

# SUCCESS CASE

## API AND MICROSERVICES: DIGITAL DEMAND FOR SIMPLICITY

### INTRODUCTION

What does it mean to be successful in the digital world? It means to be light, agile, and flexible in the work method; to be efficient, resilient, and fast in the delivery; and to be disruptive, transformational, and catalytic in the mindset.

These are also the reasons to explain the success of EDP's API and Microservices initiative, a project led by the willingness of learning and the courage to fail.

### MAIN CHALLENGES

When in 2018, the company identified the need to move to the cloud, it had also become clear the need to rethink the API and microservices' strategy as a vital component to the success of that migration. The main pain points were related to:

- **High time-to-market.** It was necessary to find a solution to reduce the time between the business need identification until the digital product delivery;
- **High Run-time.** Due to a heavy traditional architecture the run time was too high, resulting in poor performances;
- **Heavy protocols,** with a significant impact on resources consumption, especially on mobile devices;
- **Outdated backend systems,** incompatible with asynchronous patterns;
- **Moving to the cloud** requires a new "get things done" mindset and a new work method that promotes lighter architectures, greater agility and flexibility, and faster performances.

### SOLUTION

EDP's API and Microservices development strategy privileges lighter protocols, more atomic features, and availability for developers to speed up deployment efforts.

This way, it was possible for EDP to address digitalization requirements for flexibility, scalability, resilience, and synchronism.

Above all, digital users benefit from less complex, faster, and top-notch digital solutions that deliver added value to the company's business.

**+200** API

Delivered so far

**4** PATTERNS

Already delivering value  
to the business

**4** CATALOGS

Ready to be used by the developers  
internally and externally

### 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



### LEARNING PROCESS

Learning by fast failing played a vital role in gaining the maturity level that the API building process enjoys today. Meanwhile, the Microservices development promises the same performance in the near future.



### KUBERNETES

Working with Kubernetes has granted the required agility, scalability, and resilience to applications by making sure they run anywhere and anytime, with the appropriate resources and tools.



### EVERYTHING BY DESIGN

With a disruptive mindset and making quality their n.º 1 priority, the team now designs every major variable (login, security, monitoring, etc.) in the conception phase. This way, they're able to minimize future rework and underwrite the application's quality throughout its lifetime.



### PATTERNS

Building different patterns proved to be a win-win situation. While allowing the company to overcome the limitations of backend applications, it has also delivered simpler, autonomous and easy-to-maintain Microservices.



### EDP'S API CATALOG

In the first year of the project, more than 100 API were delivered in 4 catalogues: public, private, internal and traditional web services. A unique company breakthrough with large benefits for the organization (most of API are now being used and others are supporting current developments), and for external partners (e.g. some municipalities), through which EDP is delivering improved public service to citizens.



### BENEFITS

- Faster time-to-market. Delivery and support were never so fast;
- Reduced run-times. Information in real-time;
- New patterns. At every new pattern, systems gain more agility and improved performance;
- Flexibility, scalability & re-usability: The innovation and resilience within these new API make them excellent accelerators to build more in a faster and simpler way.

## BUMPS IN THE ROAD

Success also means a few challenges along the way, but the API and Microservices team saw them as opportunities to grow. If digital needs simplicity, it has been an intricate task to spread this idea throughout the company. This disruptive team mindset was a catalyst for normal resistance to change initially, but also enabled the adoption of a simpler, faster, and innovative API and Microservices culture. A persistent and educational attitude was also required to overcome what is simultaneously a people (high turnover) and knowledge challenge (market unpreparedness to develop API and Microservices with the maturity and reliability levels EDP requires). By providing training and promoting standard methods and knowledge documentation, the team is not only addressing today's problems, it is also setting EDP's future regarding the systems' sustainability and the quality of applications developed in the future.

## RESULTS

A simpler, faster, flexible API and Microservices culture ready to address the digital challenges for simplicity, real-time performance and resilience. A culture that privileges architecture design over technology trends and is based on standard methods and continuous knowledge spread. The success of the API and Microservices initiative was easily recognized in the CI/CD (continuous integration/continuous deployment) automation project. For the first time, all deployment tests were automated; a guarantee that all test roles are now checked and the application is smoothly and seamlessly deployed.

Also, for the first time, EDP's API reach beyond its walls to benefit citizens all over the country. The pilot project to build API to serve external partners, like municipalities, is unveiling unforeseen and real public-service advantages by providing an efficient and accurate public asset management.