



THE DIGITAL FACTORY BY LB

MAKING INTERACTION BETWEEN MACHINES AND SYSTEMS MORE EFFECTIVE WITH THE **PLUS** AND **STAR** SOLUTIONS

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The Future of Ceramics

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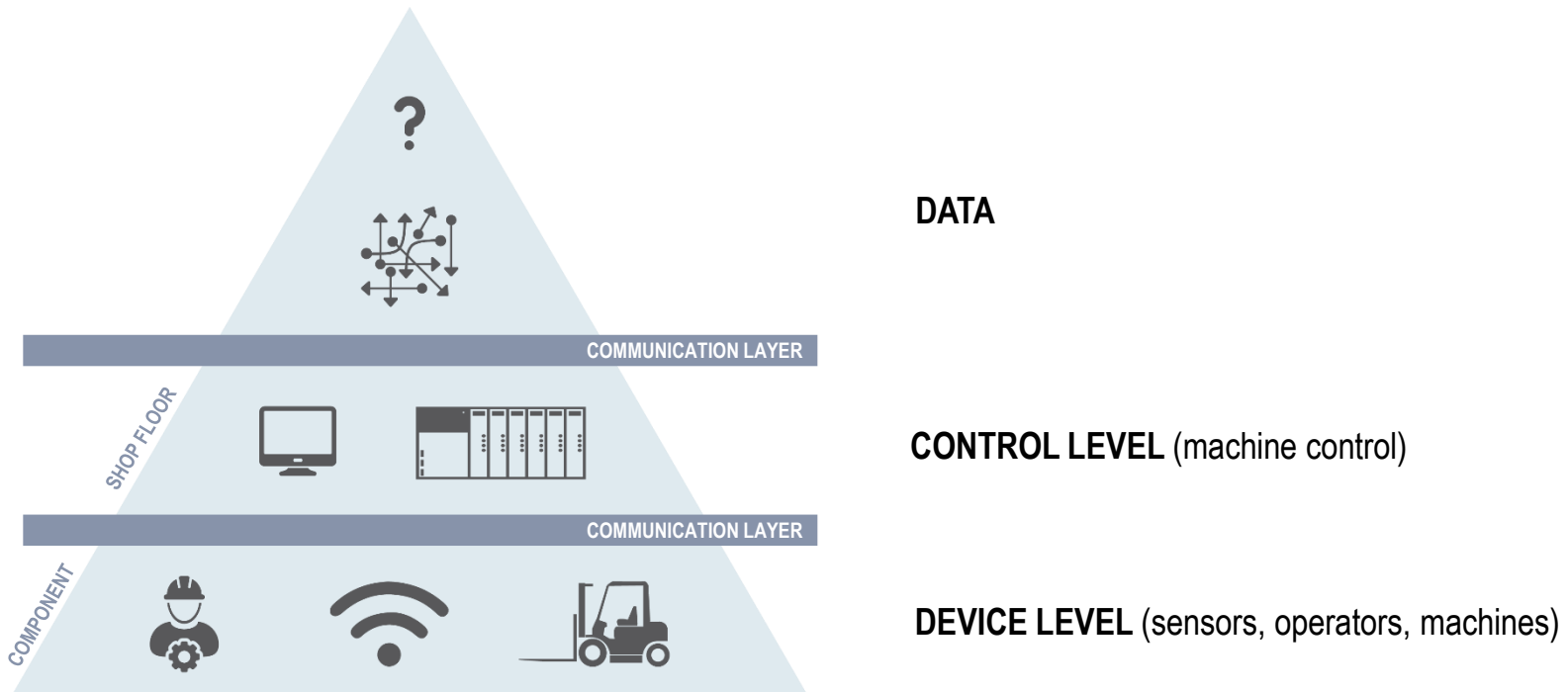
A decorative graphic element consisting of a series of horizontal red lines of varying lengths, extending from the right edge of the slide towards the left, creating a striped effect.

EVOLUTION OF SOFTWARE SYSTEMS

Yesterday - Evolution of automation toward the IT side. Data is not structured.

Yesterday - Interconnections of IOT systems, development of MES systems. Data is structured.

The architecture sees this interconnected system transversally across all production structures and vertically with respect to the various users: production, quality, materials, maintenance. **In this scenario it is important that the various stakeholders receive the correct information in real time.**

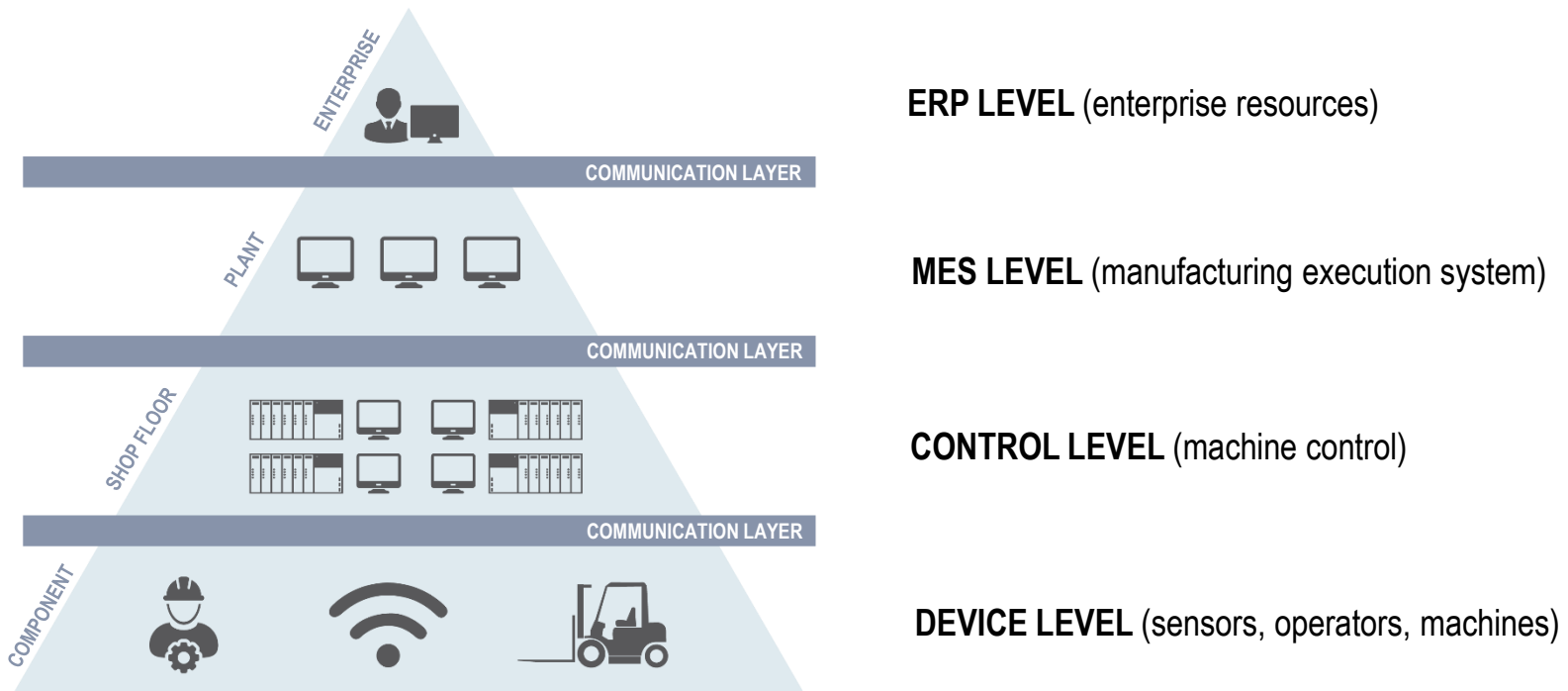


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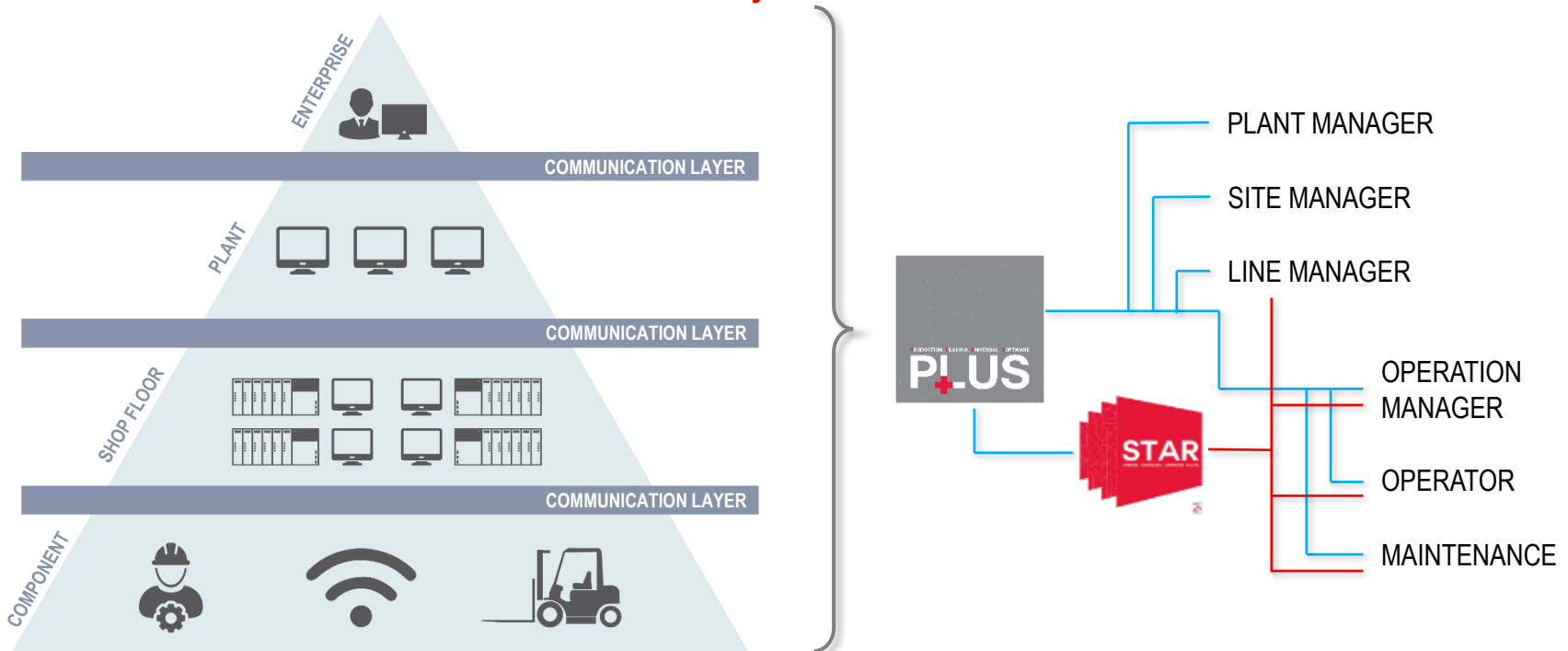
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THE PLUS SOFTWARE PLATFORM AND THE STAR MOBILE SYSTEM

LB proactively **evolved** its **PLUS software platform solution** adding new functions and a **STAR mobile solution** to **further increase the performance of the human machine interface** aiming to **increase effectiveness and availability** of machines and systems.

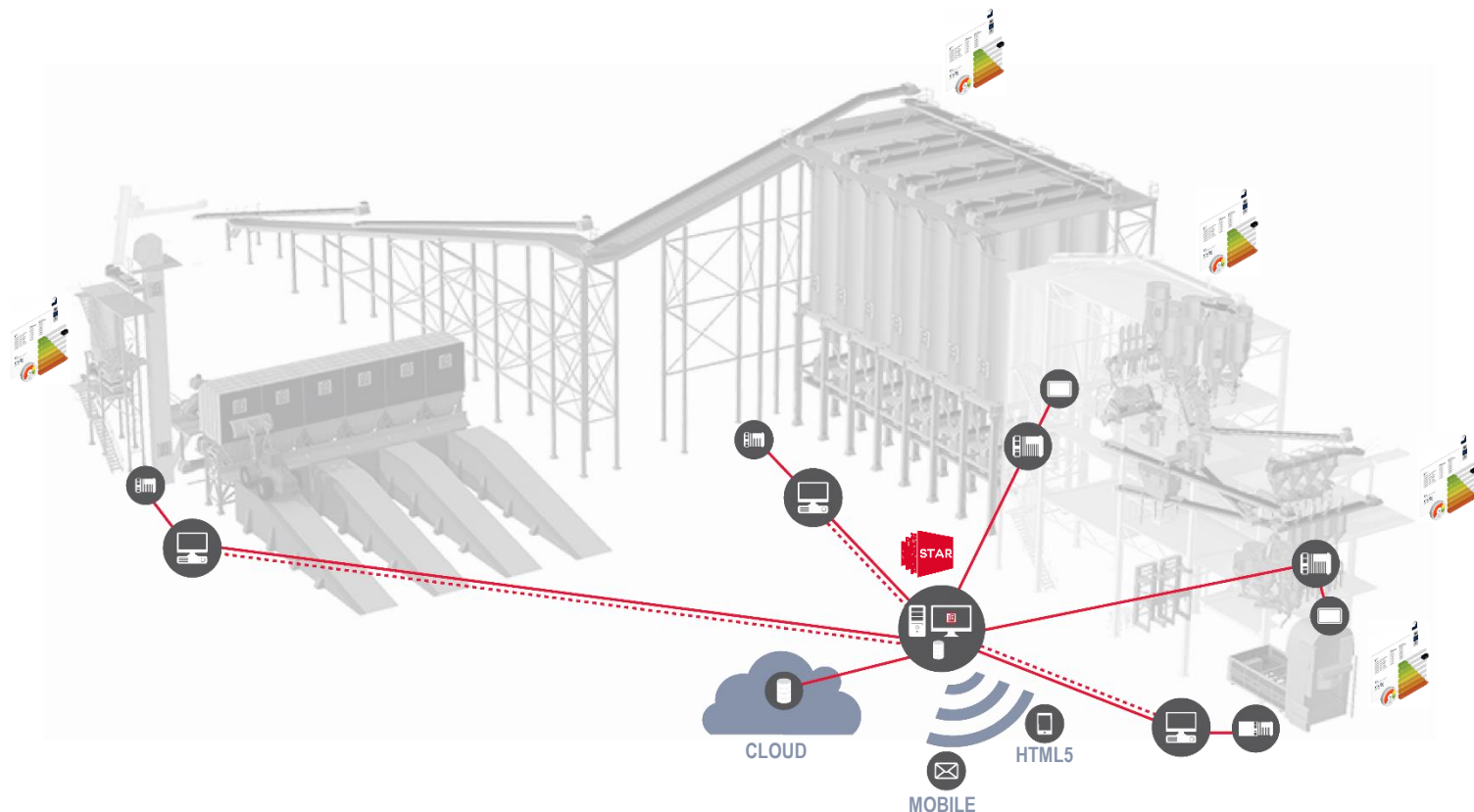
The effectiveness of the interaction with the machine/system, the availability time and quality of data, the quality of the operation, the decrease in operating times, the increase in the know-how of operation, **translates into a greater effectiveness of the machine and of its availability.**



THE PLUS SOFTWARE PLATFORM



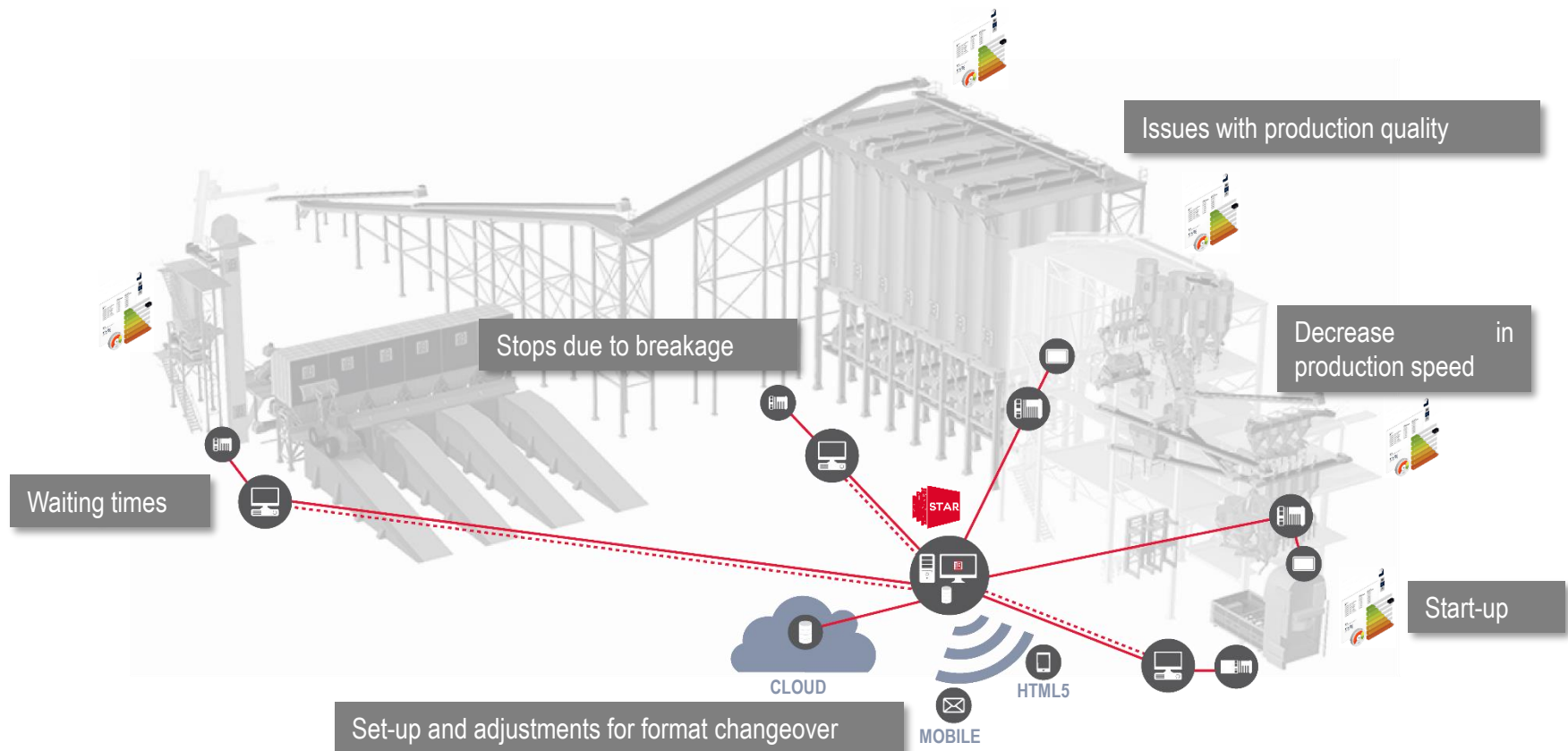
It is defined as a platform since it is a modular software solution that serves the entire supply of LB technologies. In addition to automating the process management, **PLUS focuses on supplying structured data in real time, formatted in a suitable way for the user** requesting to view it in order to improve efficiency and availability of systems and machines. The architecture comprises a decentralised system with distributed data collection. This allows sharing data over the cloud and displaying them on STAR mobile.



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THE PLUS SOFTWARE PLATFORM



The key features of the PLUS software for the various LB technologies are:

- **Effective information formatted for the user**
- **Structured data, aggregated effectively for the production process**
- **Quick access to information. Simplification of the user experience**

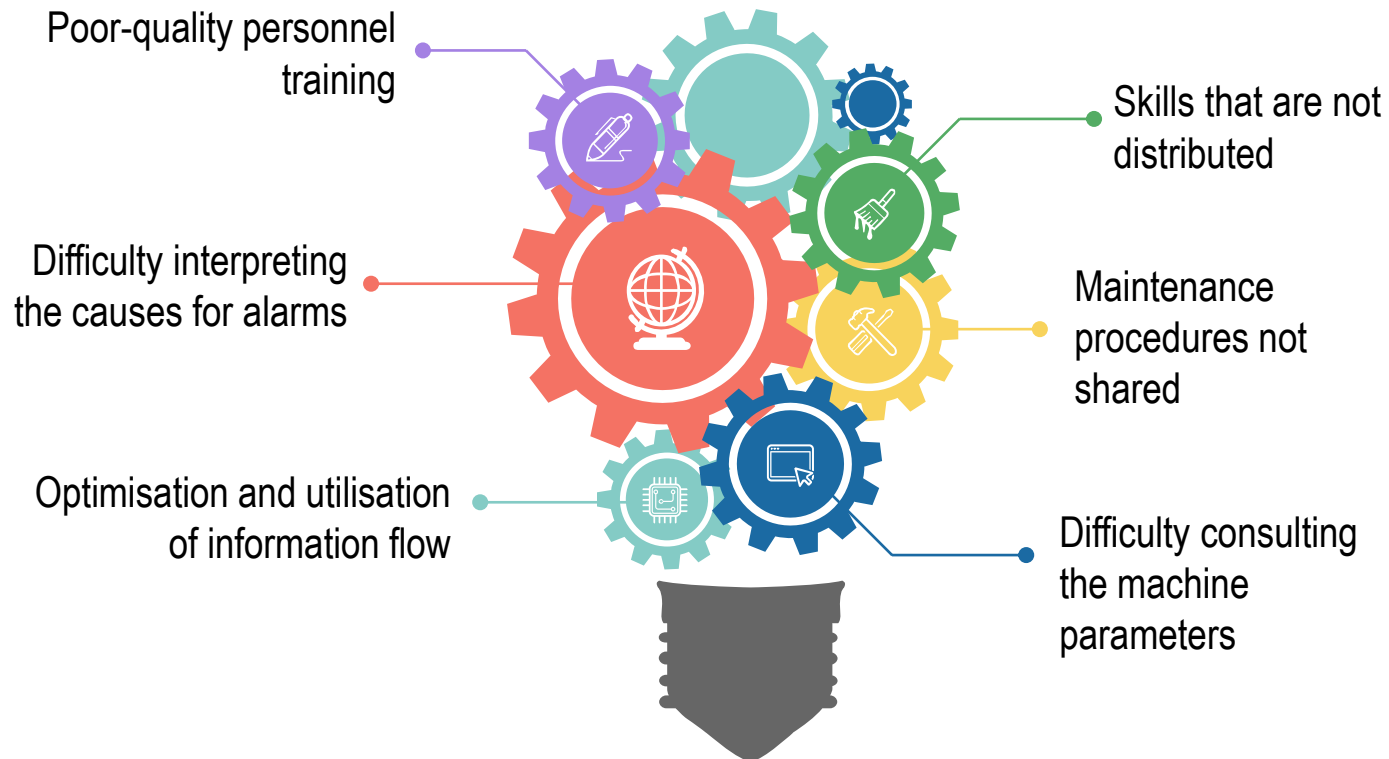


THE STAR MOBILE SYSTEM



The further **performance** of supplying **correct data, precisely and in real time to increase the direct interaction with the machine and system, is represented by the START software for mobile systems** (Superior Technology Augmented Reality) which is fully integrated in the PLUS software solution.

The system is designed to **solve the main causes of the decrease in effectiveness and availability of systems.**





S.T.A.R. is an application designed **to optimise the management of systems using the advantages of 3D interaction and of augmented reality.**

It allows clear and immediate **use of the technical and operating data of the machine or component** being analysed.

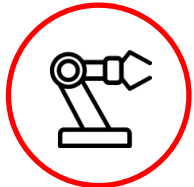
It transmits accurate information, in real time, about the machine technical data and the process parameters

It enhances the know-how of operators, since they receive the same information to manage and maintain systems, so the know-how is distributed throughout the organisation.

ARCHITECTURE



OPTIMISED STRUCTURED
INFORMATION FLOW IN REAL TIME,
EASY TO UNDERSTAND



STAR BOX

Data exchange (parameters, tutorials, scheduler, 3D alarms, documents, spare parts)



MACHINE PART

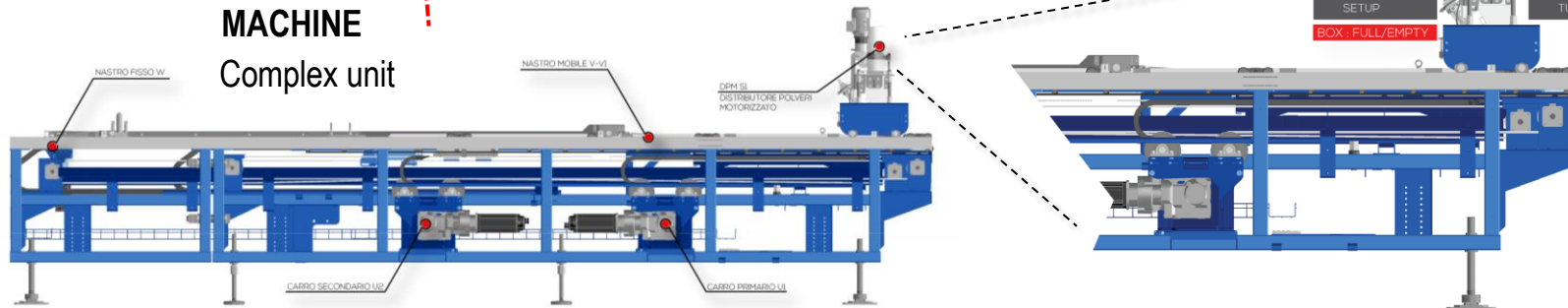
part of machine |
information about

HOPPER : FULL/EMPTY
NUMBER OF CYCLE : 1
SPEED : 75 mm/s
SHUTTER : 1.9 s

INTERIOR DOCUMENTS
SETUP TUTORIALS
BOX : FULL/EMPTY

MACHINE

Complex unit



FUNCTIONS: STAR/ LIST OF FUNCTIONAL MODULES



INFORMATION

Clear and immediate consultation of machine or individual component information



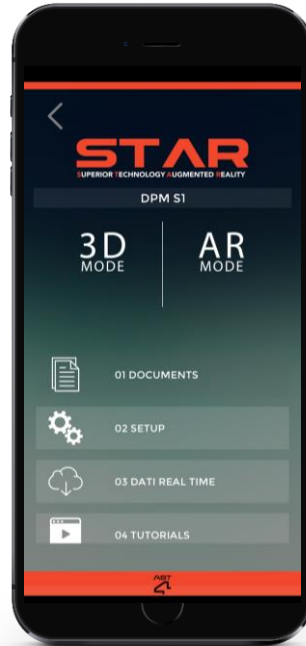
TECHNICAL DOCUMENTATION AND VIDEO TUTORIALS

Machine technical documentation, maintenance and set-up video tutorials.



REAL-TIME FUNCTIONAL DATA

It displays the operating parameters in real time. The information is immediate and filtered.



SCHEDULING TASKS AND MANAGING REPORTS

Create maintenance tasks with guided procedures. Reports of tasks performed

3D DIAGNOSTICS AND ALARM LOCATION

The alarm condition is displayed on the machine or system 3D display



MAINTENANCE GUIDES - CHECK LIST

Maintenance graphic procedures
Check by means of check list.



3D SPARE PARTS SELECTION

Select spare parts directly, navigating through the 3D image of the part. Code bill of materials.





Increased production efficiency thanks to the optimised use of resources and easy access to:

- **machine technical data**
- **video tutorials**
- **process data in real time**
- **guided maintenance**

Greater **effectiveness in achieving production goals thanks to a more efficient and organised maintenance and the** ensuing reduction in process down-time.

Access to the **3D maintenance guides and to the 3D spare parts selection.**

The easy implementation and use of STAR derives from the fact that **it is sufficient to frame the machinery with the camera on a smartphone or select the part to be displayed in 3D** to access in the space of mere seconds all its technical information, maintenance services, spare parts and also view the related functional parameters.

CONCLUSIONS

LB intends to pursue the route of **facilitating use of information**, investing into complex architectures that make the **experience of operators** and users of its technologies **simple and immediate**.



Dynamic user interfaces that adapt to the experience, **augmented reality technologies and mobile solutions** are **the key to make interacting with machines and systems** more effective, with consequent **improvement of effectiveness and availability of the machine and system**.



THANK YOU

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