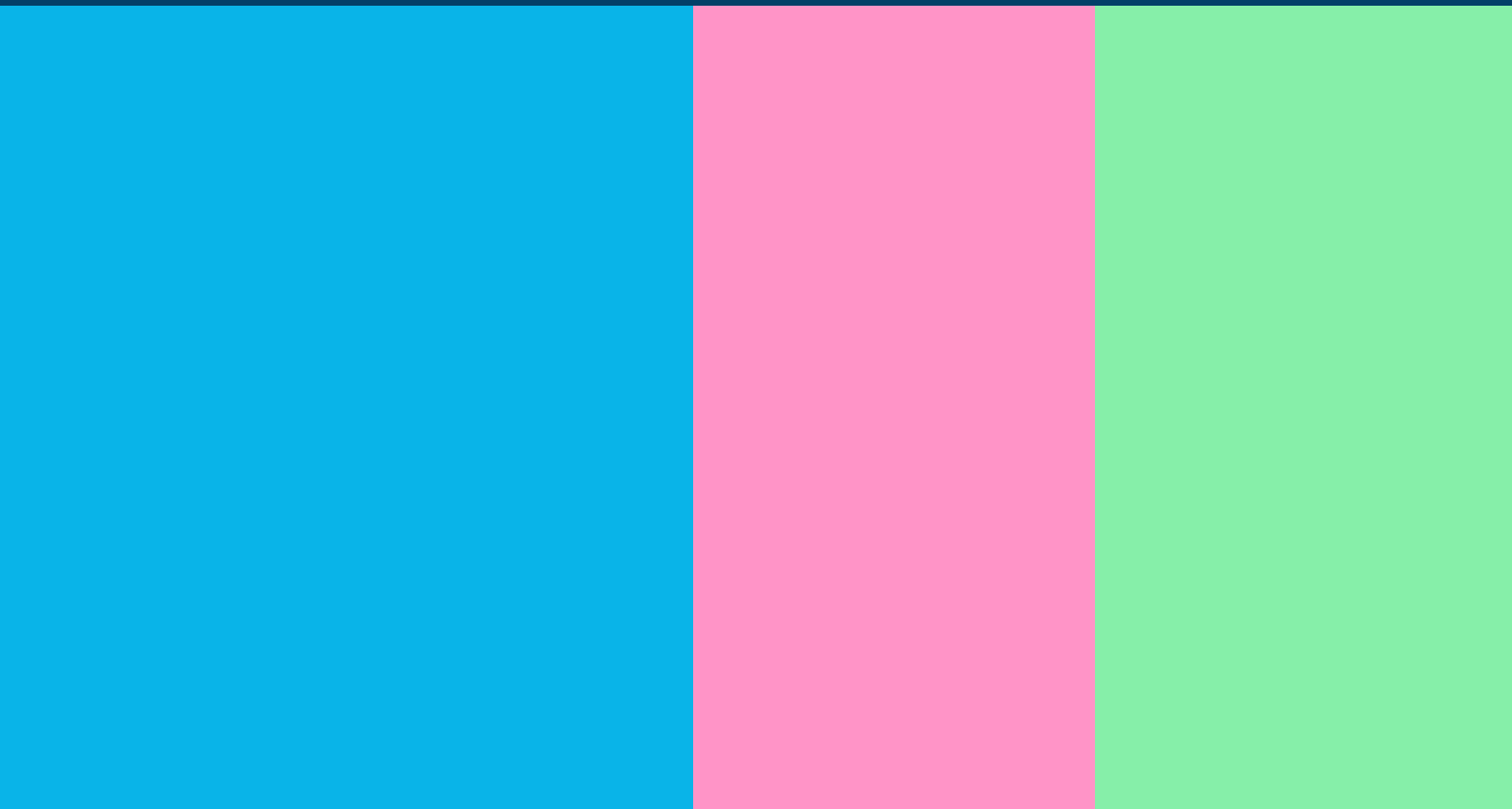


# Your model of technological maturity in the Data Center



# Objective and background

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This document aims to present the technical description for a consultancy on Industry 4.0 focused on the management, design, operation, monitoring, and maintenance of Data Centers, taking into account the level of maturity and potential implementations of technologies

# Executive proposal.

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A good critical infrastructure management model seeks to align with the company's objectives, enhance its competitiveness, and ensure the delivery of services.

The selection of a proper system facilitates the management of all infrastructure resources and helps reduce energy and operational costs. How?

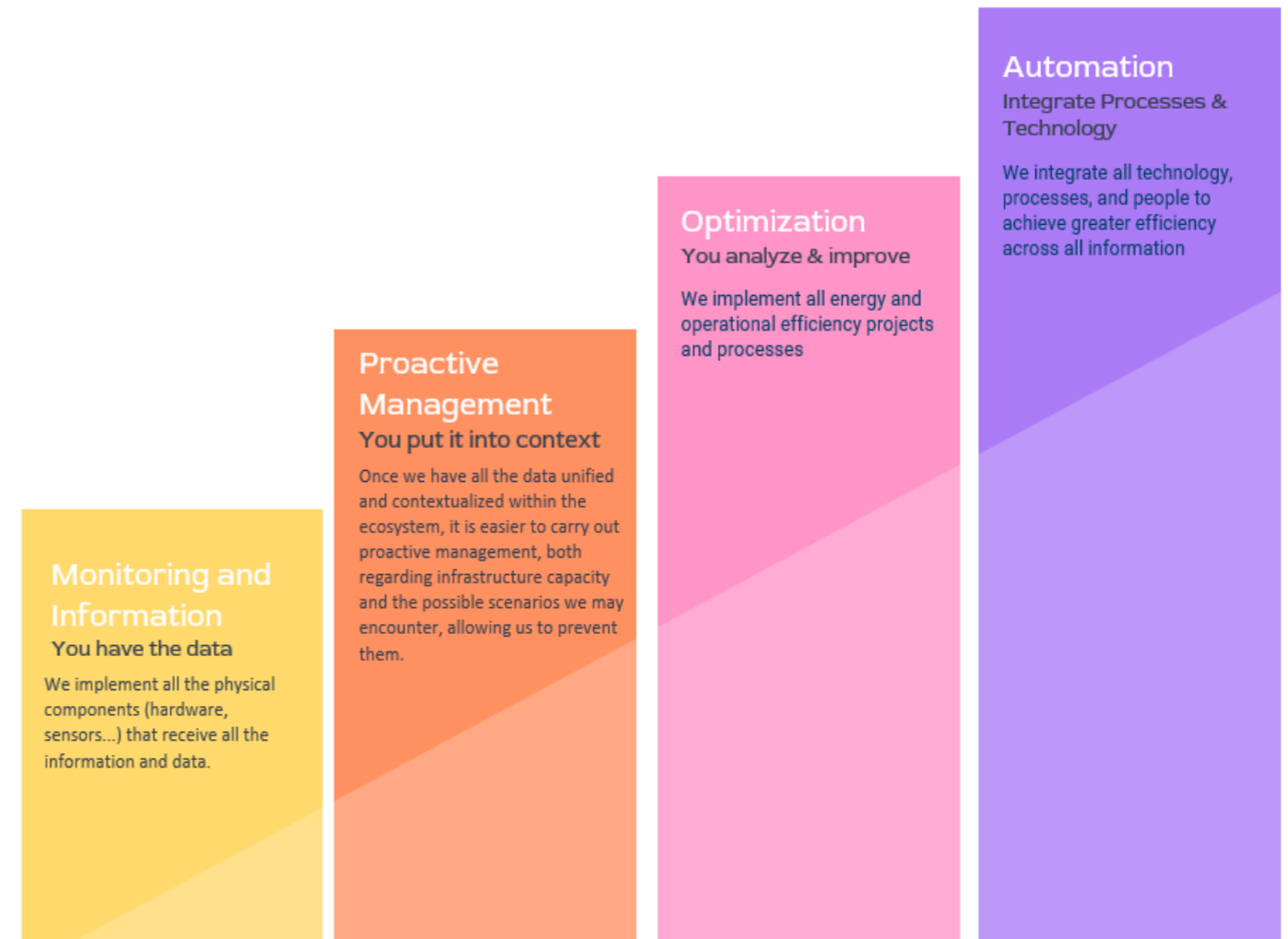
- Unifies and facilitates access to information sources.
- Provides real-time information on capacity, space, energy, air conditioning, and network
- Streamlines the organization of operational processes .
- All under a management model aligned with service delivery.

Its main advantages are:

- ▶ **Understanding** the current state of the critical infrastructure and center ecosystem.
- ▶ Initial data collection, understanding the state of the art.
- ▶ Unified information under one system: We integrate and identify, along with their interdependencies, all elements involved in the delivery of the service.

- ▶ **Checks** the present and future state of capacity: space, climate, energy, and communication network.
- ▶ **Maximizes** the use of available resources: Utilize your data center intelligently and increase efficiency in commissioning.
- ▶ **Identifies** the failure point in record time: thanks to the system's interdependencies
- ▶ **Automated** and guided change management, coordinates every change or maintenance in your infrastructure with internal and external teams, automatically updating your source of information
- ▶ **Audits** or certifications, provides the evidence required in just a couple of clicks
- ▶ **Optimization** thanks to the information provided by the system, put the provided data to work

The application of management technology is based on the model of operation, control, management, and maintenance for Critical Infrastructures and Data, which is detailed below:



*Management scheme towards automation*

### Level 1 Information Monitoring

You have customized management data without integration; basic monitoring provided by the equipment and its status

### Level 2 Proactive Management

Once we have all the data unified and in context with the ecosystem, it is easier to carry out proactive management, both of infrastructure capacity and of possible scenarios we may encounter, and to prevent them.

### Level 3 Optimization

More proactive, with features of the Data Center equipment, location, and monitoring of its operational status, processes over them with energy and climate data used to reduce risks and identify savings.

Initiates all projects and processes for energy and operational efficiency

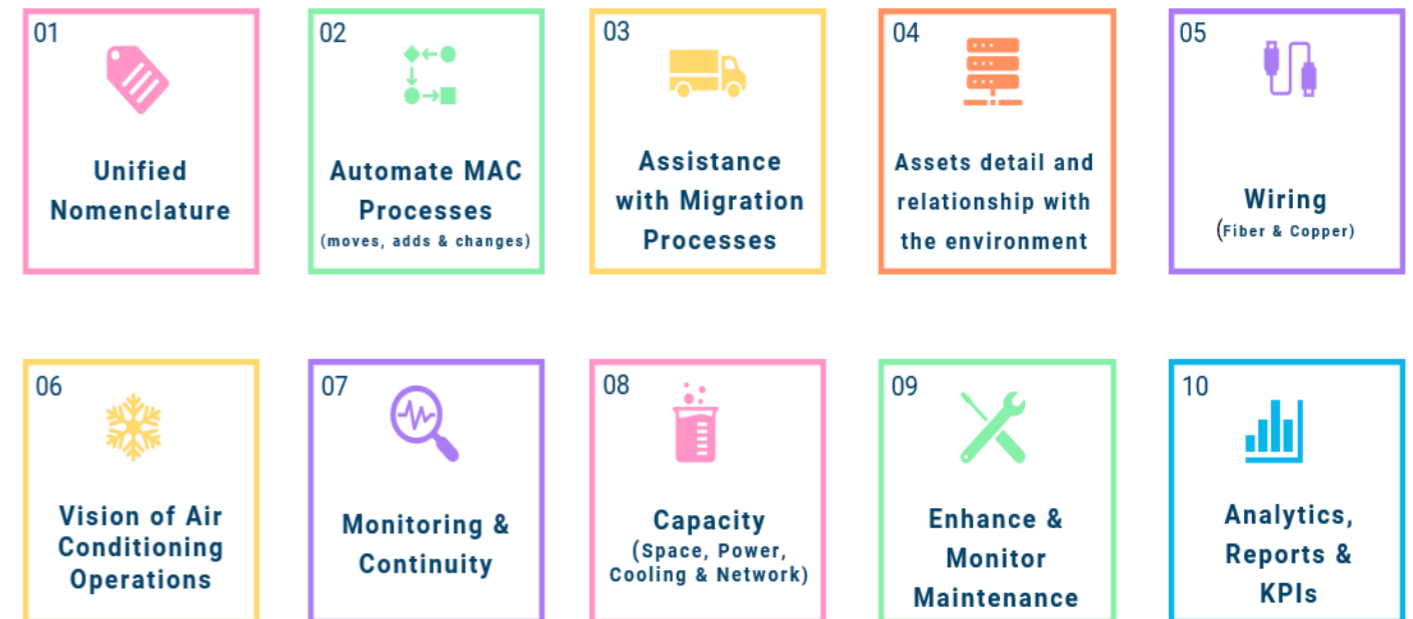
### Level 4 Automation

This level aims for Automation; the integrated management system adjusts the behavior of the data center and makes the best use of resources according to service requirements' goals and rules throughout its lifecycle. All technology, processes, and people are integrated to achieve greater efficiency in handling information.

# What do we propose?

We propose the integration of all existing systems to lead the data centers on their path to automation and have a software-defined DC. This will enable comprehensive infrastructure management through Business Intelligence tools and KPIs, achieving more efficient and sustainable asset utilization, thereby reducing operational and capital expenses, as well as environmental impact. It also enhances their position in terms of social/corporate responsibility.

In the figure illustrated below, the main points to consider when carrying out the consultancy service are indicated:



*Fundamental pillars of a mature Data Center*

The main points to be addressed during the consultancy are:

## Site survey and inspection.

Visits to the Data Centers will be conducted to gather information on the following aspects, building the maturity map for each site: energy, air conditioning, IT assets, sensors, auxiliary systems model (access, CCTV, etc.), management/monitoring/operational software, and their integrations.

## Verification of operation, maintenance, and monitoring routines.

After completing the previously mentioned survey, operation, maintenance, and monitoring routines will be verified in collaboration with the operational staff of each site. The supporting documentation for these processes will be analyzed, and if necessary, on-site verification will be conducted to simulate a practical case.

## Report on Industry 4.0 maturity analysis and proposal for the incorporation of technologies.

After gathering all the necessary information, a maturity analysis report of processes and facilities will be prepared based on detailed matrices of sector best practices indicating the maturity of each site. This report will establish the relationship between various tasks, processes, and procedures with the individuals responsible for them, integrating people and processes, coordinated through these two channels:

- The different scattered data sources such as Excel, Visio, CAD, etc.
- And the existing technological platforms supporting operations, such as cable management systems, BMS, task assignment and coordination systems ITSM, CMDB, etc etc.

In line with what is indicated in the maturity level analysis, improvements, actions, and new technologies will be proposed to be incorporated with the aim of increasing the capacities and maturity level of the Data Centers. Recommendations will also be provided regarding the data architecture and integrated software for centralized management of each site..

## Alignment with sector certifications

With regard to the incorporation of technology, the choice of technology will be aligned with sector certifications such as operational sustainability certifications from Uptime Institute and UNE50600, thus having a scalable management system with the required redundancy.

## Metrics and Analytics.

We will identify metrics and analytics tools that will facilitate the incorporation of technologies, not only aiding in the quick decision-making for better DC management but also providing surveillance of maturity analysis to ensure proper functioning and new features for long-term operational efficiency and sustainability assurance.

## Online training on Industry and Culture 4.0.

Our proposals include the requirements for training plans tailored to the project's idiosyncrasies, aligning with the proper operation and management of critical infrastructure.