guidance, and pe Provided by BavYaccia MadTech Insolutions MadTech Insolution MadTech Insolution MadTech Insolution MadTech Insolution MadTech Insolution Provided by BavYaccia Provided by Bav				BioFlow Coronary Care
NELEBOODS Teat 7 Oranjao Teat 7 PROMET Teat 7 PROMET Teat 7 Promet Teat 7 Country of origin Image: Country of origin Image: Country of origin Image: Country of the promet Country of the pr			Contraction of the local division of the loc	
Image: Constry of origin Image: Consty of origin Image: Consty or	NEUROXIS	7	The second second	
Country of origin Country of origin Country of origin Austria Country of argin CardiO2 Oxygenation Enhancer Provide by Bolytacea CardiO2 Oxygenation Enhancer Provide by Bolytacea CardioPlex Stent System CardioPlex Stent System	NEUROXIS Test	7	NULLEOF THE STORE	BioVascia's BioFlow Coronary Care is a comprehensive solution for coronary health. This holistic product combines dietary supplements, exercise
Country of origin • Bearch countries Q Austria 6:	OrtoPro Test	7		guidance, and pe
Bearch countries Q Austria 6 Austria 6 Ethance cardiac oxygenation Ethancer Provided by BioVascia Ethance cardiac oxygenation with CardiO2, a groundbreaking product from BioVascia. This oxygenation ethancer is designed to support B by improving oxyga Ethance cardiac oxygenation ethancer is designed to support B by CardioFlex Stent System CardioFlex Stent System	PRIME Test	6 -		
Search countries Q Austria 0	Country of origin	~		
Austria 6 Enhance cardice organition with CardO2, a groundbreaking product from BioVascia. This organition enhancer is designed to support the by improving organ. CardioFlex Stent System	Cearch secontrias	0		
by improving axyse	deeron sources	4		e tornees of solvenson
	Austria	86		Enhance cardiac oxygenation with CardiO2, a groundbreaking product from BioVascia. This oxygenation enhancer is designed to support the heart by improving oxyge
			-	
				CardioFlex Stent System
Provided by BioVascia			and a second	Provided by BioVascia
				The CardioFlex Stent System, developed by BioVascia, is a breakthrough in cardiac care. This state-of-the-art stent combines flexibility is

Figure 33. Product list view

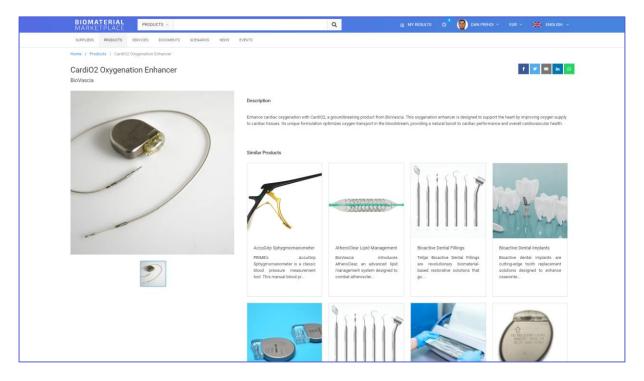


Figure 34. Product detail view

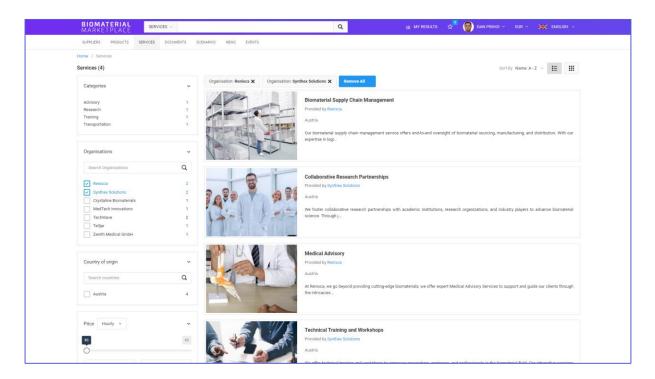


Figure 35. Services list view

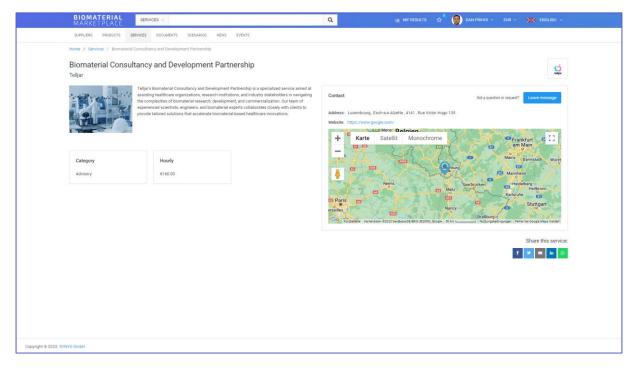


Figure 36. Service detail page

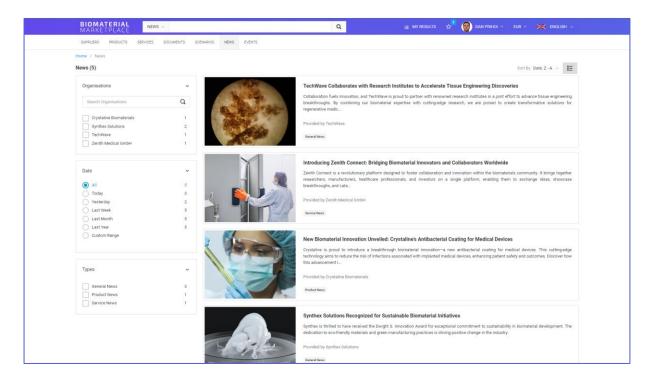


Figure 37. News list view

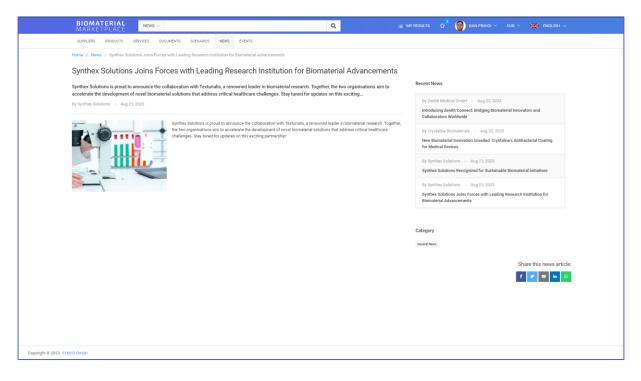


Figure 38. News detail view

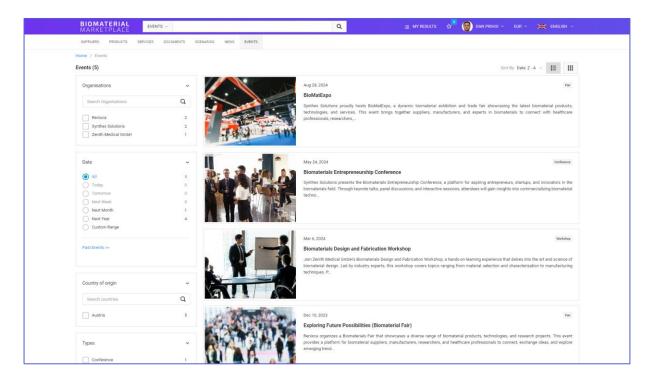


Figure 39. Events list view



Figure 40. Event detail view

BIOMATERIAL MARKETPLACE	*		Q	🌐 MY RESULTS 🏠	🛛 🎯 DAN PRIHOI ~ E	eur - 🗰 english -
SUPPLIERS PRODUCTS SERVICES DOCU	MENTS SCENARIOS NEWS EVENTS					
Home / Documents						
Documents (23)					Sort By	Name: A - Z - 🛛 🗮
Organisations	•	· Interior		2	BLOOD	BRAIN
Search Organisations	Q Annual Report	······································		285		12 9
	tiet at 1	Territoria a	25	and the second		
BioVascia Crystaline Biomaterials	3	Territor				
DENTOBASE	3 2			9 9	E/ 10	
MedTech Innovations NEUROXIS	1 Anual Report	BASE offer	Biocompatible	Biomaterial Catalogue	Blood Preassure	Brian health
OrtoPro	4		Biomaterials (MedTech)	(Crystaline)		
PRIME	3					
Renixca		P DENTO BASE	MEDTECH	Crystaline 🥙		NIN
		BASE	MEDIECH	Grystanne	BioVascia	neuroxis
Types	~			· · · · · ·	Pages: 4	1
brochure	Pages: 2	Pages: 2	Pages: 12	Pages: 12	Pages: 4	Pages: 4
catalogue	8		DENTAL	HART RESERVICE		
	CLINIC COVER	- 10 ¹	OFFICE	· · ·	COVER DESIGN	MATTRESS AND SPINE HEALTH
Languages	DESIGN	* RADINARY SPECIALIST		-35		
English	23			- 1		
English		3	These temperature	Wile Min.	-0-2	
	10000 - 10000		2018	CANVAMOIA0		
	Clinic Services	Company Brochure	DENTAL OFFICE	Heart infographics	Joints and more: offer	MATRESS SPINE
		(Renixca)	stomatology			
			DENTO		2.0	
	OrthopPro	Renixca	P DENTO BASE	BioVascia	VITECH	SPINE SPINE
	ormophi				VITECH	
	Pages: 10	Pages: a	Pages: #	Pages: 1	Pages: 6	Pages: 4

Figure 41. Document view

BIOMATERIAL MARKETPLACE	UMENTS ~		Q III MY	🕘 DAN PRIHOI 🗸 🛛 EUR	✓ ₩ ENGLISH ~
SUPPLIERS PRODUCTS SERVICES	DOCUMENTS SCENAR	NOS NEWS EVENTS			
Home / Documents					
Documents (23)				Sort By Nam	E A - Z 🗸 📘 🔠
Organisations	~		Anual Report		
Search Organisations	Q	Annual Report	Provided by PRIME		PRIME
oraich organiaauona		Elec al V	Pages: 2		
BioVascia	3 ^				
Crystaline Biomaterials DENTOBASE	2	Energy From Elege Marco			
MedTech Innovations	1	and a second sec			
NEUROXIS	1				
OrtoPro	4	A second se	BASE offer Provided by DENTOBASE		P DENTO BASE
PRIME Renixca	3				BASE
Portaca			Pages: 2		
		Year level			
Types	~				
brochure	15	Construction of the local data of the			
catalogue	8		Biocompatible Biomaterials (MedTech)		
			Provided by MedTech Innovations		MEDTECH
		Comment and the second	Pages: 12		
Languages	~				
English	23				
		2			
			Biomaterial Catalogue (Crystaline)		Crystaline 🌌
			Provided by Crystaline Biomaterials		Gryatanne
			Pages: 12		

Figure 42. Document list view

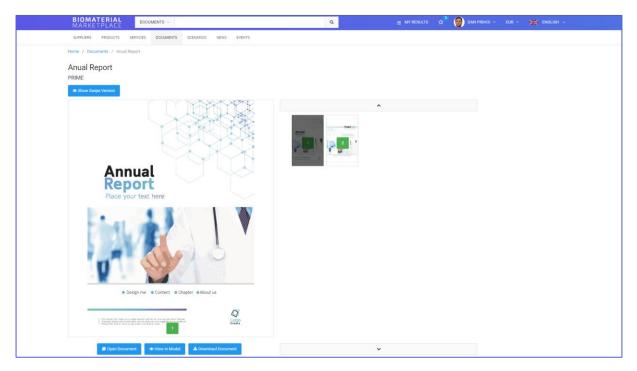


Figure 43. Document detail view



Figure 44. Document detail read view

SUPPLIERS PRODUCTS SERVICES	DOCUMENTS SCENARIOS NEWS EVENTS		
Home / Scenarios Scenarios (12)			Sort By Name: A - Z ~ IE IE II III
Body Parts		Medical Specialites	
K	Arms Unell a Range of Biomaterial Solutions and Medical Devices Tailored for Arm Health. Discover innovations that empower individuals with armrelated challenges Body Parts		Cardiology Cardiology is a specialized medical field focused on the diagnosis, treatment, and prevention of cardiovascular diseases and disorders. Cardiologists are expert Medical Specialities
K	Head The scenario 'Yead' addresses a range of head-related conditions caused by diseases, accidents, physical disabilities, or aging individuals facing mobilityres Body Parts		Dentistry Destany is a visal healthcare discipline dedicated to oral health and hygiene. Destants specialize in diagnosing and treating various oral conditions, includi Medical Specialities
K	Hips Step into a World of Biomaterial Advancements for Hip Health. Explore specialized biomaterials and medical devices designed to optimize hip functionality, and L Body Parts		Neurology Neurology is a medical speciality centered around the intrivate complexities of the nervous system. Neurologists specialize in diagnosing and treating disorders Medical Specialities
K	Legs Explore innovations for Enhanced Leg Health with Biomaterial Solutions. Dive into a carated selection of medical devices and materials tailored to empower indiv. Body Parts	0	Ophthalmology is a specialized field focused on the health and diseases of the eyes. Ophthalmologium are experts in diagnosing and treating a wide range of eye Medical Specialities
	Miscellaneous In a world of unique healthcare challenges, the "Miscellaneous" scenario stands as a dynamic space within the Biomaterial Marketplace. Tailored to accommodate c Body Parts		Plastic Surgery Plastic usympt is a specialized branch of medicine dedicated to enhancing and restoring physical appearance. Plastic surgeons possess the expertise to perform

Figure 45. Scenario overview

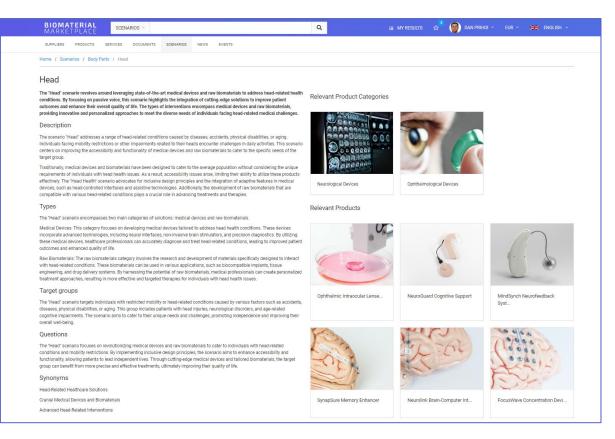


Figure 46. Scenario detail view

3.3 Advisors

The Advisors modules are currently under development. Once deployed, the Advisors will be available over the domain advisors.devbiomaterialmarketplace.com – initially for internal testing purposes, only accessible with valid credentials.

The following screenshots (Figure 47 and Figure 48) show the development progress of the Advisors module *EU Projects*. The aim of the module is to suggest the user opportunities for EU projects based on their provided organisation information.

DEMO MARKETPLACE	ALL 🗸	Q, 🧐 DAN PRIHOI 🗸 💥 ENGLISH 🤟
PROJECTS		
Home / Projects		
Projects (10000)		Sort By Name: A - Z - 🖉 🔛
Call Types	~	Driving simulator for disabled people with scientific assessment of driving skills and indication to of adaptation to be made to the vehicle
Search Call Type	Q	ID:685105 From: Jul 1, 2015 to: Dec 31, 2015
H2020-EIC-SMEInst-2018-20	20 2545	This project involves the creation of a driving simulator for disabled people that can provide a scientific assessment of their driving skills and indicate the type of adaptation to be made to the vehicle.
H2020-MSCA-IF-2014	2722	The product consists of three different components: a complex hardware
H2020-MSCA-IF-2015	2418	
H2020-MSCA-IF-2016	2506	Coordinator: unknown
H2020-MSCA-IF-2016		Programme: unknown
	2734	
H2020-MSCA-IF-2018	2750	
H2020-MSCA-IF-2019	2988	Condition Monitoring of Wind Turbine Drive-Trains via Non-Contact Acoustic Sensors
H2020-MSCA-IF-2020	3316 +	ID: 701002
		From: Mar 1, 2016 to: May 31, 2019
Category Types	~	The EU Agency for Safety & Health is currently amending wind turbine standards (such as EN 50308) to ensure safer OBM tasks and increase the Probability Of Detection (POD) for wind turbine defects. ISO have also identified auch issues, and in fact initiated the development of
Search Category Type	Q	Coordinator: unknown
		Programme: unknown
business models	2086	Рюданные, шклоwн
climatic changes	1706	
ecosystems	2121	Magnetic Diagnostic Assay for neurodegenerative diseases
history	1265	
machine learning	1235	ID: 732678
oncology	1414	From: Jan 1, 2017 to: Mar 31, 2020
	1727	MADIA aims at realizing a versatile and cheap diagnostic device based on magnetoresistive sensors, microfluidic device,ultra-small Magnetic Nanoparticles (MNPs) and advanced bio-chemical
proteins	1185 +	functionalization methods for the early and ultrasensitive.in vitro detection of
renewable energy	1185 -	
		Coordinator: unknown
Organisation Types	v	Programme: unknown
Search Organisation Type	Q	Online Dialysis Sensor
HES	72577	10: 662861
OTH	15423	From: Mar 1, 2015 to: Aug 31, 2015
		End-stage rehal disease (ESRD) Is the most severe form of chronic kidney disease that is an incurable health failure. ESRD is a widespread health issue in developed countries and the patients have
PRC	72082	only two options: either receive permanent renal replacement therapy or undergo
PUB	11958	
REC REC	45627	Coordinator: unknown
		Programme: unknown
Programme Codes	v	Breakthrough self-charging remote monitoring device for smart rail freight wagons to enhance sustainability of railway sector
Search Programme Code	Q	ID: 868418
		From: Jun 1, 2019 to: Nev 30, 2019
EIC-SMEInst-2018-2020	2481	Railway plays a central role in European logistics and it is continuously growing. With the increasing importance of rail transport as the greenest mode, there is an urgent need on safety, efficiency,
H2020-EU.1.1.	7848	name page or center the intervent is uppendixed and it is commonly growing, that the increasing inportance of rain transport as the greenest mode, there is an agent need on same, encency, performance and valibility to ensure its sustainability comparies acting
H2020-EU.1.3.	11804	Manage Angeler Stranger St. Manager St. Start St. 1920 - 3 The Charge St. 1920
H2020-EU.1.3.2.	9717	Coordinator: unknown
	2673	
H2020-EU.2.1.		Programme: unknown

Figure 47. Project overview

PROJECTS Home / Projects / An Al-Pov	vered Visual Assistive Desi	ign IoT Pathway Pla	itform to implement fast and optimal	automated patient	pathways and healthc	are demand planning pro	jects		
***		0	€				Similar Projects		
16 Patners	9 Countries	24 Duratio	€2,586,500 Total Budget		810,550 ed Amount	Progress	Type to filter	Q	25 \$
							Project ^	Topic 0	Status 0
General Information					Funding Dis	tribution	ACROSS	EuroHPC-02-2019	SIGNED
RCN: 240694							AI4EOSC	HORIZON-INFRA-2021-EOSC-01-04	SIGNED
Title: An Al-Powered Visual A	ssistive Design IoT Pathwa	ay Platform to imple	ement fast and optimal automated p	atient pathways			alD	MSCA-RISE-2019	SIGNED
and healthcare demand plane Teaser: MYSPHERA has rolle		location solution to	o track and manage patient pathway	rs in real time. It		018,025	ALOHA	ICT-05-2017	SIGNED
automates the surgical proce notifications. As a result, the	ss by means of tailored ap	plications that emp	ower staff with live patient-flow data	a and			ANDANTE	ECSEL-2019-2-RIA	SIGNED
Language: EN							ASGARD	SMEInst-01-2016-2017	CLOSED
Start Date: 2022-05-01							ASSISTANT	ICT-38-2020	SIGNED
End Date: 2024-04-30 Topic: HORIZON-EIC-2021-AC	CELERATORCHALLENGES	6-01-01			Organisatio	n Types Distribution	AVATAR	HORIZON-CL5-2022-05-01-13	SIGNED
Call: -							BeforeHand	ICT-07-2018	SIGNED
Actions: HORIZON Action Gra	nt Budget-Based					16	Bonseyes	ICT-01-2016	CLOSED
						10	CLIM	ERC-ADG-2015	SONED
							CONT-ACT	ERC-SIG-2014	CLOSED
							DATASET	EIC-SMEInst-2018-2020	CLOSED
PATHMAKER Partners							DEMABIS	EIC-SMEInst-2018-2020	CLOSED
PATHMAKER Partners							ExELang	ERC-2020-COB	SIGNED
Type to filter	Q					10 ¢	ExtremeEarth	ICT-12-2018-2020	SIGNED
					Number		FACTORY	ERC-CoG-2015	SIGNED
Partner	0	Role ^	Organisation Type	EC Contribution	of C Projects	Country 0	Green Dat Al	H0R/ZON-CL4-2021-DATA-01-03	SIGNED
			Private for-profit entities				HIBOO	EIC-SMEInst-2018-2020	CLOSED
NVISO SA		Coordinator	(excluding Higher or Secondary Education	O€	54	Switzerland	I-BiDaaS	ICT-16-2017	CLOSED
			Establishments)				IDIU	ERC-SIG-2014	CLOSED
ISTRAZIVACKO-RAZVOJN ZA SISTEME ZASNOVANI		Participant	Private for-profit entitles (excluding Higher or	802,500€	272	Serbia	IoTwins	ICT-11-2018-2019	SIGNED
NOVI SAD	NA KALUNARIMA	Participant	Secondary Education Establishments)	802,500€	272	Serbia	JUSTINMIND-XR	EIC-SMEInst-2018-2020	CLOSED
			Private for-profit entities				KiCloud	EIC-SMEInst-2018-2020	CLOSED
ARM LIMITED		Participant	(excluding Higher or Secondary Education	717,418€	11	United Kingdom	M2DC	ICT-04-2015	CLOSED
			Establishments)				MZDG	10104/2015	CLUSED
THE UNIVERSITY OF EDIN	BURGH	Participant	Higher or Secondary Education Establishments	630,924€	304	United Kingdom	Showing page 1 of 2		1 2
THE PROVOST, FELLOWS SCHOLARS & THE OTHER OF THE COLLEGE OF THE TRINITY OF QUEEN ELIZA	MEMBERS OF BOARD, HOLY & UNDIVIDED	Participant	Higher or Secondary Education Establishments	582,628€	15	Ireland			
INSTITUTE OF COMMUNICOMPUTER SYSTEMS	CATION AND	Participant	Research Organisations	375,977€	45	Greece			
BLEKINGE TEKNISKA HO	SSKOLA	Participant	Higher or Secondary Education Establishments	344,127€	2	Sweden			
ZF FRIEDRICHSHAFEN AG		Participant	Private for-profit entities (excluding Higher or Secondary Education Establishments)	304,725€	52	Germany			
DARWIN DIGITAL DOO BE	OGRAD-STARI GRAD	Participant	Private for-profit entities (excluding Higher or Secondary Education Establishments)	298,045€	8	Serbia			
UNIVERSIDAD DE CASTIL	LA - LA MANCHA	Participant	Higher or secondary education establishment	271,389€	Ť.	Spain			

Figure 48. Project detail view

4 Help System and Knowledge Base

The knowledge base for the Biomaterial Database is already set up and currently live on help.biomaterialdatabase.com, containing sample data. The domain is not yet available for the public and can only be accessed by providing valid credentials. The other two help solutions are currently under development.

Biomaterial Database Knowledge Base

- Successfully set up
- Using a ready-to-use software package
- Live with sample content on https://help.biomaterialdatabase.com (restricted access)
- Different layouts have been tried out

Biomaterial Marketplace Knowledge Base

- Under development
- Manually developed

AdminBase Help System

- Under development
- Manually developed
- With ticketing system

BION Hore a question ² Aik or enter a sourch		3 5 T
Popular Articles Is your porridge suitable for vegans? Our Gaves Singler Finis panistipe in remain your with mild however it will be suitable for vegans if it's mode [] Hello world! Weisome to WordPress. This is your first p	Warum ist die Banane krumn? Die Romen is komm aufgrund der sugerannten Geschopfe, auch Genötenpie genamt. Die Gestenpie ist die Rekklon von Pfancen auf die [] post. Fölt or delete is, then start wilking!	Where does the data come from? Iome journ lobe of emet, concriste adapting effer, end dan norany enroad tempo inidiant at labore et dobre magna aflegen []
Article Categories International States Sta		vent (1) e does the data come from?

Figure 49. Knowledge Base start page layout option

BIOMAT Here a guestion? Ask or enter a search term.	ГDВ		
Category: Biomaterials () Benerota) Sourcess Single Plain pointige suitable for vegans? Our Oatoo Single Plain pointige is normally made with mill Read New - Warum ist die Banane krumm? Die Source ist krums aufgrund der sogenanten Gosteppi de [_] Ned New -			
Categories Examination Unreformed Cenr	Project Database Mariletpiece Project website	Legal Impression Prinary Holozo Grant	

Figure 50. One category page layout options

Where does the data come from? # / Development / Where does the data come from?			
Lorem ipsum dolor sit amet, consetentur sadipacing effit, sed diam no sed diam voluptua. At vero cos et accusam et justo duo dolores et es sum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipso magna aliquyam est, sed diam voluptua. At vero eos et accusam et j sanctus est Lorem ipsum dolor sit amet.	a rebum. Stet clita kasd gubergren, cing elitr, sed diam nonumy eirmo	no sea takimata sanctus est Lorem ip- d tempor invidunt ut labore et dolore	
	901) - 601) 901)		
Dat	a seurces		
Duis autern vel eum iriure dolor in hendrerit in vulputate velit esse m accumsan et iusto odio dignissim qui blandit praesent luptatum zzri amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod	I delenit augue duis dolore te feug	ait nulla facilisi. Lorem ipsum dolor sit	
Ut visi enim ad minim veniam, quis nostrud exerci tation ullamcorps vel eum iriare dolor in hendren't in valputate velit esse molestie cons et isato octio dignissim qui blandit praesent luptatum zzril delenit aug	sequat, vel illum dolore eu feugiat	nulla facilisis at vero eros et accumsan	
Categories	Project	Legal	
Development	Marketplace	Prinacy	
Other	Project website	H2020 Grant	
	() 2023 BIOMATOB Horizon Eur	ope CL4-2021-RESILENCE-01-25 1010587/9	

Figure 51. Article view with image option

Following, a different design and some new views, such as the all articles and all categories' sites, are presented.

	BIOMATERIAL DAT/	ABASE Knowledge B a	ase and Helpsystem	
Have	Have a question? Ask or enter a search term.			
Popula	ar Articles			
	ur porridge suitable egans?	Warum ist die Banane krumm?	Where does the data come from?	
normall	tso Simple Plain porridge is ly made with milk however it will able for vegans if it's made []	Die Banane ist krumm aufgrund der sogenannten Geotropie, auch Gravitropie genannt. Die Geotropie ist die Reaktion von Pflanzen auf die []	Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam []	
Hello	o world!			
	ne to WordPress. This is your st. Edit or delete it, then start !			

Figure 52. Start page layout and logo option

	Home / FAQ / Articles / Categories
Have a question? Ask or enter a search term.	
II Articles / Articles	
How to register your phone number WhatsApp requires an active phone number to create an account. If you're having issues registering, please check the following: You [] Read More –	
Is your porridge suitable for vegans? Our Oatso Simple Plain porridge is normally made with milk however it will be suitable for vegans if it's made [] Read More	
Warum ist die Banane krumm? Die Banane ist krumm aufgrund der sogenannten Geotropie, auch Gravitropie genannt. Die Geotropie ist die Reaktion von Pflanzen auf die [] Read More	
Where does the data come from? Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliguyam [] Read More	



BIOMATERIAL D A T A B A S E Republique Bate and Malpaysian				Home / FAQ / Articles / Categories
	Have a question? Ask or enter a search to	erm.	Q SEARCH	
	Popular Articles			
	Is your porridge suitable for vegans?	Warum ist die Banane krumm?	Where does the data come from?	
	Our Oatso Simple Plain porridge is normally made with milk however it will be suitable for vegans if it's made []	Die Banane ist krumm aufgrund der sogenannten Geotropie, auch Gravitropie genannt. Die Geotropie ist die Reaktion von Pflanzen auf die []	Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam []	
	Hello world!			
	Welcome to WordPress. This is your first post. Edit or delete it, then start writing!			
	Article Categories			
			000	
	Biomaterials This category encompasses posts about a diverse range of materials engineered to interact with biological systems, often used for medical and healthcare	Development The development category focuses on questions about the process of designing, implementing, and refining the database and related components.	Other The 'Other' category is a catch-all for miscellaneous topics in the biomaterials field.	

Figure 54. Alternative front-page layout

BIOMATERIAL D A T A B A S E Knowledge Rate and Helpsystem				Home / FAQ / Articles / Categories
	Have a question? Ask or enter a search	term.	Q SEARCH	
	All Categories			
			000	
	Biomaterials This category encompasses posts about a diverse range of materials engineers to interact with biological systems. Often used for medical and healthcare applications.	Development The development category focuses on questions about the process of designing, implementing, and refining the database and related components.	Other The 'Other' category is a catch-all for miscellaneous topics in the biomaterials Field.	
			SNNYO Gindar Otto-Bouer-Caster 5/14 1000 Vennis, Australia	

Figure 55. All categories

5 Conclusion

In conclusion, this additional report provides a tangible representation of the BIOMATDB project's progress, reflecting the dedication and effort invested in creating a robust biomaterial ecosystem. The additional report exemplifies the project's commitment to delivering user-centric solutions that cater to various needs within the biomaterial community. The visual representations and outlined components collectively offer a promising outlook for the project's future stages. This document showcased the evolving state of the project's key components, namely the Biomaterial Database, Biomaterial Marketplace, and the corresponding Help System and Knowledge Base.

It is evident that the development progress aligns with the expected time-frame, and the foundational views and layouts have been successfully established. While some of the content is yet to be filled, the fundamental infrastructure and interface elements have been established, laying a solid foundation for further development.

As this additional report represents a current status of an ongoing and permanent development, the displayed views in this document are subject to change at any time.

References

[1] Elasticsearch (2023) What is Elasticsearch? | Elasticsearch Guide [7.15] | Elastic. Available at: <u>https://www.elastic.co/guide/en/elasticsearch/reference/current/elasticsearch-intro.html</u> (accessed: Aug. 25, 2023).

Websites

Bootstrap: https://getbootstrap.com/docs/4.6/ D3.js: https://d3js.org/ Cytoscape.js: https://js.cytoscape.org/ jQuery: https://jquery.com/ Laravel: https://laravel.com/ PHP: https://www.php.net/ Collabto: https://www.php.net/ Collabto: https://www.collabto.com/ Skype: https://www.skype.com/en/ PHPStorm: https://www.jetbrains.com/phpstorm/ HeidiSQL: https://www.heidisql.com/ Postman: https://www.postman.com/ Flask: https://flask.palletsprojects.com/en/2.3.x/ Prodigy: https://prodi.gy/ Brat: https://brat.nlplab.org/