





**Jakub
JASINSKI**

CTO
PESA Bydgoszcz S.A.

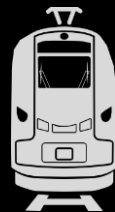
A decorative graphic on the left side of the slide, featuring a network of interconnected nodes and lines. The nodes are colored in red, yellow, orange, black, and white, and are set against a glowing blue background that resembles a globe or a digital sphere.

USAGE OF AI AND 3DEXPERIENCE WITHIN
PESA PROJECTS - REALIZATION WITH 3RD
PARTIES SUPPLIER

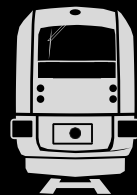
The background of the slide is a dark, high-contrast 3D rendering of the front of a train. The train's nose is the central focus, showing a sleek, aerodynamic design. A single headlight is illuminated, casting a bright glow. The train's body is dark, with some highlights on the curves and panels. The overall aesthetic is modern and technical.

Usage of AI and 3DEx
within PESA projects
realization with 3rd
Parties Supplier

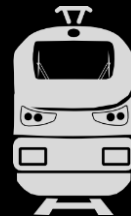
THE NUMBER OF SOLD RAILWAY VEHICLES



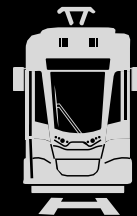
263
EMU



482
DMU



112
LOCOMOTIVES



900
TRAMS

1205
POLAN
D

552 **1757**
ABROAD TOTAL SALES



PESA

PESA is the largest rolling stock manufacturer in Poland. It employs nearly 4 thousand employees in its plants in Bydgoszcz and Mińsk Mazowiecki, and it cooperates with more than 1,500 companies with the total of several dozen thousand employees. PESA trains and trams run in all Polish regions and most large cities as well as in over a dozen European countries.

PESA trams are used, among others, by the inhabitants of Warsaw, Kiev or Sofia. Our vehicles carry passengers of e.g. German DB Railways, Italian TrenItalia, Czech Railways (ČD) or Belarusian Railways. In total, the company has obtained 23 foreign type-approvals so far.

KEY ELEMENTS OF PESA STRATEGY 2030+

01

ACTIVE PARTICIPATION IN DEVELOPMENT
OF RAILWAYS IN POLAND, EUROPE...

02

OPERATIONAL EXCELLENCE,
TECHNOLOGY DEVELOPMENT, IT

03

NEW VEHICLE PLATFORMS,
TECHNOLOGY DEVELOPMENT, IT

04

GREEN DEAL, LOW-EMISSION PRODUCTION
AND VEHICLES, H2 READY

05

HIGH-SPEED TRAINS BUSINESS
PARTICIPATION, PROJECTS PROMOTION

06

STRATEGIC ALLIANCES TECHNOLOGY
DEVELOPMENT, PRODUCTION AND
COMMERCIAL

20

30+

REGIO¹⁶⁰

regional trains
platform



INTERREGIO²⁰⁰

intercity trains platform



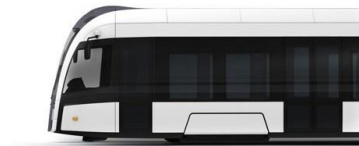
HS PREMIUM²⁵⁰

high speed rail



TRAM^{EU}

new trams in the EU standard



GAMA2

GAMA2 locomotives
family



H₂ hydrogen

hydrogen locomotive SM42 6Dn



| PLATFORMY PESA NA RÓŻNE TERYTORIA



3.0 GENERATION

STANDARD CONFIGURATION

JACOBS CONFIGURATION

TRAM

LOKO

GREEN

HS & VHS TRAINS



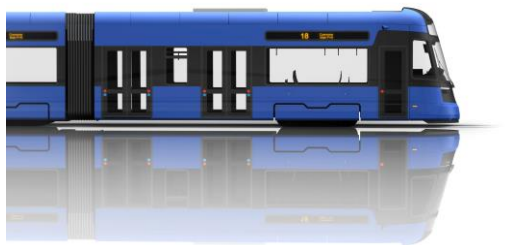
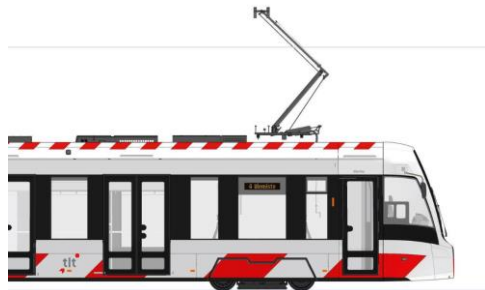
STANDARD PLATFORM

JACOBS PLATFORM





DIESEL & ELF2 PLATFORM



**TRAM
PLATFORM**



GAMA 3.0

*3 kV / 25 V, 160 km/h, 80t
+ last mile stage V*



GAMA 3.0

*3kV / 25 kV, 160 km/h, 80 t,
dual mode stage V*



GAMA 3.0

*multisystem 200 km/h
3 kV / 15 kV / 25 kV*



COMPREHENSIVE RANGE OF PRODUCTS

GAMA 3.0 - a platform of modern locomotives manufactured by PESA. The platform offers electric locomotives adapted to a 3kVDC or 25kVAC power supply and can optionally be equipped with a battery-powered or eco combustion engine-based travel module that meets the highest emission standards. GAMA 3.0 locomotives are universal four-axle vehicles with a maximum speed of 200 km/h.

The design of the locomotive reflects the latest market trends, providing the vehicle with good aerodynamic parameters and ease of service and maintenance. Due to their excellent traction parameters, GAMA 3.0 locomotives are perfect for freight traffic, including intermodal as well as passenger transport.

pesa



| DOUBLE DECKER



| DOUBLE DECKER PLATFORM



GREEN PESA 2030+

Green PESA 2030+

The company is working on a long-term strategy aimed at reducing the carbon footprint as much as possible in all areas of the organization's operations

Actions already taken:

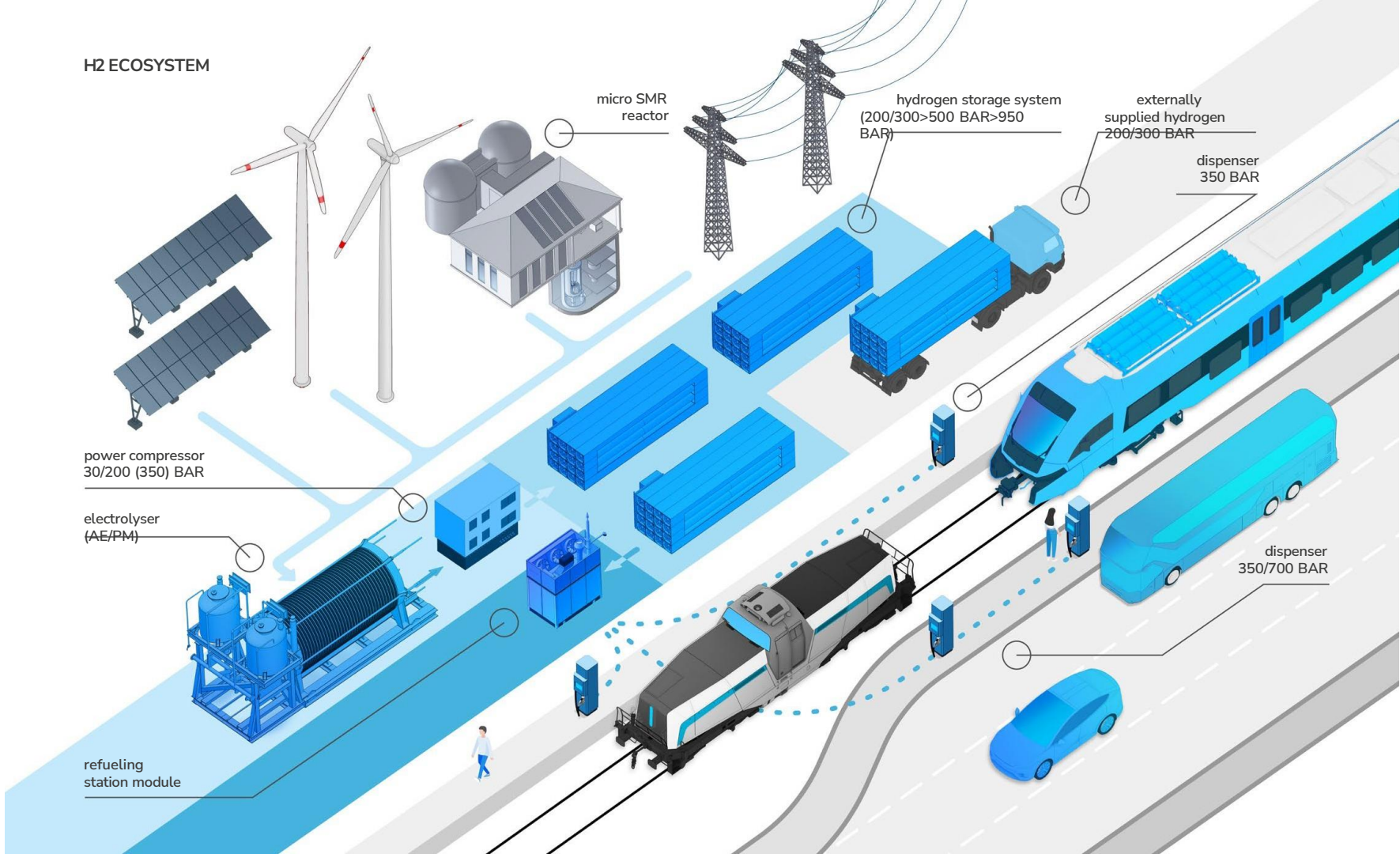
- All new investments in production facilities and office space take into account the assumptions of 'green order'
- All the vehicles are designed taking into account the

assumptions of the 'green deal' - vehicles will be low/ zero-emission, made of biodegradable and recyclable materials and components, and the production process is to take place in the conditions of the lowest possible carbon footprint.

- With all the new projects / ex. hydrogen locomotive / we do ask suppliers of components and subassemblies for green production certificates.



H2 ECOSYSTEM







**NEW PRODUCTION
TECHNOLOGY +
STRATEGIC ALLIANCES**

- 1.monocoque structures
- 2.welding automation
- 3.aluminum structures

- 4.modular construction
- 5.world leader's components
- 6.international certifications

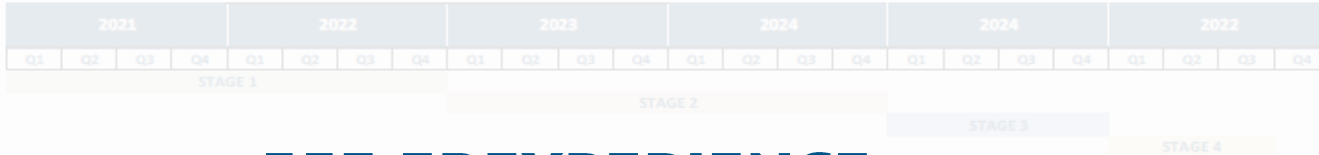




3DEXPERIENCE and cooperation with 3rd Parties Supplier

3DEXPERIENCE Project at PESA

3DEXPERIENCE Implementation and CAD transition to CATIA



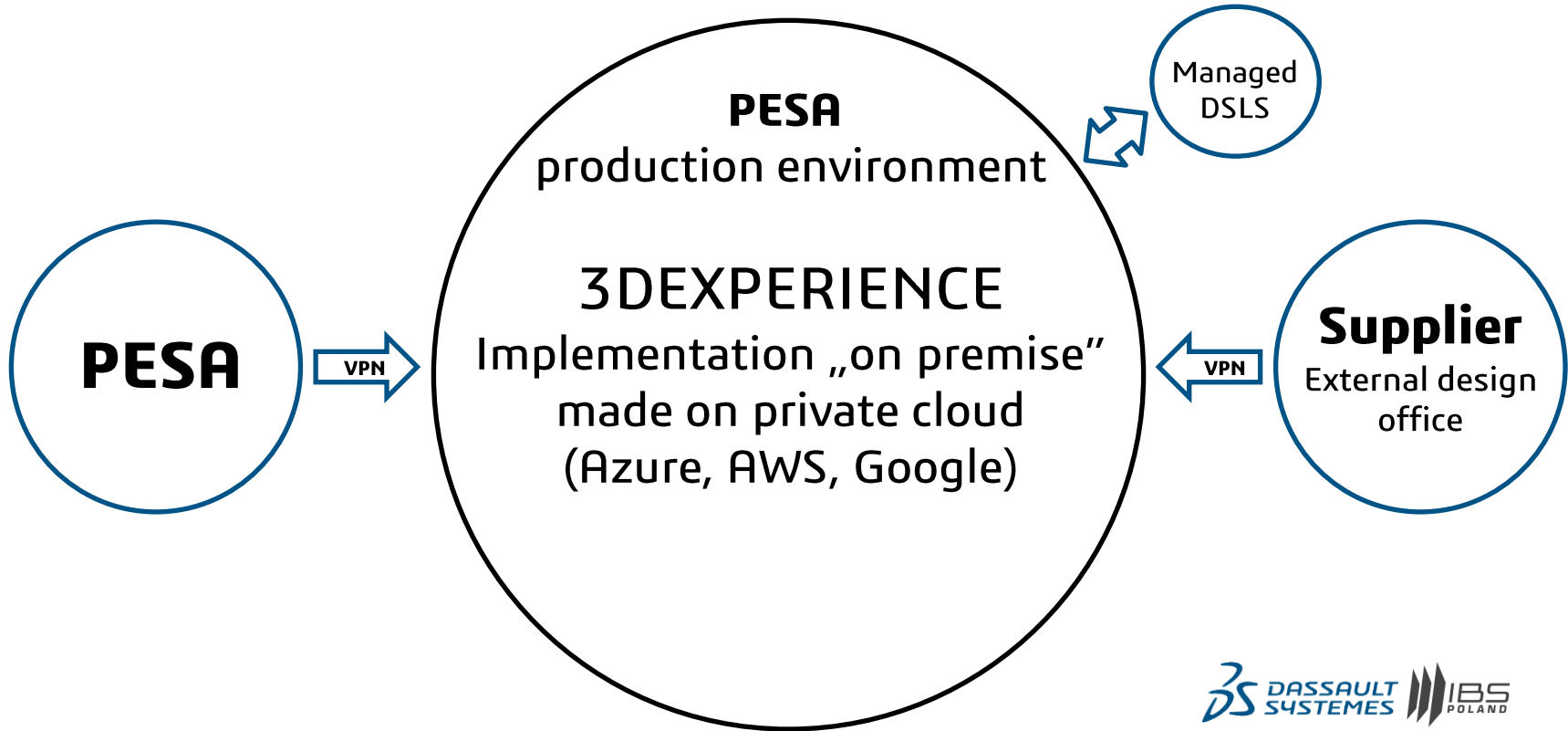
553 3DEXPERIENCE users

392 (71%) @PESA

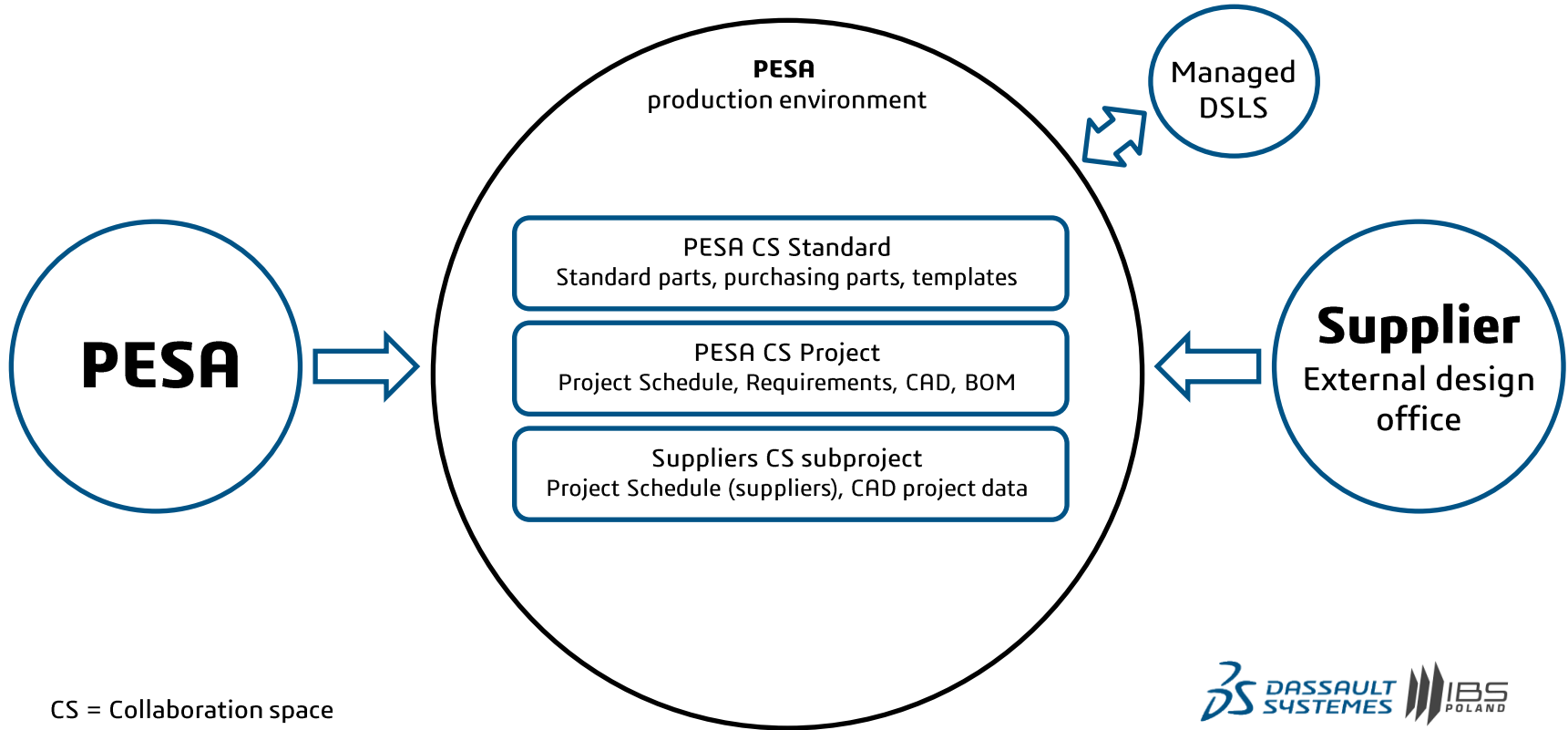
161 (29%) External Suppliers

- Mechanical Construction
- Change Management
- Project Management
- Documentation Management (standard parts, purchased parts)
- Global CATIA Launch
- Requirements Management
- Suppliers Collaboration
- Offering process on 3DEXP

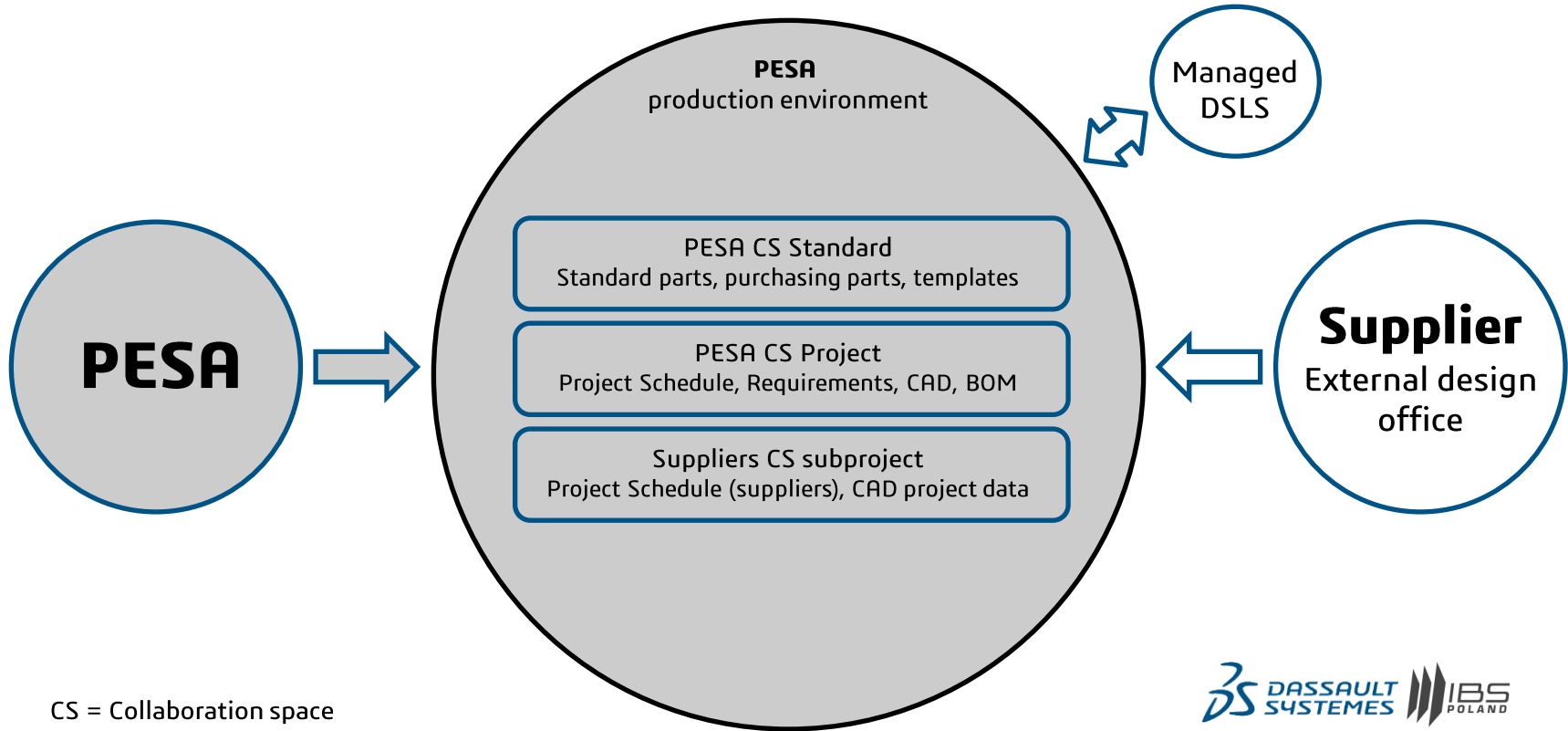
Suppliers Collaboration on 3DEXPERIENCE Platform



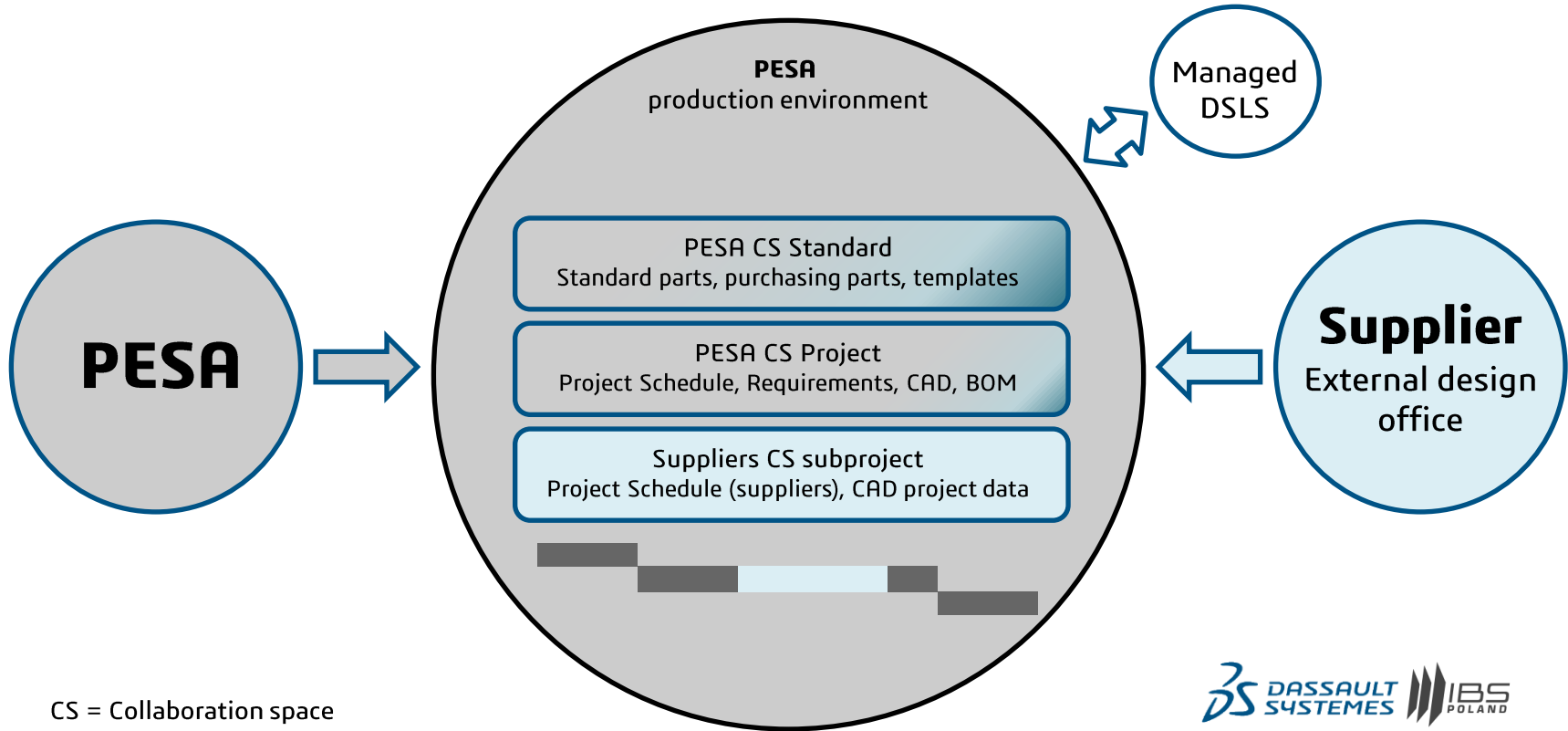
Suppliers Collaboration on 3DEXPERIENCE Platform



Suppliers Collaboration on 3DEXPERIENCE Platform



Suppliers Collaboration on 3DEXPERIENCE Platform



CS = Collaboration space

Suppliers Collaboration on 3DEXPERIENCE Platform





AI

SUMMARY

- WE are in the final stage of digitalization of our resources/processes and now we are ready for the next step towards AI
- WE are at the stage of implementing corrections and errors detected by users during the implementation of processes in the new environment
- WE are at the stage of finalizing production needs to carry out system and digital evolution using new tools and systems next step to PRODUCTION 4.0
- WE are a smarter and more agile Team in the implementation and verification of new tools and implementations of AI to our proces and systems

HS **PREMIUM**²⁵⁰

HS **PREMIUM**²⁵⁰

THANK YOU FOR YOUR INTEREST

