



Horizon 2020  
Programme

**TRANSAT**

*Research and Innovation Action (RIA)*

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754586.

Start date : 2017-09-01 Duration : 48 Months



---

**Project website**

---

Authors : Mrs. Chloe CHAVARDES (LGI)

TRANSAT - Contract Number: 754586  
TRANSversal Actions for Tritium Angelgiorgio Iorizzo

Document title	Project website
Author(s)	Mrs. Chloe CHAVARDES
Number of pages	9
Document type	Deliverable
Work Package	WP05
Document number	D5.7
Issued by	LGI
Date of completion	2018-01-30 10:03:45
Dissemination level	Public

---

### Summary

The TRANSAT public website was designed and developed to serve as a dynamic information and Communication tool, as well as a platform for the project team. The website URL is: <http://transat-h2020.eu/> It acts as the main channel for news and updates with the aim to address the key questions that external visitors are expected to have, such as what the project is about, what it will deliver and why, who the partners are, and what the main advancements are. Google Analytics is used as the main tool to monitor the statistics of the website and make changes to the content architecture if necessary. The TRANSAT website was officially launched in December 2017. It will be continuously updated and will evolve with the lifecycle of the project, according to the dissemination and communication policy of the project.

---

### Approval

Date	By
2018-01-31 13:08:26	Dr. Sabina MARKELJ (JSI)
2018-01-31 14:38:41	Mr. Christian GRISOLIA (CEA)

---

## Table of contents

<b>Summary</b> .....	<b>2</b>
<b>1 Introduction</b> .....	<b>3</b>
<b>2 Content</b> .....	<b>3</b>
<b>2.1 Homepage</b> .....	<b>3</b>
<b>2.2 About TRANSAT</b> .....	<b>5</b>
<b>2.3 Impact</b> .....	<b>6</b>
<b>2.4 Latest news and events</b> .....	<b>6</b>
<b>2.5 Resources</b> .....	<b>7</b>
<b>2.6 Partner area</b> .....	<b>8</b>
<b>2.7 Other considerations</b> .....	<b>8</b>
<b>3 Conclusions</b> .....	<b>9</b>

## Table of figures

Figure 1: Homepage .....	4
Figure 2: About TRANSAT page.....	5
Figure 3: Impact page .....	6
Figure 4: News page.....	7
Figure 5: Resources page.....	8





## Abbreviations

EC DG RTD	European Commission – Directorate General for Research and Innovation
PQP	Project Quality Plan
DoA	Description of Action
WP	Work package
WPL	Work package leader
GB	Governing Board
PAR	Periodic activity report
PMR	Periodic management report
PR	Periodic report
QA	Quality assurance
PMO	Project Management Office
ECCP	Electronic Collaborative Content Platform

## Summary

The TRANSAT public website was designed and developed to serve as a dynamic information and Communication tool, as well as a platform for the project team.

The website URL is: <http://transat-h2020.eu/>

It acts as the main channel for news and updates with the aim to address the key questions that external visitors are expected to have, these include:

- What is the project about?
- What will the project deliver and why?
- Who are the partners of the project?
- What are the main advancements of the TRANSAT project?

Google Analytics is used as the main tool to monitor the statistics of the website and make changes to the content architecture if necessary.

The TRANSAT website was officially launched in December 2017. It will be continuously updated and will evolve with the lifecycle of the project, according to the dissemination and communication policy of the project.



## 1 Introduction

The key objectives of TRANSAT in terms of public communication are to:

- To promote the project's activities, objectives and the uptake of its results;
- To disseminate the knowledge produced in the project and to communicate it to the project's target audiences: scientists, researchers, policy-makers, regulators, etc.
- To engage in a two-way dialogue with the project's stakeholders

The public website for TRANSAT will contribute to achieving these objectives by serving as the main channel for news and updates, as well as a repository for all the project's public deliverables such as reports and communication and promotional material (flyer, poster, etc.)

The website URL is: <http://transat-h2020.eu/>

It also provides access to the private area for TRANSAT partners. This platform allows partners to share documents and work in a collaborative way.

This document outlines the main sections and technical characteristics of the website.

## 2 Content

The public TRANSAT website will promote the European and international visibility of the project, communicate on the progress achieved and disseminate the results stemming from the project.

To make useful and relevant information available to the general public, it was decided that the website should address the needs and the questions that would most likely interest external stakeholders or visitors, such as:

What the project is about

- What the project will deliver, and why
- Who the partners of the project are
- What the main advancements of the project will be

### 2.1 Homepage

All of the important information on the project can be accessed directly from the homepage and highlights of each section or topic are displayed.

It represents the central point of information and aims to provide general information about the project and the expected results and impacts.

Therefore, visitors have direct access to information on:

- The project's overview and key numbers
- The project's impact
- The latest news and events
- All published resources, including results and deliverables (public)
- The partners of the consortium



- The link to the partner area

**TRANSAT PROJECT**  
TRANSversal Actions for Tritium

**ABOUT TRANSAT**

TRANSAT (Transversal Actions for Tritium) is a 4-year multidisciplinary project that will contribute to improving the knowledge on tritium management in fusion and fusion facilities. It will aim to address the challenges related to tritium release mitigation strategies and waste management improvement, and other knowledge in the fields of radiobiology, dosimetry, and safety.

- 18 PARTNERS
- 8 COUNTRIES
- 48 MONTHS
- 2 SUMMER SCHOOLS

**THE PROJECT AIMS TO ACHIEVE 3 STRATEGIC OBJECTIVES.**

- TRANSAT will focus on technologies that will help reduce tritium permeation during the conceptual phase of nuclear reactors or devices.
- Tritiated waste management will aim to be improved through innovative measurements that assess both tritium inventory and profile, and through improved mitigation concepts in the case of tritium release above the acceptance criteria of the storage facility.
- Investigations will aim to improve the knowledge in the fields of radiobiology, dosimetry, radiobiology, genotoxicology and ecotoxicology, and of the environmental consequences in the case of contamination by tritiated products.

**IMPACT**

Various stakeholders contribute to the work carried out in TRANSAT and will benefit from the project outcomes. The production, storage, transport and other operations related to tritium will need a more specific framework in the long term. This project will bring major inputs to the existing technical and legal frameworks and to the development of normative rules, procedures, standards, legislation, etc. The outcomes will also bring new technical knowledge to the fusion & fission community and help the public and private stakeholders prepare for an appropriate global management and financial environment in the short, medium and long term horizon.

**NEWS & EVENTS**

- TRANSAT KICKS OFF ON 4-6 SEPTEMBER
- 23RD TOPICAL MEETING ON THE TECHNOLOGY OF FUSION ENERGY (TOFE)
- 5TH EUROPEAN IRPA CONGRESS

**RESOURCES**

NEWSLETTERS | BROCHURES | VIDEOS | PUBLICATIONS | ONLINE TOOLS

Weekly newsletters will be released - sign up to stay up to date with the project's progress!

- Newsletter 1
- Newsletter 2
- Newsletter 3
- Newsletter 4

**PARTNERS**

18 partners from 8 European countries will improve the knowledge on tritium management during 48 months.

Partners include: cea, IRSN, LGI, Institut "Jožef Stefan", Institut Jozef Stefan, Aix-Marseille, KIT, RATTEN, UNIVERSEITE DE ROUEN, SCK-CEN, Department of Health, ENEA, IIT, PLYMOUTH UNIVERSITY, and others.

**LATEST NEWS & EVENTS**

- 23rd Topical Meeting on the Technology of Fusion Energy (TOFE)
- 5th European IRPA Congress
- TRANSAT KICKS OFF ON 4-6 SEPTEMBER

**NEWSLETTER**

Subscribe to our newsletter and stay up to date with all news coming through our webpage.

Your email address:

TRANSAT 2017 - Financed by the European Union

Figure 1: Homepage



## 2.2 About TRANSAT

The “About TRANSAT” page presents the main objectives of the project and the main challenges associated with Tritium.

**TRANSAT**

ABOUT TRANSAT

**TRANSAT TO IMPROVE KNOWLEDGE ON TRITIUM...**

Launched in September 2017, the European Horizon 2020 TRANSAT (TRANSAT) project will last 48 months with a total budget of nearly 6.6 million. Coordinated by CEA, it gathers 18 partners from 8 European countries: 12 research organisations (CEA, CERN, ON-PHE, ENEA, IFN, ILL, INFP, IRDI, JRC, KIT, SOCK-CEN, UNRAE), 4 universities (JAMU, CODA-UNH, UNIP, UOP), 1 private company (RATEN) and 1 SME (GSI).

During 4 years, this multidisciplinary project will contribute to improving the knowledge on tritium management in fusion and fusion facilities. It will aim to address the challenges related to tritium release mitigation strategies and waste management improvement, and refine knowledge in the fields of radioactivity, radiobiology, and dosimetry.

**3 SPECIFIC OBJECTIVES TO REACH**

The project's outcome is expected to bring new technical knowledge to the fusion & fusion community and contribute to building a solid legal, scientific, financial framework for dealing with Tritium.

<b>TRITIUM RELEASE MITIGATION</b>
In general, tritium sources are limited and kept as low as reasonable during the conception phase of a reactor. Indeed the amount of boron and lithium, which form the tritium source produced by their interaction with neutrons, is limited in fusion reactors to the lowest level possible. Ideally, the fusion community is continuously improving the fusion burnup and tritium breeding system to decrease the tritium recirculation and consequently its absorption by vessel walls or the tritium plant. However, it is not possible to go under a certain limit due to operational constraints or safety reasons, so it is necessary to work on tritium capture and permeation limitation between and through the circuit. For these reasons TRANSAT will focus on the technologies needed to reduce this tritium permeation between and through circuits through, for example, the development of new materials with reduced tritium diffusion capability or in situ operational effluents treatment. Furthermore, to ease the tritium permeation mitigation strategy during the conceptual phase of reactors or devices, modelling tools for tritium inventory and tritium permeation fluxes estimation in fusion and fusion devices will be compared and benchmarked to improve the level of confidence in their estimation. In addition, technological solutions for the development of an in-situ tritium production systems will be evaluated.
<b>IMPROVEMENT OF TRITIATED WASTE MANAGEMENT</b>
<b>DEFINITION OF THE KNOWLEDGE ON RADIOACTIVITY RADIOLOGICAL DOSIMETRY</b>

**THE TRITIUM CHALLENGE...**

Tritium (T) is a radioactive isotope of hydrogen with a physical half-life of 12.3 years. The nucleus of tritium (sometimes called a triton) contains one proton and two neutrons. It is a beta emitter (electron emission) with a range of energies up to a maximum energy of 0.018 MeV and mean energy of 0.57 keV.

There are two main sources of Tritium:

1. natural source formed by the interaction of the atmosphere with cosmic rays
2. non-natural sources:
  - mainly ternary fission and reaction with 10 Boron and 6 Lithium in nuclear fusion reactors (worldwide tritium release of nearly 35 g/year)
  - nuclear fuel reprocessing plants (annual tritium release of 35 g/year)
  - nuclear weapons manufacturing and former tests (nearly 47 kg in 2016)
  - accelerators by bombarding Be with neutrons
  - radiolysis of deuterium materials for application medicine
  - fusion reactors studies (for ITER, the maximum inventory on site will be 4 kg and the maximum tritium release 500 Tbu/year during maintenance years and 200 Tbu/year during operation).

Tritium is very mobile, it is mainly released as tritiated water and hydrogen isotopes into the environment directly from the sources above or from tritiated waste storage and treatment, which has led to environmental and health issues.

Recently, due to Deuterium-Tritium fusion reactor development studies, new fuel management (especially for GEN-IV reactors) and conception choices (BBC as structure material for fast breeder reactors), the tritium release into the environment is expected to increase. These additional releases combined with the pressure from authorities and the public has led to the need for new tritium release impact mitigation strategies as well as a better understanding of tritium impacts on human health and the environment.

**MORE INFORMATION ABOUT THE PROJECT**

TRANSAT IMPACT | NEWS & EVENTS | RESOURCES

**THE ESFR-SMART CONSORTIUM**

CEA | LGI | Aix-Marseille | Commissariat à l'Énergie Atomique | UNIVERSITÉ DE ROUEN | Department of Health | ENEA

**LATEST NEWS & EVENTS**

- 23rd Tritium Meeting on the Technology of Fusion Energy (TME) 13 November 2017
- 18th European IPPS Congress 27 November 2017
- TRANSAT KICK OFF ON 4 SEPTEMBER 28 September 2017

**NEWSLETTER**

Subscribe to our newsletter and stay up to date with all events coming straight in your mailbox.

Your email address: [input field]

[button: subscribe]

\*Personal data will be encrypted.

TRANSAT 2017 - designed by CEA

Figure 2: About TRANSAT page





## 2.3 Impact

The “*Impact*” page presents the main impacts of the project. Additional impacts such as environmental, economic and societal will be added in the months to come.

TRANSAT

ABOUT TRANSAT **IMPACT** NEWS & EVENTS RESOURCES PARTNER AREA

# IMPACT

Various stakeholders contribute to the work carried out in TRANSAT and will benefit from the project outcomes. The production, storage, transport and other operations related to tritium will need a more specific framework in the long term. This project will bring major inputs to the existing technical and legal frameworks and to the development of appropriate rules, procedures, standards, legislation, etc. The outcomes will also bring new technical knowledge to the Fusion & Fusion community and help the public and private establishments prepare for an appropriate global management and financial environment in the short, medium and long term horizons.

## TRANSAT WILL HAVE TWO MAIN IMPACTS

### TRANSAT WILL CONTRIBUTE TO SOLVING A NUMBER OF KEY ISSUES IN THE MANAGEMENT OF TRITIUM IN FISSION AND FUSION FACILITIES, WHICH WILL SATISFY REGULATORY REQUIREMENTS AND THUS MINIMISE ENVIRONMENTAL AND POSSIBLE RESULTING HEALTH EFFECTS.

**TRITIUM RELEASE MITIGATION** **IMPROVEMENT OF TRITIATED WASTE MANAGEMENT** **REFINEMENT OF KNOWLEDGE**

The TRANSAT project aims at expanding the body of knowledge in the field of technical solution to mitigate the tritium release. New permeation barrier concepts and effluent detritiation treatments will be available at a TRL that generates trust in the technology and require limited development for industrial scale (TRL 5). Furthermore, improvement in tritium permeation and inventory modelling in fusion/fission facilities is also a key Outcome of the project that will help stakeholders to assess the tritium distribution in their process and thus identify where mitigation systems should be envisaged.

Stakeholders will then have new ways of investigation for tritium management and tritium mitigation strategies.

In the field of dismantling, a methodology is proposed to build a dismantling plan, which will be then applied on an installation with significant quantities of elementary tritium (32 TRL range). The expected impact is to validate a methodology for a safe dismantling of tritium handling facilities. Stakeholders as well as nuclear safety authorities will benefit of the results and recommendations. New international recommendations or rules may follow from the TRANSAT project results.

### TRANSAT WILL PAVE THE WAY FOR ROBUST SCIENCE-BASED POLICY RECOMMENDATIONS TO DECISION MAKERS IN THIS AREA AT EU LEVEL.

Based on the new results obtained in the project, the advisory board comments as well as feedbacks from research abroad, a list of outcomes and recommendations will be provided to stakeholders, with whom close interactions are maintained during the project through regular meetings.

Considering the EC Nuclear Safety Directive from 2009 with its amendment from July 2014 introducing a high-level EU-wide nuclear safety objective and a set of rules to support the independence of national nuclear safety regulators, TRANSAT will establish close interactions with WENRA (Western European Nuclear Regulators' Association) and ENSREG (European Nuclear Safety Regulators Group).

On this basis the project will contribute to the development of new European and international policy frameworks and rules for safe tritium handling.

MORE INFORMATION ABOUT THE PROJECT

[ABOUT TRANSAT](#) [NEWS & EVENTS](#) [RESOURCES](#)

**LATEST NEWS & EVENTS** **NEWSLETTER**

23rd Topical Meeting on the Technology of Fusion Energy (2023) [Subscribe to our newsletter and stay up-to-date with](#)

Figure 3: Impact page

## 2.4 Latest news and events

The “*News and events*” section reports on the news and events relating to TRANSAT, as well as related projects, or news and events of interest to the project's key stakeholders.





Figure 4: News page

## 2.5 Resources

The “Resources” section gives access to the project’s resources, such as the public deliverables, press releases, photo galleries and promotional materials (brochures and flyers).

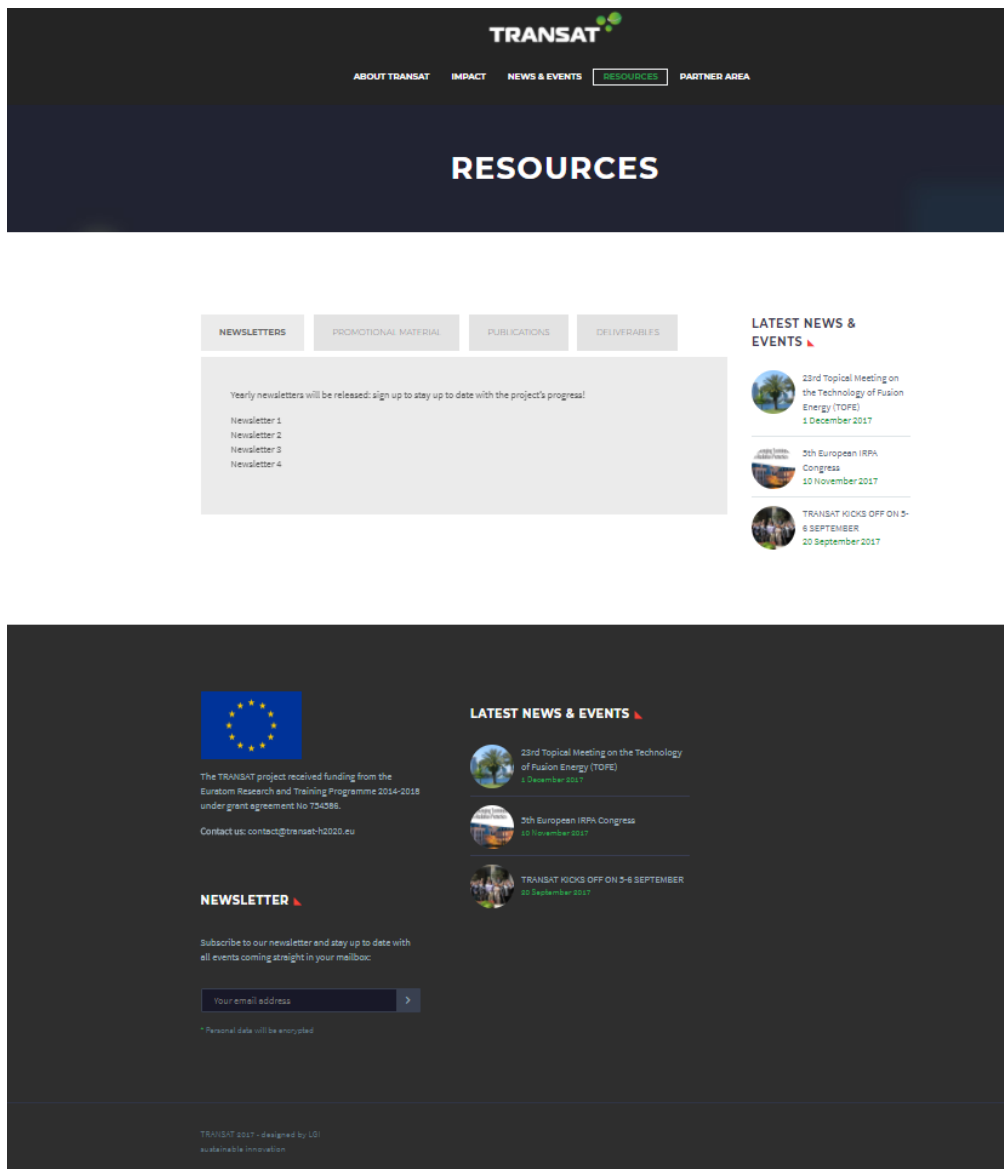


Figure 5: Resources page

## 2.6 Partner area

The “*Partner area*” section is dedicated to the partners. This platform allows partners to share documents and work in a collaborative way. It provides an online repository for information about the management of the project, contacts, results from the meetings, as well as internal work documents related to different WPs that are required to be shared. All documents and files are saved and organised in one place and can be shared at any time, from any location or device.

## 2.7 Other considerations

### Browser compatibility

The website is compatible with the common web browsers on all common operating systems. These include various versions of Internet Explorer, Firefox, Safari, Opera and Chrome.

The layout of the website is also responsive: it adjusts the design display based on the screen size of the device it’s viewed on, regardless of whether it is viewed on a desktop, tablet or mobile.



## **Google analytics**

To understand how the website is used by visitors, a Google Analytics account will be registered for TRANSAT. The reports will give a clear idea on:

- How many users are visiting the site
- Which pages are the most viewed
- The geographic location of visitors

## **Update of the webpage**

Updates will be made every 4 – 6 months so that it continues to adapt to the important milestones (e.g. the completion of each demonstration). This is to ensure that the website remains a dynamic and useful tool to spread the knowledge acquired during the project.

## **3 Conclusions**

The TRANSAT website has been prepared during the first stage of the project, and was launched in December 2017 according to specific needs and aims to maximise the impact of the project. It also aims to boost the awareness on the results and milestones to be accomplished during the project. The TRANSAT website will be updated regularly and will remain a flexible tool, content and structure may evolve if necessary.