Stairway to Cloud

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Agenda

- **Idea and Concept**
  - Motivation
  - Approach
  - Target Users & Value
- **SmartCLIDE Pilots**
- **Features**
  - What is SmartCLIDE?
    - Discovery of Services
    - Composition of new Services
  - Features Map
  - Whole Life cycle Support IDE
- **Roadmap**

Facts

- **Project Title**
  - Smart Cloud Integrated Development Environment supporting the full-stack implementation, composition and deployment of data-centered services and applications in the cloud

- **Duration**
  - 01.2020 – 12.2022

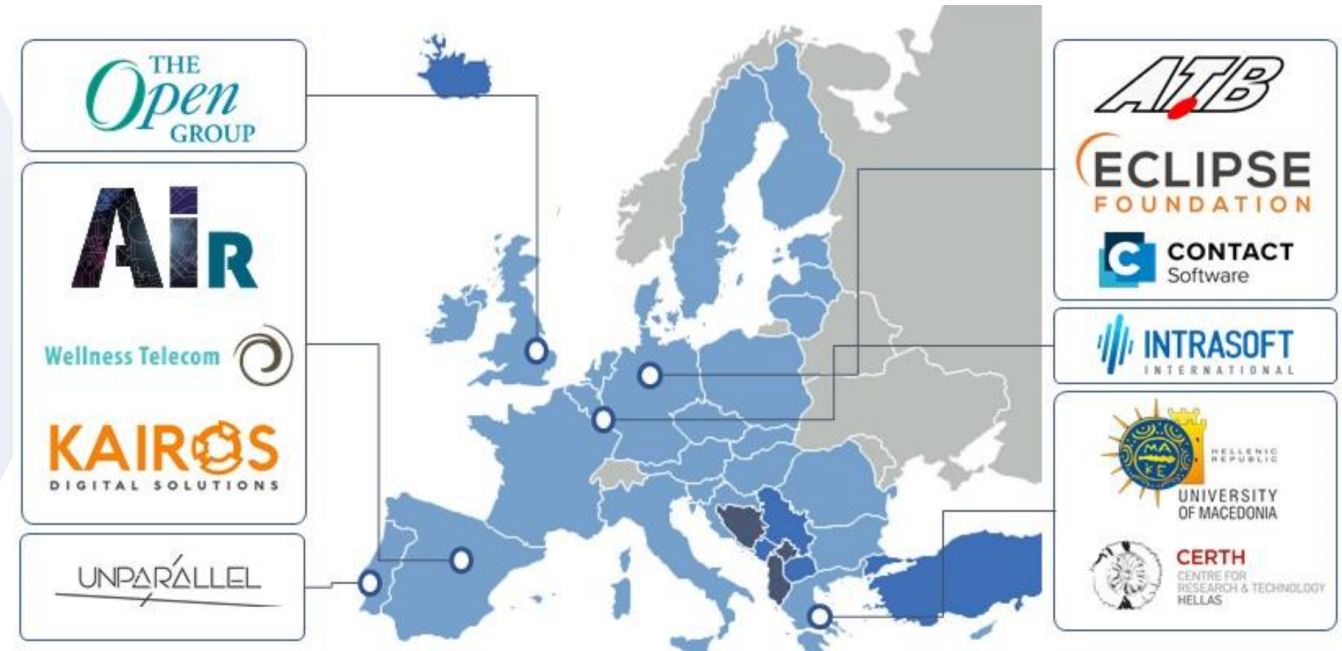- **Total cost**
  - €4,935,381

- **EC Contribution**
  - €4,935,381

- **Programme**
  - H2020-ICT-2019-2

- **Further information**
  - smartclide.eu

SmartCLIDE Motivation

Digital transformation is changing every sphere of society at a very fast pace.

Technological and cultural breakthroughs.

Cloud computing and **agile methodologies** as the key enablers of digital transformation

SmartCLIDE aims to **boost** the adoption of **Cloud and Big Data solutions**
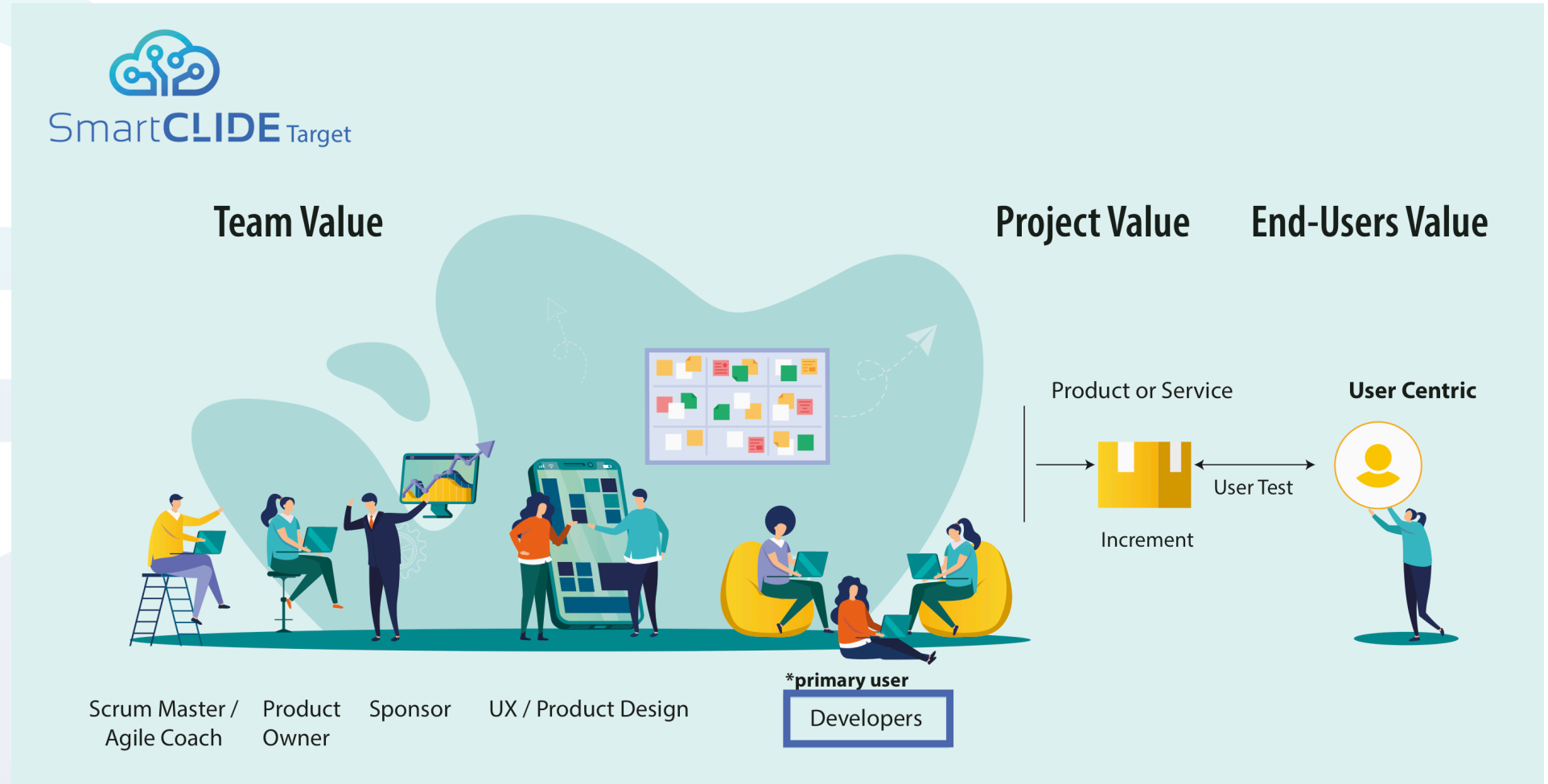
SmartCLIDE → **Cloud Computing** → **DIGITAL TRANSFORMATION**

SmartCLIDE Approach

Main Objective	
Boost the adoption of Cloud Solutions	

Limitations		Aims
01	Creating solutions from scratch is **time consuming, complex** and **expensive**.	**Faster and more effective development** of cloud and big data services Deeper **insights** on how cloud and code works
02	Composition of services is limited due to non-uniform classification and documentation, and a QoS and Security compromise	More secure and easy way to reuse quality code Gaining trust and facilitating the reuse of services
03	Predict and control costs is very difficult using **pricing models** of public cloud providers	To be a code learning tool Deeper understanding on the costs of big data and cloud

SmartCLIDE Target Users & Value

SmartCLIDE Target

Team Value

Project Value   **End-Users Value**

Product or Service

User Centric

User Test

Increment

Scrum Master / Agile Coach   Product Owner   Sponsor   UX / Product Design

*primary user
Developers

Pilots

- **Driven by 4 Pilots**

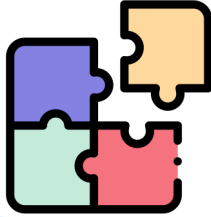|	
Pilot 1: Platforms for Social Security Organisation	**Pilot 2:** IoT Catalogue
Pilot 3: Real-Time Communication Platforms	**Pilot 4:** PDM/PLM/ALM Platforms

What is SmartCLIDE

Cloud IDE
- Smart, cloud-native IDE, based on the coding-by-demonstration paradigm
- Collaboration between different stakeholders

Services Composition:
- Create control, data and operations abstractions
- Combine abstractions to create new services

Services Discovery
- Import/Search and Discover available services and resources (abstractions, data sources, infrastructure resources, data transformations, etc.) from their current IaaS, PaaS and SaaS Providers
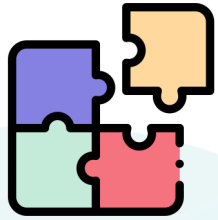
Deep Learning
- Automatic Software Classification
- Context Identification and Abstractions Selection
- Programmatic Output Generation

Stairway to Cloud

Discovery of Services

- **Automatically exposes available resources and cloud services** (e.g. VM images with different configurations, already implemented containers, business related services…) **from current IaaS, PaaS and SaaS providers, based on:**
  - General Purpose
  - Technical requirements

- **Provides additional information for better re-use of services and decision making in the creation or composition of new services**
  - Description
  - Certifications
  - Other services and applications using the proposed service
  - Opinions from other end-users
  - Comparison with other similar services

- **Ontology-based technique to identify cloud service categories**
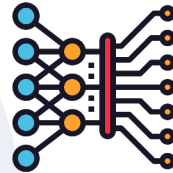 - By detecting cloud service concepts from cloud service sources

Composition of new Services

- Rapid implementation of new services either creating them **from scratch** or **by composition**.

- **Create** new services indicating the way the resulting service/ application will be deployed or the features that will be monitored at runtime

Full life-cycle

support

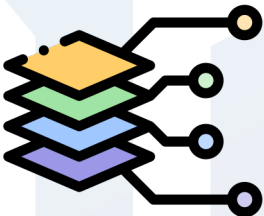**Coding-by-demonstration**

and **text notation**
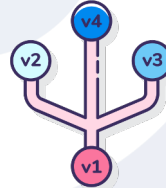
Comprehensible, reusable

and **directly testable code**

High Level Abstractions
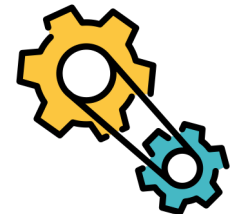
at all stages

Version Control and

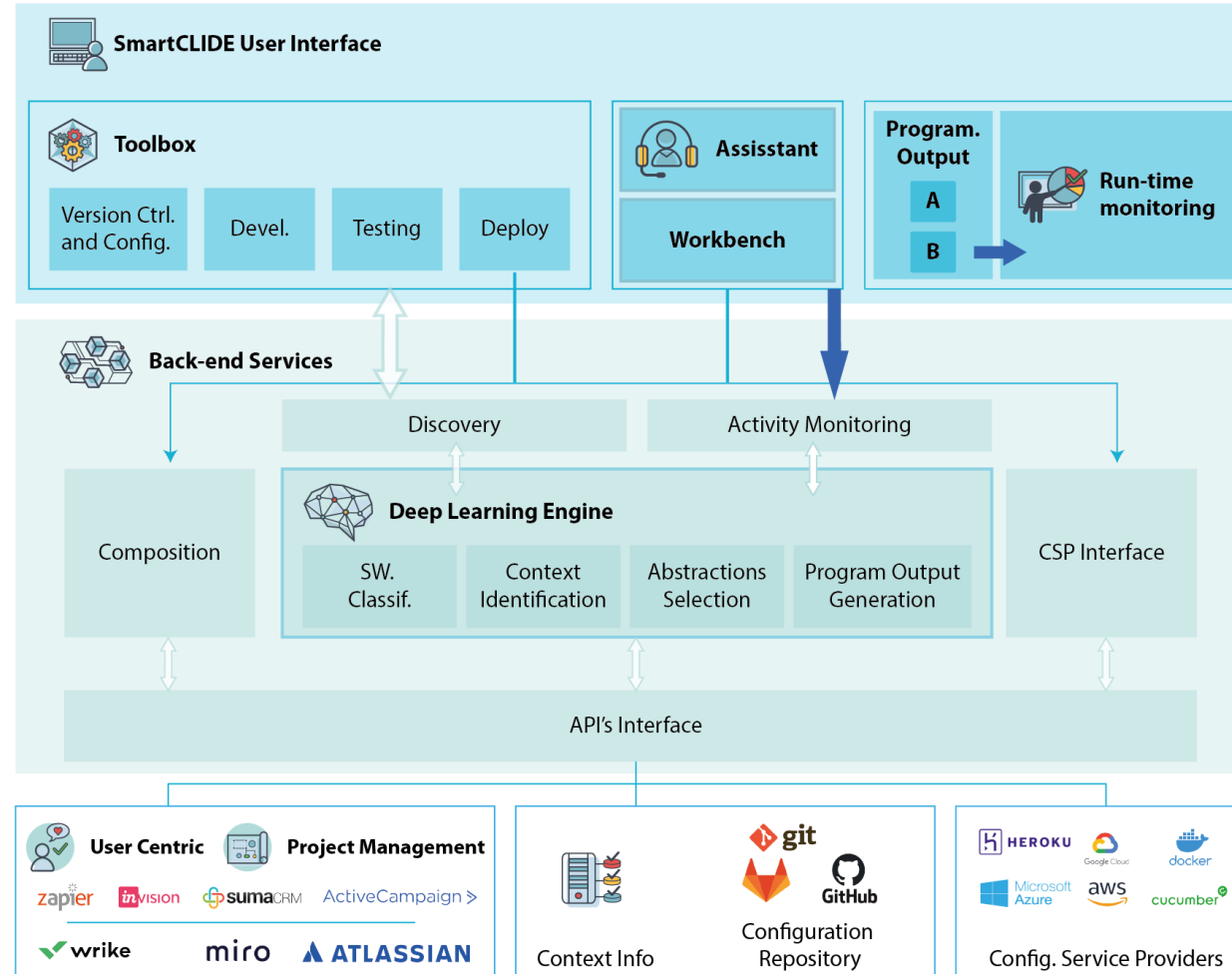**Configuration Management Integration**

Insightful source code **monitoring**

Learnable Programming

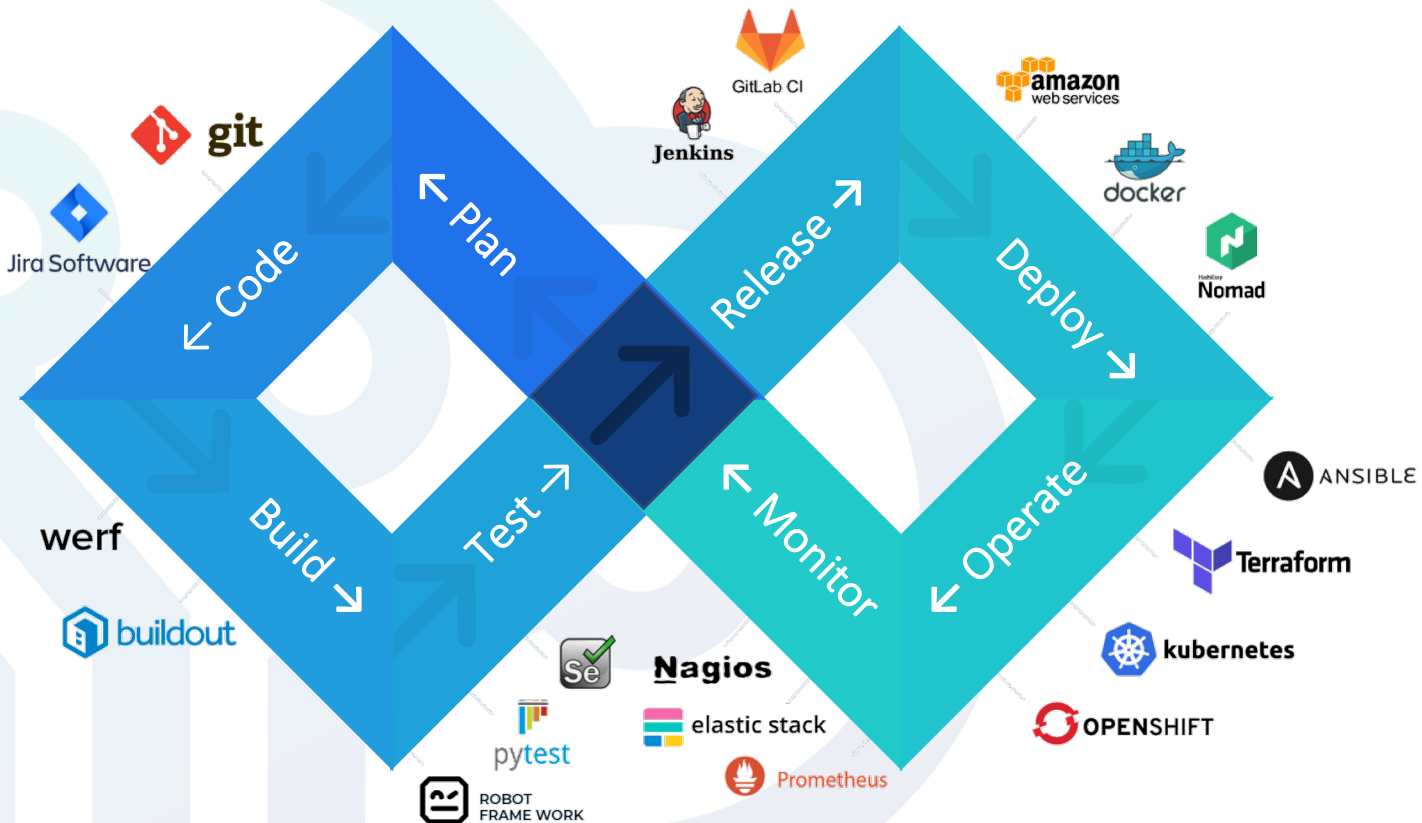**Continuous Integration** and **Deployment** assistance

and **Cost Simulation**

Stairway to Cloud

The SmartCLIDE Features Map

Stairway to Cloud
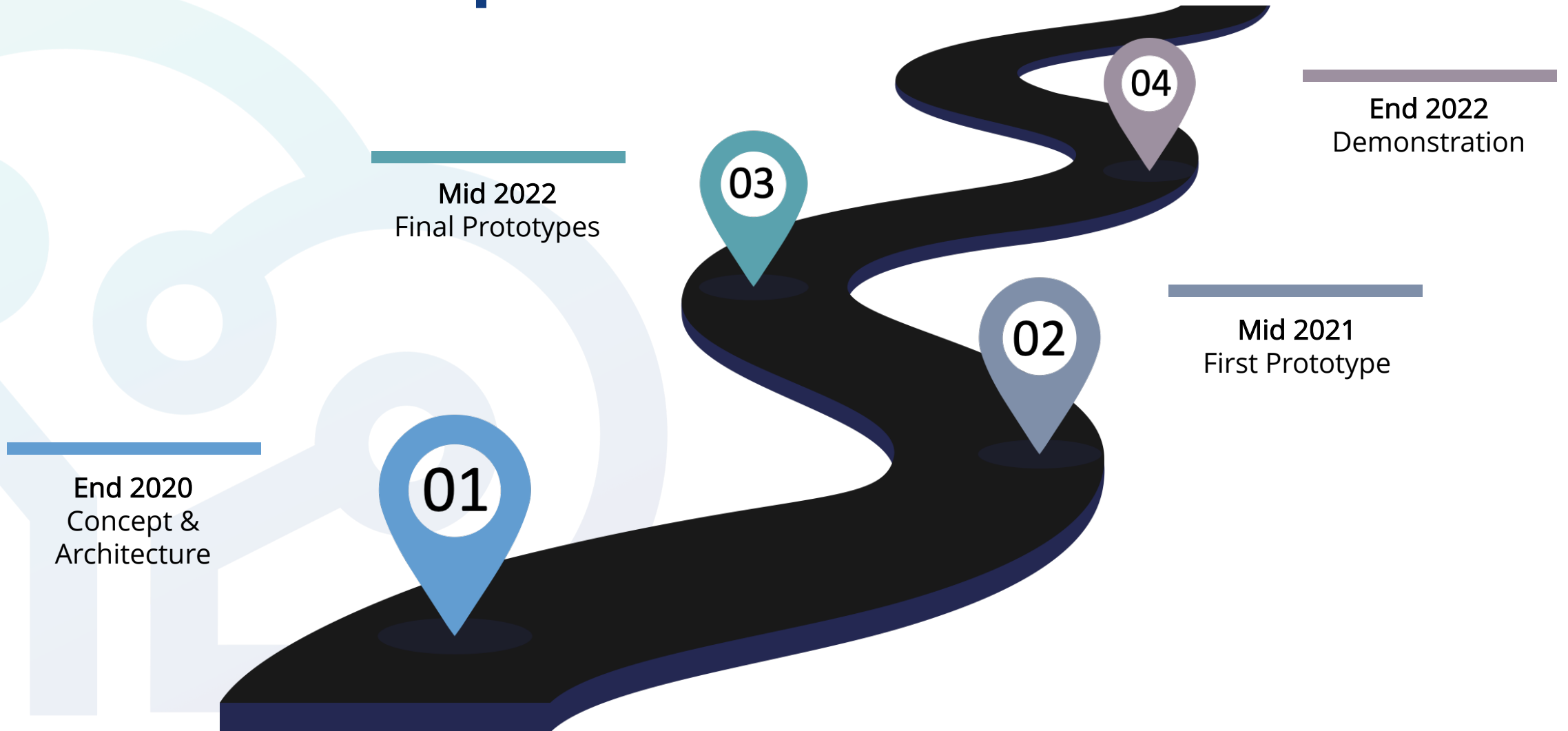
Whole life cycle support IDE

Integration with build tools for **packaging, virtualization and containerization** tools to handle images of environments and perform fast deployments.

Extreme automatization concept of DevOps.

Integration of autonomous AI-based Smart Services within the DevOps loops, so end-users will be able to reuse already existing **user stories or acceptance criteria,** when and where more intensive testing will be required (by monitoring the verification stage), or when is the best moment to build and transport an application to a determined environment.

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Roadmap

End 2020
Concept & Architecture

Mid 2022
Final Prototypes

Mid 2021
First Prototype

End 2022
Demonstration

01

02

03

04

SmartCLIDE
the Stairway to Cloud

Thank you !

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