

## A COMMITMENT AND A BREATH OF FRESH AIR: THE AURA APPLICATION

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### INTRODUCTION

Building physical assets is the first step that makes all the rest possible. The future itself is produced by creating and growing. This is also the foundation on which the future of EDP Renewables and its renewable energy units are built.

In the construction phase of these assets control, and planning are critical for its success. However, its management itself must also be flexible, simple, powerful, and integrative. These are the basic features of AURA, EDPR's customized application for managing the construction phase of its Wind Farms and PV Plants.

### MAIN CHALLENGES

- **Comparable progress control.** It was essential to know exactly the progress of each construction project and compare it between projects of different characteristics and sizes.
- **Consistent data.** It was necessary to combine costs and deadlines in a unique and specific way, aligning it with what was established in the contracts and detecting deviations correctly.
- **Integration and scalability.** Data feeding and validation had to be agile and simple to facilitate integration in sometimes very different profiles. At the same time, the tool had to be powerful and scalable for demanding and continuously evolving contexts.
- **Predictive model.** It was critical to have a clear vision of the status of the projects and a model to anticipate and act proactively to prevent possible problems or correct them as soon as possible.

### SOLUTION

After a careful analysis of existing solutions in the market, it became clear that it would be necessary to develop a highly customized solution to address several challenges related to monitoring the construction of EDPR's Wind Farms and PV Plants. Thus, in the summer of 2018, the AURA application, developed in Outsystems, entered into its users' daily lives, promising to revolutionize how milestone control and predicting issues would be addressed from that moment on.

AURA is a one-of-its-kind tool with the main goal to provide a clear and reliable picture of the status and progress of each construction phase. Its data analysis can be used cross-sectionally to compare the evolution of different projects, enabling creating a model that also makes it possible to prevent setbacks and identify deviations from what is contractually established in each case.

All this helps to complete the construction in an optimized way and according to all defined conditions and planning future construction projects effectively and efficiently.

# 17

projects completed in the application: 424 MW

# 38

Under construction: 1.9 GW

# 2,3<sup>GW</sup>

installed or being installed using AURA

# 134

people directly involved among E&C Internal deploy/maintenance, TR Support and End-users

### About Digital Global Unit (DGU)

Digital Global Unit (DGU) was born to help EDP Group drive transformation to digital by developing outstanding ideas to improve and optimize processes and thus simplifying both clients and employees' journey. Comprised of a multifaceted team of developers, engineers, designers, data scientists, and other experts, DGU works every day to turn impossible ideas into successful business projects at EDP Digital Factory.

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## HOW IT WORKS

### VARIOUS MODULES

In a construction project, there are general aspects, such as milestones, the financial part, or the planning context. There are also more specific aspects, such as the assembly of wind turbines and solar panels. A variety of modules guarantees a differentiated treatment and analysis of each element while still combining them to offer a complete follow-up.

### ROBUSTNESS

Having your ecosystem sized for the task makes it more robust and reliable. And an equally well-sized development and support team can provide the proper maintenance and solve any issues that may arise as quickly as possible.

### INTERCONNECTION

Connections to external applications or resources enhance customization and multiply potentialities. A link to ProjectWise gives access to an organized document base on construction and processes. The user manual and all related documentation is directly accessible by the user through Confluence. A JIRA module is also integrated into this platform to track multiple tasks under development. Moving the information to the Data Lake will open the door to a connection with Power BI and a more customizable data visualization with more possibilities. GIS interfacing will provide geo-referenced asset information, and eventual interfacing with SIM offers a wide field of new and promising alternatives.

### DASHBOARDS AND REPORTS

The clarity of information in data dashboards and reports is crucial to make them more useful and facilitate understanding and decision making. Whether they are clearer and more executive visualizations or show in detail the progress control variables, a very visual presentation and high usability are sought.

### BENEFITS

- Rigorous control of all phases of a construction project.
- Equitable comparison between different projects.
- Decision support to optimize construction and prevent deviations.
- Scalability for use in environments with different requirements and profiles.
- Be a more centralized, practical and efficient common place for construction teams.

## BUMPS IN THE ROAD

Challenges are part of any growth path, and for the AURA application it wasn't different. Starting from changing mindsets from analog to digital, aligning the existing work mechanics, and adapting them to the functional team. To successfully overcome this challenge, hard work and a good understanding among all stakeholders were required. After several revisions to improve these mechanics, it was possible to move forward at a good pace and create a great working product. Another challenge was getting buy-in from end users (both EDPR and external Companies). Considering the disparity in user-profiles and the companies' size and resources, it was necessary to provide them with tailored training on a case-by-case basis, thus finding the common ground that AURA should be and quickly getting to work from the start of the project.

The other major concern remains the integration of projects and users into the EDPR ecosystem. You have to make sure that each project is consistent with what is already integrated. It is also necessary to ensure that users adhere to all the group's internal security rules and policies, in addition to its digital model.

## RESULTS

AURA has proven to be an application that focuses on what really matters in construction projects. It provides a meeting point for all those involved in the project and brings together their efforts for the common goal of bringing the project to a successful conclusion in the best and most efficient way possible. All assets under construction are currently being integrated into this tool.

It is also a living project in itself, always open to the flexibility needed to take it even further. Over time, new modules and functionalities have been added to meet the specific needs of EDPR, the management or the users themselves. Their ideas and feedback are invaluable in this constant and focused development.

In its implementation, it has also been essential to train all parties involved. A great effort has been made in that sense, materialized in training courses, master classes, exhaustive and functional knowledge bases, FAQ sections, or suggestion boxes.

Like the goddess that gives it its name, AURA is a pleasant breeze, a breath of fresh, gentle air, but perhaps strong enough to one day carry the earthy construction into an ethereal digital world.