
# Integrating Network Digital Twinning into Future AI-based 6G Systems

## D6.1

# 6G-TWIN Project Identity

| Document Information | |
|---|---|
| **Grant Agreement N°** | 101136314 |
| **Authors and institutions** | Régis Decorme, Anaïs Gandelin (R2M) |
| **Reviewers** | Sébastien Faye (LIST), Bartolomeo Silvestri (POLIBA) |
| **Date** | 29 February 2024 |
| **Related WP** | WP6 \| Dissemination, Exploitation and Communication |
| **Dissemination level** | PU \| Public, fully open |

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

# Document change history

| Version | Date | Author | Description |
|---|---|---|---|
| **V0.1** | 13 February 2024 | R2M (Regis, Anaïs) | First version, agreement on the table of contents, feedback from the steering committee. |
| **V0.2** | 23 February 2024 | R2M (Regis, Anaïs) | Full draft ready for peer-review prior to submission |
| **V1.0** | 27 February 2024 | R2M (Regis, Anaïs) | Final version |

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

# Executive Summary

This 6G-TWIN deliverable aims to familiarise its beneficiaries with the project's visual identity and corresponding guidelines. This encompasses the project logo, document templates, social media channels, and essential materials like a project leaflet, roll-up poster, and standard presentation. Crafted by R2M with input from LIST and IMEC, the visual identity will guide dissemination activities in Work Package 6, aligning with the overall dissemination, exploitation, and communication (DEC) plan scheduled for release in Month 6.

The deliverable structure unfolds, starting with the project logo's introduction and brand guidelines in Chapter 2. Document templates, including internal presentation templates, are detailed in Chapter 3. Chapter 4 outlines the established social media channels, encouraging active engagement from partners. Chapter 5 features the roll-up poster, a useful tool for external visibility. The project leaflet, designed for distribution at events, is presented in Chapter 6. Chapter 7 introduces the standard presentation for external events, offering a comprehensive overview.

Additionally, the development of the project website is underway, with a temporary landing page already in place as of Month 2. The deliverable emphasises the importance of EU funding acknowledgment in all communication activities and provides guidelines for its proper display.

In conclusion, this deliverable sets the foundation for the project's visual identity and dissemination strategy. While certain elements may undergo refinement, all components are accessible in the project's shared space. The upcoming milestones include finalising the project website and delivering the plan for DEC activities by the end of Month 6.

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

# Abbreviations and acronyms

| Abbreviations and acronyms | |
|---|---|
| **DEC** | Dissemination, Exploitation, Communication |
| **EU** | European Union |
| **GA** | Grant Agreement |
| **SNS JU** | Smart Networks and Services Joint Undertaking |
| **WP** | Work Package |

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

# Table of Contents



Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

# Table of figures



# Table of tables



Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

# 1.Introduction

## 1.1. Aims and objectives

This deliverable is designed to acquaint the beneficiaries of the 6G-TWIN project with its visual identity and corresponding guidelines. The project's visual identity encompasses elements such as the project logo, document templates, details about social media channels, and recommended practices for their utilisation. Additionally, it provides essential materials like a project leaflet, a standard project presentation, and a roll-up poster. These resources serve as a foundation for initiating dissemination and communication activities aimed at enhancing awareness about the project. Given this report is released at an early stage of the project, some of the material presented might evolve and be fine-tuned over the course of the project.

## 1.2. Relation to other activities in the project

The visual identity outlined in this deliverable will guide the development of dissemination and communication activities in WP6. These initiatives align with the plan for dissemination and exploitation including communication activities (DEC Plan). The initial version of this plan (D6.2) is scheduled for release in Month 6. There are additional dissemination and communication items which will be developed later during the project, such as for instance a project short promotional video.

## 1.3. Report structure

Chapter 2 introduces the 6G-TWIN brand book which include the project logo, its colour palette, and guidelines for its utilisation. In Chapter 3, document templates specifically crafted for internal communication within the consortium are presented. Chapter 4 outlines the social media channels established for the project, along with guidelines for project partners to maximise their impact when utilising these channels. Chapter 5 showcases the 6G-TWIN roll-up poster, while Chapter 6 features the 6G-TWIN project leaflet. Chapter 7 provides the 6G-TWIN standard presentation designed for pitching the project at external events. Chapter 8 introduces the project website under development. Finally, Chapter 9 serves as a reminder of important rules regarding EU funding acknowledgment as outlined in our Grant Agreement.

## 1.4. Contribution of partners

R2M crafted the project's visual identity as outlined in this deliverable, with content review and guidance provided by LIST and IMEC. Subsequently, the validation process involved input from all partners.

## 1.5. Deviations from the GA (if any)

No deviation.

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

# 2. Brand book and guidelines

When individuals come across 6G-TWIN, our brand typically serves as their initial point of contact. It embodies our project, personality, and overall presentation. It is crucial to consistently uphold the integrity of our brand in all communication and dissemination efforts.

Partners are invited to correctly spell the project name as follows: **6G-TWIN**.
Variants such as *6G-twin ; 6G_TWIN (…)* are not allowed, with a few exceptions such as when using social media (e.g. X account has a naming limitation, leading us to use @6Gtwin).

Figure 1 shows the project logo of 6G-TWIN and an extract from the 6G-TWIN brand book & guidelines.

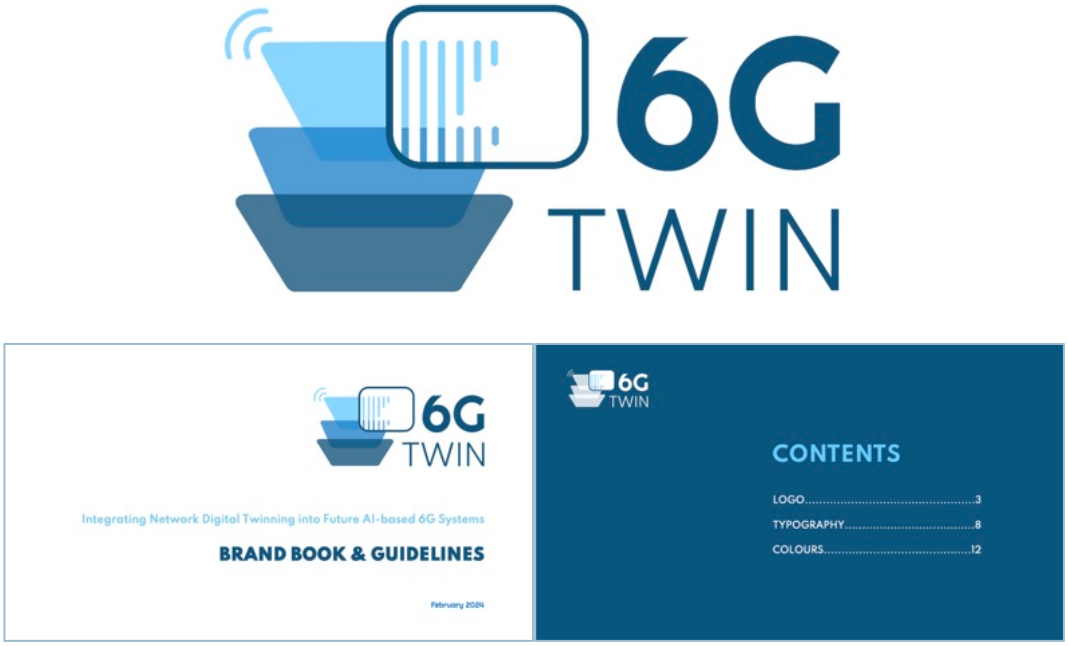



*Figure 1 - 6G-TWIN project logo, brand book and guidelines*

Brand book and guidelines include the following elements:

- A presentation of the logo, along with guidelines on its proper usage.
- Typography details, covering both primary and secondary typefaces.
- Colour references.

**The complete brand book and guidelines can be found in the annex of the report.**

# 3. Document templates

Templates for deliverables and internal presentations have been created (see Figure 2) , featuring the 6G-TWIN logo and the necessary funding acknowledgment (refer to chapter 9). Their design ensures a consistent presentation of the project's research progress and outcomes. The presentation template was utilised during the project's kick-off meeting and is intended for internal use, while an external presentation template has also been crafted (see chapter 7).

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS


*Figure 2 - Deliverable and internal presentation templates*

# 4. Social media channels

As foreseen in the Grant Agreement, a LinkedIn page and a Twitter/X account have been established for the project (see Figure 3). Invitations have been extended to all project partners to follow both accounts. Partners are encouraged to actively engage with the content shared through these channels and to amplify its reach by sharing it on their respective social media platforms.

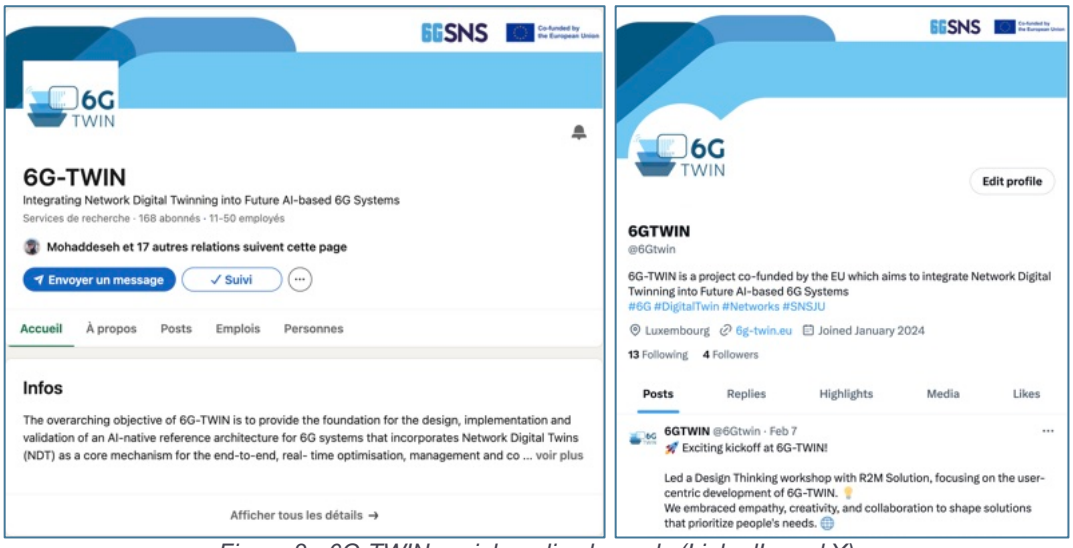



*Figure 3 - 6G-TWIN social media channels (LinkedIn and X)*

Table 1 below provides a summary of the social media accounts for all partners on both platforms. In each post, it is essential to consistently tag both the European Commission account and SNS JU for visibility and broader reach.

KPIs and targets associated to the use of these social media channels will be presented in the upcoming deliverable D6.2 (DEC Plan) due at month 6.

*Table 1 - Social media handles of project partners, the EC and SNS JU*

| | LinkedIn | X (Twitter) |
|---|---|---|
| **1. LIST** | Luxembourg Institute of Science and Technology (LIST) | @LIST_Luxembourg |
| **2. IMEC** | imec | @imec_int |
| **3. POLIBA** | Politecnico di Bari | @PolibaOfficial |
| **4. UBOU** | Université de Bourgogne | @univbourgogne |

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS

| | | |
|---|---|---|
| **5. TUD** | Technische Universität Dresden | @tudresden_de |
| **6. UBI** | Ubiwhere | @ubiwhere |
| **7. ACC** | Accelleran | @accelleran |
| **8. R2M** | R2M Solution France | @R2MSolution |
| **9. EBY** | Ericsson | @ericsson |
| **10. PX** | Proximus Luxembourg | @Proximus_LU |
| **11. VIAVI** | VIAVI Solutions | @ViaviSolutions |
| **EC** | European Commission | @EU_Commission |
| **SNS JU** | Smart Networks and Services Joint Undertaking (SNS JU) | @6G_SNS |
| **6G-IA** | 6G Smart Networks and Services Industry Association | @6G_SNS_IA |

# 5. Roll-up poster

The roll-up poster (refer to Figure 4) is a valuable tool for enhancing the project's visibility at trade fairs, conferences, project meetings, and various external events. This poster prominently features the project logo, tagline, consortium details, and essential links to social media channels and the project website. **The roll-up is attached in the annex of the report.**


*Figure 4 – Roll-up poster*

# 6. Leaflet

The project leaflet (see Figure 5) provides an overview of the project's objectives, concept, and demonstrators. It furnishes information about the consortium and offers key links and contacts for further details about the project. This leaflet is specifically designed for distribution at external events such as trade fairs.

**The leaflet is presented in the annex of the report.**

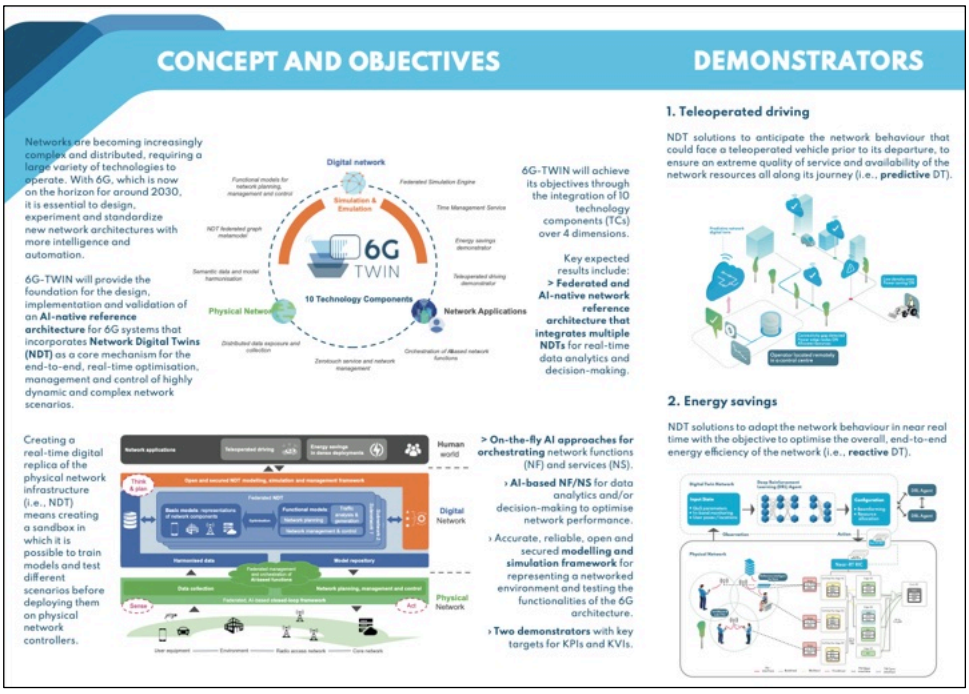




*Figure 5 – Project leaflet*

# 7. Standard presentation

The standard presentation (see Figure 6) is designed for pitching the project at external events, including conferences, trade fairs, and meetings with clients and partners. This presentation offers a comprehensive overview of the project and its consortium. It includes information about the context, objectives, and concepts, as well as details on technology solutions, demonstrators, expected outcomes, timeline, and the mapping of core activities. Additionally, it provides links to the project's website, social media channels, and contact details for reaching out to the project coordinator and dissemination manager.

**The full standard presentation is provided in the annex of this report.**


*Figure 6 - Standard presentation*

# 8. Project website: temporary landing page

The project website is currently under development and will be released by Month 6 according to the Grant Agreement. It will be accessible at https://www.6g-twin.eu/.

At this stage, a temporary landing page (see Figure 7) has already been put in place with the project logo, tagline, EU funding acknowledgment, and direct links to the social media channels of the project.

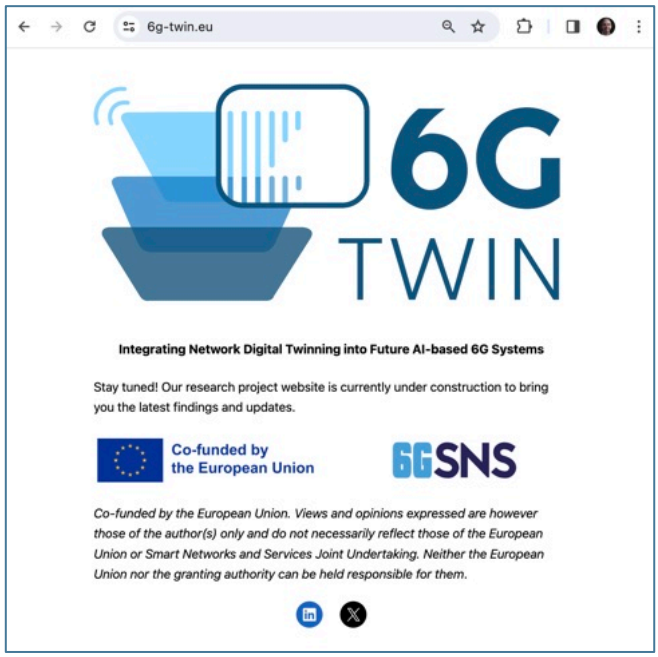



*Figure 7 – 6G-TWIN website: temporary landing page*

The full website will include: a **Landing page** providing key elements to understand the basics of the project; a section detailing the **Project Concept** ; a section detailing the **Demonstrations** ; a section detailing the **Consortium** ; a section **Resources** giving access in particular to public deliverables; and a **News** section providing regular short updates about the research progress.

The full website will be presented in the upcoming deliverable D6.2 (DEC Plan) due at month 6.

# 9. EU funding acknowledgement

Any communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate). The 6GSNS logo should be displayed next the EU Emblem (see Figure 8).


*Figure 8 – European emblem, funding statement, and 6GSNS logo*

Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

*Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.*

In case the dissemination item involves multiple contributing EU-funded projects, it may also be useful to include an explicit reference to the Grant Agreement number, as follows:

*The 6G-TWIN project has received funding from the Smart Networks and Services Joint Undertaking (SNS JU) under the European Union's Horizon Europe research and innovation program under Grant Agreement No 101136314. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.*

The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text. Apart from the emblem, no other visual identity or logo may be used to highlight the EU support. When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.

For further detailed information refer to:

- Articles 17.2 and 17.3 of the Grant Agreement.
- EC Download centre for visual elements
- SNS JU Projects Communication guidelines

# 10. Conclusions

This deliverable introduced the project visual identity as well as guidelines for its implementation. This includes the project logo, social media channels, document templates, a project leaflet, a roll-up poster, and a standard presentation Considering the project's early stage, certain elements may undergo further refinement and adjustments in the upcoming months. All elements are made accessible in the shared space of the project.

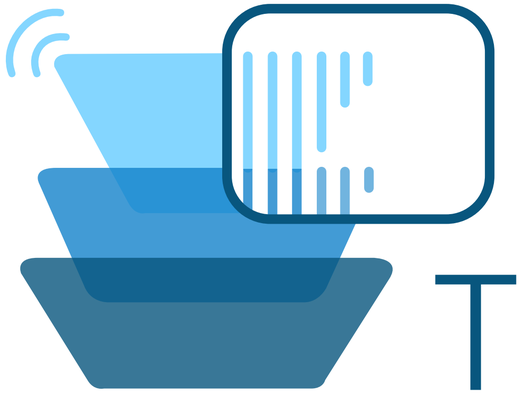
The next steps are to finalise the project website and to develop the plan for dissemination, exploitation, and communication activities (D6.2). Both will be delivered by the end of month 6 of the project. There are additional dissemination and communication items which will be developed later during the project, such as for instance a project short promotional video.

# 11. Annexes

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

6GSNS



6G TWIN

Integrating Network Digital Twinning into Future AI-based 6G Systems

# BRAND BOOK & GUIDELINES

February 2024

6G TWIN

# CONTENTS

# LOGO

# THE LOGO

The 6G-TWIN logo was designed in one version. It combines the “6G” and “TWIN” designed with different styles, associated with a network design, and combined into one shape. The logo should always be used in its full version.

**6G**
Uses the light blue from the colour palette and a boxy typeface.

**Network design**
Uses the three blues from the colour palette and a a transparency effect.

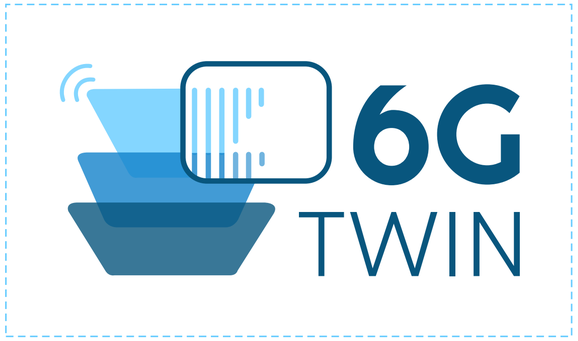

**TWIN**
Uses the dark blue from the color palette and a lighter typeface.

*6G-TWIN full logo*

# REVERSED VERSION & COLOURWAYS

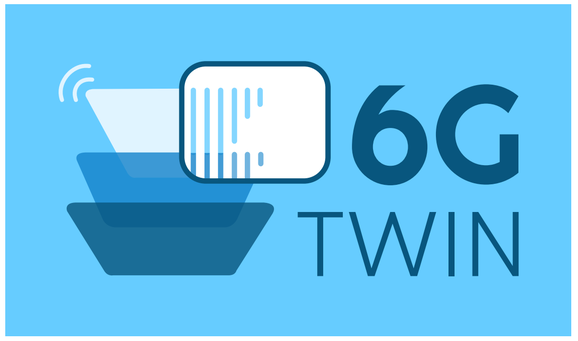
On dark backgrounds and image backgrounds, the reversed version of the logo may be used.
The logo can also be used on coloured backgrounds.

*Positive*



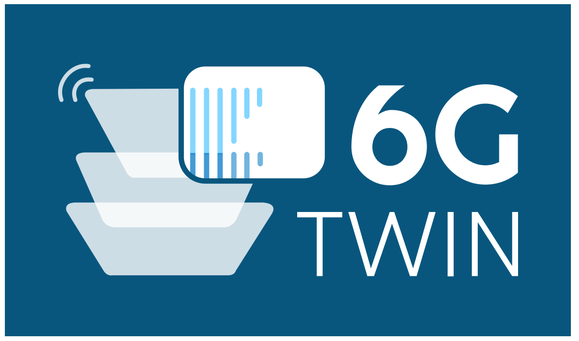

Colour logo version

*Negative I*




Colour logo version inverted

*Negative II*




White logo version

# LOGO MISUSE

There are guidelines for using the logo. Please do not alter the logo in any way. The most common examples of misuse involve incorrect scaling or incorrect colour selection. Here are some examples of what not to do.

### *Resolution*

Always use the correct resolution.

### *Colour*

Never change the colour settings on the main logo.

### *Distortion*

Never stretch, warp or expand the logo to fit to a space or platform.

### *Type*

Never replace the logo with another typeface.

### *Perspective*

Never use a perspective of the logo.

### *Proportion*

Never scale or adjust the elements within the logo.

### *Pattern*

Never place the logo over a busy pattern.

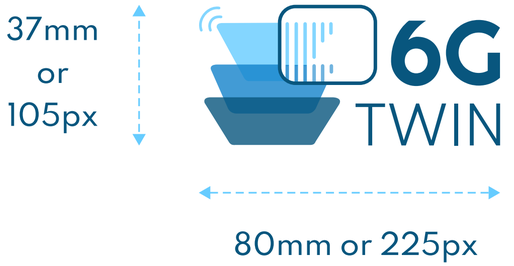
### *Photography*

Never place the logo over a busy photograph.

# CLEAR SPACE & MINIMUM SIZING

Whenever you use the logo, it should be surrounded by clear space to ensure its visibility and impact. No graphic elements of any kind should invade this zone. The logo is designed to retain clarity down to a minimum width of 50mm or 600px and 18mm or 175px height.


To work out the clearspace, take the height and width of the letter “G” of the logo.




The logo should never be used when it comes to small sizes.

# TYPOGRAPHY

# PRIMARY TYPEFACE

Spartan Thin
Spartan Light
Spartan Regular
Spartan Medium
**Spartan SemiBold**
**Spartan Bold**
**Spartan ExtraBold**
**Spartan Black**

AaBbCcDdEeFfGgHhIiJjKkLlM
mNnOoPpQqRrSsTtUuVvWwX
xYyZz1234567890+;%@?!&€*

*Designed by Matt Bailey & Mirko Velimirovic*

# PRIMARY TYPEFACE

The primary typeface is **Comfortaa**. It should be used mainly on headings, titles, sub-titles, and quotes.
It could be used online and on printed materials such as brochures. Combine it with the secondary typeface
- Righteous - to create dynamics in the text. The primary typeface is also used in the tagline together with the logo.


Integrating Network Digital Twinning
into Future AI-based 6G Systems

Example of primary typeface on the tagline

# SECONDARY TYPEFACE

The secondary typeface is **Righteous**. It should be used mainly on titles, sub-titles, and/or quotes.
Combined with the primary typeface, it creates dynamics in the text.

Righteous

RIGHTEOUS

*Designed by Astigmatic*

AaBbCcDdEeFfGgHhIiJjKkLlMm

NnOoPpQqRrSsTtUuVvWwXxY

yZz1234567890+;%@?!¢€*«»

# COLOURS

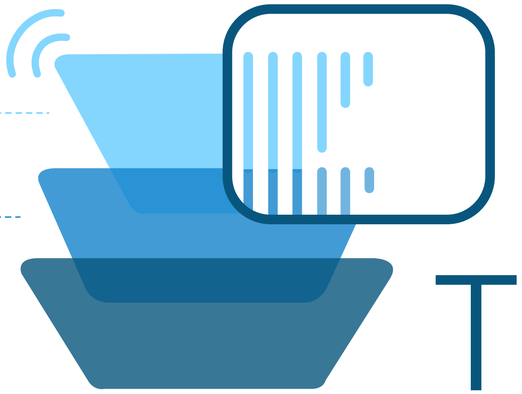
# COLOUR PALETTE

We use the 3 colours of the logo. White, black and shades of grey can also be used.

#66ccff
C: 56%
M: 2%
Y: 0%
K: 0%
R: 102
G: 204
B: 255

#08567e
C: 94%
M: 60%
Y: 29%
K: 13%
R: 8
G: 86
B: 126

#1383cb
C: 81%
M: 30%
Y: 0%
K: 0%
R: 19
G: 131
B: 203



6G TWIN

# 6G TWIN

Thanks for your attention!

**Co-funded by the European Union**

*Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.*

# OUR CONSORTIUM

11 partners including RTOs, universities, small and large companies, from 8 Member or Associated Member States, collaborating to advance research in 6G.

# FOLLOW US AND GET IN TOUCH !


**Project coordinator**
**Sébastien FAYE**

Luxembourg Institute of Science and Technology (LIST)

*sebastien.faye@list.lu*



**Communication manager**
**Regis DECORME**

R2M Solution France

*regis.decorme@r2msolution.com*


**6g-twin.eu**

**@6Gtwin**

**6G-TWIN**


*Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.*


6G TWIN

***Integrating Network Digital Twinning into Future AI-based 6G Systems***

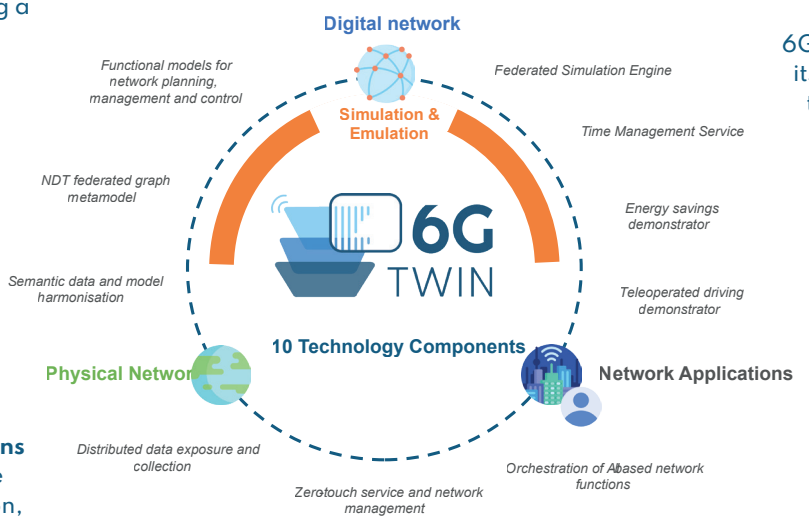
6GSNS

**Co-funded by the European Union**

# CONCEPT AND OBJECTIVES

Networks are becoming increasingly complex and distributed, requiring a large variety of technologies to operate. With 6G, which is now on the horizon for around 2030, it is essential to design, experiment and standardize new network architectures with more intelligence and automation.

6G-TWIN will provide the foundation for the design, implementation and validation of an **AI-native reference architecture** for 6G systems that incorporates **Network Digital Twins (NDT)** as a core mechanism for the end-to-end, real-time optimisation, management and control of highly dynamic and complex network scenarios.

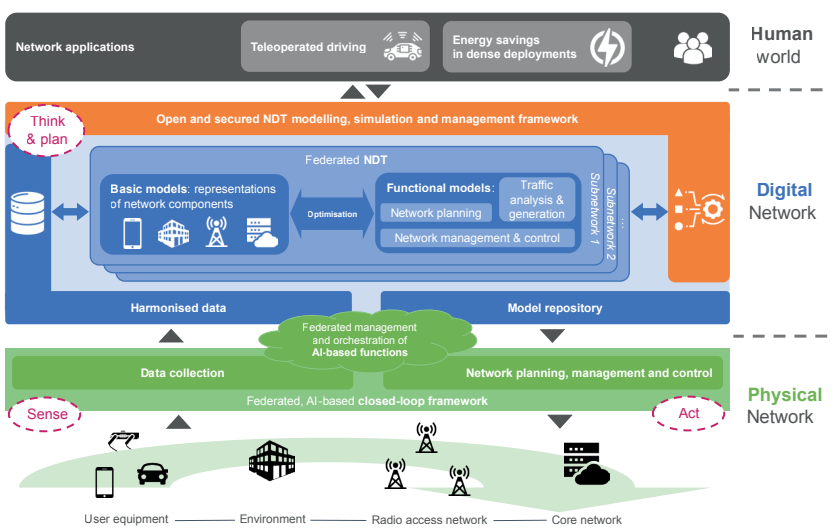



6G-TWIN will achieve its objectives through the integration of 10 technology components (TCs) over 4 dimensions.

Key expected results include:

**> Federated and AI-native network reference architecture that integrates multiple NDTs** for real-time data analytics and decision-making.

Creating a real-time digital replica of the physical network infrastructure (i.e., NDT) means creating a sandbox in which it is possible to train models and test different scenarios before deploying them on physical network controllers.




**> On-the-fly AI approaches for orchestrating** network functions (NF) and services (NS).

› **AI-based NF/NS** for data analytics and/or decision-making to optimise network performance.

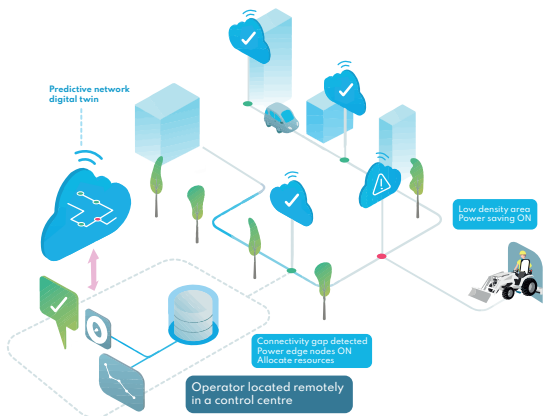
› Accurate, reliable, open and secured **modelling and simulation framework** for representing a networked environment and testing the functionalities of the 6G architecture.

› **Two demonstrators** with key targets for KPIs and KVIs.

# DEMONSTRATORS

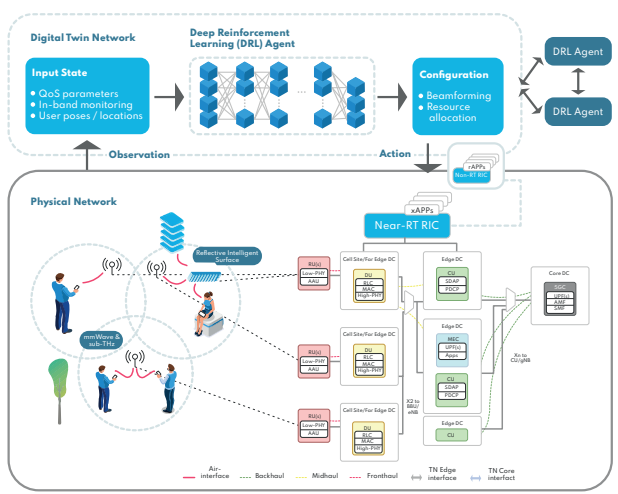
## 1. Teleoperated driving

NDT solutions to anticipate the network behaviour that could face a teleoperated vehicle prior to its departure, to ensure an extreme quality of service and availability of the network resources all along its journey (i.e., **predictive** DT).




## 2. Energy savings

NDT solutions to adapt the network behaviour in near real time with the objective to optimise the overall, end-to-end energy efficiency of the network (i.e., **reactive** DT).



# 6G TWIN

## *Network Digital Twinning integrated into future AI-based 6G Systems*

6g-twin.eu

@6Gtwin

6G-TWIN

6GSNS

Funded by the Smart Networks and Services Joint Undertaking (SNS JU) which aims to to advance 6G research in Europe.

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Politecnico di Bari

imec

uB

TECHNISCHE UNIVERSITÄT DRESDEN

ubiwhere

Aelleran

R2M SOLUTION

ERICSSON

telindus

VIAVI

Co-funded by the European Union

*Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.*


# Integrating Network Digital Twinning into Future AI-based 6G Systems

Sébastien Faye, LIST

*February 2024*

Co-funded by the European Union

6GSNS

# Project Factsheet

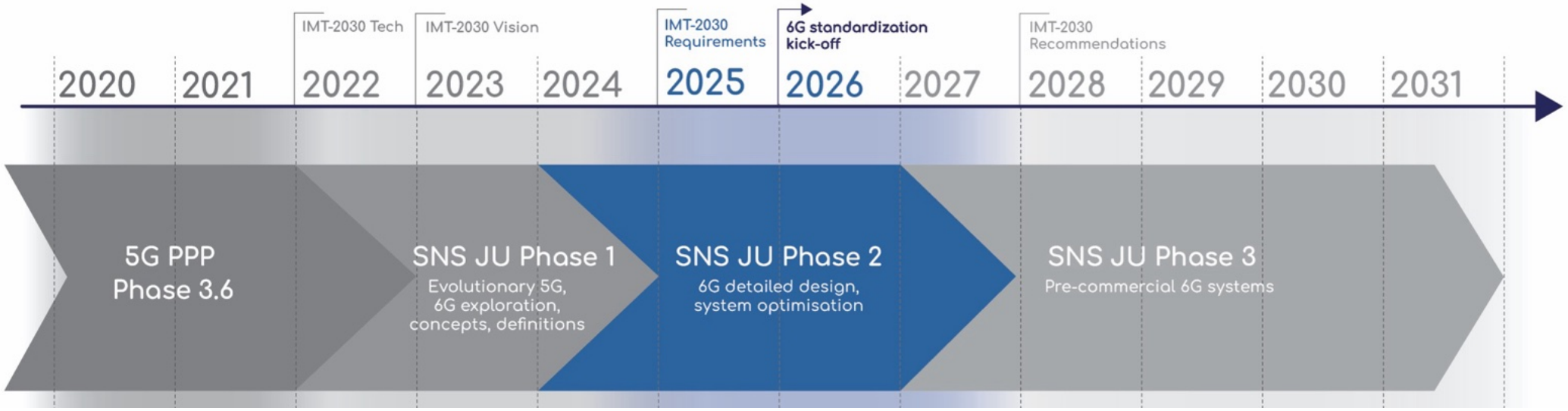
- **6G-TWIN vision**:

"To propose new methods, simulation and modelling tools around the concept of network digital twin and demonstrate their interest in tangible use cases"

- **Duration**: 1 January 2024 – 31 December 2026
- **Budget**: 4.19 millions euros

# SNS JU: Advance 6G research in Europe

- SNS JU enables the pooling of EU and industry resources into Smart Networks and Services.
- 6G-TWIN is part of the SNS JU project portfolio, Phase 2, STREAM-B-01-01: **System Architecture** (5 projects selected, in total)



# The consortium

11 partners from 8 Member States or associated Member States

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Politecnico di Bari

imec

uB UNIVERSITÉ DE BOURGOGNE

TECHNISCHE UNIVERSITÄT DRESDEN

ubiwhere

Accelleran

R2M RESEARCH TO MARKET SOLUTION

ERICSSON

telindus

VIAVI

# The consortium

- 2 leading research organizations, 3 universities, 3 SMEs and 3 LEs.
- Half of the consortium is member of the 6G-IA association.

# Beyond 5G

- The rapid integration of digital technology across industries like transportation and manufacturing has boosted the **need for efficient communication and computing services**.

- Networks are becoming increasingly complex and distributed, requiring a large variety of technologies to operate. With **6G**, which is now on the horizon for around 2030, it is essential to design, experiment and standardize **new network architectures with more intelligence and automation**.

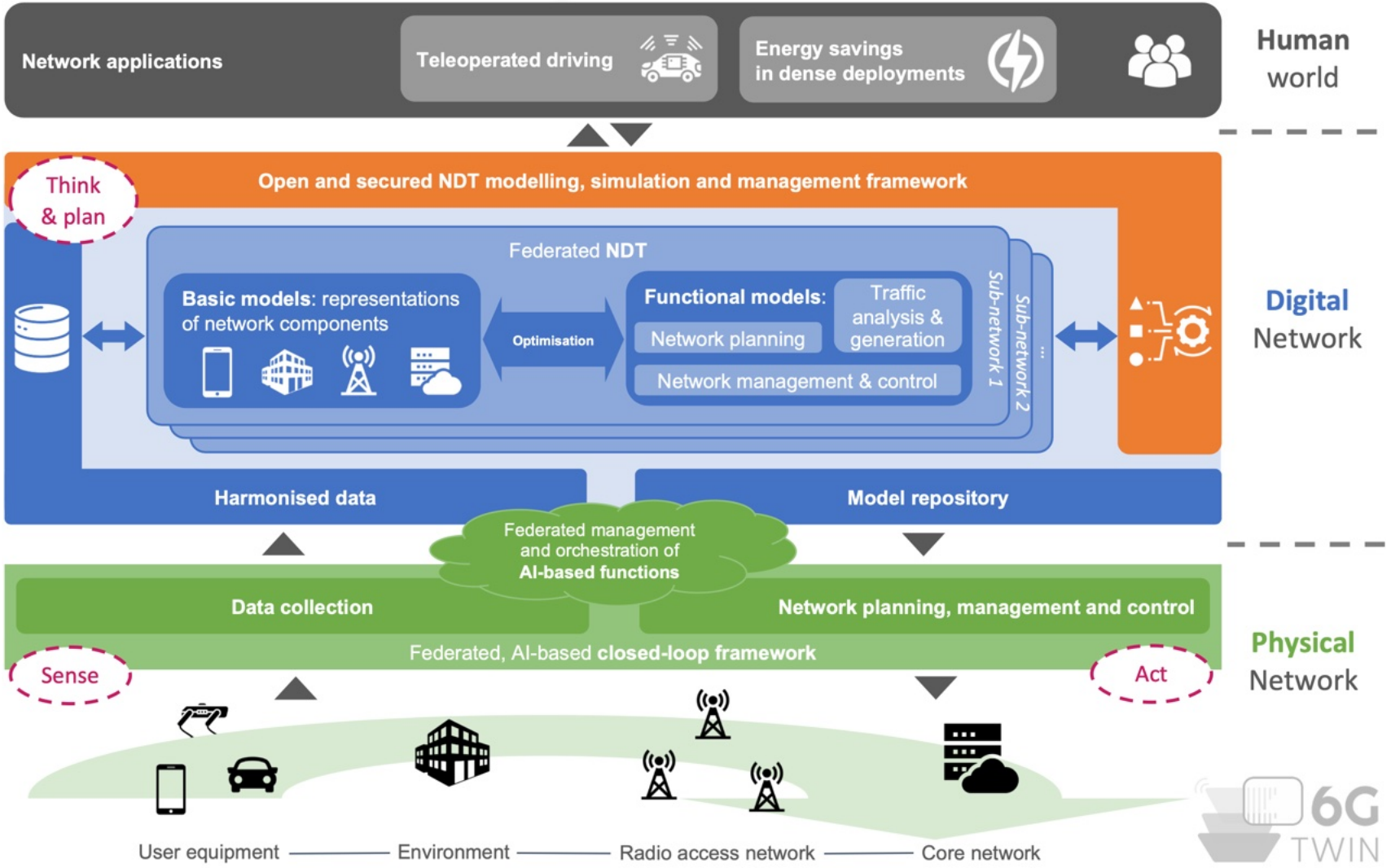
- European 6G roadmaps prioritize an **AI-native management** system for complex networks. These networks need to be sustainable, energy-efficient, and adaptable to various services and business models. Establishing a consistent **unified communication and computing architecture** requires unconventional methods, along with collaboration among standardization groups and industry leaders for practical market integration.

# Overarching objective

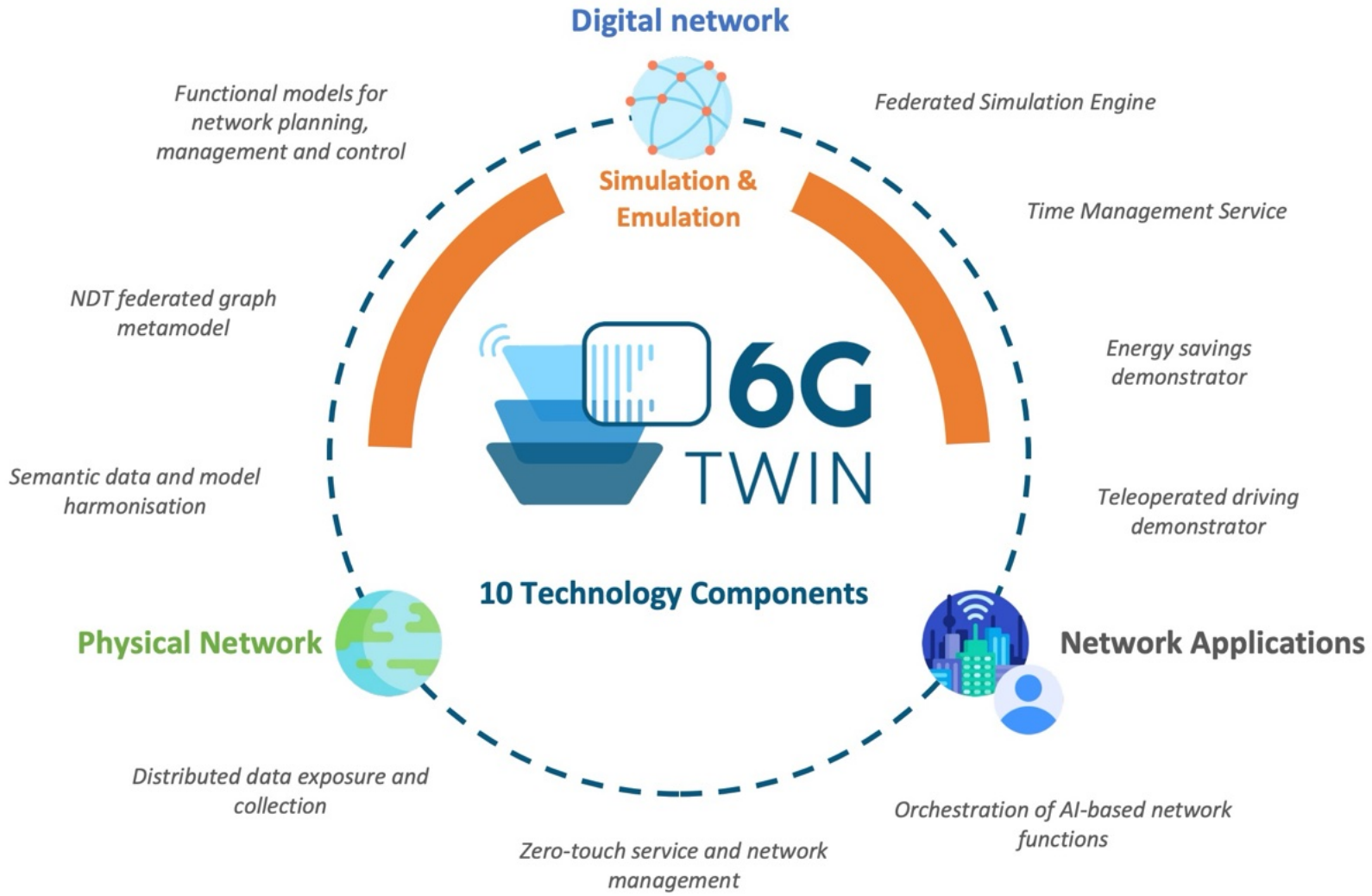
- To provide the foundation for the design, implementation and validation of an **AI-native reference architecture** for 6G systems that incorporates **Network Digital Twins (NDT)** as a core mechanism for the end-to-end, real-time optimisation, management and control of highly dynamic and complex network scenarios.

- Creating a real-time digital replica of the physical network infrastructure (i.e., NDTs) means creating a **sandbox** in which it is possible to train models and test different scenarios before deploying them on physical network controllers.

# Concept


Network applications
Teleoperated driving
Energy savings in dense deployments
Human world
Think & plan
Open and secured NDT modelling, simulation and management framework
Federated NDT
Basic models: representations of network components
Optimisation
Functional models:
Traffic analysis & generation
Network planning
Network management & control
Sub-network 1
Sub-network 2
...
Digital Network
Harmonised data
Model repository
Federated management and orchestration of AI-based functions
Data collection
Network planning, management and control
Federated, AI-based closed-loop framework
Sense
Act
Physical Network
User equipment
Environment
Radio access network
Core network

# Technology solutions



# 6G-TWIN specific objectives

## Area 1: advance the state of the art

**SO1**: To design and develop an **open, federated and AI-native network architecture** for future 6G systems that integrates NDT to enable intelligent data analytics and decision-making in real-time.

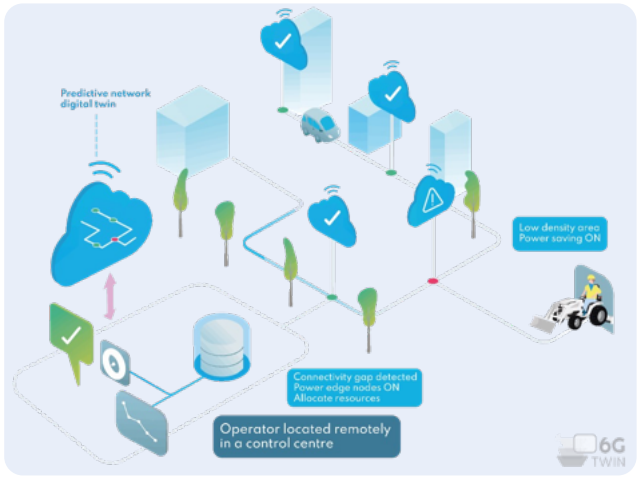
**SO2**: To design a **federated, graph-based NDT** that accurately represents highly dynamic and complex network scenarios and serves as a sandbox for optimising network planning, management and control applications.

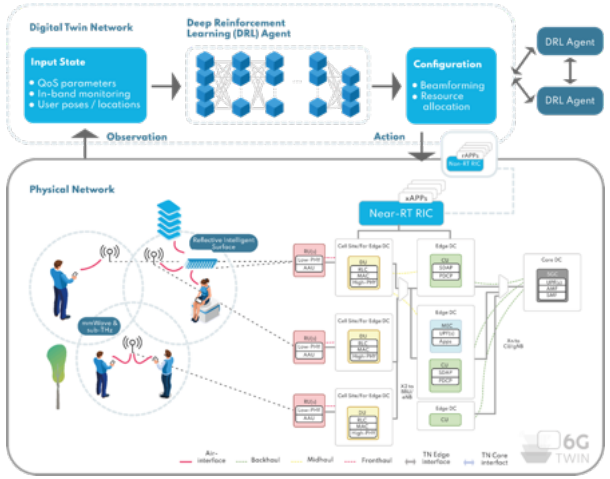
**SO3**: To implement an **accurate, reliable, open and secured modelling and simulation framework** to represent a networked environment and test the functionalities of the proposed 6G architecture.

# 6G-TWIN specific objectives

## Area 2: demonstration

**SO4**: To test, validate and facilitate the transferability of the solutions developed in 6G-TWIN through the development of two demonstrators supporting highly dynamic use cases, with two key focus areas: **teledriving** and **energy efficiency**.

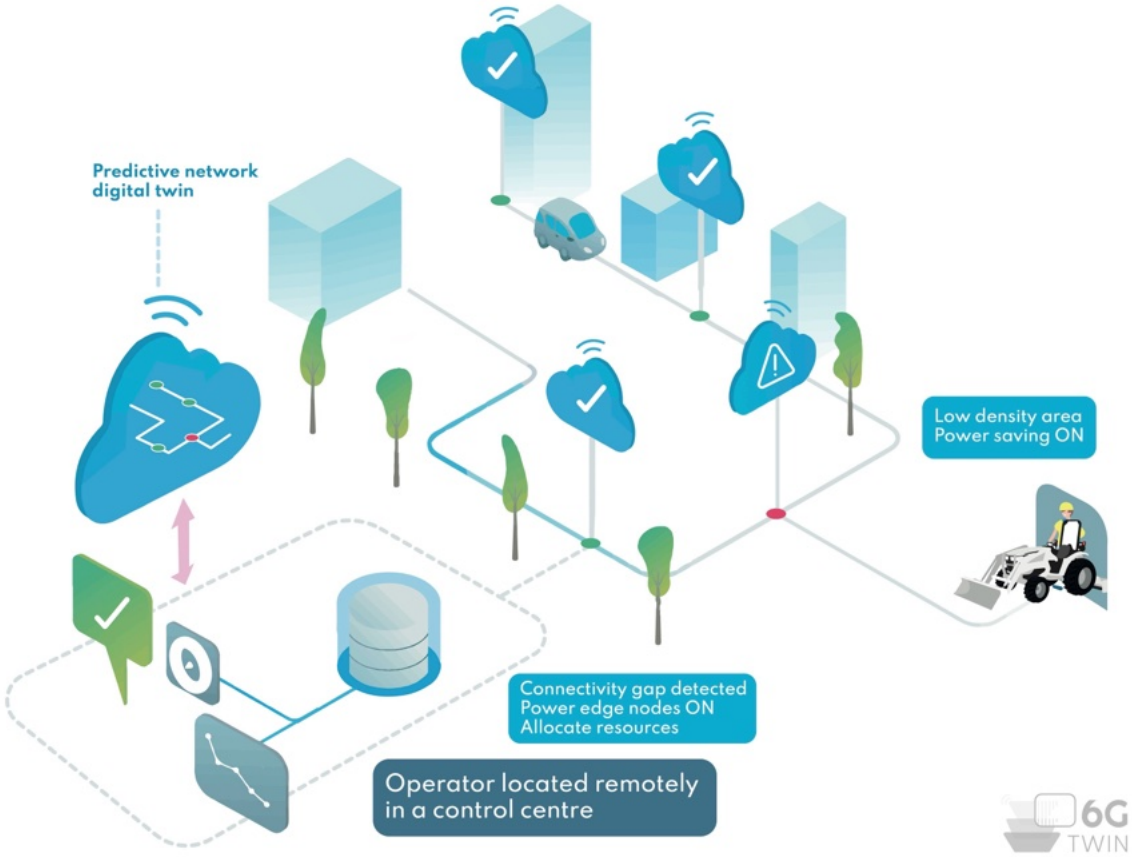


# Demonstrator #1

## Teleoperated driving demonstrator

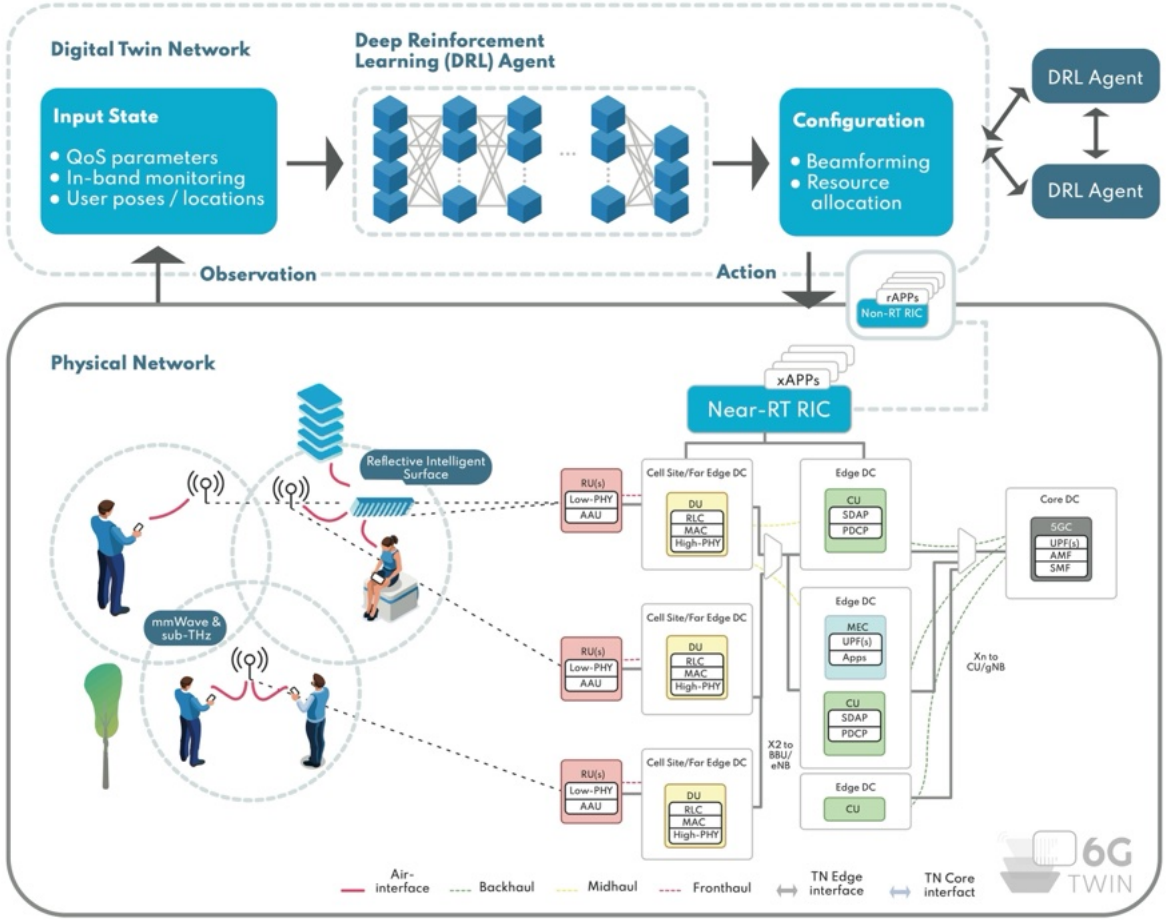
NDT solutions allow to anticipate (predictive DT) the network behaviour that could face a teleoperated vehicle prior to its departure, to ensure an extreme quality of service and availability of the network resources all along its journey.



# Demonstrator #2

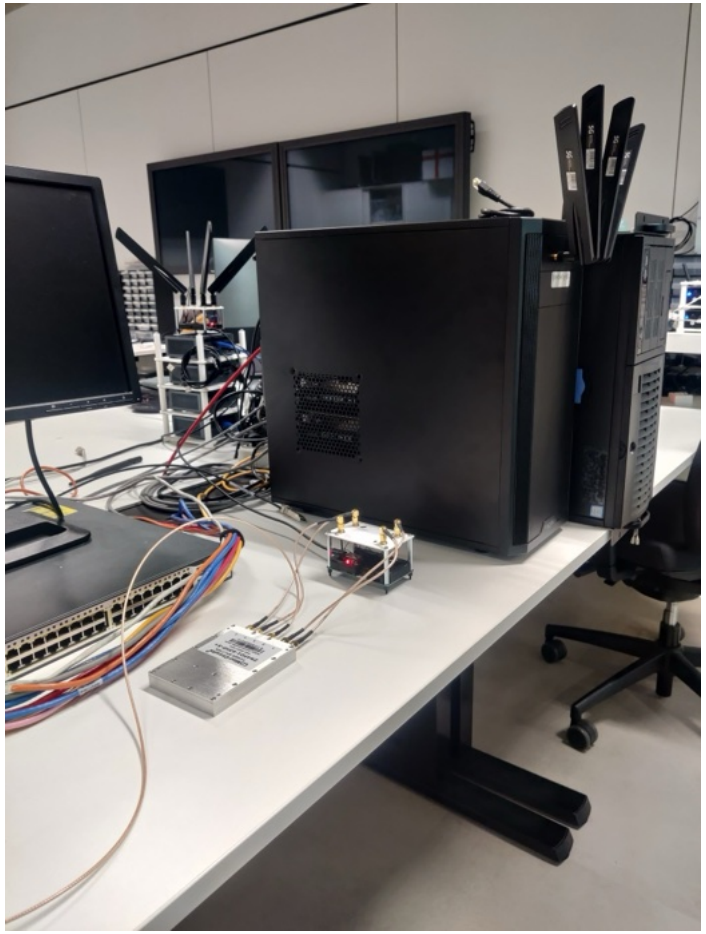
## Energy savings demonstrator

NDT solutions are used to adapt its behaviour in near real time with the objective to optimise the overall, end-to-end energy efficiency of the network (reactive DT).

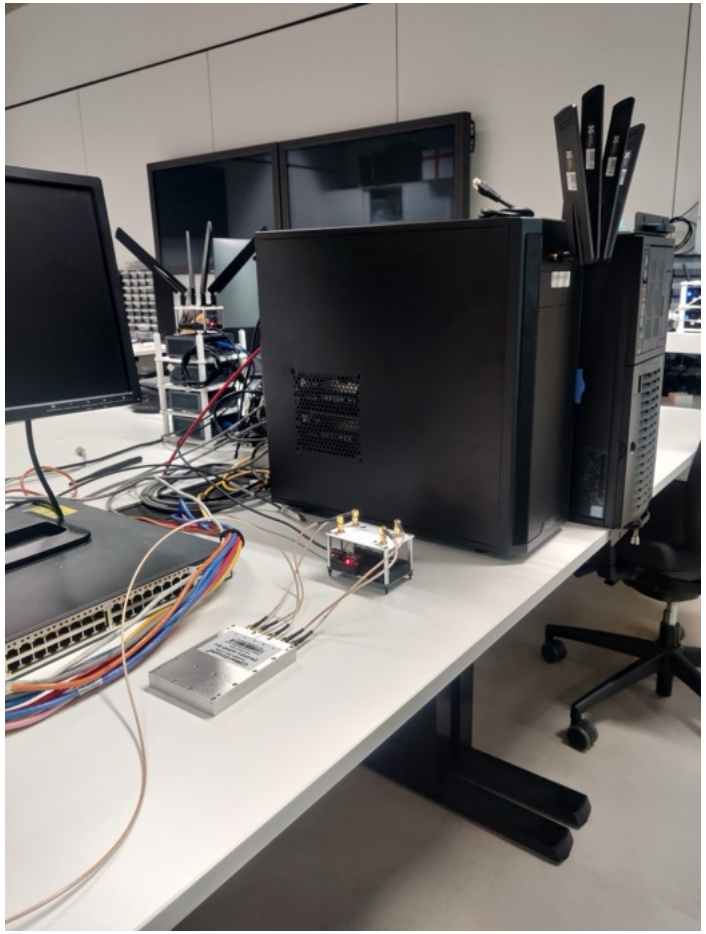


# Labs hosting the demonstrations

# Labs hosting the demonstrations



# Labs hosting the demonstrations



# 6G-TWIN specific objectives

## Area 3: adoption

**SO5**: To support the **standardisation** of the 6G-TWIN operation system to ensure the interoperability, platform openness and operation harmonisation of future 6G-TWIN Solutions.

**SO6**: To provide industry with insights on **innovative business models** based on 6G-TWIN solutions and visions.

# Expected results

- Integration of the TCs in **one federated and AI-native network reference architecture that integrates multiple NDTs** for real-time data analytics and decision-making across at least two network domain
- **New on-the-fly AI approaches** to orchestrating network functions and services.
- At least **3 AI-based NF/NS for data analytics or/and decision-making to optimise network performance**.
- Accurate, reliable, **open and secured modelling and simulation framework for representing a networked environment and testing the functionalities of the 6G architecture**.
- Monitored KPIs & KVIs for each demonstrator, including **at least 30% end-to-end improvement in energy efficiency**.

# Expected outcomes (1/2)

- 6G-TWIN will provide an **AI-native IT architecture for 6G systems that integrate NDT as a core mechanism**: enhanced control, management and deployment in a highly dynamic and complex network environment is achieved.

- **Innovative protocols** for overcoming known Internet limitations are made available by 6G-TWIN as originating from new scenarios and vertical requirements (ultra-low latency, extreme mobility, ultra-high data rates, integration of end-terminals, controlled security, space applications).

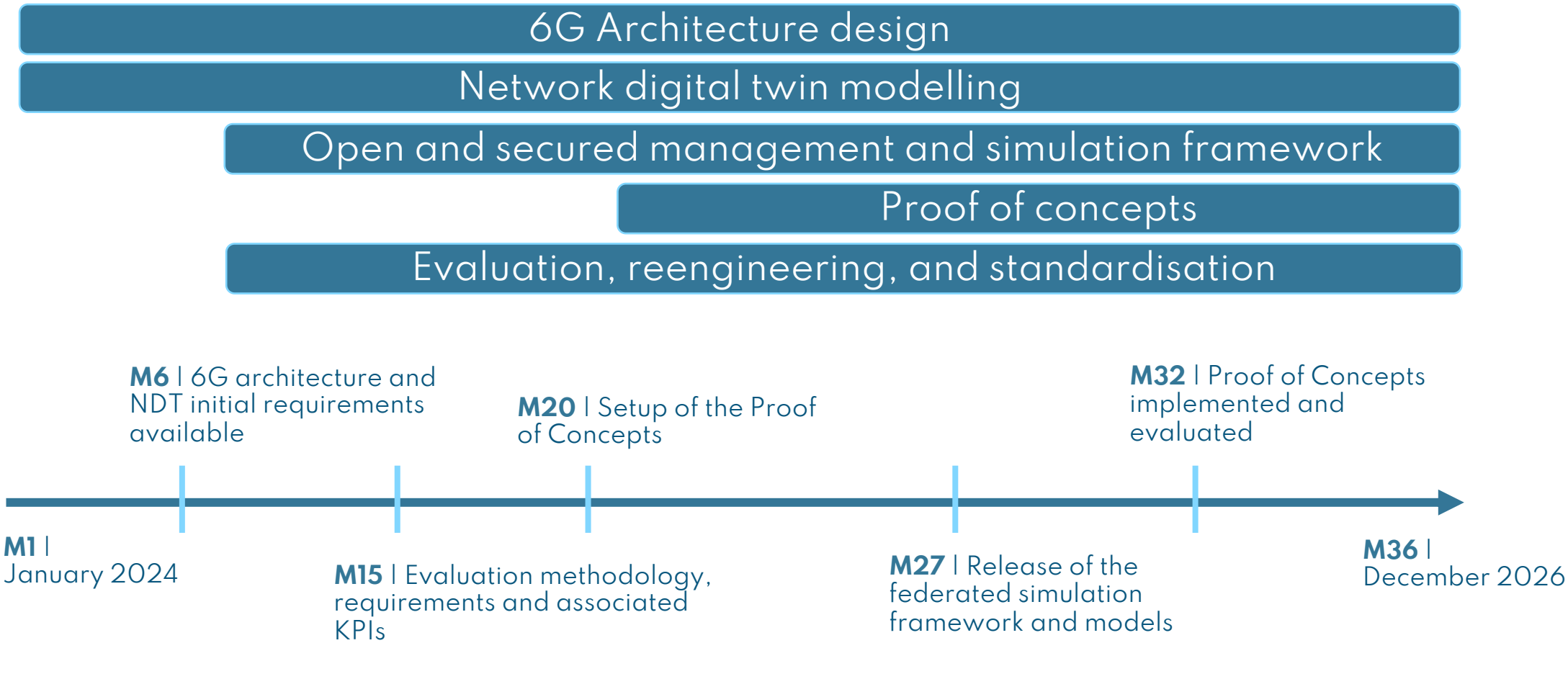
# Expected outcomes (2/2)

- **Proven high reactivity to network changes** in line with high topology and load dynamics beyond what semi-rigid network architectures, thanks to AI driven on-the-fly optimisation of both communication and computation aspects of mobile networks based on DTs.

- **Single, unifying, and open controllability framework** providing a unified view of the network, allowing the connectivity and service infrastructure to be programmable.

- **Uptake of project results** by industrial partners (both large enterprises and SMEs), push toward standardisation and further replication.

# Timeline and core activities



# Follow us and get in touch

## Project coordinator


## Sébastien FAYE

sebastien.faye@list.lu


## Communication manager


## Régis DECORME

regis.decorme@r2msolution.com


6g-twin.eu

@6Gtwin

6G-TWIN


# Thank you for your attention !

Co-funded by the European Union

6GSNS

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Smart Networks and Services Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.