

**FORM  
PLANET**

# Advanced characterisation and modelling techniques for the sheet-metal industry

## FormPlanet project final conference



2<sup>nd</sup> February, 2022  
9:15AM – 17.30 PM





## About this event

During the FormPlanet project final conference, project researchers will present the most representative innovative metals characterisation, non-destructive in-process measurements and modelling approaches applicable in the metal forming sector, which present alternatives for an industry thriving to increase products quality and become more competitive.

The presentation of research developments going beyond the state of the art and its added value for companies in the sheet metal forming industries, will be complemented with the showcase of four diverse case studies that have proven the reliability and efficacy of FormPlanet methods in applications in the automotive, home appliances and packaging sector.

The event will finalise with a round table with representatives of several key European companies, which will assess the advancements done in FormPlanet project and discuss the challenges that the sheet metal forming has ahead.



## Conference topics

- + The need for more accurate metal characterisation and modelling techniques. What is the EU doing to foster the advancement of the European sheet metal sector.
- + Innovative multi-scale metal characterisation techniques (miniaturised tensile tests, hydrogen susceptibility techniques, sheet metal formability assessment, fracture toughness and fatigue resistance non-standardised methodologies).
- + Experimental and numerical methods for edge-cracking and crashworthiness prediction
- + Hydrogen migration and damage modelling
- + In-line monitoring techniques adapted to the metal forming requirements
- + Industrial diffusible Hydrogen measurement.
- + Materials intelligence solutions for digital transformation
- + Test quality audit remote solutions

## Targeted to:

- + Small, medium and large companies in the sheet metal forming industry
- + Researchers in sheet metal, cold and hot forming, material scientists
- + Policy makers involved in European policies on raw materials, sheet materials industry
- + Specialised journalists from EU outlets reporting on materials, sheet metals, etc.



**Registration link:**  
<https://cutt.ly/formplanet>

9.15 - 10.40 CET

**OPENING PLENARY:  
Welcome, keynote and FormPlanet  
overview**

9.15 - 9.30 CET

**Welcome and introduction  
to FormPlanet final conference**

**Daniel Casellas**

Scientific Director  
Eurecat

**Begoña Casas**

FormPlanet Technical Coordinator  
Eurecat

9.30 - 9.40 CET

**The need of OITBs for metal  
characterisation, EU policies  
and funded research**

**Yanaris Ortega**

Project Adviser  
Health and Industry Executive Agency (HADEA)

9.40 - 10.10 CET

**Keynote: Sustainable application of  
high strength steel for electric trucks**

**Henrik Sieurin**

Expert Engineer  
Scania CV AB

10.10 - 10.40 CET

**FormPlanet, The Sheet Metal Forming  
Test Bed**

**Eduard Piqueras**

FormPlanet project coordinator  
Eurecat

**Laura Arribas**

Responsible for Ecosystems and Innovation  
Policies, Technological Consulting Department  
Eurecat

10.40 - 11.10 CET

**COFFEE BREAK**

11.10 - 12.30 CET

**SESSION I:  
Innovative multi-scale metal  
characterisation techniques**

Chair:

**Begoña Casas**

FormPlanet Technical Coordinator  
Eurecat

11.10-11.25

**Miniaturised specimen testing in sheet  
metal characterisation**

**Sylwia Rzepa**

R&D Engineer, Mechanical Testing and  
Thermophysical Measurement Department  
COMTES FHT

11.25-11.40

**High-strength steels hydrogen  
susceptibility characterisation  
techniques**

**Bernardo Disma Monelli**

Associate Professor of Machine Design,  
Department of Civil and Industrial Engineering  
University of Pisa

11.40-11.55

**Advanced characterisation  
methodologies for high performance  
sheet metal**

**David Frómata**

Researcher, Metallic and Ceramic Materials Unit  
Eurecat

11.55-12.10

**Analysis of sheet metal formability at  
high temperature**

**Thomas Lieber**

Dipl.-Ing, Department of Sheet Metal Forming  
Fraunhofer IWU

12.10-12.20

**Standardisation of novel  
characterisation methodologies**

**Javier López-Quiles**

Programme Manager  
Spanish Association for Standardisation (UNE)

12.20 - 12.30

**Questions & Answers session**

# Program

ONLINE

Wednesday  
2nd February

12.30 - 13.40 CET

## SESSION II: Modelling and monitoring approaches for metal forming

Chair:

**Jörgen Kajberg**

Assoc Prof. in Solid Mechanics  
Luleå University of Technology

12.30-12.45

### Experimental and Numerical Methods for Edge Cracking and Crashworthiness Prediction

**Jörgen Kajberg**

Associate Professor in Solid Mechanics  
Luleå University of Technology

12.45-13.00

### Multiphysics hydrogen migration and damage modeling

**Bernardo Disma Monelli**

Associate Professor of Machine Design,  
Department of Civil and Industrial Engineering  
University of Pisa

13.00-13.15

### In-line monitoring techniques adapted to the metal forming requirements

**Matthias Riemer**

Dipl.-Ing. in mechanical engineering  
Fraunhofer IWU

13.15 -13.25

### Industrial diffusible H measurement for online HE risk assessment

**Linda Bacchi**

Dipl.-Ing. in mechanical engineering  
Letomec srl

13.25-13.40

### Questions & Answers session

**Jörgen Kajberg**

Associate Professor in Solid Mechanics  
Luleå University of Technology

13.40-14.15 CET

LUNCH

14.15-15.00 CET

## SESSION III: Materials data traceability and process optimisation

Chair:

**Eduard Piqueras**

FormPlanet Coordinator  
Eurecat

14.15 -14.30

### The role of materials intelligence for digital transformation in the metals forming industry

**Muntasir Hashim**

Project Manager, Collaborative R&D  
Ansys UK Ltd. (formerly Granta Design Ltd.)

14.30- 14.45

### Test quality audit remote solutions

**Alfons Carpio**

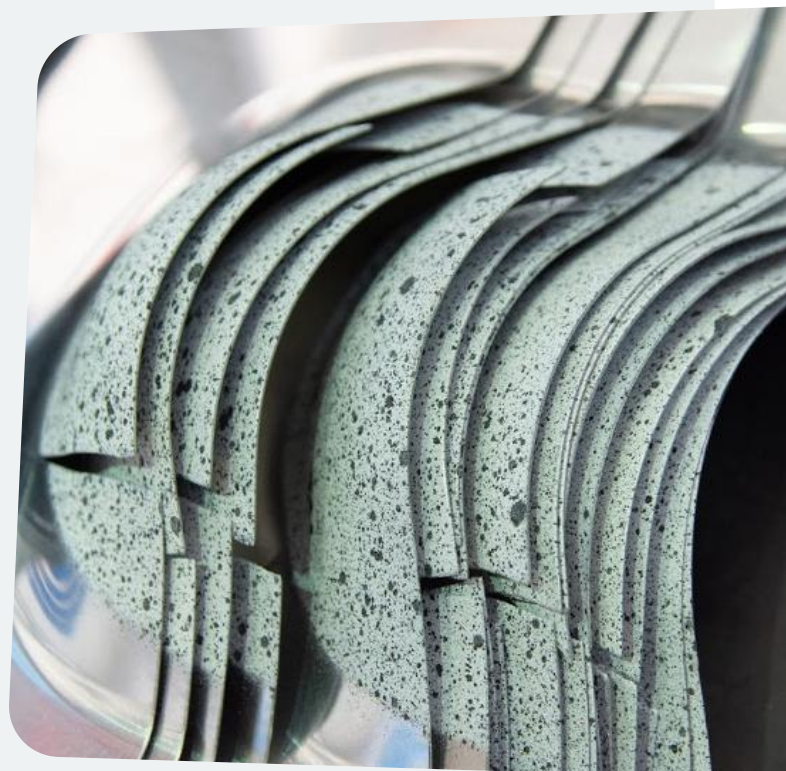
R&D Manager  
Applus Mechanical Labs

14.45 - 15.00

### Questions & Answers session

**Eduard Piqueras**

FormPlanet Coordinator  
Eurecat



15.00 - 16.15 CET

### **SESSION IV: Validating R&D with the industry**

Chair:

**Michele Tedesco**

Metals Department Manager  
CRF

15.00 - 15.15

### **Key success cases across the whole sheet metal forming value chain**

**Begoña Casas**

FormPlanet Technical Coordinator  
Eurecat

15.15 - 15.25

### **Hydrogen monitoring in PHS BIW components**

**Michele Tedesco**

Metals Department Manager  
CRF

15.25 - 15.35

### **Pre- & Post experimental investigations & CAE Tool for the Formable Sandwich Material Hybrix**

**Ramin Moshfegh**

CTO  
Lamera AB

15.35 - 15.45

### **FEM modelling for hot forming applications of high strength aluminum sheets by implementing real process data**

**Vedran Kovacevic**

Research & Test Engineer, Development Forming  
Processes & Tooling  
AP&T

15.45-15.55

### **Edge-cracking prediction in AA5754 aluminum alloy for automotive components**

**Catalina Fernandez**

R+D Director  
Aludium

15.55 - 16.05

### **Hydrogen Induced Delayed Fracture of PHS**

**Jean Lamontanara**

Product Engineering and Innovation  
MA SpA

16.05 - 16.15

### **Questions & Answers slot**

**Michele Tedesco**

Metals Department Manager  
Eurecat

16.15-16.30 (CET)

### **COFFEE BREAK**

16.30 -17.15 CET

### **SESSION V. ROUND TABLE: Lessons learned, challenges ahead for the sheet metal forming industry**

Chair:

**Daniel Casellas**

Scientific Director  
Eurecat

Participants:

**Michele Tedesco**

Metals Department Manager  
CRF

**Thomas Dieudonné**

Research Engineer  
ArcelorMittal Maizères Research

**Leire Gonzalez**

Product & Process Technology Director  
ARANIA

**Bijish Babu**

Founder & CEO  
Aerobase Innovations AB

17.15-17.30 CET

### **Closure**

**Daniel Casellas**

Scientific Director  
Eurecat

**Begoña Casas**

FormPlanet Technical Coordinator  
Eurecat

# Speakers

by order  
of appearance



**Daniel Casellas**  
Scientific Director  
**Eurecat**

PhD in Materials Science. Since 2000 he is working in R&D and technology transfer from research institutes to industry. He is currently the Scientific Director of Eurecat and holds an Adjunct Professor position at the Solid Mechanics Division at Luleå University of Technology (Sweden). Dr Casellas has managed applied R&D projects on different sectors, mainly in the automotive and steelmaking, but also in renewable energies and mining, among others. In the last years he has been the scientific responsible of more than 60 funded R&D projects and industrial R&D contracts. He is the author and co-author of 73 publications in indexed scientific journals, has more than 150 contributions to international conferences and holds 2 patents., related to EWF and rapid fatigue testing. Dr. Casellas is member of the Organizing Committee of the International Conference on hot sheet metal forming of high-performance steel (CHS2, [www.chs2.eu](http://www.chs2.eu)) and member of the editorial board of the journal Materials.



**Begoña Casas**  
FormPlanet Technical Coordinator  
**Eurecat**

PhD in Materials Science from the UPC (Polytechnic University of Catalonia). She worked as a researcher and manager of R+D projects at a regional, state and international level. She was responsible for the Materials Engineering Department at SANJO DE ESTAMPACIONES for more than four years. In March 2016, she joined Eurecat staff performing the tasks of Project Technician in the area of Materials Technology.



**Yanaris Ortega**  
Project Adviser  
**Health and Industry Executive Agency (HADEA)**

Dr Yanaris Ortega Garcia is a Project Adviser at the Health and Industry Executive Agency (HADEA), at the Unit "Industry". She is currently managing EU-funded projects on materials characterisation techniques, mainly. She has been linked to data, policy and project management positions at the European Commission and the Fuel Cells and Hydrogen Joint Undertaking over the last 7 years. Earlier on, she was working in the private and academia sectors. Besides, she completed her PhD Physical Chemistry on computational simulation at the University of Seville in 2012.



**Henrik Sieurin**  
Expert Engineer  
**Scania CV AB**

Henrik has a PhD in Materials Science from the Royal institute of Technology (KTH) in Stockholm. For the last 10 years he has been at Scania Materials Technology, working with structural steel for trucks and buses. He has previously been working with steel related issues such as failure analyses, corrosion, mechanical testing and welding for the off shore and energy industry.

# Speakers

by order  
of appearance



**Eduard Piqueras**  
FormPlanet Coordinator  
**Eurecat**

Holds a Master of Science in Industrial Engineering from Polytechnical University of Catalonia and a specialization course in management of EU R&D projects from La Salle-URL (University Ramon Llull). He has been involved in the coordination and management of European Research projects in the last 6 years in two different Technology centers. Prior to this, he has been working in the automotive industry and in the Innovation Consulting sector helping companies from different industries to finance and optimize innovation by securing funding for their R&D activities through the management of R&D Grants and Tax incentives. He is also member of the Industrial Research and Innovation Advisory Group of the A.SPIRE association (European Process Industry Association) and P4Planet European Partnership.



**Laura Arribas**  
Responsible for Ecosystems and  
Innovation Policies, Technological  
Consulting Department  
**Eurecat**

Industrial engineer from the Polytechnical University of Catalonia (UPC). Within the Technological Consulting Department, she coordinates a team that works at international, national and local level for both public and private entities accompanying them in their transformation pathways supported by innovation and technology. She holds experience in coordinating and participating in projects working with innovation ecosystems (Digital Innovation Hubs, Open Innovation Test Beds, Research Infrastructures, Pilot Plants, among others) and novel business models (mainly related to these innovation ecosystems in different fields).



**Sylwia Rzepa**  
R&D Engineer, Mechanical Testing  
and Thermophysical Measurement  
Department  
**COMTES FHT**

PhD student in Mechanical Engineering. She is R&D engineer at Mechanical Testing and Thermophysical Measurement Department at COMTES FHT (Czech Republic). Her research is focused on mechanical characterisation of additively manufactured metallic materials.



**Bernardo Disma Monelli**  
Associate Professor of Machine Design,  
Department of Civil and Industrial  
Engineering  
**University of Pisa**

Bernardo Disma Monelli graduated in Nuclear Engineering from the University of Bologna and obtained a Ph.D. in Materials Science and Engineering in 2009 from the University of Trento. He is currently an Associate Professor of Mechanical Design and Machine Construction at the University of Pisa. Main research activities concern the mechanics of materials (material modelling, plasticity, fatigue, and hydrogen embrittlement), experimental mechanics, and numerical modelling. He is co-author of more than 50 articles published in national and international journals. He is the co-inventor of a patent concerning a new methodology for the multi-scale simulation of AM processes of metal powders. He is currently Head of the Research Activities conducted in the new Additive Manufacturing Laboratory of the Department of Civil and Industrial Engineering of the University of Pisa. computational simulation at the University of Seville in 2012.

## Speakers

by order  
of appearance



### David Frómeta

Researcher, Metallic and Ceramic  
Materials Unit  
**Eurecat**

PhD in Materials Science and Engineering. Expertise in sheet metal forming and fracture characterization of AHSS and aluminium alloys sheets (managing fracture toughness characterizations at Eurecat). Co-inventor in patent about EWF. Participation, coordination and execution of R&D projects in the field of materials science.



### Thomas Lieber

Research on Sheet Metal forming  
processes and sheet material  
characterisation  
**Fraunhofer IWU**

Dipl.-Ing. Thomas Lieber is working as project leader in the Department of Sheet metal forming at Fraunhofer IWU since 2003. The focus of his work is on sheet material characterisation and process simulation. He is involved in several national and international projects. *velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem.*



### Javier López-Quiles

Programme Manager  
**Spanish Association  
for Standardisation – UNE**

Architect and Building Engineer (Technical University of Madrid), Master degree on Engineering applied to Cooperation (Open University of Catalonia). Currently programme manager at the Spanish Association for Standardisation (UNE), where he provides support to national and European technical committees for the development of standards related to construction products, managing several secretariats, and providing expertise to international cooperation projects.



### Jörgen Kajberg

Associate Professor in Solid Mechanics  
**Lulea University of Technology**

Jörgen Kajberg, Assoc Professor in Solid Mechanics, has 23 years of experience (industry and academia) on impact engineering, high-strain rate testing, digital image correlation techniques and material modelling concerning forming, rolling and forging.



### Matthias Riemer

Researcher at Fraunhofer Institute for  
Machine Tools and Forming Technology  
**Fraunhofer IWU**

Matthias Riemer, Dipl.-Ing., Group leader for process integrated data acquisition, he has been involved for more than 8 years in research projects in the field of sheet metal forming. He focused his research on the forming behaviour of hybrid composites as well as on the digitalization in sheet metal forming processes.



# Speakers

by order  
of appearance



## Linda Bacchi

Dipl.-Ing. in mechanical engineering  
**Letomec srl**

Master degree in mechanical engineering at University of Pisa. She started working on Hydrogen Embrittlement during the graduation thesis, investigating the effect of tempering temperature on the hydrogen embrittlement susceptibility of supermartensitic stainless steels. Part of Letomec R&D team, her research interests are HELIOS platform for hydrogen-steel interaction study (Letomec srl patent), material characterization and mechanical testing.



## Muntasir Hashim

Project Manager, Collaborative R&D  
**Ansys UK Ltd.**  
**(formerly Granta Design Ltd.)**

Muntasir Hashim is a Project Manager for Collaborative Research and Development (CR&D) within the Materials Business Unit for Ansys UK, supporting the implementation of best practices for materials information management for advanced R&D topics on material and process characterisation, engineering design and simulation. Muntasir has a BEng. in Aerospace Engineering from Brunel University London and a Ph.D. in Materials Science from The University of Manchester. Prior to Ansys, Muntasir worked in various engineering environments leading R&D projects.



## Alfons Carpio

R&D Manager  
**Applus Mechanical Labs**

Degree in theoretical physics by the Barcelona University, he has been involved for more than 20 years in structural test activities and advances instrumentation, as well as in the management of R&D projects at Applus Laboratories which he has been directing since 2005.



## Michele Tedesco

Metals Department Manager  
**CRF**

Michele Tedesco, responsible for metals department in CRF, a Stellantis company. He is involved in the product development Stellantis business unit to introduce new innovative metal materials and support the team for the CAE virtual analysis. Michele is also a member of the Automotive Circle.

# Speakers

by order  
of appearance



**Ramin Moshfegh**  
CTO  
Lamera AB

Ramin Moshfegh graduated in Mech. Eng. at Linköping University in 1994, obtained his Ph.D. in Solid Mech. at the same university. For the past 27 years, he has held various positions at universities, research institutes, manufacturing industries, and associated R&D centers. Since 2016, he has worked as CTO at Lamera AB. He has published more than 17 papers in international journals, 49 papers in international conferences/proceedings. Besides, he has been External Referee, Independent Assessors, Member of the Scientific Committee, and Industrial member at LIGHTer Academy.



**Vedran Kovacevic**  
Research & Test Engineer at  
Development Forming Processes &  
Tooling  
AP&T

Vedran Kovacevic. Master's degree in mechanical engineering at Lund University. Part of the R&D team at AP&T's department Forming Technologies as a Research and Test Engineer. Main research topics and development areas are within aluminium and composite materials, forming simulations and forming techniques.



**Catalina Fernández Rivera**  
R&D Director  
Aludium

Catalina Fernández Rivera, Aludium R&D Director, PhD in Material Science, she has been working for more than 30 years in the aluminium industry, involved in process improvement regarding smelting, casting and rolling, and managing new products development for different aluminium segment markets.



**Jean Lamontanara**  
Product Engineering and Innovation  
MA SpA

- Degree in Mechanical Engineering (specialization: in Material) in 1987
- PhD in Mechanical/material Engineering in 1994. Ferromagnetic methods (Barkausen) applied to study fatigue of steels
- Starts working at Ugine in R&D (stainless division of Usinor), responsible for electron microscopy and image analysis
- In 2000 become resident engineer of ArcelorMittal for FIAT Group/Torino
- In 2012 is responsible for product engineering and innovation for MA (CLN Group)

# Speakers

by order  
of appearance



**Thomas Dieudonné**  
Research Engineer  
ArcelorMittal Maizeres Research

Thomas Dieudonné. Research Engineer. PhD in 2012, he has been involved for 10 years in R&D projects regarding fracture and damage (hydrogen embrittlement, crash ductility...) of Advanced High Strength Steels in ArcelorMittal.



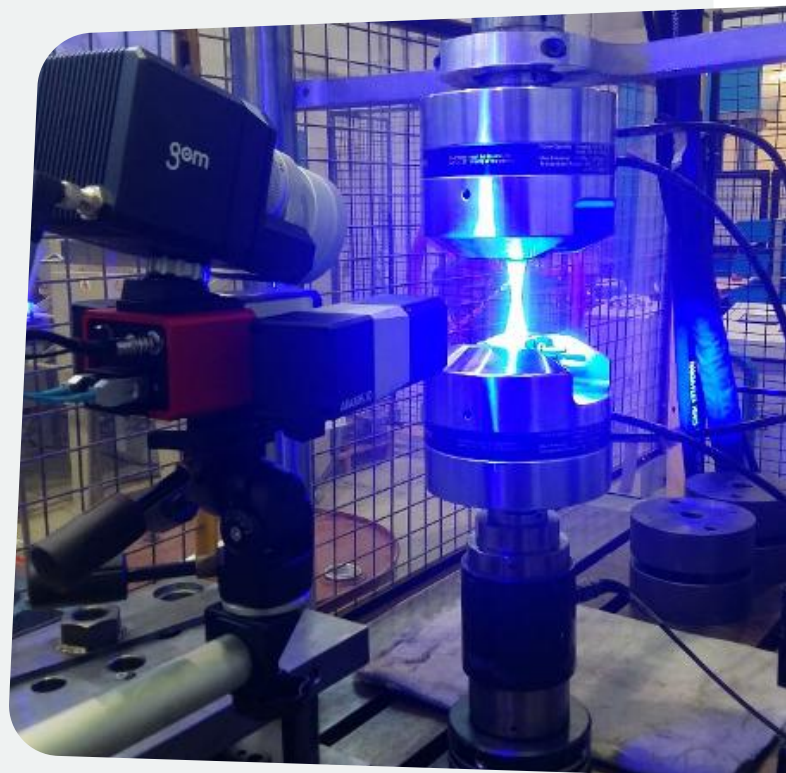
**Leire Gonzalez**  
Product & Process Technology Director  
ARANIA

Leire Gonzalez, involved in the steel industry area since 2001, firstly in SIDENOR, Special Steels Steelmaker as Researcher for 5 years and Automotive Account Manager for 4 years. Since 2011 she is working at ARANIA, a Cold rolling Manufacturer where she has been involved in the technical area as Customer Technical Support and Raw Material Suppliers development and since 2017 as Product & Process Technology Director focus in the area of Materials development, Quality Control Devices and R&D projects.



**Bijish Babu**  
Founder & CEO  
Aerobase Innovations AB

Bijish Babu, Ph.D. in Material Mechanics, has nearly two decades of experience in material modeling and simulation of manufacturing processes. Aerobase Innovations (a spin-off from the Swedish Metal Research Institute and the Luleå University of Technology) focuses on developing state-of-the-art material models for manufacturing automotive components. We also provide technical support for implementing new procedures and models within our customer's workflow. He has coordinated and participated in numerous national and international private & public-funded projects and is a member of EMMC (European Material Modeling Council).



# FORM PLANET

**FormPlanet** is an EU-funded Horizon 2020 project aimed at increasing the productivity of the sheet metal forming industry by developing advanced metal characterisation methodologies, non-destructive in-process measurements and modelling approaches aiming at solving relevant industrial problems in sheet metal forming such as edge-cracking, hydrogen diffusion, delayed fracture, ductility or part performance.

Started in November 2018 and lasting three years, the project has brought to the market a range of novel methodologies to assure a zero-defects production and optimise sheet material development, production, and performance.

Characterisation and modelling techniques developed and optimised during the project, have been validated with more than 14 industries representative of the sheet metal forming value chain in over 20 case studies.



## Our mission

Address the industrial challenges of the sheet metal forming industry

[www.formplanet-project.eu](http://www.formplanet-project.eu)

eurecat

Fraunhofer  
IWU

L  
LULEÅ  
UNIVERSITY  
OF TECHNOLOGY

UNIVERSITÀ DI PISA

COMTES FHT  
Centre for Technology and Development in the Textile

LETOMECC

ANSYS GRANTA

UNE  
Núcleo de Engenharia

Applus<sup>+</sup>  
laboratories

ArcelorMittal

arania

estamp  
resulting for a cleaner mobility

Arcelik

alupium<sup>+</sup>  
premium aluminium

APT  
AUTOMATION PRESSES TOOLING

Lamera

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FormPlanet



The FormPlanet Test Bed is a result of FormPlanet project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 814517.