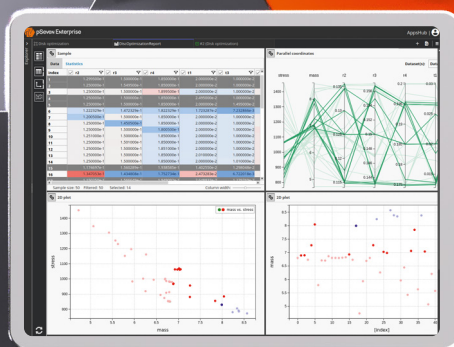
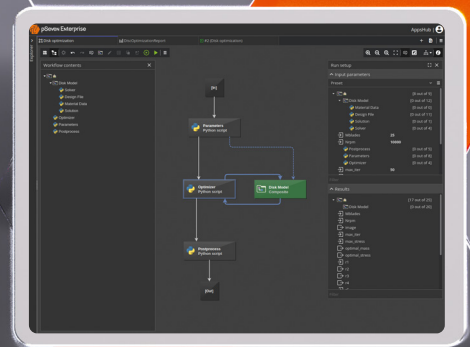
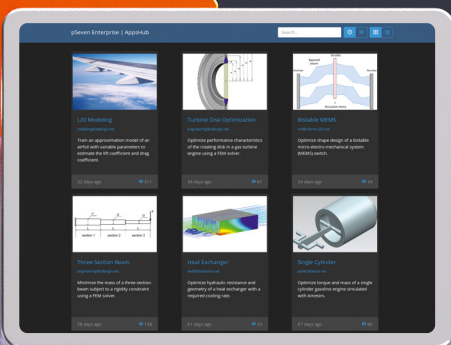




# BUILD, DEPLOY AND OPERATE DIGITAL TWINS AT SCALE WITH PSEVEN ENTERPRISE,

a Cloud-native Low Code Platform

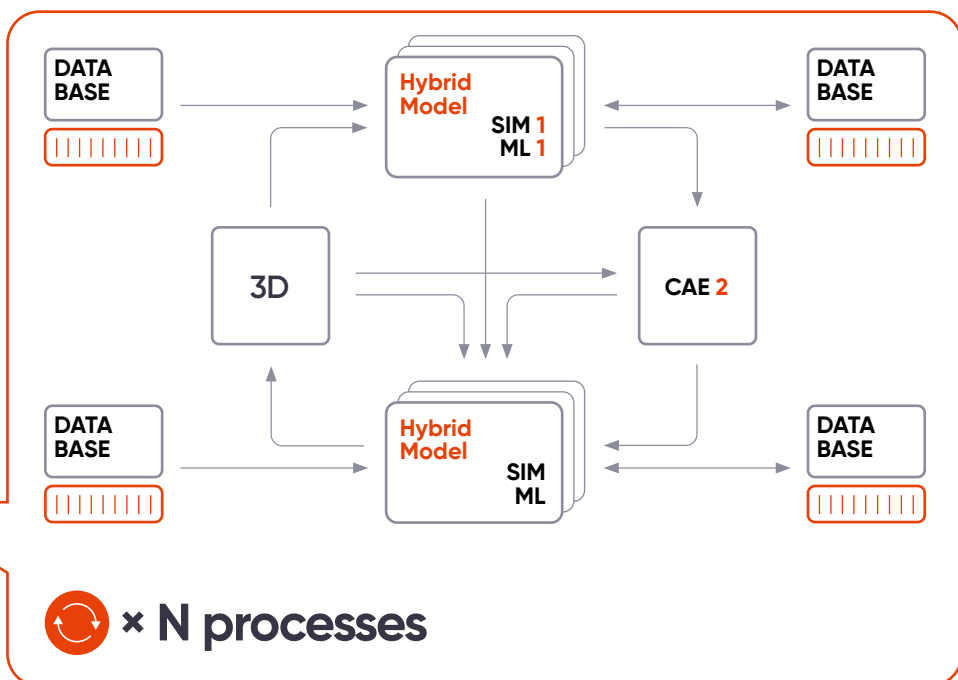
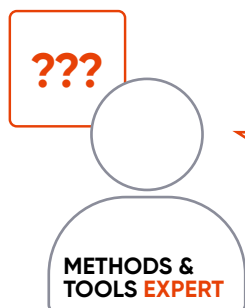


# BUSINESS CHALLENGES

**1** Bring the best product to market on time and on budget: the best performance, best manufacturability, best reliability at lowest cost.

**2** Reduce product/asset operating costs while increasing its efficiency and profitability.

**Regularly Build, Deploy, Use and Operate different Models and Processes at Scale**



Software industry has developed various solutions to these challenges: functional mock-up, simulation driven design, Model-Based Systems Engineering, Digital Twins, and Artificial intelligence. Implementing these solutions means that companies need to digitize core engineering processes towards optimal product design, optimal process design, real-time asset monitoring, optimization and more at the scale of the whole company.

Product design processes include simulation and analysis, validation and certification, design optimization etc., which require different CAD/CAE tools.

For the optimal process design, machine learning methods can be added to the previously mentioned tools, as data mining, data analysis, uncertainty and reliability analysis are involved.

To reach the Digital Twins level, companies need to handle product and process design in a real time. Data is coming from the asset to the databases through data processing processes. This might require building Hybrid models combining physics-based simulations and machine learning.

The need to digitize such engineering processes at scale, meaning that there is a variety of products and processes, makes the task very complicated even for technologically advanced organizations. It would require number of experienced engineers, professional software developers and data scientists. Do companies really need all of them and what is an alternative?

# TYPICAL ENGINEERING POPULATION OF A COMPANY



## Domain Experts

The majority of users- experts in their domain but not in methods&tools development.

>60%

Analysts, Designers, Operators...

- Focused on company assets and projects
- Solve business problems using domain specific applications and services without even a single line of code
- Need efficient tools to solve concrete engineering problems in a timely manner.

## Power Users

Advanced users involved in methods but not necessarily in tools development.

<30%

Citizen Developers  
Sim/ML users

- Solve business problem using visual programming / low-code, macro-blocks and a bit of programming but without direct involvement of ultimate experts
- Easily build, deploy and manage ML models
- Automate problem solution, build applications and services, faster and at scale

## Superheroes

Disciplines and Methods&Tools ultimate experts with programming skills.

<10%

Professional Developers  
Sim/ML champions  
R&D/M&T

- Must automate engineering processes. It is difficult to do at scale
- Create and share a framework and a library of tools tailored to specific business domains
- Ensure enterprise-wide automation principles, i.e. by providing workflow templates
- Define and formalize/standardize development, deployment and operating principles

# SOLUTION

One of the answers to this challenge is the low code. Low code platform pSeven Enterprise by pSeven SAS empowers each group of engineers to build, deploy and operate different models and processes at scale. This becomes possible with a 3-layer structure of platform's key capabilities.

## ● 1<sup>st</sup> Layer

Fundamental set of features like cloud-native scaling, multi-user collaborative environment, Machine Learning and Optimization.

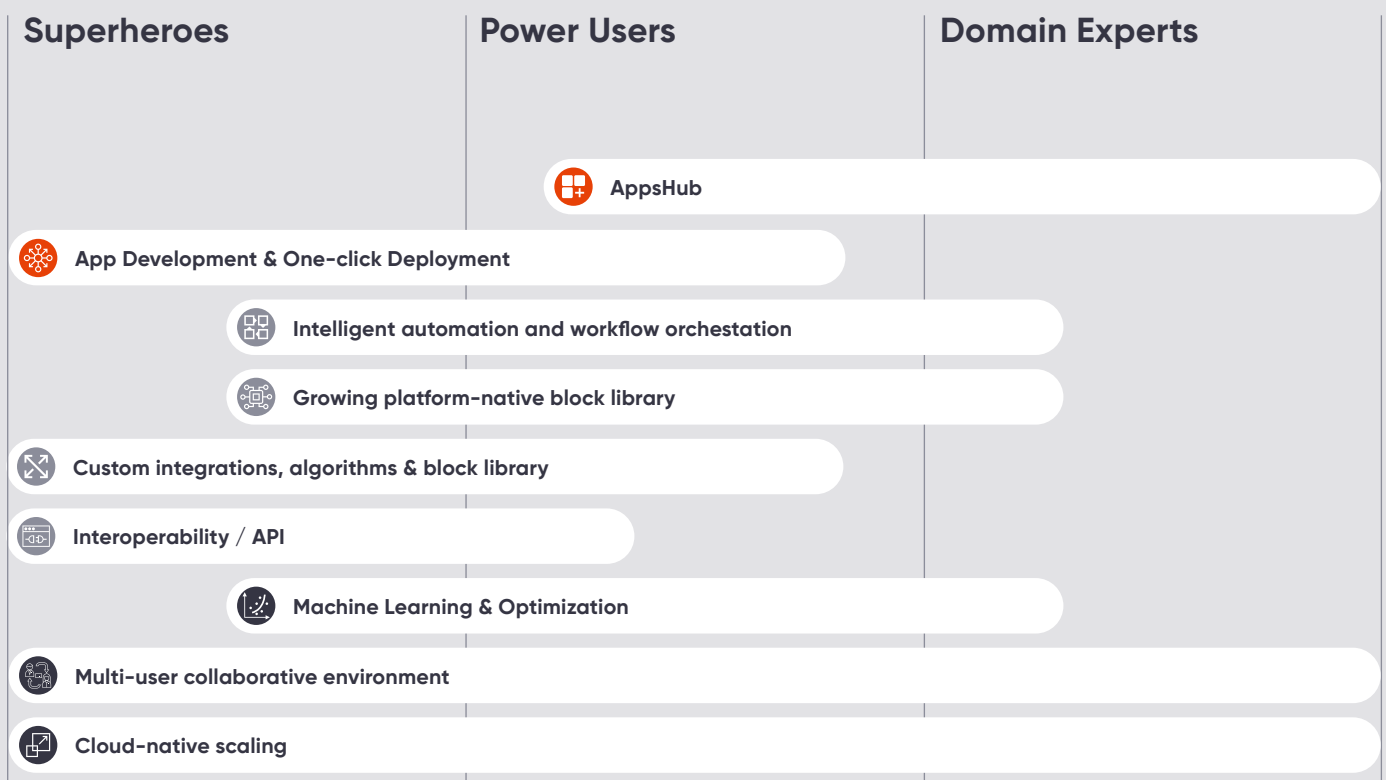
## ● 2<sup>nd</sup> Layer

The workflow automation, the library of standard integration methods, the means to develop custom integration, algorithms, and the interoperability via open API.

## ● 3<sup>rd</sup> Layer

Development and straight forward publishing of applications as bundled web App with custom UI for the domains.

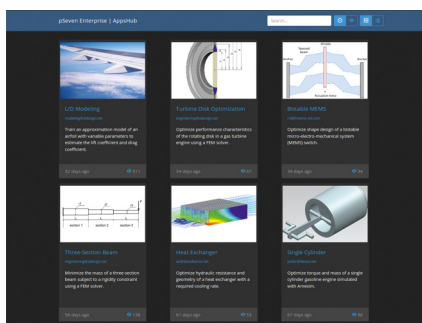
## 3 LAYER STRUCTURE OF PSEVEN ENTERPRISE CAPABILITIES



# BENEFITS OF USING PSEVEN ENTERPRISE

## PRODUCTIVITY GAIN, REWORK REDUCED

### Efficiency Increase



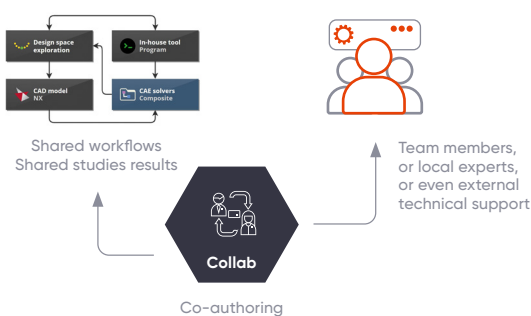
AppsHub Gallery of web apps published by power users

Power users can elaborate and share best practices and make sure they won't be altered once spread within organization.

Best practices are captured in pSeven Enterprise workflows. Power users tune the workflow and publish it in a few clicks in AppsHub as a custom web App. Any authorized user can then access workflow via a small app. It doesn't allow any modification of the workflow.

Users can either run apps in a standard pSeven Interface, or in a custom UI meant to hide the complexity of pSeven workflow. This way, power users can give access to complex methods through a simple interface that any engineer can use.

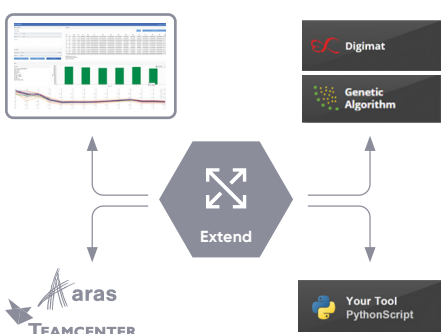
### Shorter Development Cycle



Superheroes can keep control of their methods and processes. They can seamlessly update them when they are shared. Power users and domain experts can focus on engineering tasks and project.

Centralized server-side deployment and execution of workflows in pSeven Enterprise implies that all users are running methods/processes from a single location. When workflow authors need to update their workflow, they only have to do it once from that location. All users will then benefit from the update seamlessly.

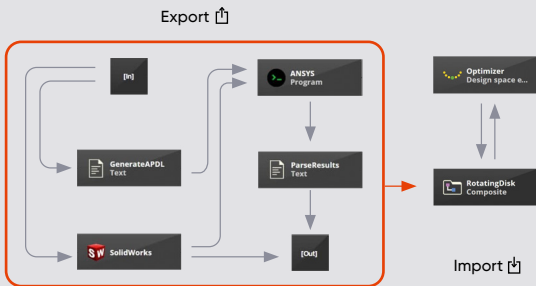
### Faster time to market. More flexibility and capacity to adapt to market evolutions



Integrate engineering framework with other enterprise collaborative environments

pSeven Enterprise has been designed as a scalable open platform with open API. It enables interoperability with external collaborative environments like SPDM, PLM, ERP also running in the Cloud. Existing functionalities can be easily extended by integrating your own technology or by developing custom blocks.

## Improved Collaboration Between Teams and Enabling Multidisciplinary Approaches. Better Product, Faster.

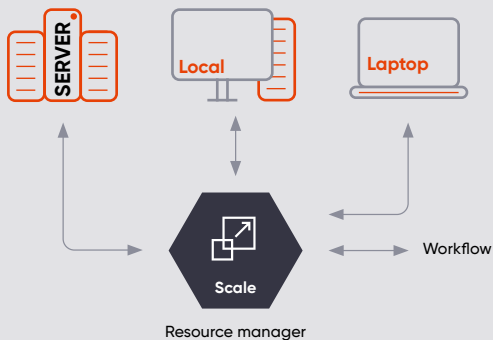


Run multidisciplinary analysis when discipline teams are not integrated

pSeven Enterprise offers several collaboration capabilities, such as:

- **Shared workspaces.** They are designed for a department or a team to share and edit workflows, results and files depending on the user roles, just as like using Google Docs.
- **Nested workflow logic.** Different workflows can be created separately by different teams. Then they can be assembled into a master workflow. No file transfer is required! All users are working in the same environment. Sharing is simply managed with fine access control rights.

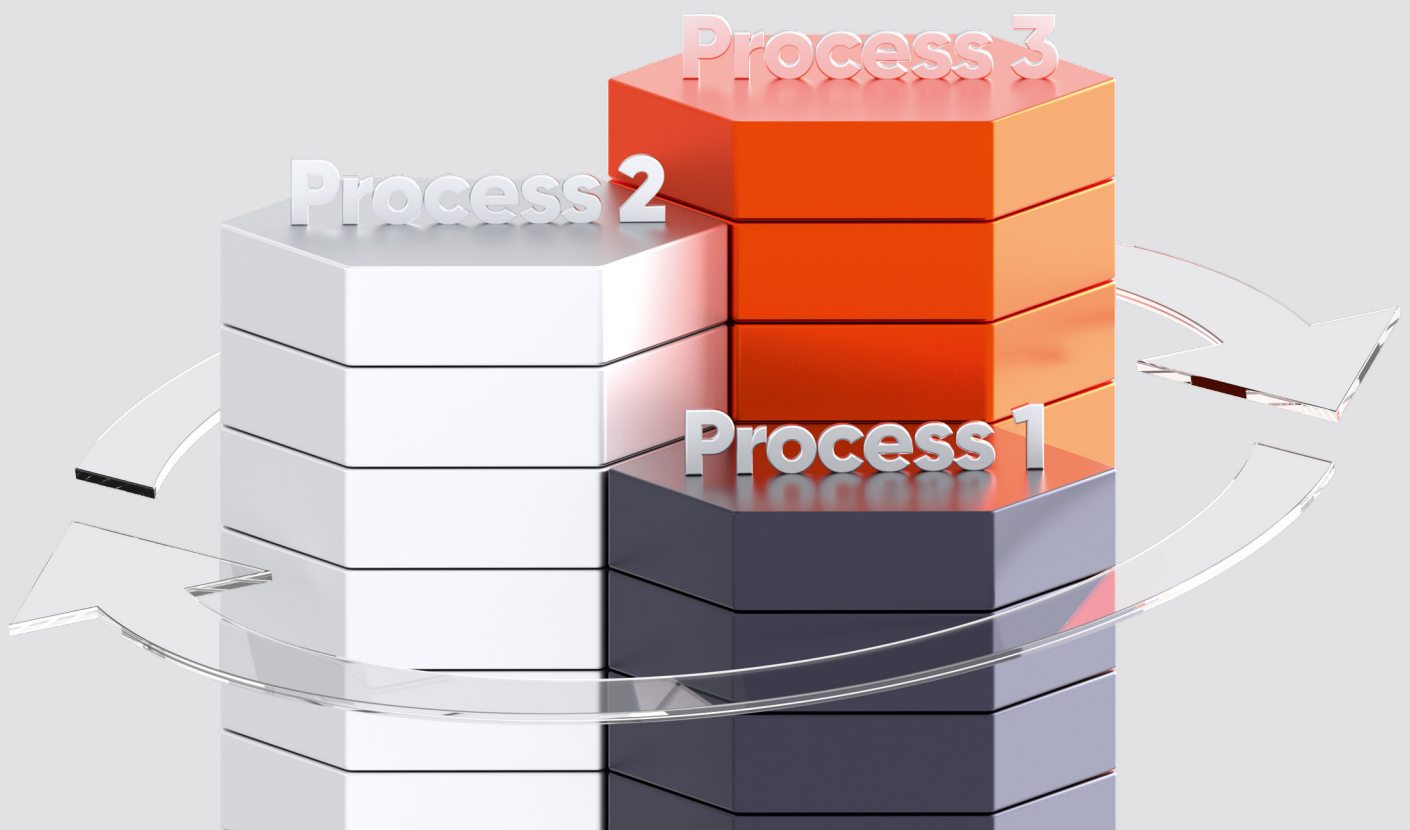
## Better control on assets and IT expenses. Smooth transition to industry 4.0. More flexibility in operations.



Leverage internal and external (Cloud) IT means to update business model without disruption

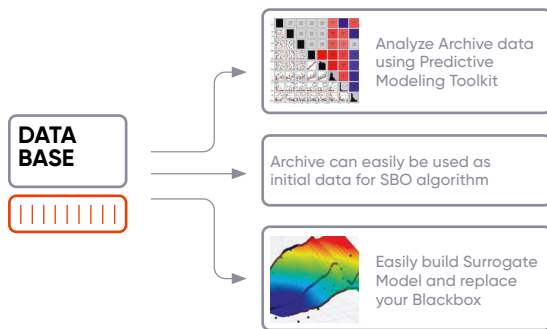
pSeven Enterprise runs in public or private (on-prem) Cloud. It allows deep integration of all computing means of organizations. Integration is transparent for end users and independent from changes in IT strategy. Companies can then decide to switch to external IT resources without end users even noticing the change.

Besides, scalable nature of pSeven Enterprise allows IT organizations to leverage their internal servers and assets to accelerate amortization. It becomes possible with capabilities like «fire & forget» to delegate workflow execution to server and a built-in resource manager. pSeven Enterprise scales with your needs!



# KNOWLEDGE CAPTURE AND TRANSFER

## Better product knowledge. Design process acceleration thanks to predictive ML models

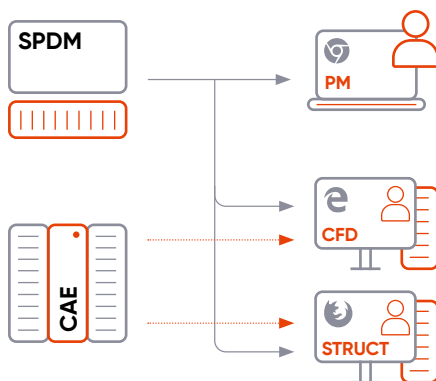


Capitalize on data related to similar engineering activities conducted by different teams from different locations

The architecture of pSeven Enterprise being monolithic and centralized, no matter where people are located. Users have the capability of workflow co-authoring directly in the Cloud, right from their browsers. If they use same workflows, a common archive can be defined to collect key data from workflows executed by all teams.

When sufficient data is gathered, it can be used for subsequent predictive model building. Such predictive model can then be shared. It can substitute a complete workflow for fast evaluations, resulting in a shorter design cycle.

## Easy access to data. Easy reuse. Shorter design cycle by avoiding rework



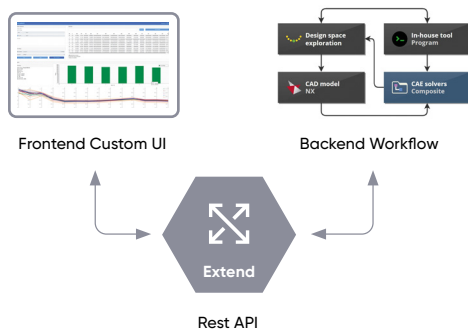
Speed-up development cycle and avoid rework

Process capture in pSeven Enterprise workflow is a way to automate and standardize design methods. It makes design process more robust resulting in less rework. It also helps to better organize engineering data and reuse it.

Ultimately, pSeven Enterprise can be coupled with other native Cloud SPDM system to ensure full traceability of design process.

Integration of pSeven Enterprise with SPDM is one of the most value-added setups in Engineering organizations. While SPDM deals with design cycle and multi-team collaboration at upper level, pSeven automates engineering workflows and tools at lower level. Such bi-level setup brings robustness, speed and full traceability to product development cycle.

## Reduce loss of knowledge. Make engineering organizations more profitable. Democratize technology



Capitalize on engineering knowledge and avoid loss due to employee turnover

Superheroes capture engineering processes in a pSeven Enterprise workflow. They turn them into an easy-to-understand standard modularized visual representations. Other users can then easily take over and maintain such workflow even without a priori knowledge of the method/logic.

# THEY TRUST US

 TechnipFMC

HALLIBURTON

 orano

AIRBUS



**Interested in the solution?**

**Contact us to request a free 60-days assisted demo!**



**pSeven SAS**

42 Avenue du Général de Croutte, 31100,  
Toulouse, France  
Tel.: +33 (0) 5 82-95-59-68,  
info@pseven.io