SUSTAINABLE PLACES 2021
Sep. 28 - Oct. 1, 2021 | Rome, Italy

TIMEPAC

Towards innovative methods for energy performance assessment and certification of buildings

H2020 Coordination and Support Action 2021-24

https://timepac.eu

Leandro Madrazo
Project Coordinator
ARC Engineering and Architecture La Salle, Ramon Llull University
Barcelona, Spain

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033819

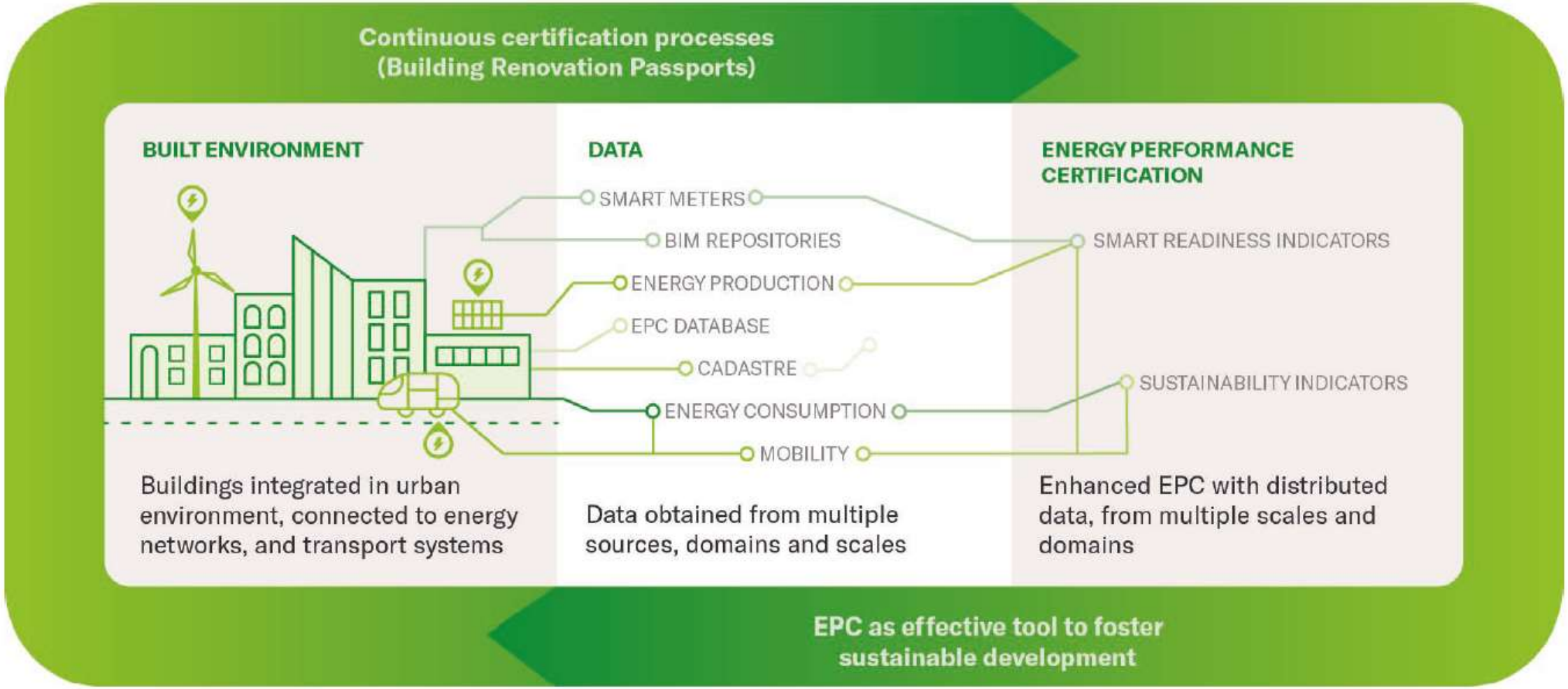
Consortium

13 partners from 7 EU countries (Austria, Croatia, Cyprus, Germany, Italy, Slovenia, and Spain)

- La Salle – FUNITEC, *Spain* (Coordinator)
- Jožef Stefan Institute, *Slovenia*
- Politecnico di Torino, *Italy*
- Institut Català d'Energia, *Spain*
- CYPE Soft S.L., *Spain*
- Ministrstvo za infrastrukturo, *Slovenia*
- Goriška Lokalna Energetska Agencija, *Slovenia*
- European Science Communication Institute, *Germany*
- Edilclima, S.r.l., *Italy*
- Regione Piemonte, *Italy*
- Institute for Sustainable Energy and Resources Availability, *Austria*
- Energy Institute Hrvoje Požar, *Croatia*
- Cyprus Federation of Employers & Industrialists, *Cyprus*

certification public bodies - local energy agencies and consultancies - software developers - research groups – communication agency

Project objectives



A new holistic approach of Energy Performance Certification throughout the whole building lifecycle

Project objectives

TIMEPAC will contribute to improving existing energy certification processes, moving from **single, static certification to more holistic and dynamic approaches**, which consider:

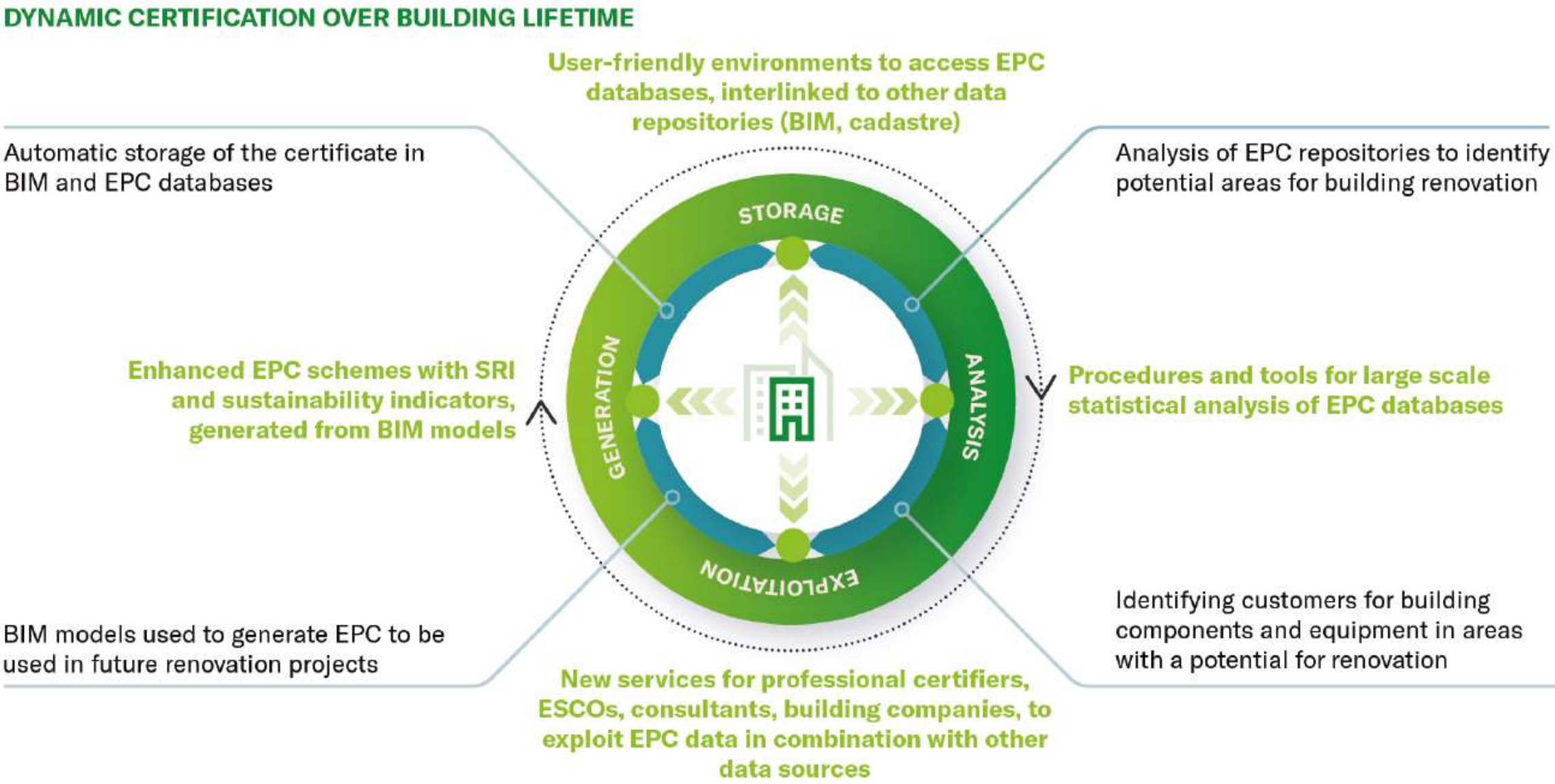
- the **data generated** in the overall energy performance certification process, from generation to storage, to analysis and exploitation, and throughout all the building lifecycle, from design, to construction and operation

- **buildings as part of a built environment**, connected to energy distribution and transport networks

- **buildings as dynamic entities**, continuously changing over time

Project objectives

focusing on the overall EPC data lifecycle



Specific objectives

- To increase the **quality and reliability** of EPC schemas
- To implement EPC schemas with **sustainability and SRIs**
- **To integrate EPC databases with other data sources** in order to improve the efficiency and reliability of EPCs
- **To increase awareness of the need to have EPC enhanced** with other data sources to foster the exploitation of EPC data
- To **provide training materials** including the new methods developed in TIMEPAC

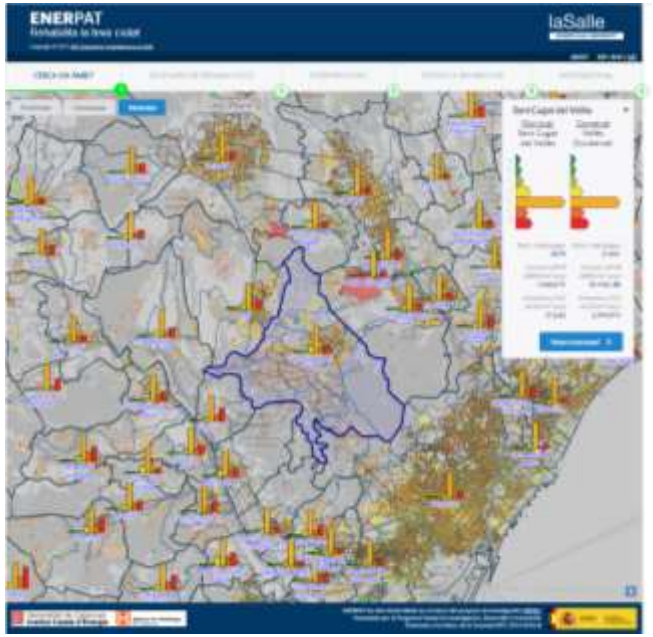
Previous research projects

ENERSI (La Salle - FUNITEC, ICAEN)

La Salle - FUNITEC, in collaboration with partner ICAEN, has developed two online applications –ENERHAT and ENERPAT– enable users (owners, tenants, real estate agencies) and experts (planners, policy makers) to estimate the costs of the building refurbishment measures at the building and city level

www.enersi.es/enerhat

www.enersi.es/enerpat



Methods and tools to integrate EPC data with other data sources using Semantic Web technologies.

>600.000
Energy Performance Certificates

>600.000
Parcels

>8.000
Municipalities

Generalitat de Catalunya
Institut Català d'Energia

National
Cadastre

Geographical Information National Institute

>25.000
Building Technical Inspection

>30.000
Census sections

Agència de l'Habitatge de Catalunya

National
Statistics

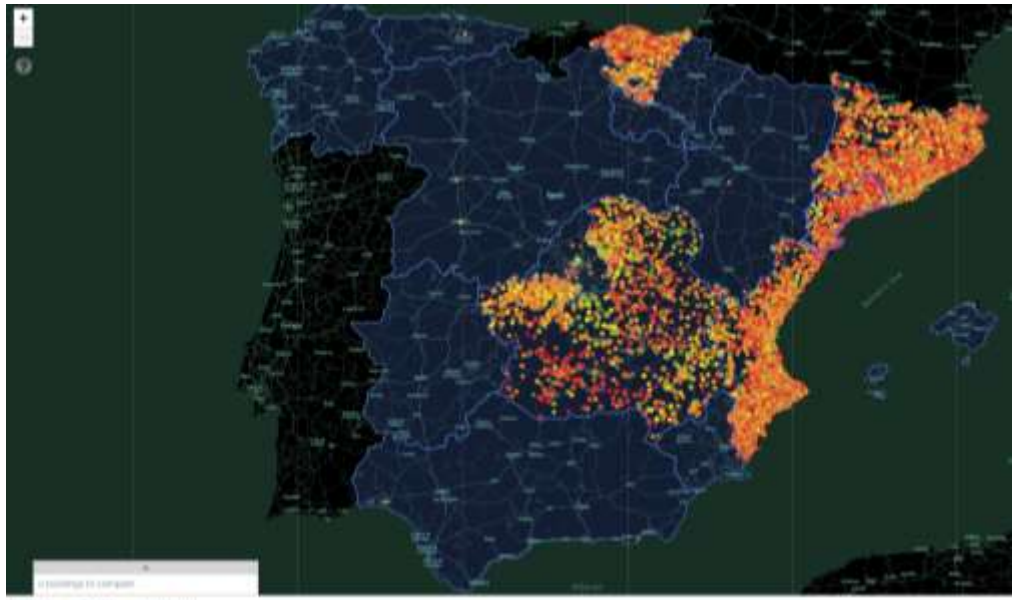
Previous research projects

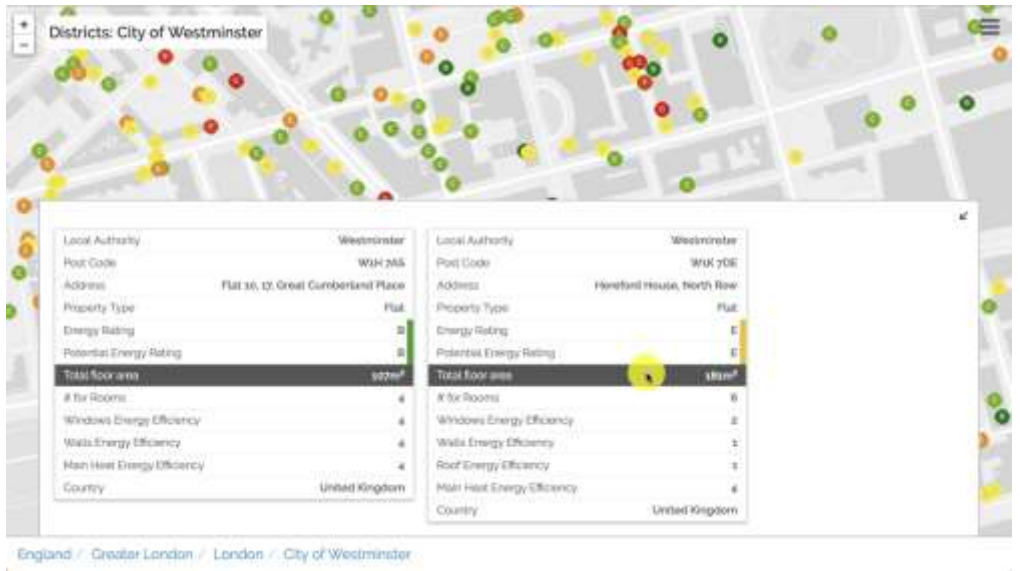
ENERFUND (JSI, SERA)

The H2020 ENERFUND project, in which JSI and SERA have been partners, developed a methodology for helping decision makers on energy renovation of buildings.

The methodology is based on existing data that is integrated in georeferenced EPC (total floor area, energy savings potential, year of construction/previous renovation) and combined with other publicly available data (energy prices, occupancy, ownership, etc).

https://app.enerfund.eu





Previous research projects

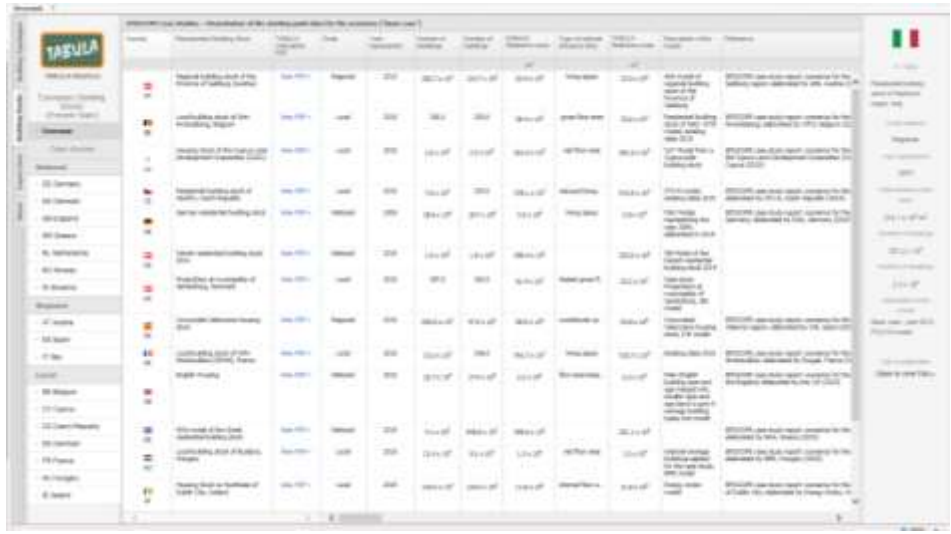
TABULA and EPISCOPE (POLITO)

http://webtool.building-typology.eu/#bm

TIMEPAC will adhere to the methodologies developed in the IEE projects TABULA and EPISCOPE, in which POLITO has been a partner.

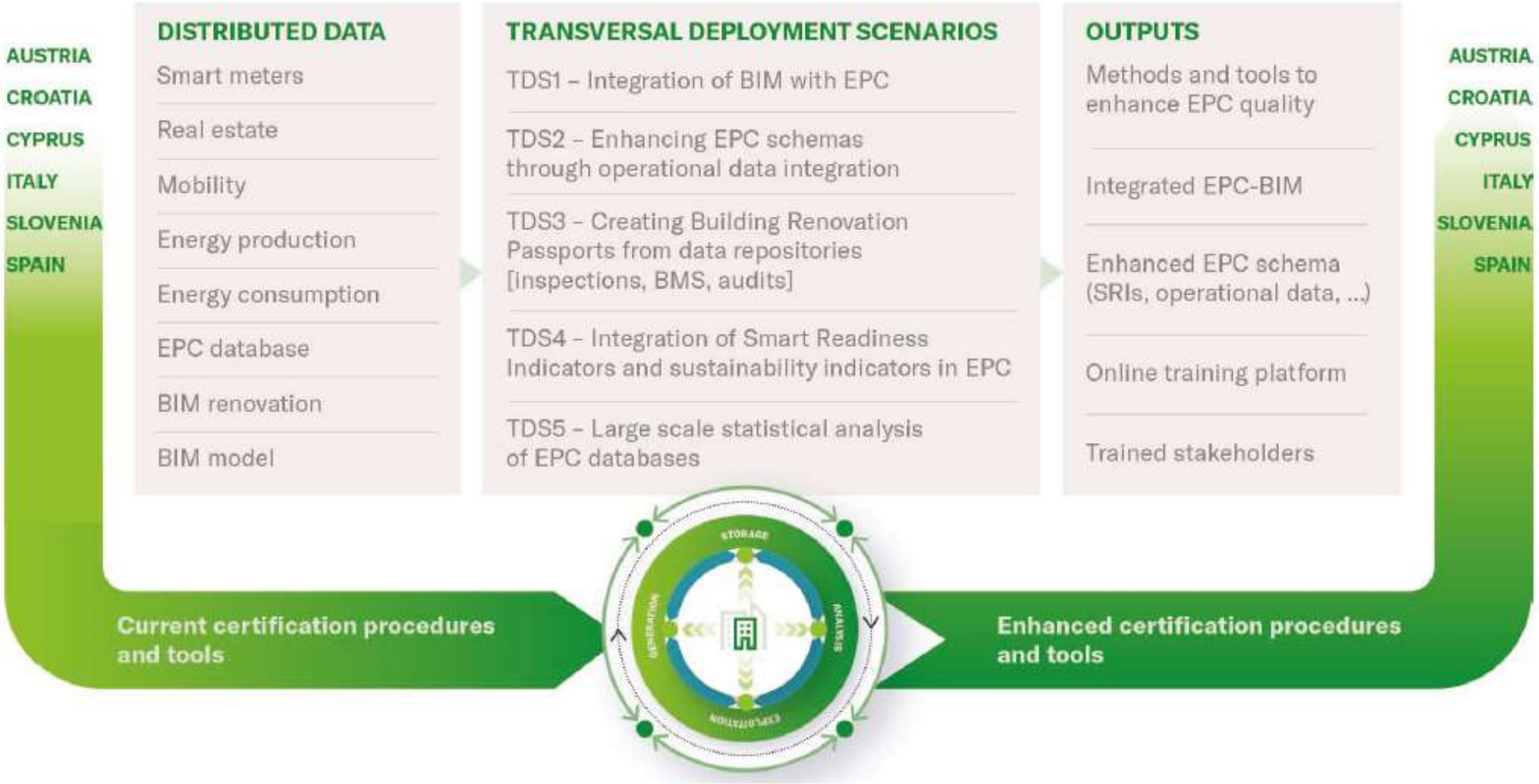
In TABULA, a building typology was created and applied to 13 European countries.

By using a bottom-up approach, the building typology proved to be an effective way to carry out energy balances and refurbishment scenarios of building stocks on a large scale.

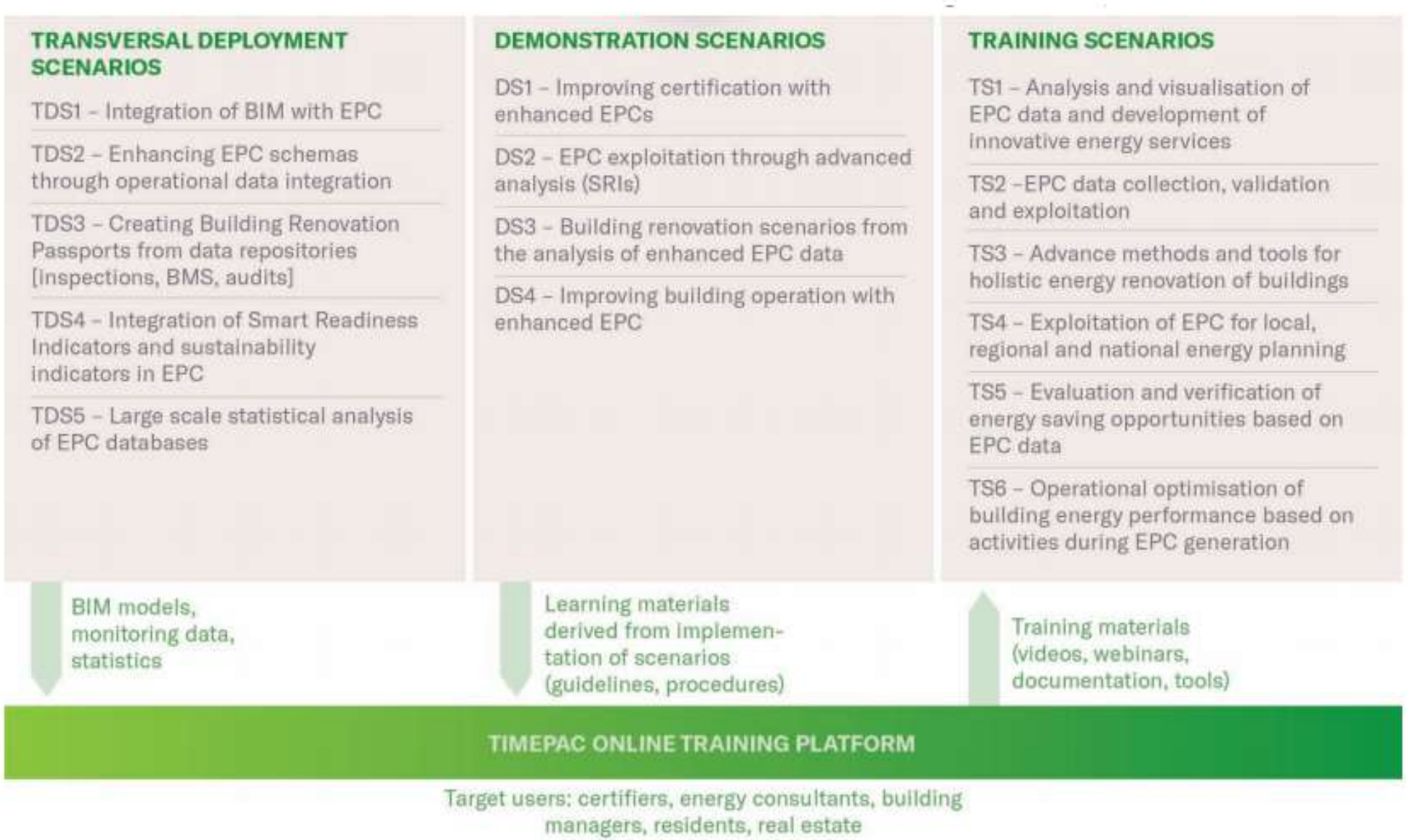


Project concept

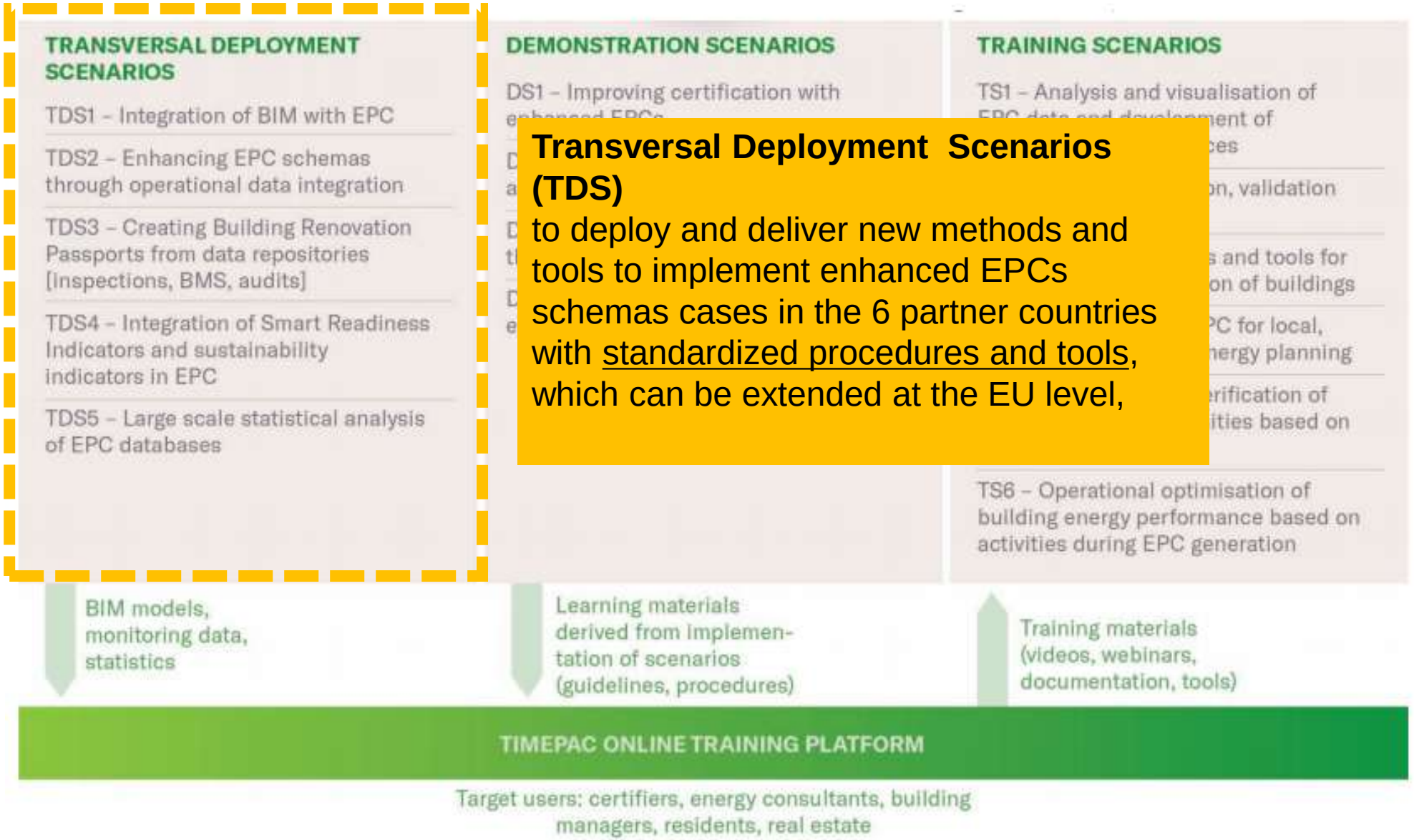
Innovative procedures to foster a holistic and dynamic approach to EPC in practice will be developed in **five Transversal Deployment Scenarios (TDSs)** with the participation of the partner organizations, at a **European scale**.



Project methodology



Project methodology



Project methodology

TRANSVERSAL DEPLOYMENT SCENARIOS

TDS1 – Integration of BIM with EPC

TDS2 – Enhancing EPC schemas through operational data integration

TDS3 – Creating Building Renovation Passports from data repositories [inspections, BMS, audits]

TDS4 – Integration of Smart Readiness Indicators and sustainability indicators in EPC

TDS5 – Large scale statistical analysis of EPC databases

DEMONSTRATION SCENARIOS

DS1 – Improving certification with enhanced EPCs

DS2 – EPC exploitation through advanced analysis (SRIs)

DS3 – Building renovation scenarios from the analysis of enhanced EPC data

DS4 – Improving building operation with enhanced EPC

TRAINING SCENARIOS

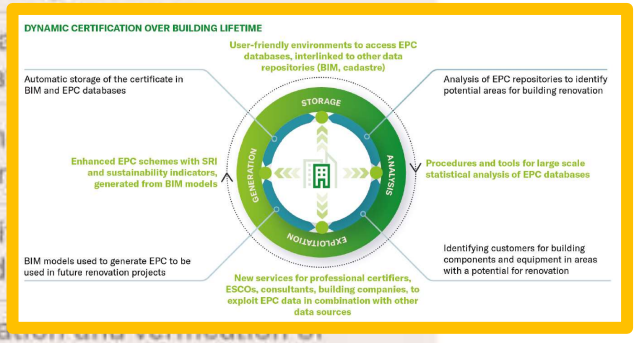
TS1 – Analysis and visualisation of EPC data and development of innovative energy services

TS2 –EPC da… and exploita…

TS3 – Advan… holistic ener…

TS4 – Exploi… regional and…

TS5 – Evalua…



Each TDS encompasses various stages of the EPC workflow (generation, storage, analysis, and exploitation), involving multiple stakeholders (research groups, energy agencies, ESCOs, etc.) and resources (data, tools, methods).

BIM models, monitoring data, statistics

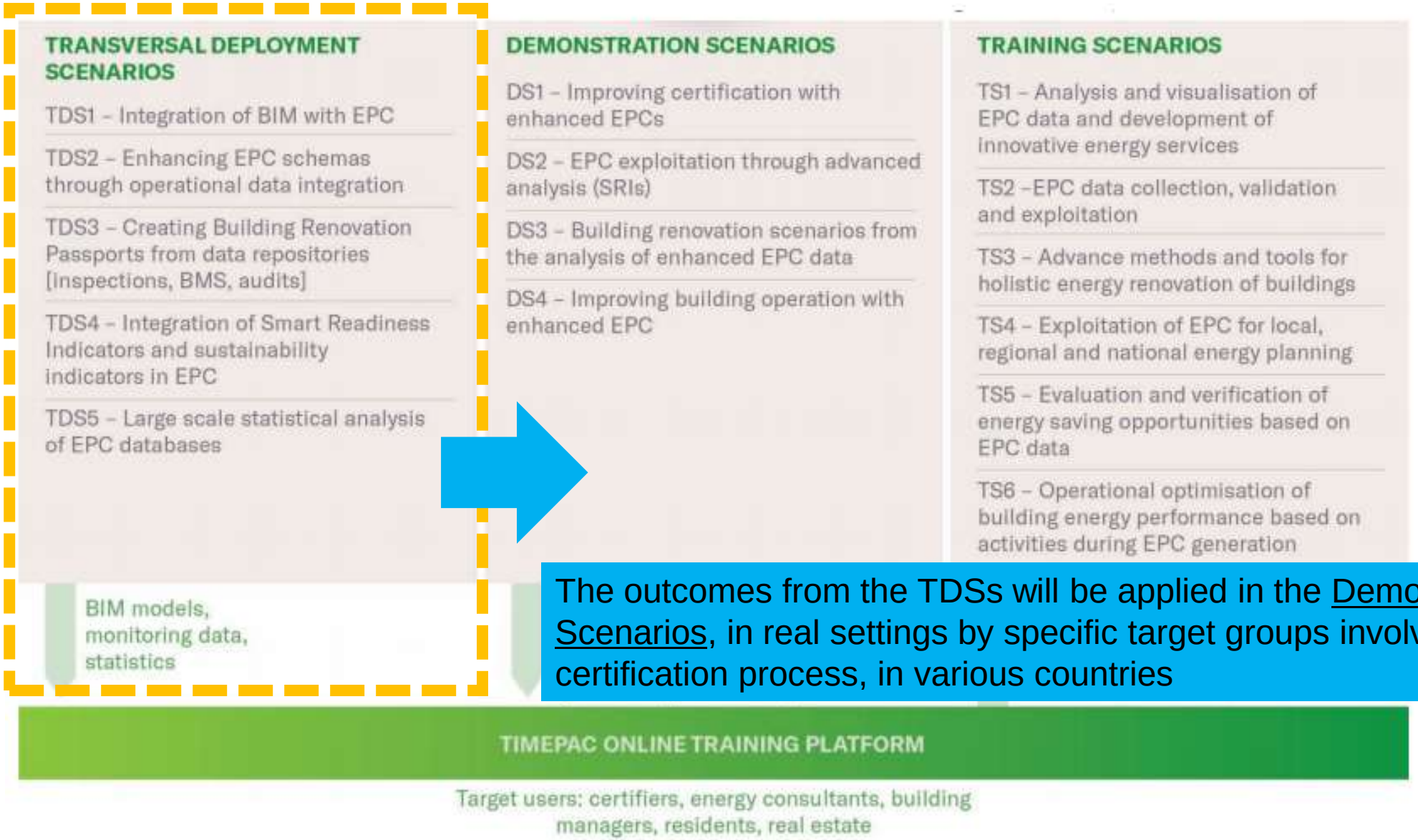
Learning materials derived from implementation of scenarios (guidelines, procedures)

Training materials (videos, webinars, documentation, tools)

TIMEPAC ONLINE TRAINING PLATFORM

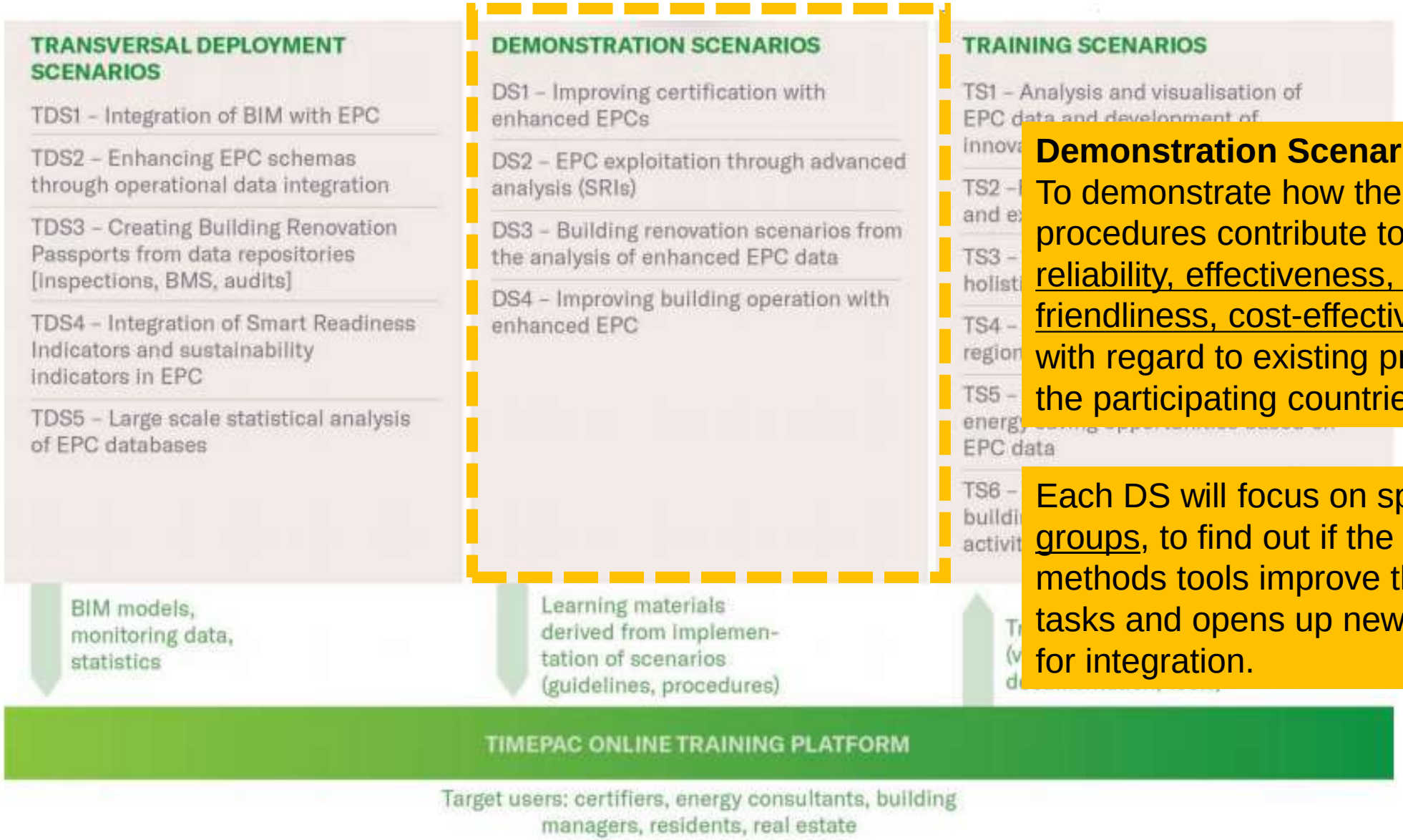
Target users: certifiers, energy consultants, building managers, residents, real estate

Project methodology



The outcomes from the TDSs will be applied in the Demonstration Scenarios, in real settings by specific target groups involved in the certification process, in various countries

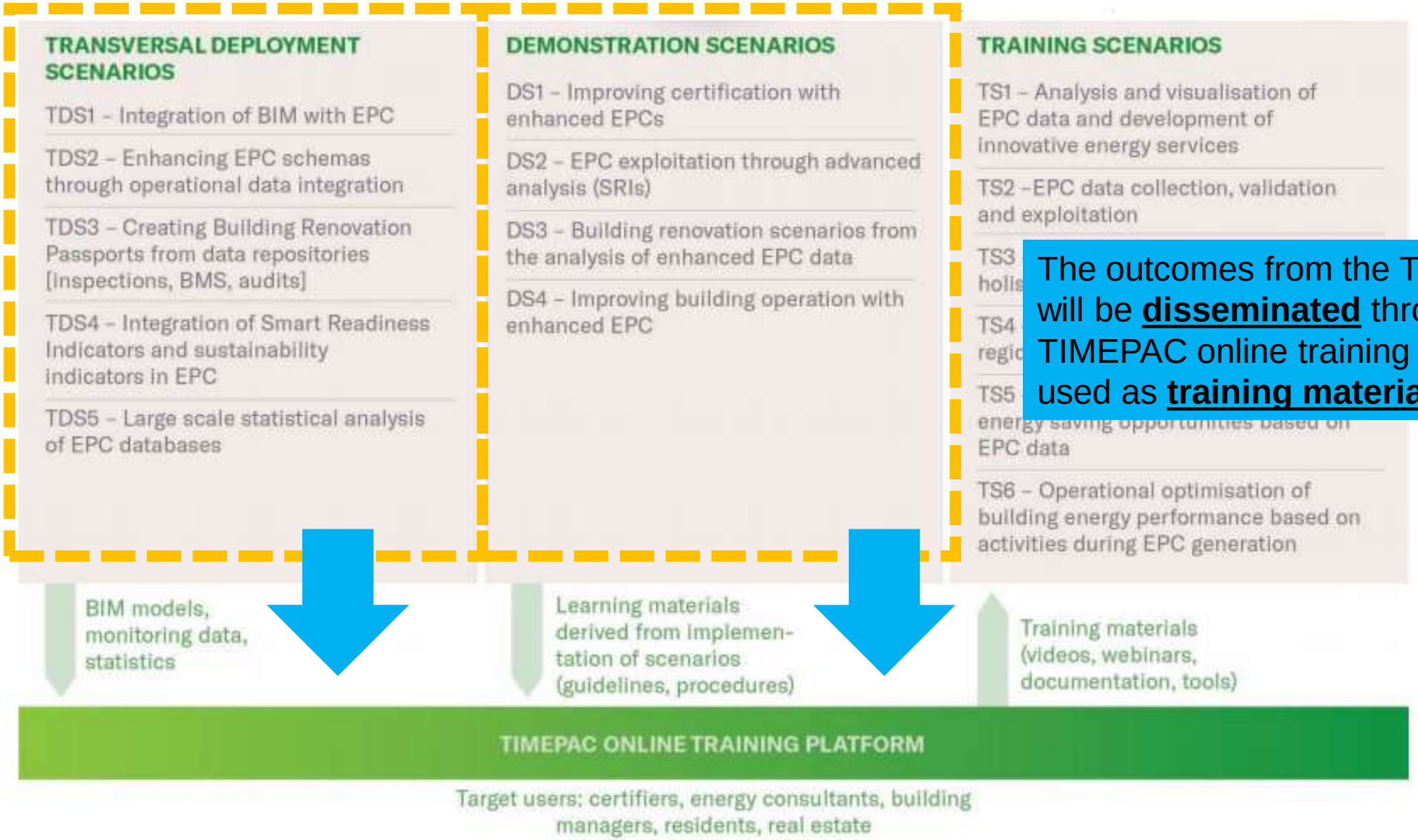
Project methodology



Demonstration Scenarios (DS)
To demonstrate how the enhanced procedures contribute to improve reliability, effectiveness, user-friendliness, cost-effectiveness, etc. with regard to existing procedures in the participating countries

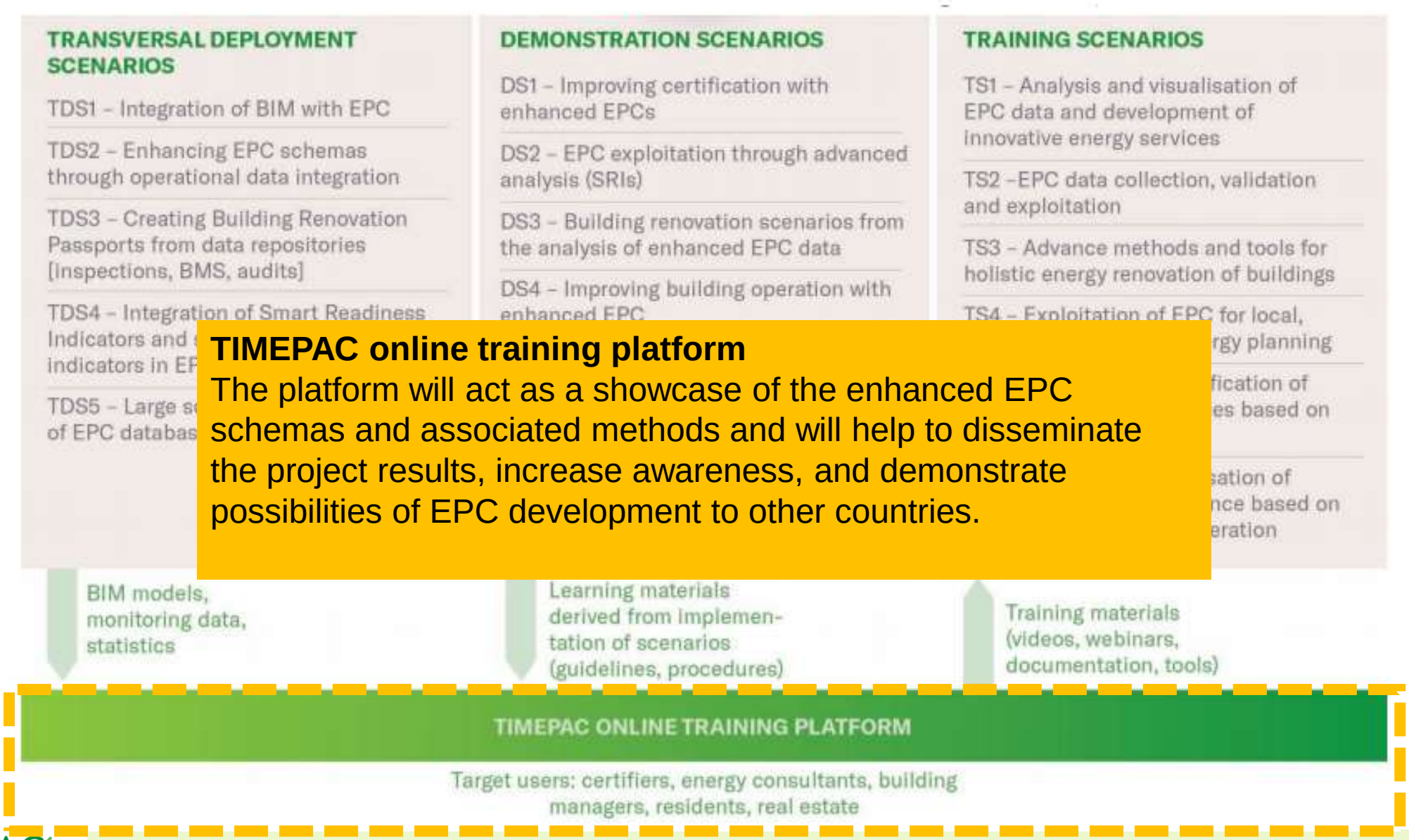
Each DS will focus on specific target groups, to find out if the new methods tools improve their daily tasks and opens up new possibilities for integration.

Project methodology



The outcomes from the TDSs and DSs will be **disseminated** through the TIMEPAC online training platform and used as **training materials**

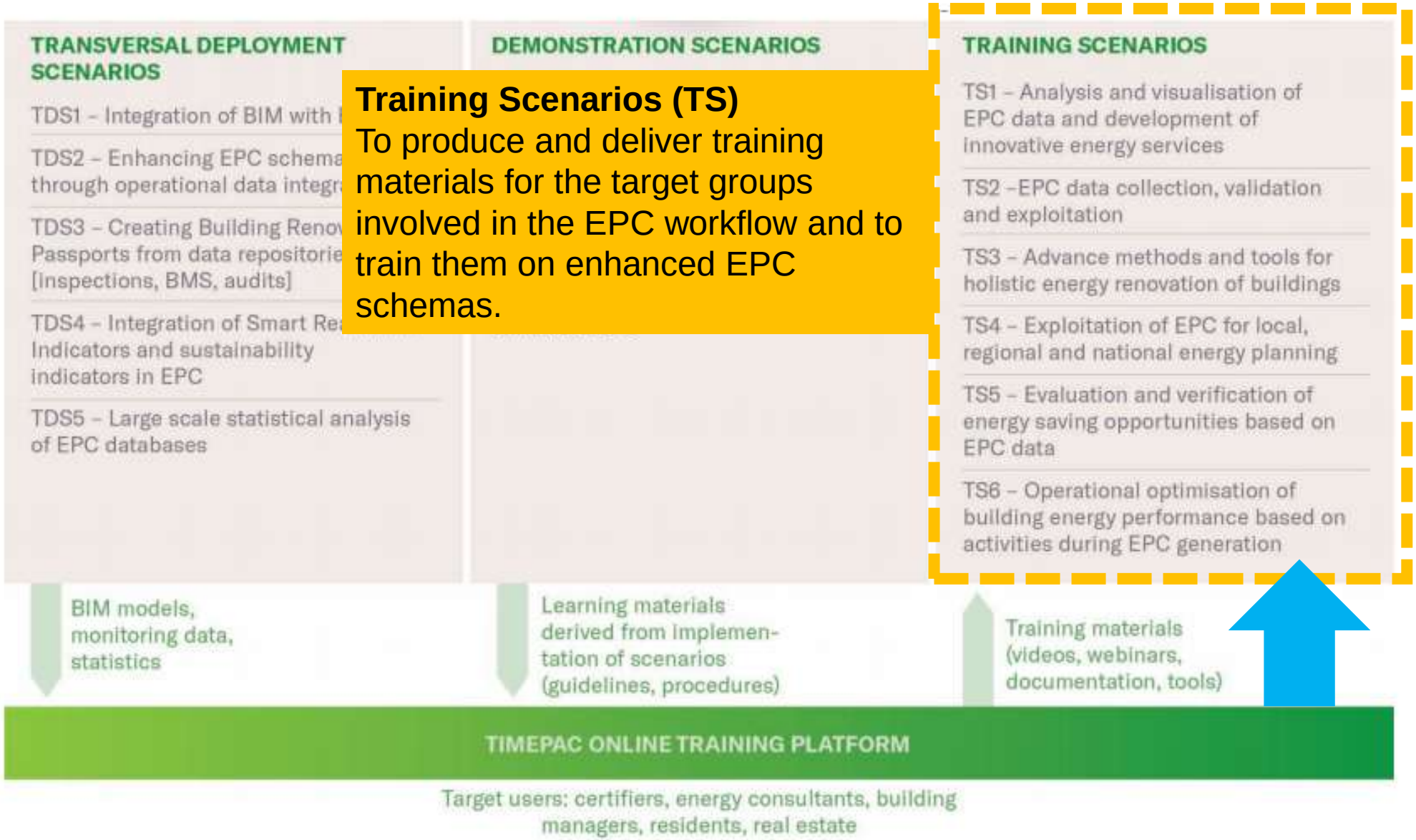
Project methodology



TIMEPAC online training platform

The platform will act as a showcase of the enhanced EPC schemas and associated methods and will help to disseminate the project results, increase awareness, and demonstrate possibilities of EPC development to other countries.

Project methodology



Training Scenarios (TS)
To produce and deliver training materials for the target groups involved in the EPC workflow and to train them on enhanced EPC schemas.

Networking opportunities

Next Gen EPCerts H2020 cluster
- Interlinks with ongoing projects ("Building Energy Performance Certificates: The Enabler Smart Readiness Indicator" workshop), Wednesday, September 30, 9:00-12:30

TIMEPAC International Workshops
- 2021 (December), in Slovenia
- 2022, in Italy
- 2023, in Austria

TIMEPAC Final Conference
- 2024, in Barcelona

If you would like more information, please contact us

leandro.madrazo@salle.url.edu