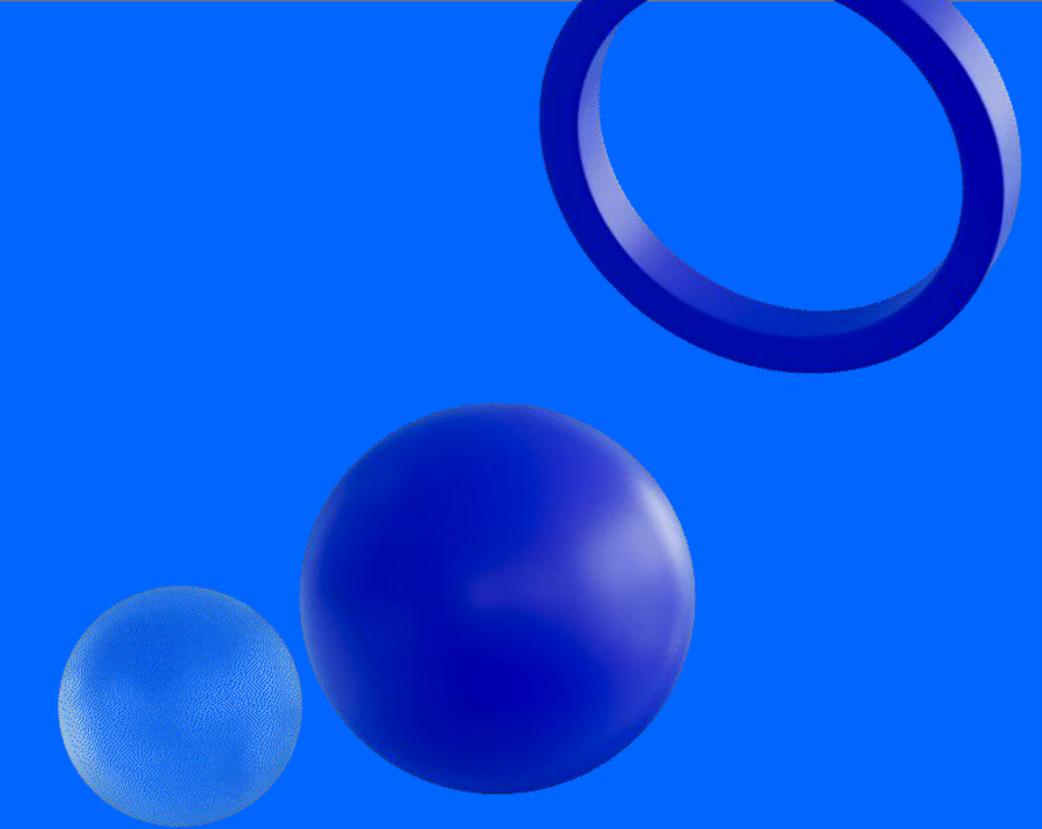


Autonomous and future-ready network:

driving our next wave of growth





Our Speaker



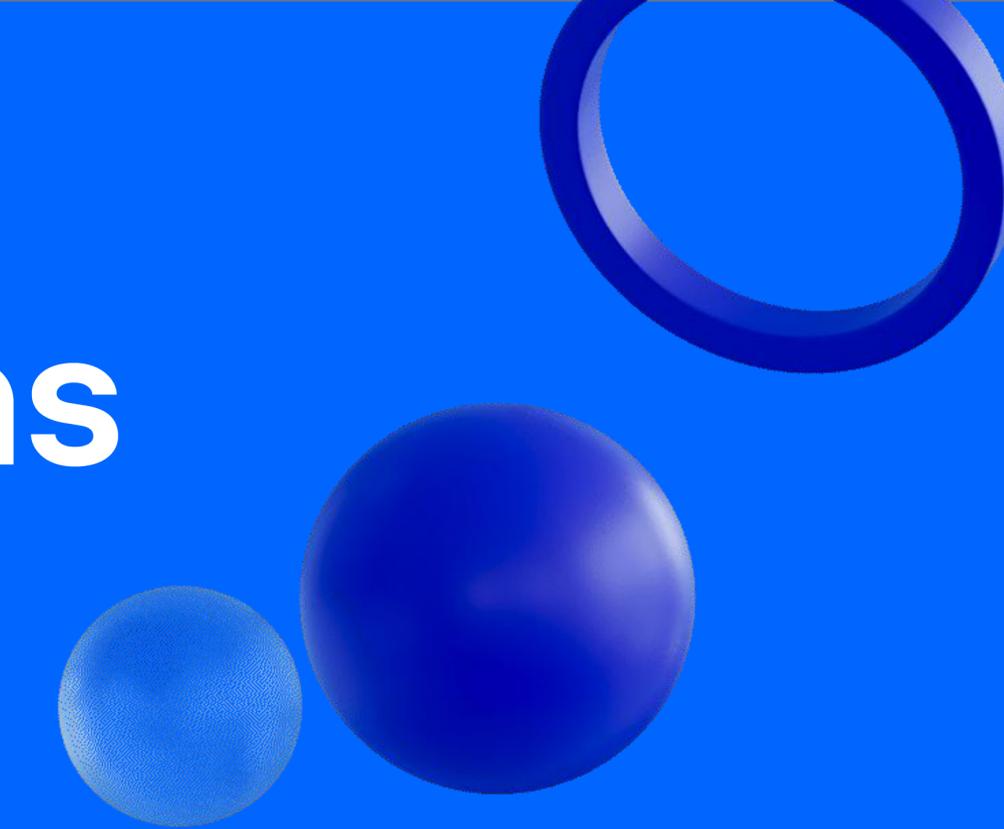
Andrea Folgueiras

Global CTIO



The evolution of our networks and systems

powers our strategy



Telefónica Autonomous Network Journey: A major transformation program

Pre 2021

► Automation in Telefonica's DNA

Predefined rules, static workflows, and human-led decisions.

2021

► Program start

Holistic program:
Covering all processes in all network and IT domains

AI Support:
Strongly supported by AI

Framework
Following Tm Forum methodology



2028

► Goal 2028

Network Autonomy **Level 3.75** in Spain, Brazil, and Germany.

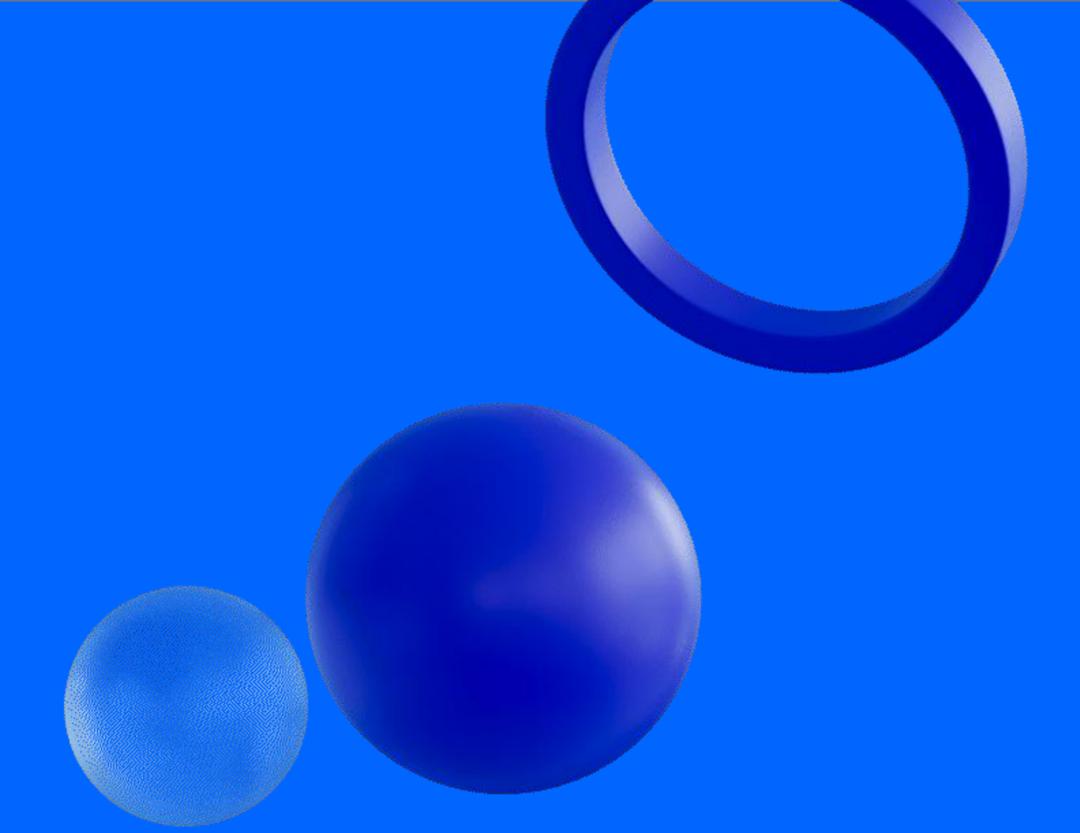
2030

► Goal 2030

Network Autonomy **Level 4** in Spain, Brazil, and Germany.

But what does it really mean to have reached

Level 4 of autonomy for a telco?



**Managing continuous technology
lifecycle** assuring infrastructure evolves
at the same pace as business priorities

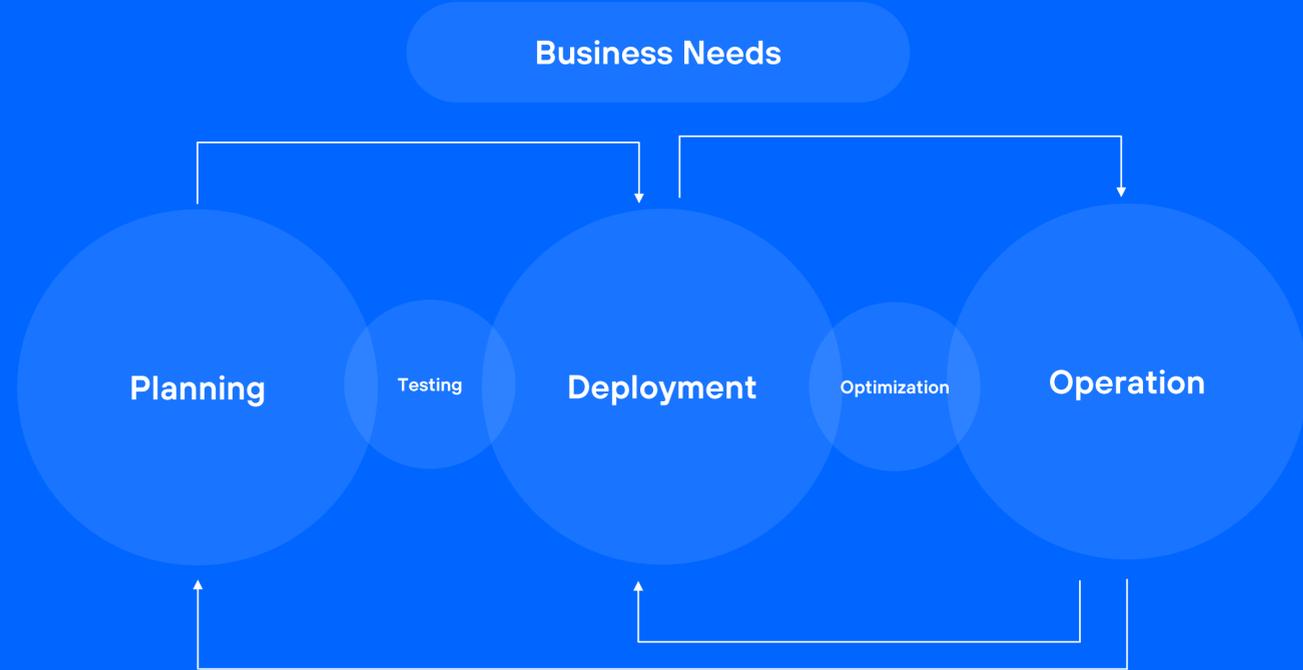
WHY?

To manage
growing complexity

To improve
efficiency

To enable
growth

Managing continuous technology lifecycle assuring infrastructure evolves at the same pace as business priorities



Technology lifecycle

Planning L4

Anticipate requirements, evaluate alternatives and execute decisions within predefined guardrails

Planning process becomes

Continuous

Intent-driven

Simulations

Generative

Multidomain

Autonomous



Data Fabric



AI Techniques



Digital Twin



Intent Orchestrators

Business Needs

Planning

Testing

Deployment

Optimization

Operation

Planning L4

Anticipate requirements, evaluate alternatives and execute decisions within predefined guardrails

Ex. 01 | Brazil

AI-Driven Network Creation Design in IP

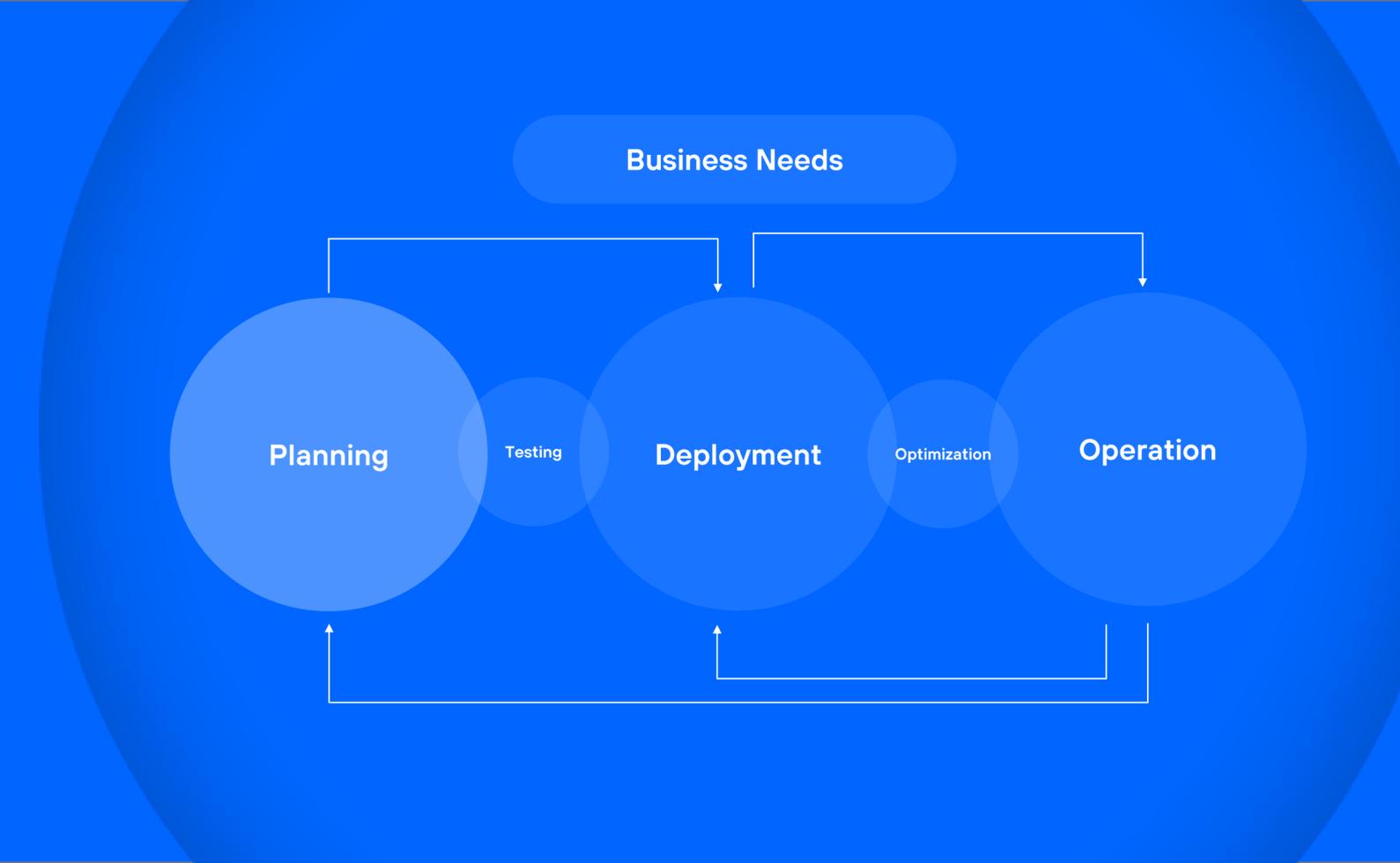
IP design from 60 days to hours



Ex. 02 | Spain

AI based on FTTH deployment selection

Planning accuracy & smart CAPEX allocation



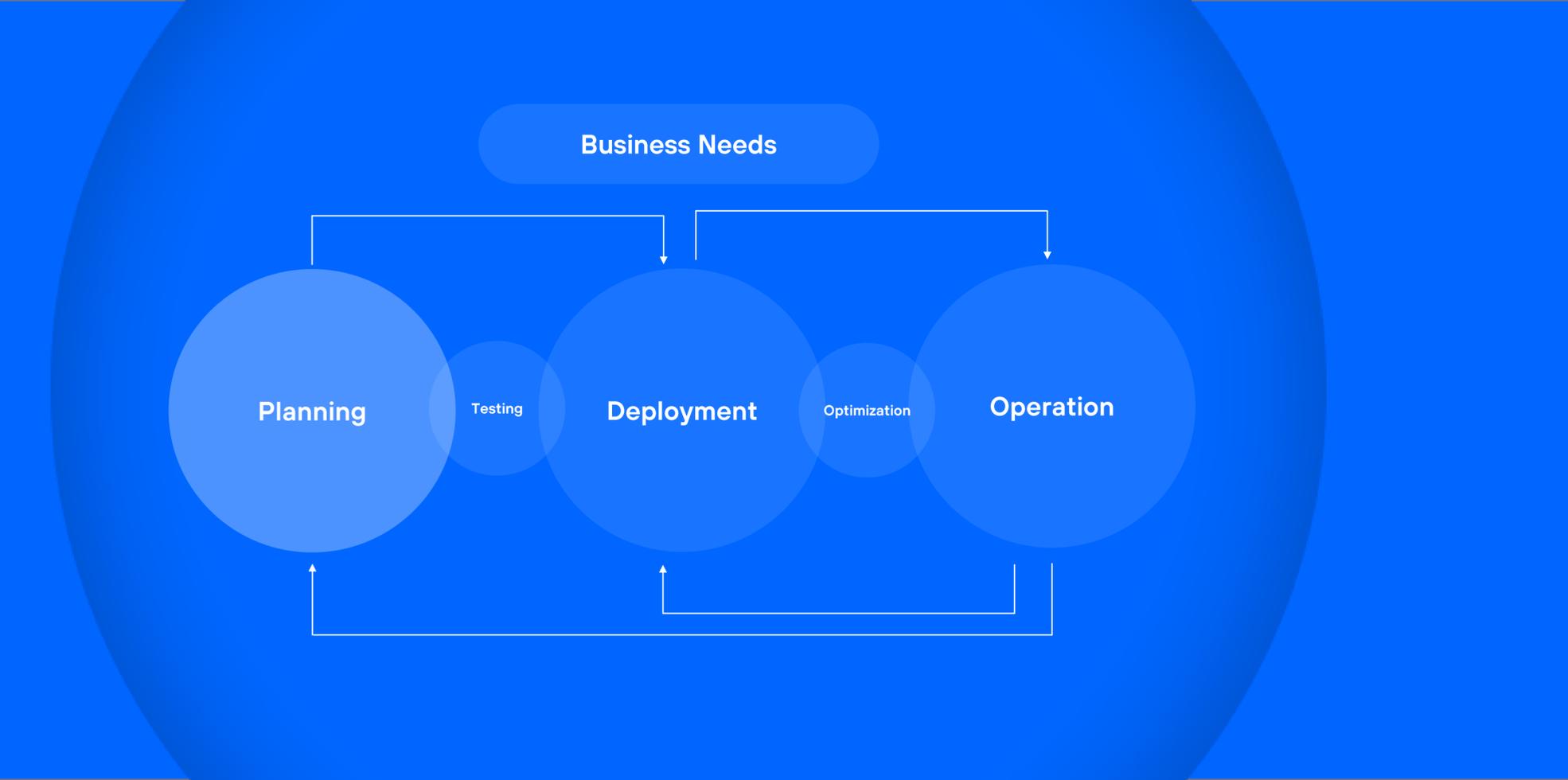
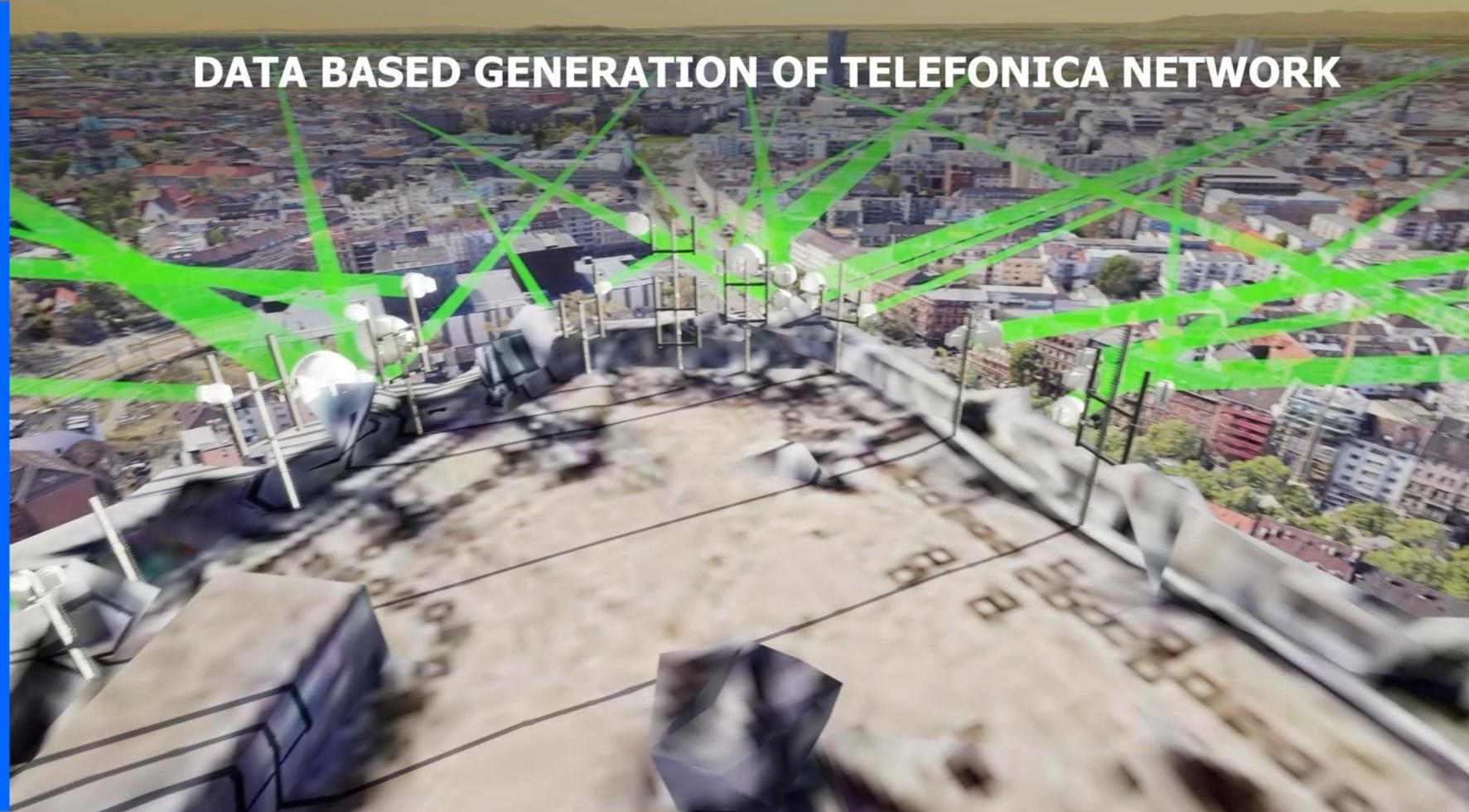
Planning L4

Anticipate requirements, evaluate alternatives and execute decisions within predefined guardrails

Ex. 03 | Germany

3D digital twin for network planning

O₂



Deployment L4

Autonomous execution following technician's intention while ensuring network stability

Deployment process becomes

Autonomous driven by desire outcomes

Intent-driven

Pipeline

Pre-Simulated to ensure **network stability**

Without impacting service

Rollback supported



Data Fabric



AI Techniques



Digital Twin



Intent Engines



Cross-domain orchestrators



API-first controllers



CI/CD/CT

Business Needs

Planning

Testing

Deployment

Optimization

Operation

Deployment L4

Autonomous execution following technician's intention while ensuring network stability

Ex. 01 | Germany

In-Service Software Upgrade for 5G Core

Deploying with no interruption to its customers service or experience

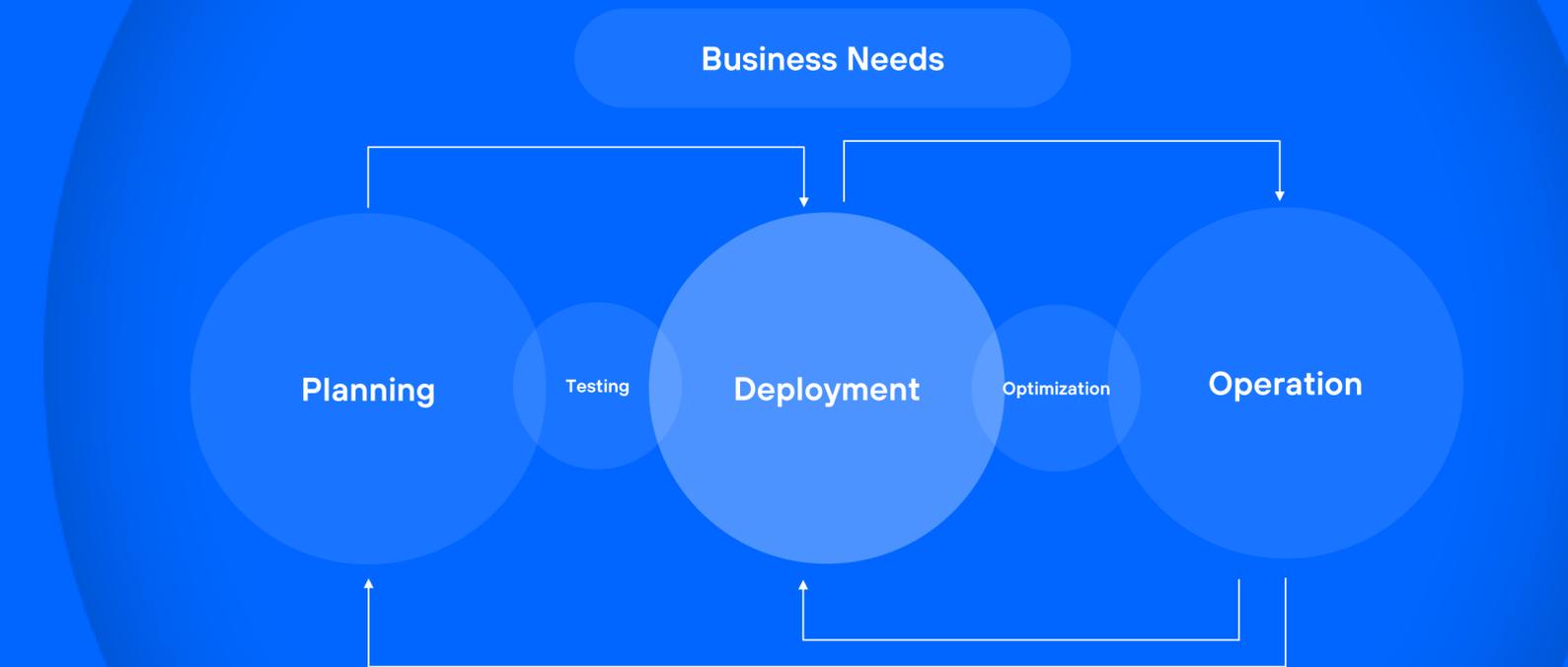
O₂

Ex. 02 | Spain

End to end Autonomous Workflow for IP

70% reduction in software upgrade times for thousands of servers

Telefónica



Operations L4

Autonomous observability, immediate analysis and proactive activities fully integrated into closed loops

Operations process becomes

Autonomous and predictive

Intent-driven

Real-time

Automatically recalibrated

Intelligent generator of next best actions and work orders

Closed loop for corrective, preventive & predictive actions



Data Fabric



Virtual Assistants



Digital Twin



Intent Orchestrators



Multi Agentic Architectures

Business Needs

Planning

Testing

Deployment

Optimization

Operation

Operations L4

Autonomous observability, immediate analysis and proactive activities fully integrated into closed loops

Ex. 01 | Spain

Closed-loop IP network flapping

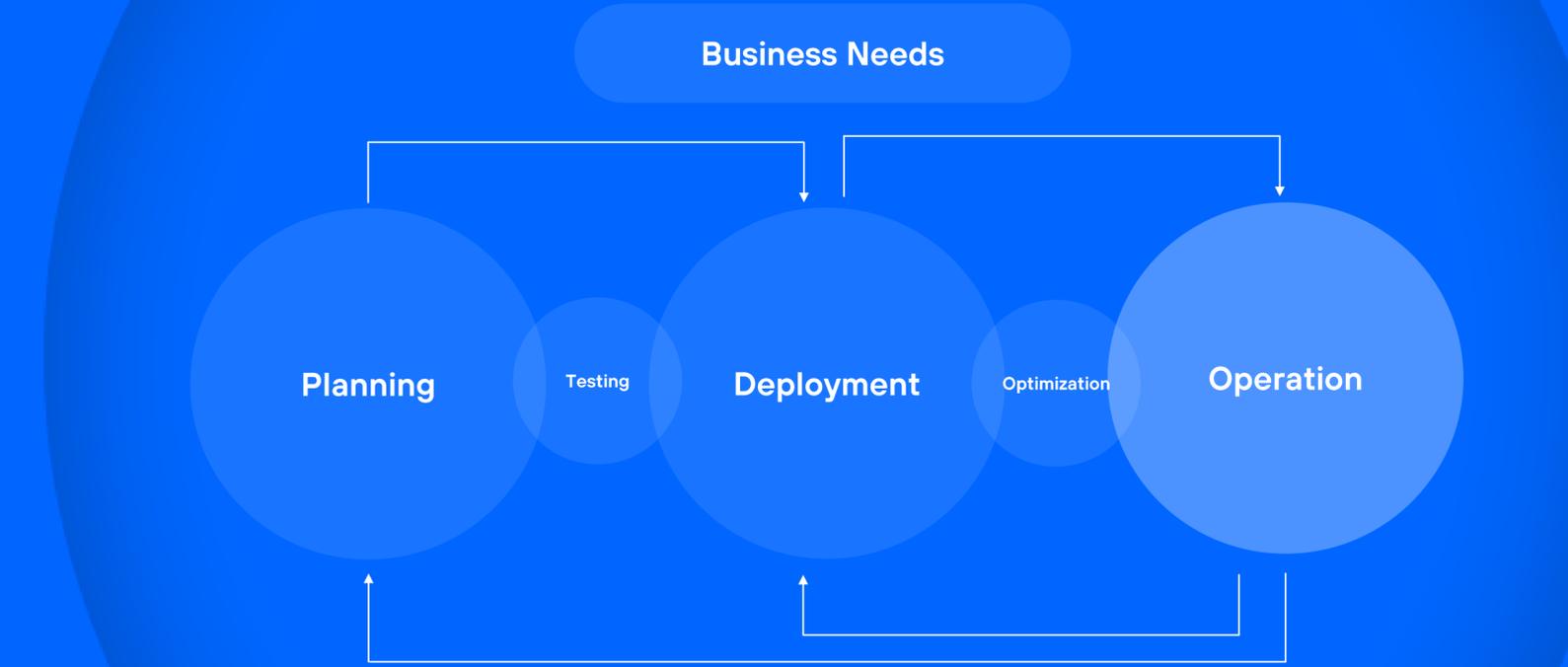
Enhance customer experience



Ex. 02 | Brazil

5G Core self-healing

Reduce average resolution time by 30 min



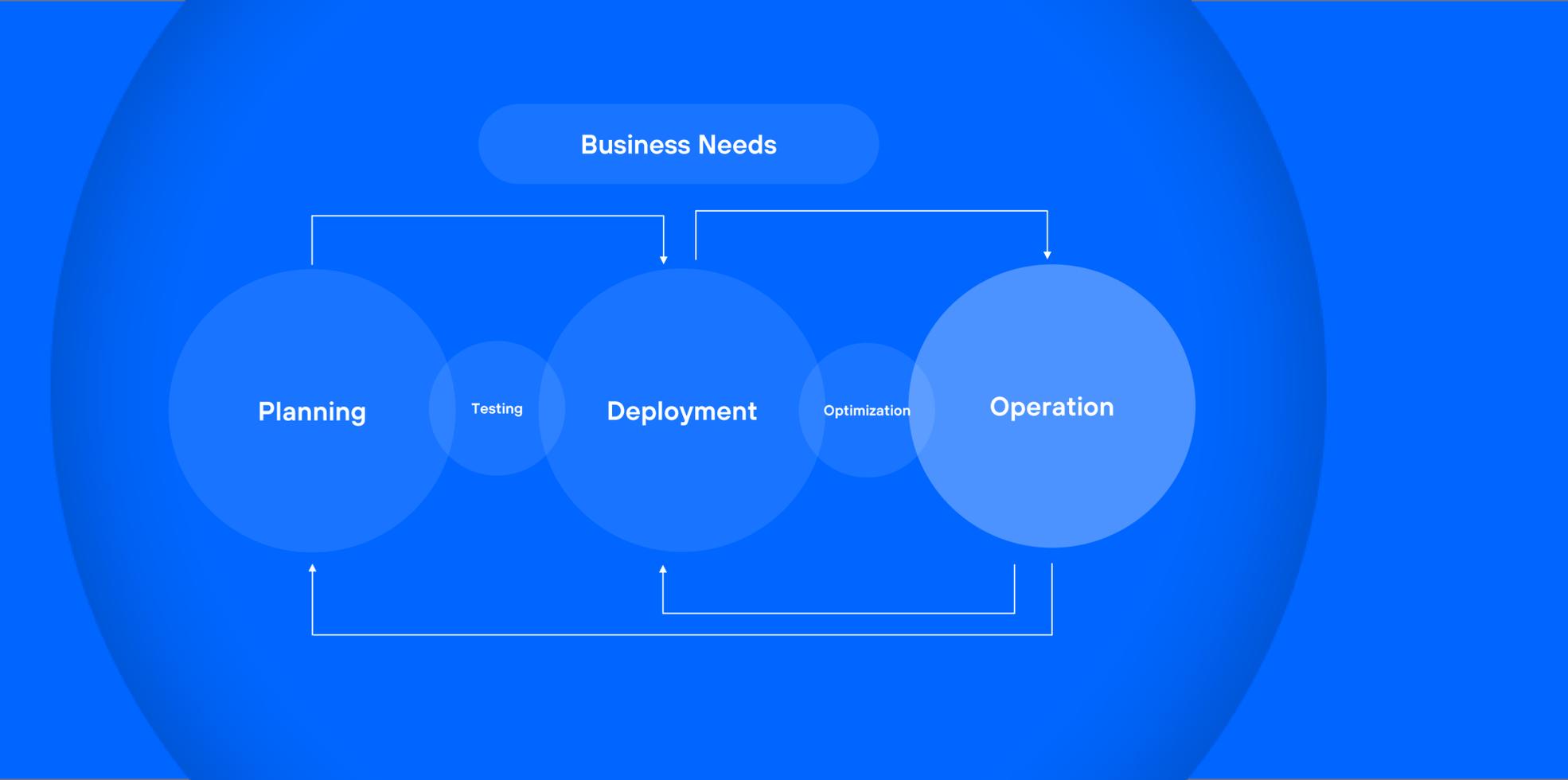
Operations L4

Autonomous observability, immediate analysis and proactive activities fully integrated into closed loops

Ex. 03 | Germany

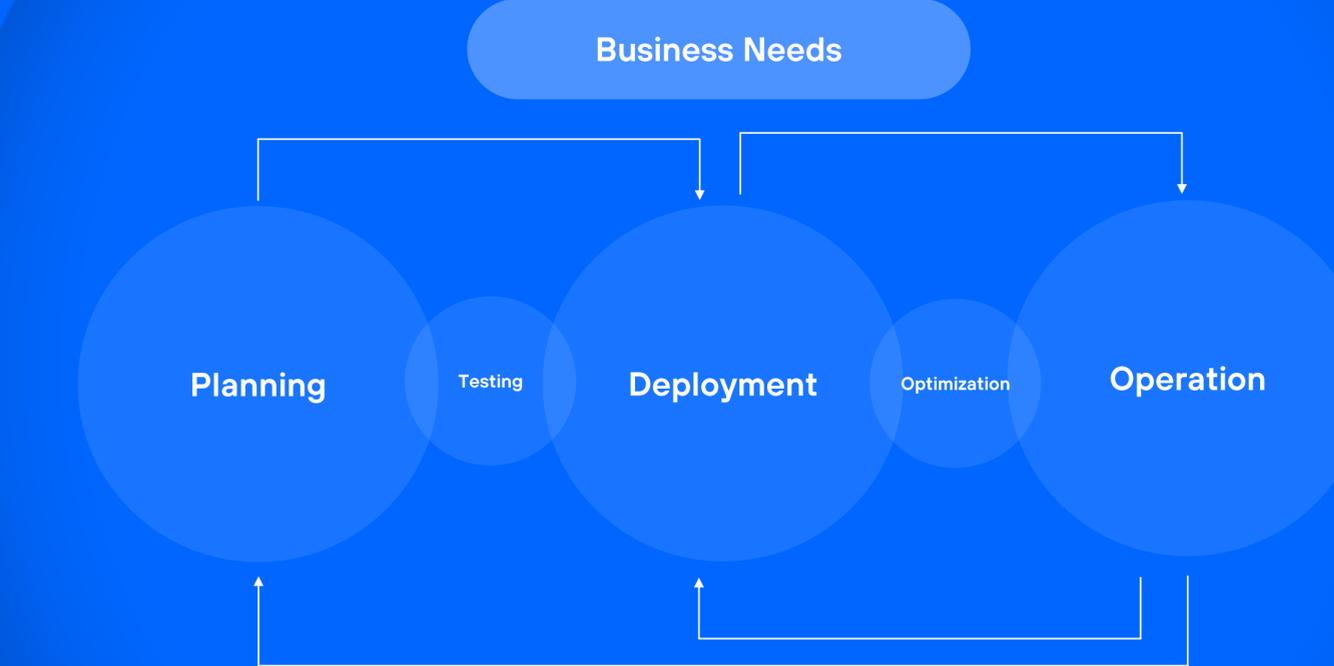
**Digital Twin
for transmission
network optimization**

O₂



Meeting Business Needs

at Business Speed



More than 400 use cases,
12 high value scenarios L4
in our operations



More than 400 use cases, 12 high value scenarios L4 in our operations



Telefónica O2 Germany

Intelligent correlate
subscriber metrics
for 4G and 5G

Telefónica Spain

End to end
Autonomous
Workflow for IP

Telefónica O2 Germany

In-Service Software
Upgrade for 5G Core

Vivo Brazil

AI-Driven Network
Creation Desing in
FTTH-OLT

Telefónica Spain

Closed-loop IP
network flapping

Telefónica O2 Germany

Digital Twin for
transmission network
optimization

Autonomous Network

Unlocking the next wave of growth through efficiency and smarter complexity management



Network Journey

Supported by:

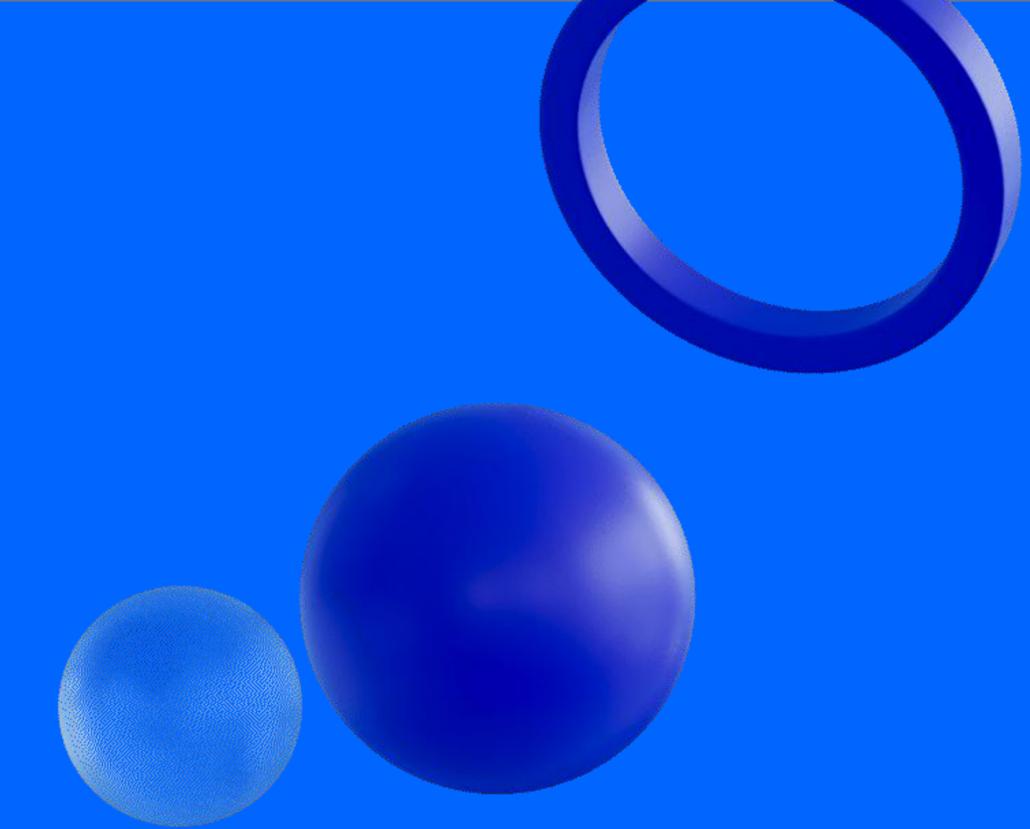
AI democratization:
from Use case to AI at Scale

Agentic
AI

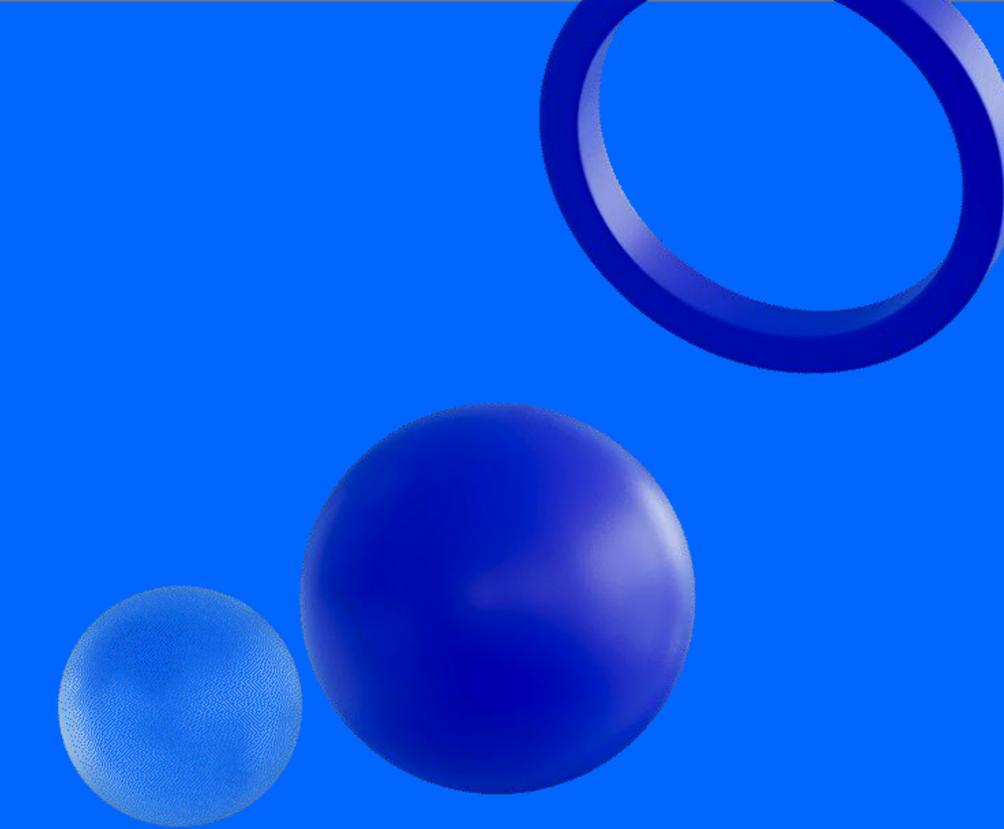
Cross industry
collaboration

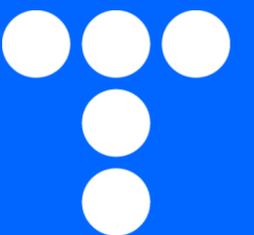
Human talent
powered by AI

From automation to autonomy



From complexity to growth





Telefónica