



# RELIANCE

## PROJECT WEBSITE

DELIVERABLE 9.1 - WP9

Date: 23. 09. 2022 - Version 0.0



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## SMART RESPONSE SELF-DISINFECTED BIOBASED NANOCOATED SURFACES FOR HEALTHIER ENVIRONMENTS

*A project funded by the European Union*

Document control information:

Settings	Value
<b>Deliverable Title</b>	RELIANCE Project Website
<b>Work Package Title and No.</b>	Communication, Dissemination and Exploitation (WP9)
<b>Deliverable number</b>	D9.1
<b>Description</b>	The website of the project is a key communication vector to ensure maximum project's visibility and dissemination of results. The website is accessible by the public and is designed to be functional and navigationally user friendly so information is found quickly, in a least number of clicks. It also includes a private collaborative space for the partners.
<b>Lead Beneficiary</b>	Europroject (EP)
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<b>Doc. Version (Revision number)</b>	Version 1
<b>Due Date:</b>	Month 4, 30 September 2022
<b>Actual Date:</b>	04 October 2022

Nature of the Deliverable		
R	Document, report (excluding the periodic and final reports)	
DEM	Demonstrator, pilot, prototype, plan designs	
DEC	Websites, patents filing, press & media actions, videos, etc.	X
OTHER	Software, technical diagram, etc.	

Dissemination Level		
PU	Public, fully open, e.g. web	X
CO	Confidential, restricted under conditions set out in Model Grant Agreement	
CI	Classified, information as referred to in Commission Decision 2001/844/EC	

Quality procedure			
Date	Version	Reviewers	Comments
03. 10. 2022	V1	Miren Blanco	
	V2		

## ACKNOWLEDGMENT

This report forms part of the deliverables from the RELIANCE project, which has received funding from the European Union's Horizon Europe programme through the European Health and Digital Executive Agency (HADEA). Neither the European Union nor the granting authority can be held responsible for any use that might be made of the content of this publication.

RELIANCE project aims to design and develop smart response self-disinfectant antimicrobial nanocoatings based on a new range of smart antimicrobial nanoparticles. They will consist of mesoporous silica nanoparticles with metallic copper in their structure, modified with biobased bioactive compounds: Antimicrobial peptides (AMP's) based on protein containing waste streams, and essential oils (EOs) coming from non-edible plants. The antibacterial action of these additives will be adjusted to the specific application, according to the dosages and durability requirements. In this way, two alternatives to incorporate the bioactive compounds will be considered:

- The incorporation of the biobased EO into the porous substrate, to allow a controlled release (T or pH) of the bioactive compounds to the environment,
- The attachment of the AMP to the nanoparticles surface, to allow a long-term action of the bioactive compound to the environment. RELIANCE project combines contact killing and leachable antibacterial actions ascribed to the additive with the non-sticking action due to the coatings' formulation, thus providing an integral holistic solution to antimicrobial problems on different surfaces.

The nature of the coatings, their characteristics (hydrophobicity and surface roughness) and their application methods (direct deposition by cold-atmospheric plasma, high throughput spraying or selective digital printing) will be specifically designed to allow not only the microbial repelling action, but also the adhesion of the coatings to different substrates commonly found in our living environments, such as metals, plastics or textiles, and to maximize their durability (in terms of performance and antibacterial properties). Beyond the present-day possibilities of conventional chemicals, sustainability and eco design criteria will be considered in the selection of the bioactives, and in the development of the nanocoatings.

The project runs from June 2022 to May 2026. It involves 15 partners from 8 EU and 2 non-EU countries, and is coordinated by Fundacion Tekniker, Spain.

More information about the project can be found at: <http://reliance-he.eu>

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## EXECUTIVE SUMMARY

The present **Project Website Report** (D9.1) represents an outline of the website's structure and functionality, being the main vehicle communicating information related to work activities as well as promoting project's key objectives, news about collaborations, achieved milestones and dissemination events. Furthermore, the goal of the website is to ensure high visibility and accessibility to the project's results and achievements through efficient communication and dissemination undertakings.

The general information on the website will be visualized with screenshots of the website pages. The website has been online since September 2022 and can be accessed at the following address: <http://reliance-he.eu>. The content on the website will be updated with the progress of the project and will be maintained at least 2 years after its end.

The Project Website Report should be perceived as interrelated with the Plan for Communication and Dissemination (D9.2) since it is an essential component in building awareness about the project and amplifying the impact of its outcomes.

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## D9.1 RELIANCE PROJECT WEBSITE

### 1. INTRODUCTION

RELIANCE website is the main avenue of all communication activities of the project. The RELIANCE domain was acquired in July 2022 (<https://reliance-he.eu>) and the website was brought live with a “Coming Soon” single landing page. In the end of September, the website was fully designed and developed by EP as WP9 leader, in collaboration with Tekniker, as coordinator, and the rest of the project partners. The website is updated and maintained throughout the project’s lifespan, to include 2 years after its end. This ensures access to the knowledge and data accumulated during the project to partners, key stakeholders and the public at large even beyond the timeframe of the project.

The website of RELIANCE appears in all promotional materials, both print and online, and constitutes a space for regularly communicating outputs, achieved milestones, and publishing official results.

#### 1.1 RELIANCE website objectives:

The website is an essential platform, which along with the other digital marketing channels of RELIANCE, forms a comprehensive and strategically used communication mix. It aims to achieve the following objectives:

- Build awareness and understanding about project’s mission, work activities, objectives and results;
- Ensure visibility of the project;
- Enhance the impact of the project through timely and accessible dissemination of its results;
- Enable effective communication between the project and external stakeholders, media and the public;
- Wide promotion of the project through easy access to the portfolio of informational and branding materials;
- Enable synergies and engagement with similar projects, programs and initiatives through relevant content, a prerequisite in itself for sharing and exchanging knowledge and best practices;
- Facilitate the exploitation of the project’s results.

#### 1.2 Monitoring and Performance Analytics

Website's metrics, statistics, trends, and the impact of each activity performed on the website are analyzed via Google Analytics on a regular basis. Reports on various performance indicators will be prepared to inform project partners of website's performance, such as:

- Unique users count visiting the website
- Average visit time and bounce rate
- Languages and geographic locations of visitors
- Number of page views and average page views per visit
- Top landing page and bounce rate for different pages

Google Analytics data will be collected every 3 months and reported to the consortium at the progress management meetings. Respective adjustments will be made to improve users' experience if required.

To improve the organic search results the website will be optimized via:

- Keywords and meta tags: primary keywords will be targeted for each website page, such as *coatings and films, materials engineering, nanoparticles, self-disinfecting nanocoatings, smart-response Cu SMIN nanoparticles,*
- Content optimisation: page titles are created, strategic search phrases are included in pages, page URLs and title tags are optimised,
- Social media share buttons are installed with relevant calls to action,
- Testing and measuring: active usage of Google Analytics to measure and improve the website's performance so that the KPI of 10 000 visitors by the end of the project is achieved.

## 2. WEBSITE ARCHITECTURE

RELIANCE website is conceived as the project's main public interface. The main function of the platform, as already mentioned above, is to be a single point of reference about the project, in an accurate and coherent way. This comprises RELIANCE ambition, specific objectives, partners' network, news, events, application areas, and outcomes and results.

The RELIANCE website has been designed to provide logical navigation paths for users to follow through the website. It is also based on wording enabling the visitors to reach the information they need independently from their understanding of European project lingo.

The structure is divided in 8 main sections, as per Figure 1. Seven of these sections are a public area, while the last one links to the private collaborative space for the project's partners.

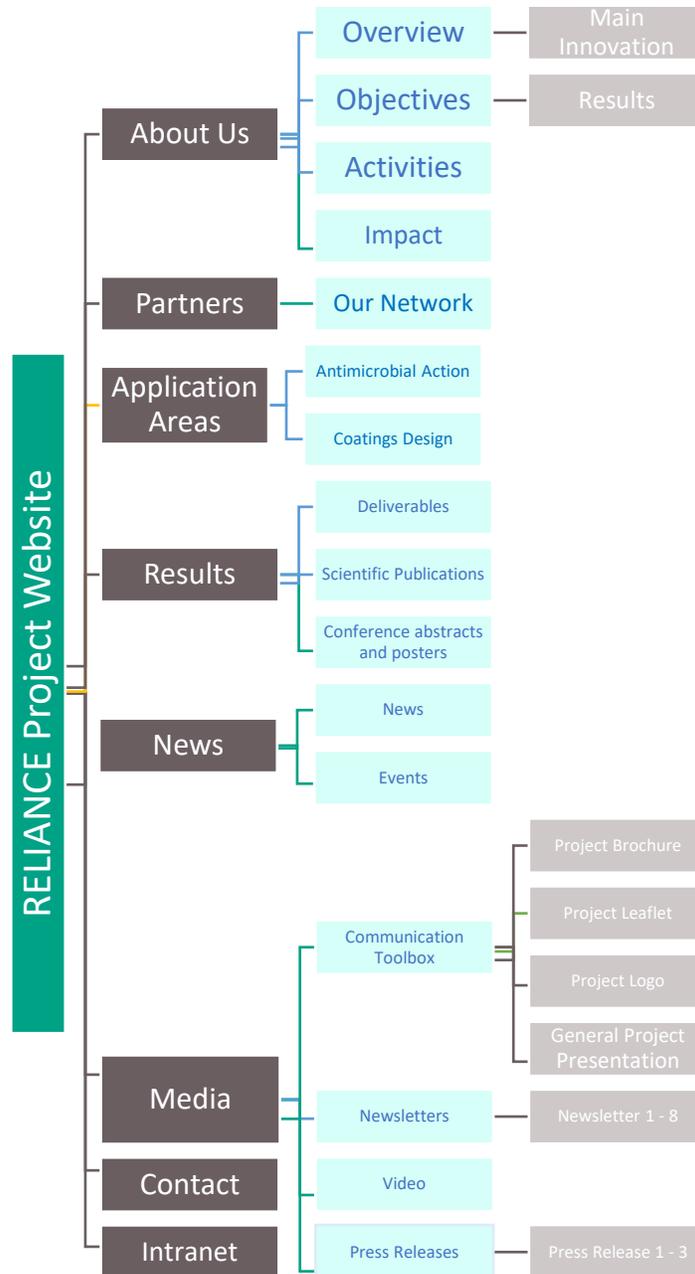


Figure 1. RELIANCE website architecture

### 3. HOME

The home page highlights the key information about the project and includes hyperlinks to the most important internal pages such as About us and Main Innovations as well as the News section and

project’s video. It also features the progress of the project through the project’s timeline slider, and a subscription form prompting visitors to sign up for the project’s Newsletter.

**Home page**

Home page
Logo RELIANCE – brings back to Home page
Name of Project plus title
About Us – short intro linked to page
Progress slider or timeline
Main Innovations
Quote by the coordinator
Watch the video (when ready)
News
Subscribe to Newsletter
Contact, EU Disclaimer, Privacy Policy, Social Media Link

Figure 2. Home Page Structure

- Website’s navigation:



- Website’s cover photo, title and key information:



- Links to key internal pages, progress slider, news, video and a quotation by the coordinator along with EU funding acknowledgment and social media links:



## About Us

RELIANCE is addressing the growing need for an innovative holistic solution of smart response antimicrobial nanocoatings that are highly effective and safe, removing bacteria, fungi and viruses in a more efficient cost/performance ratio than the presently used petrochemical-based ones

[Find out more >](#)

## Project's timeline

June 2022

May 2026

## Main Innovation

RELIANCE's ambitious objective will be achieved through a new range of *antimicrobial copper doped mesoporous silica nanoparticles* (Cu-SMIN) modified with *non-toxic bioactives*, functionalized to allow them to have a smart response with temperature or pH changes.

[Find out more >](#)

## News

Stay updated with the latest developments in RELIANCE

## Watch the video

Coming soon!



*"With the novel smart response self-disinfectant antimicrobial nanocoatings that RELIANCE will design and develop, the project will contribute to a healthier and more resilient society towards microorganisms, by mitigating the spread of infections and ensuring the health and well-being of citizens".*

**Miren Blanco**

RELIANCE Coordinator and senior researcher at Fundación Tekniker



Send us an email:  
info@reliance-he.eu

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## 4. ABOUT US

The About Us section comprises four pages describing the project.

### ○ OVERVIEW



Microbial colonisation of surfaces forms a dangerous reservoir for pathogens contributing to the spread of infections which can cause significant cost to human life and the economy at large.

There is a tangible need for innovative antimicrobial coatings that are highly effective, safe, self-disinfecting and removing bacteria, fungi and viruses more cost-effectively than current non-biodegradable, toxic, and fossil fuel-based coatings in use. The new coatings will contribute to mitigating the spread of infections (including COVID-19) and creating a healthier and more resilient society, while ensuring consistent product efficiency and market-demanded sustainability. RELIANCE project aims to design and develop smart response self-disinfectant antimicrobial nanocoatings based on a new range of smart antimicrobial nanoparticles. These nanoparticles will consist of mesoporous silica nanoparticles with metallic copper in their structure, modified with biobased bioactive compounds: Antimicrobial peptides (AMPs) based on protein containing waste streams, and essential oils (EOs) coming from non-edible plants. The antibacterial action of these additives will be adjusted to the specific application, according to the dosages and durability requirements. Two alternatives to incorporate the bioactive compounds will be considered:

- The incorporation of the biobased EO into the porous substrate, to allow a controlled release (T or pH) of the bioactive compounds to the environment,
- The attachment of the AMP to the nanoparticles surface, to allow a long-term action of the bioactive compound to the environment.

RELIANCE project combines contact killing and leachable antibacterial actions ascribed to the additive with the non-sticking action due to the coatings' formulation, thus providing an integral holistic solution to antimicrobial problems on different surfaces. The nature of the coatings, their characteristics (hydrophobicity and surface roughness) and their application methods (direct deposition by cold-atmospheric plasma, high throughput spraying or selective digital printing) will be specifically designed to allow not only the microbial repelling action, but also the adhesion of the coatings to different substrates commonly found in our living environments, such as metals, plastics or textiles, and to maximize their durability (in terms of performance and antibacterial properties). RELIANCE will go beyond the present-day possibilities of conventional chemicals by considering sustainability and eco design criteria in the selection of the bioactive components, and in the development of the nanocoatings.

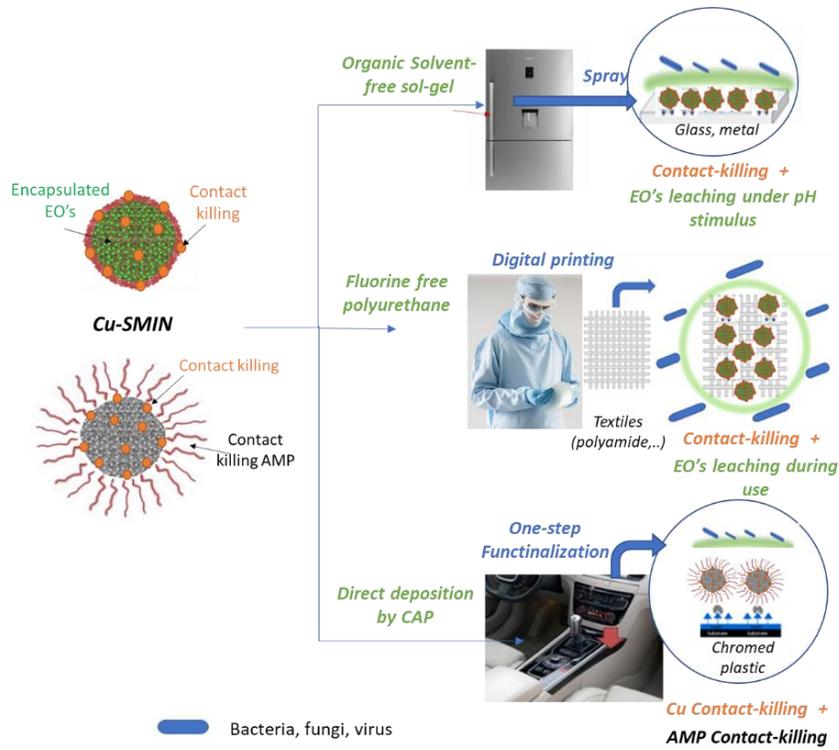


Figure 3. Overview picture of the project.

Additionally, this section includes a table with RELIANCE's main innovations:

## Main innovations

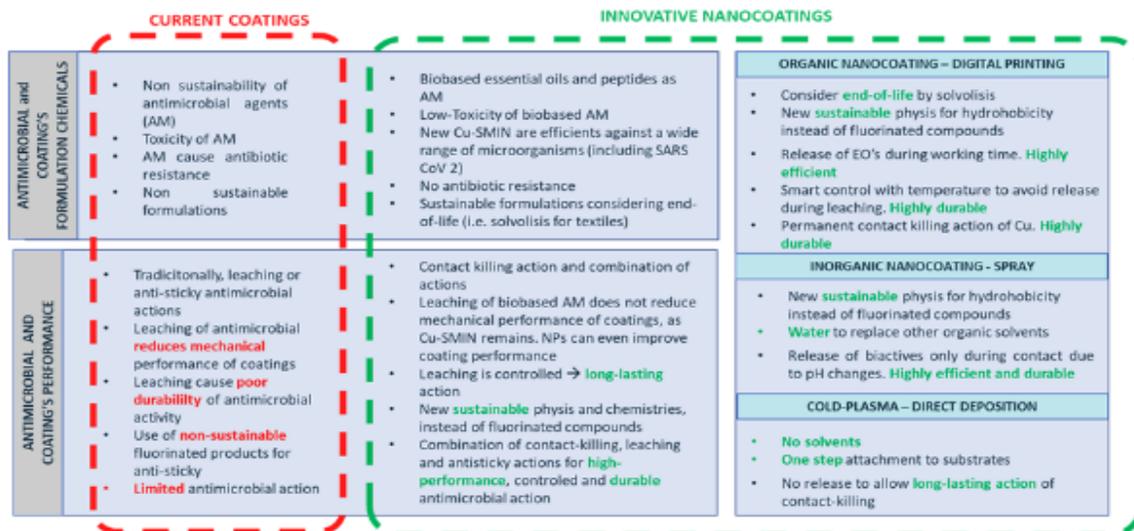
Majority of pathogenic microorganisms can survive for months even on dry surfaces, contributing to the transmission of a wide range of infections.

It is estimated that only antimicrobial resistance infections are responsible for 110,000 deaths and EUR 1.5 billion per year in healthcare costs and productivity losses.

Several antimicrobial coatings exist in the market, based mainly on the leaching of non-environmentally friendly chemicals, such as antibiotics, phenolic biocides, or quaternary ammonium compounds. Additionally, they are formulated considering synthetic, non-biobased polymers as binders.

Therefore, they frequently show serious concerns linked to antibiotic resistance, complex chemical synthesis, environmental pollution, non-biodegradability, low product performance, toxicity and extremely low sustainability.

Here is how RELIANCE will meet the need of innovative high performance antimicrobial coatings, representing also a significant market opportunity as in 2019 the antimicrobial coatings market size exceeded USD 3.2 billion and it is estimated to grow at over 10.4% CAGR between 2020 and 2026.



The solution RELIANCE proposes is the development of an entirely new class of biocidal additive, smart Cu-SMIN nanoparticles combined with synergistic, non-toxic bioactives, and employs these in the development of highly durable sustainable nanocoatings. The chemistry and physics of these nanocoating will be designed to maximize their sustainability (water based, fluorine free formulations) and microbial repellency (nanostructuring).

### ○ OBJECTIVES

In addition to listing the specific objectives the project is aiming to achieve, the Objectives page covers the expected results as well as the sustainability goals.



### Specific objectives of the project:

- Develop a new class of biocidal additives based on Cu-SiMN with a synergistic mode of action and a low impact on the environment.
- Accomplish the green synthesis of sustainable binder formulations for nanocoatings.
- Develop smart response, safe, high-performance and sustainable antimicrobial nanocoatings.
- Validate the new nanocoatings (performance and durability) through demonstrators.
- Ensure the non-toxicity, sustainability and economic validation of the proposed nanocoatings.
- Promote novel technologies for uptake by the industry.

### Sustainability

Sustainability and green chemistry criteria will be considered for bioactive compounds' selection and nanocoatings' development: Nanoparticles:

- Mesoporous silica: Mesoporous silica nanoparticles (MSN) are not toxic, no adverse effect in in-vivo tests.
- Cu: metallic copper as it is an essential micronutrient for humans. Unlike silver, which requires temperatures of 35 °C and 90% RH, copper is antimicrobial across all temperatures and all levels of humidity. Other advantages of copper are it is less toxic than silver and is low cost (\$400/pound, while Cu \$3.50/pound).
- AMRs and EO are biobased (waste streams or plants), highly effective (with low active content) against a wide range of viruses, bacteria and fungi and are generally recognized as safe and non-toxic materials, even if some of them can be toxic. Moreover, EO do not cause bacterial resistance when leached to the environment and are easily biodegradable. Binder formulations and deposition techniques:
- Binders: No use of fluorine groups, no use of organic solvents, recyclability in some products, thus addressing important REACH and EU societal concerns.
- Deposition: no organic solvents, high throughput, selective methods.

## Expected Results



At least 2 additives as novel smart-response nanoparticles, easily incorporated in nanocoatings to achieve antimicrobial surfaces.



At least 2 new sustainable nanocoating formulations easily applicable to various substrates to allow for a long-lasting antimicrobial effect of nanoparticles.



3 types of nanocoatings with antimicrobial effect against a wide range of pathogens, sustainable enough to inhibit colonization, without toxic active agents' migration into the environment, easy to clean and durable.



Novel deposition techniques and nano-structuring to achieve surfaces that repel microbe adhesion.



Recycling possibilities for the antimicrobial organic coatings so that the treated surfaces can easily be taken up in a circular economy.



Publication of scientific papers featuring new strategies for designing and developing antimicrobial nanocoatings.

○ ACTIVITIES

Represents the work plan for RELIANCE, structured around 10 Work Packages (WP). Clicking on each work package opens a short description of it for readers' better understanding of the associated activities.

- Main View



The work plan for RELIANCE is structured around 10 Work Packages (WP) (Figure ). The structure of the technical work packages represents the sequence of activities within the project and their interrelatedness. Starting from the definition of the specifications and requirements for the innovative nanocoatings and applicability criteria, passing through the actual development of the additives to their integration in the coating formulations to modelling the design, and finally their validation in the respective application sectors. The above operations are supported by the communication and dissemination, and project management packages throughout the entire lifetime of the project.

WP1 Specifications and preliminary analysis	▼
WP2 Synthesis of mesoporous nanoparticles with improved antimicrobial effect	▼
WP3 Green synthesis of microbe repelling coating formulations	▼
WP4 Development and application of sustainable nanocoatings	▼
WP5 Modelling	▼
WP6 Manufacturing and validation at relevant working conditions. Technical validation	▼
WP7 Antimicrobial characterization. Nanotoxicity study	▼
WP8 Economic and environmental analysis	▼
WP9 Communication, dissemination and exploitation	▼
WP10 Project Management	▼

- With link opened:

<p><b>WP1 Specifications and preliminary analysis</b></p> <p>The objectives of this work package are as follows:</p> <p>To define product specifications and functionality related to the industrial test cases</p> <p>To define the specifications for nanoparticles designing.</p> <p>To define the specifications of coatings formulations to achieve the targeted functionalities.</p> <p>To define application process specifications for deposition of the antimicrobial.</p>
<p><b>WP2 Synthesis of mesoporous nanoparticles with improved antimicrobial effect</b></p> <p>WP2 works on the development and functionalization at laboratory scale (100 g) of the two ranges of Cu-SMIN, and to up-scale of the production to obtain 1 kg of the two ranges of Cu-SMIN.</p>
<p><b>WP3 Green synthesis of microbe repelling coating formulations</b></p>
<p><b>WP4 Development and application of sustainable nanocoatings</b></p>
<p><b>WP5 Modelling</b></p>

- Visual presentation of the work plan:

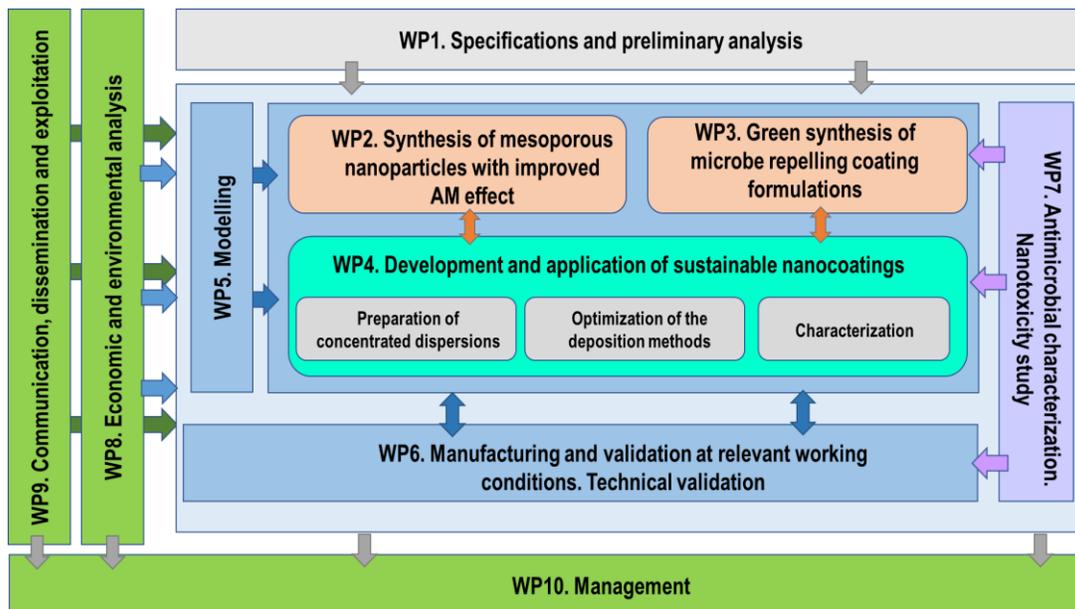


Figure 4. RELIANCE Work Plan

○ **IMPACT**

The Impact page focuses on the Outcomes and the multifaceted impact of the project.



The COVID-19 pandemic revealed the necessity to strengthen Europe's industrial base, enhance its resilience and flexibility. It was critical to address key societal challenges like sustainability and inclusiveness to be able to compete globally, but also to protect our citizens, deliver services and products of the highest quality, and preserve our values and socio-economic model.

### Outcomes

The innovative self-disinfectant antimicrobial nanocoatings generated by RELIANCE will clearly contribute to the following outcomes:

- Sustainable synthesis of bio-based nanocoatings especially effective against a range of pathogens such as *Staphylococcus aureus*, *Neisseria meningitidis*, *Penicillium funiculosum*, *Paecilomyces variotii*, *Gliocladium virens* and *Chaetomium globosum*, as well as SARS-CoV-2 and H1N1
- Minimized risk of spreading infections from

### Impact

The specific scientific, economic/technological and societal impact of RELIANCE is as follows:

- **Scientific:** A breakthrough innovation in material science and modelling, increasing the scientific multidomain knowledge, allowing for new design procedures to obtain antimicrobial nanocoatings with specific response and doses in accordance with the area of application.
- **Economic:** Boost sustainable research, development and innovation in the EU on nanotechnologies including nanoparticles and

## 5. PARTNERS

The partners section lists all 15 partners with information describing their organisation in brief, role in RELIANCE as well as a hyperlinked logos opening partners' websites.



**Centexbel (CTB)** is the Belgian scientific and technical centre for the textile industry, a membership organisation with strong links to the majority of the textile companies. CTB offers a complete range of standardized testing, it is a notified body for protective clothing and can deliver CE marking and testing. CTB is also involved in standardization committees. The research group 'Textile functionalization and surface modification' is involved in the Reliance project. CTB's project tasks include synthesis and formulation of bio-based polyurethane, nanostructuring of antimicrobial organic coatings, application via digital printing and recycling of coated fabrics. CTB is leading WP4 on developing and application of sustainable nanocoatings.



Founded in 1973, **MAIER** is European leader in the decoration of plastic parts and manufacturer of complex injection moldings for the automotive industry. The technologies Maier is working with comprise chrome plating, painting, laser etching and hot stamping.

Maier, with up to 3,000 employees in 11 countries with global sales above 385 M€, is part of the prestigious Mondragon Corporation, one of the biggest cooperative organizations worldwide.

In RELIANCE project, Maier with the collaboration of Maier Technology Centre S. Coop., will lead the WP1, setting the specifications and standards for prototypes, antimicrobial nanoparticles and coating formulations and application techniques. Maier will also participate in the development and evaluation of the nanocoating applied by Cold Atmospheric Plasma (CAP) in WP4. Finally, in WP6 MAIER will validate the performance of the new nanocoating on the developed real geometry (automotive interior Central Console Trim), according to the automotive product specifications defined in T1.1.

This Section continues with a subsection Our Network, which displays synergies and similar to RELIANCE initiatives, projects and organizations that the project will be collaborating with.

## Our Network

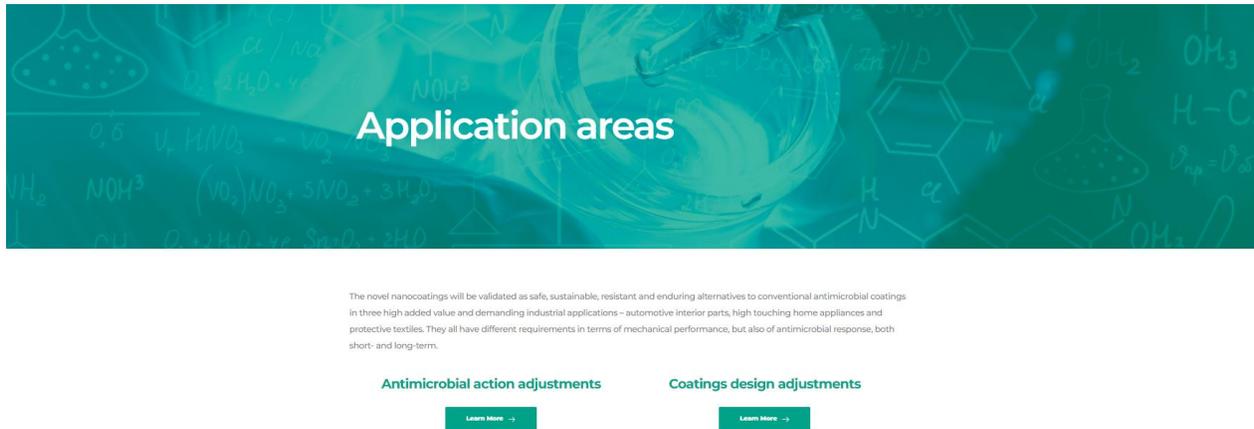
In this section you will find information about the synergies, projects, programs and initiatives RELIANCE cooperates with.

Coming soon!

## 6. APPLICATION AREAS

A page dedicated to the industrial sites where the testing and validation of the novel nanocoatings as safe and sustainable will be performed. The main view contains a short description and links to the subpages dedicated to the antimicrobial action and coatings design application tests, respectively.

- Main view:

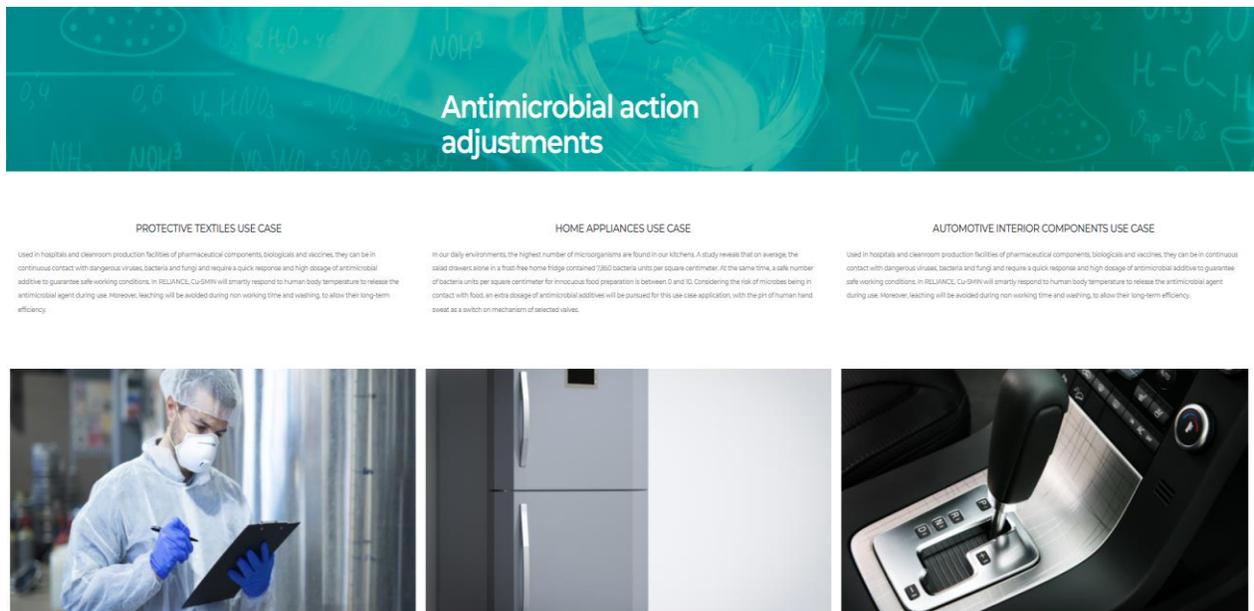


The novel nanocoatings will be validated as safe, sustainable, resistant and enduring alternatives to conventional antimicrobial coatings in three high added value and demanding industrial applications – automotive interior parts, high touching home appliances and protective textiles. They all have different requirements in terms of mechanical performance, but also of antimicrobial response, both short- and long-term.

[Antimicrobial action adjustments](#)      [Coatings design adjustments](#)

[Learn More →](#)      [Learn More →](#)

- The view when clicking on the Learn More link:



### Antimicrobial action adjustments

**PROTECTIVE TEXTILES USE CASE**  
 Used in hospitals and cleanroom production facilities of pharmaceutical components, biologicals and vaccines, they can be in continuous contact with dangerous viruses, bacteria and fungi and require a quick response and high dosage of antimicrobial additive to guarantee safe working conditions. In RELIANCE, Cu-Si-MNH will smartly respond to human body temperature to release the antimicrobial agent during use. Moreover, leaching will be avoided during non working time and washing, to allow their long-term efficiency.

**HOME APPLIANCES USE CASE**  
 In our daily environments, the highest number of microorganisms are found in our kitchens. A study reveals that on average, the salad drawer alone in a frost-free home fridge contained 1260 bacteria units per square centimeter. At the same time, a daily number of bacteria units per square centimeter for innocuous food preparation is between 0 and 10. Considering the risk of microbes being in contact with food, an extra dosage of antimicrobial additives will be pursued for this use case application, with the pH of human hand sweat as a switch on mechanism of selected valves.

**AUTOMOTIVE INTERIOR COMPONENTS USE CASE**  
 Used in hospitals and cleanroom production facilities of pharmaceutical components, biologicals and vaccines, they can be in continuous contact with dangerous viruses, bacteria and fungi and require a quick response and high dosage of antimicrobial additive to guarantee safe working conditions. In RELIANCE, Cu-Si-MNH will smartly respond to human body temperature to release the antimicrobial agent during use. Moreover, leaching will be avoided during non working time and washing, to allow their long-term efficiency.

Table 2. Requirements for the specific use cases of nanocoatings in terms of stability of the antimicrobial action

Parameter	Requirement	Requirement
Stability of the antimicrobial action	Fast response to heat and pH	Stable antimicrobial action during use
Risk of leaching	Low leaching during non working time and washing	Low leaching during non working time and washing

## 7. RESULTS

The Results page is composed of a main view and three subpages, leading to the relevant results of the project, namely: deliverables, conference abstracts and posters, and scientific publications.

- Main view:



The RELIANCE project follows the Open Science approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible. By sharing results, making them more reusable and improving their reproducibility, the project benefits from the involvement of all relevant knowledge actors while increasing the quality and efficiency of research, and accelerate the advancement of knowledge and innovation.

[DELIVERABLES →](#)

[CONFERENCE POSTERS →](#)

[SCIENTIFIC PUBLICATIONS →](#)

- Deliverables subpage:



[HOME](#) [ABOUT US](#) [PARTNERS](#) [APPLICATION AREAS](#) [RESULTS](#) [NEWS](#) [MEDIA](#) [CONTACT](#)

### DELIVERABLES

All public deliverables will be published here.



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## 8. NEWS

This page includes subpages dedicated to News about the project and relevant Events, respectively.

- News



Expect here:

Information about meetings

Publication of papers, articles

News about campaign, participations in trade shows, webinars

- Events



Expect here:

Webinars, conferences, workshops

Dissemination events where the partners disseminate results;

Synergy events or other collaborative initiatives

Other subject matter related events

## 9. MEDIA

The Media Section is a collective space for RELIANCE's promotional and information materials to be used by partners and interested stakeholders for communication about the project.

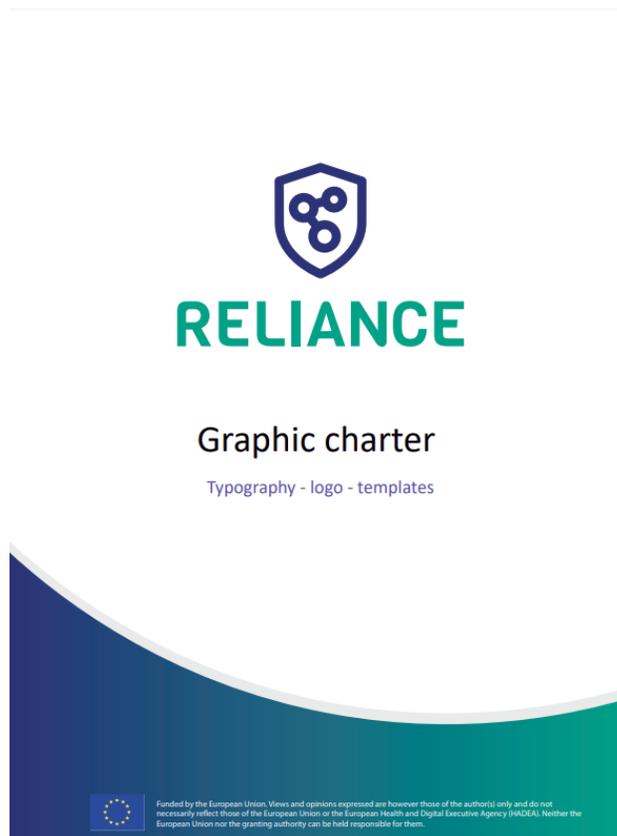
- [COMMUNICATION TOOLBOX](#)

Promotional Material – reference and easy download of project's related visual material. Includes logo, graphic charter, brochure and other marketing collaterals as they become available

## Communication toolbox

[LOGO](#)[GRAPHIC CHARTER](#)

Clicking on the respective link, opens the resource with a view as follows:



- **NEWSLETTER**

Subscription form is to be added on page. Each issue will be available for an easy download when they become available.

## Newsletter

Stay in the know by learning what's new in RELIANCE first! Subscribe to our newsletter.

- **VIDEO** – featured also on home page when it becomes available.

- PRESS RELEASES – project related press releases.

- Main view:

## PRESS RELEASES



- When a press release button is clicked on:



**RELIANCE**

**PRESS RELEASE**  
15 September 2022

**SELF – DISINFECTANT SURFACES FOR HEALTHIER ENVIRONMENTS – NEW EU PROJECT WORKING ON INNOVATIVE HOLISTIC SOLUTION OF SMART RESPONSE ANTIMICROBIAL NANOCOATINGS**

A GREAT NUMBER OF PATHOGENIC MICROORGANISMS CAN SURVIVE FOR MONTHS ON SURFACES, CAUSING THE TRANSMISSION OF A WIDE RANGE OF INFECTIONS, WHICH ARE CONSIDERED TO BE ONE OF THE MAJOR SINGLE CAUSES OF DEATH WORLDWIDE. ANTIBIOTIC RESISTANT MICROBIAL INFECTIONS ALONE ARE RESPONSIBLE FOR AN ESTIMATED 110,000 LIVES LOST (OECD HEALTH REPORT 2016) AND 1.5 BILLION EUR IN HEALTHCARE COSTS AND PRODUCTIVITY LOSSES PER YEAR.

Currently existing antimicrobial coatings raise concerns related to their antibiotic resistance, complex chemical synthesis, toxicity, non-biodegradability and extremely low sustainability in terms of product performance and environmental protection. The new Horizon Europe interdisciplinary project RELIANCE addresses the growing need for innovative antimicrobial coatings that are highly effective, safe, self-disinfecting and removing bacteria, fungi and viruses in a more efficient cost/performance ratio than the presently used petrochemical-based ones.

*„Beyond the present-day possibilities of conventional chemicals, RELIANCE aims to design and develop smart response self-disinfectant antimicrobial nanocoatings with an antimicrobial action that is adjusted to the specific application. In this way, RELIANCE will contribute to having a healthier and more resilient society towards microorganisms, by mitigating the spread of infections and ensuring the health and well-being of citizens “*

Miren Blanco, RELIANCE Coordinator and senior researcher at Fundación Tekniker

**An Innovation Contributing to Society**

The project's ambitious objective to shift from harmful chemicals to a novel class of coatings will be achieved through a new range of antimicrobial copper doped mesoporous silica nanoparticles (Cu-SMIN) modified with non-toxic bioactive compounds such as antimicrobial peptides (AMPs) coming from protein containing waste streams, and essential oils (EOs) extracted from non-edible plants, both functionalized to respond respectively to temperature and pH changes.

RELIANCE supports the transition to a circular economy through employing green synthesis of sustainable binder formulations for nanocoatings, reduced emissions of heavy metals and persistent chemicals in wastewater streams, and providing for recycling possibilities for the antimicrobial organic coatings to the treated surfaces.

The consortium of RELIANCE consists of 15 partners from 8 EU and 2 non-EU countries, to include research organizations, universities, SME and large industry partners. The project with a budget of € 5 million was launched in June 2022 and will end in May 2026.

**For more information**  
Senior researcher Miren Blanco, [miren.blanco@tekniker.es](mailto:miren.blanco@tekniker.es)

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 <http://reliance-be.eu>

## 10. CONTACT

A conventional Contact Us submission form is augmented with an additional call to action “Send us an email” located in the footer of the home page, and listing the general email address of the project.


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<input style="height: 60px;" type="text" value="Write Message"/>	

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## 11. INTRANET

The final tab in the navigation strip is a link to the project's partner collaborative space, leading to RELIANCE's G Drive.

## APPENDIX 1: REFERENCES AND RELATED DOCUMENTS

Deliverable 9.1 has been developed in accordance with the provisions outlined in the following related documents:

- RELIANCE Grant Agreement Nr. 101058570;
- RELIANCE Consortium Agreement.

In addition to adhering to the above documents, this has been produced in compliance with the European Commission guidelines and templates. Lastly, this document will be complementary to other project deliverables such as D9.2 Plan for Communication and Dissemination (M6).

ID	Reference or Related Document	Source or Link/Location
1	RELIANCE Grant Agreement Nr. 101058570	<a href="#">RELIANCE GA</a>
2	RELIANCE Consortium Agreement	
3	D9.2 Outreach, Communication and Dissemination Strategy	Available in M6