

# Boosting business productivity with Digital Twins

Digital Twins are an exciting technology that is getting a lot of buzz lately. Did you know that Digital Twins allow you to create a real-time digital model of a physical object, process or system? It is essentially having an exact virtual replica of a physical object.

They are currently helping to improve efficiency and reduce costs in many sectors such as: manufacturing, energy, construction, healthcare and agriculture, to name a few. Therefore, more and more companies are using Digital Twins to improve the quality of the product or service they offer, optimize processes and reduce errors.

## Data and statistics

### 54%

of business leaders believe that Digital Twins have a significant impact on making good decisions.



Forty-four percent say it significantly accelerates the making of these decisions.

The Digital Twins market is expected to reach **\$73.5 billion** by 2027.



With a compound annual growth rate of **60.6%**.

In South America, this technology is still at an early stage of adoption. However, these countries are already successfully implementing Digital Twin technology in various industries:



**Brasil:** Leaders in Latam in the implementation of this DT technology.

**Argentina:** It is starting to use DT technology in industries such as manufacturing and construction.

**Peru:** Already has success stories in various projects such as mining and construction.

**Chile:** Also leading in industries such as manufacturing and construction.

The implementation of Digital Twins reduces maintenance costs by up to

### 30%



**Digital Twins** have been shown to significantly improve the safety of workers and the public by enabling the simulation of risk situations and the identification of potential hazards before they occur.



This is particularly important in sectors such as construction, mining and energy.

## MINING

They are used to simulate processes and monitor equipment performance. They guarantee a **15-20%** increase in efficiency in planning and operation.



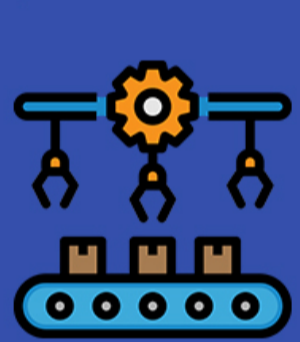
**Concrete case: Las Bambas mine implemented a Digital Twin to simulate and optimize its copper extraction processes.**

### Benefits:

- Improved efficiency and safety of operations.
- Reduced costs and downtime.
- Optimized mine design and construction.

## MANUFACTURING

Digital Twins are increasingly being used for additive manufacturing (3D printing), up to **55%**.



**Concrete case: GE Aviation uses Digital Twins to monitor aircraft engine performance and conduct predictive maintenance.**

### Benefits:

- Improved efficiency and quality of production processes.
- Accelerated innovation.
- Optimized product design and manufacturing.

## ENERGY

Digital Twins are used to model energy generation and distribution, as well as equipment monitoring and maintenance. They have also shown to reduce energy production costs by **10%**.



**Concrete case: Engie Peru implemented a Digital Twin of its thermal power plant in Chilca to optimize production and maintenance.**

### Benefits:

- Improved energy efficiency and emission reduction.
- Greater predictive capability in energy systems.
- Optimized energy production and distribution.

## HEALTH

They are used for the simulation and planning of complex surgeries, disease treatment, and the development of new drugs and treatments. Regarding machinery, it helps prolong their lifespan.



**Concrete case: Medical technology company Philips uses Digital Twins to simulate and optimize the performance of its medical equipment.**

### Benefits:

- Improved diagnosis and treatment of diseases.
- Reduced costs and downtime by identifying issues with medical equipment.
- Improved efficiency and quality of healthcare processes.

## AGRICULTURE

Digital Twins allow farmers to simulate and optimize their production practices, demonstrating increased efficiency by up to **10-20%**.



**Concrete case: Australian company SwarmFarm uses Digital Twins in all its agricultural processes to make better decisions.**

### Benefits:

- Early identification of diseases and pests.
- Optimized irrigation, fertilization, and agricultural production.
- Early identification of diseases and pests.

## CONSTRUCTION

They are used to model and simulate buildings, infrastructure, and other construction projects in a virtual environment.



**Concrete case: The construction project of the Chinchero International Airport in Cusco uses a Digital Twin to simulate and optimize construction.**

### Benefits:

- Helps building operators optimize maintenance and repair of systems and equipment.
- Can reduce workplace accidents by 90%.
- Helps designers and builders identify opportunities to improve a building's energy efficiency.

Despite being an emerging technology in South America, **Digital Twins** are rapidly evolving and becoming more sophisticated. New technologies such as artificial intelligence and machine learning are being incorporated to further improve their accuracy and usefulness in different sectors.



Undoubtedly, it is a great opportunity to invest in this technology that, according to various studies, promises to be one of the main technological trends over the next five years, with a significant impact on various industries.

## Sources

PwC. (2021, 15 de enero). 79% de líderes empresariales afirman que mantenerse al día con la transformación digital es un reto clave para la gestión de riesgos. Desafíos PwC.

MarketsandMarkets. (2021). Digital Twin Market by Technology, Type, End-User, and Geography - Global Forecast to 2026. MarketsandMarkets.

Aveva. (2021). The New Normal: Optimizing Manufacturing Operations to Support Growth and Agility in a Post-Pandemic Age.

Pérez-Pichel, R., Nieto-Taladriz, O., González-Vázquez, E., & Del Río-Vázquez, A. (2021). Digital twins in mining: A review of applications, challenges and future trends. Journal of Cleaner Production, 311, 127732.

Jia, H., & Feng, Y. (2019). Digital twin technology for energy systems: A review. Applied Energy, 233, 264-280.

Parra-López, C., Torres-Sánchez, J., Jiménez-Brenes, F. M., Serrano-Pérez, A., García-Torres, L., & López-Granados, F. (2019). Digital twins in agriculture: A review. Computers and Electronics in Agriculture, 162, 196-214.

Salvo, M., Del Giudice, M., & Zollo, G. (2021). The digital twin in manufacturing: A systematic literature review. Journal of Manufacturing Systems, 61, 393-412.