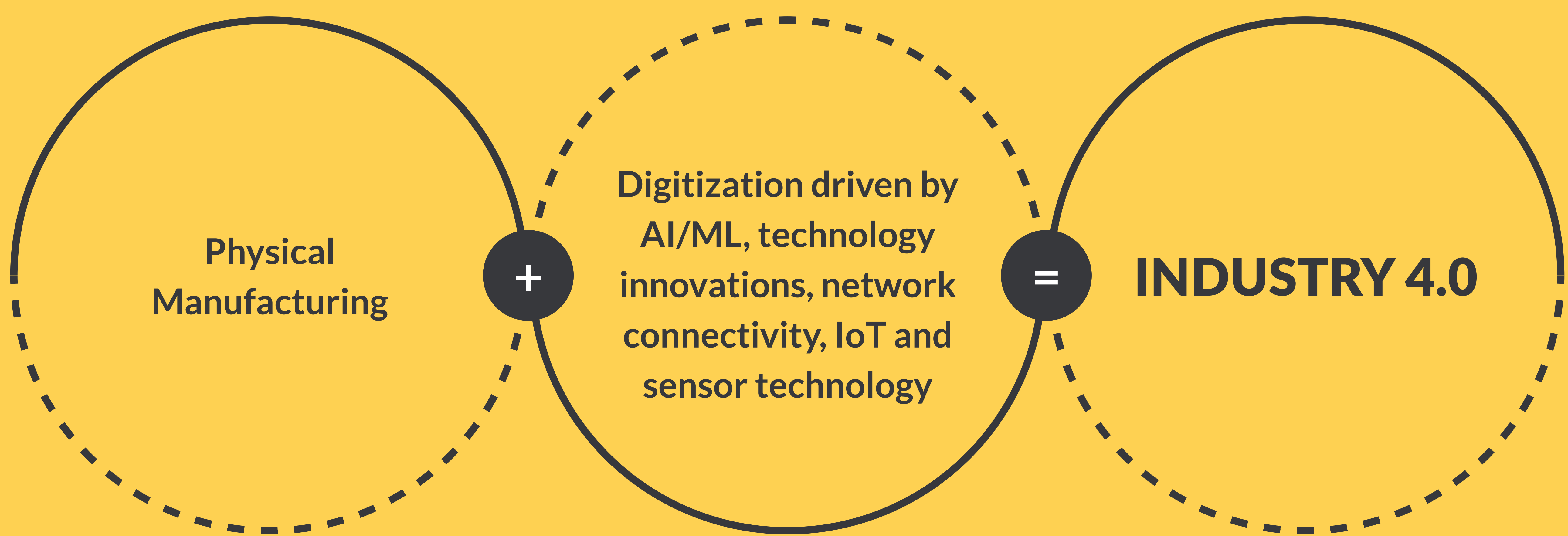
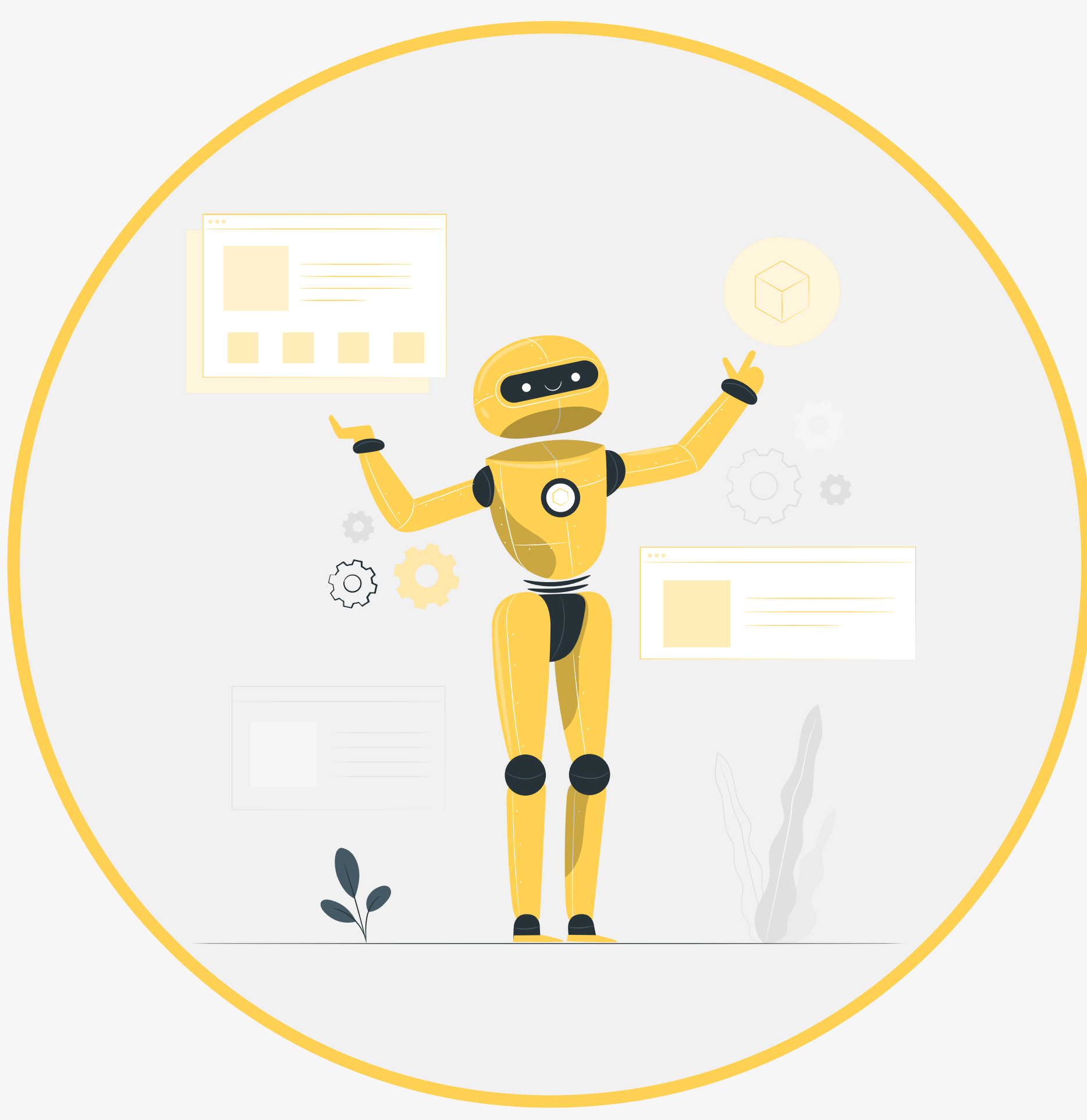


Navigating Quality Control in the Industry 4.0 Landscape



Smart Manufacturing: Quality Control Using AI, IoT, and Edge Computing

- Internet of things (IoT), edge computing, and artificial intelligence (AI) are all distinct but interconnected technologies utilized for manufacturing quality control.
- They improve production quality control by delivering accurate insights, minimizing delays, and streamlining efficient data collection and analysis.



AI

Focuses on data analysis and decision-making

With a projected **CAGR of 47.9% from 2022 to 2027**, the global market for AI in manufacturing will grow from **\$2.3 billion in 2022** to **\$16.3 billion by 2027**.¹

AI examines massive datasets in quality control to find patterns, anomalies, and trends, improving the accuracy of detecting errors and enabling predictive maintenance.

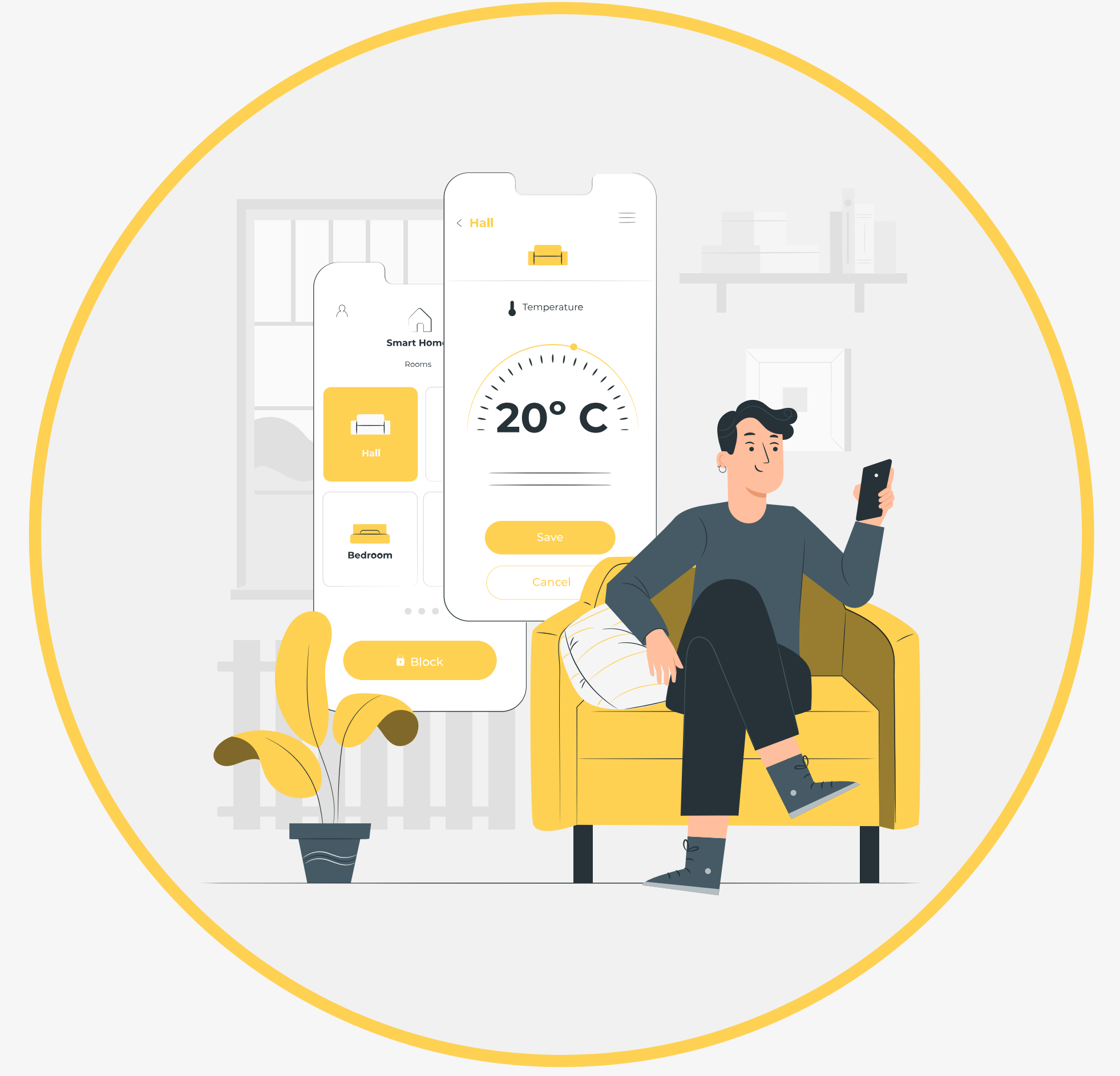
IoT

Connects devices to gather and transmit data

The global IoT in manufacturing market size, estimated at **\$51,941.54 million in 2021**, is projected to reach **\$93,554.94 million by 2027** at a **CAGR of 10.3%**.²

IoT is a network of interconnected devices that collect and exchange data. IoT devices (sensors and actuators) monitor production processes and equipment status while transmitting data for analysis.

IoT sensors gather extensive real-time data on production processes, machine parameters, and product quality, forming a comprehensive data repository.



Edge Computing

Optimizes data processing near the source

77% of global CIOs state that their manufacturing enterprise will most likely implement edge computing by 2025.³

Edge computing reduces latency and enables targeted interventions by processing data closer to the data source.

Edge analytics in manufacturing monitors data locally, swiftly detecting defects and variations. This real-time insight enhances quality control processes efficiently.




Harnessing AI and Analytics for Quality Control in Smart Manufacturing



Predictive Analytics

AI algorithms analyze historical data to predict defects, anomalies, and maintenance needs, enabling proactive measures to prevent quality issues.



Pattern Recognition and Root Cause Analysis:

AI and analytics help recognize complex patterns in data and identify factors contributing to defects, spotting minute quality changes that may otherwise go unnoticed.



Personalized Quality Control:

AI modifies quality control to changing product parameters, allowing for customization and minimizing waste.



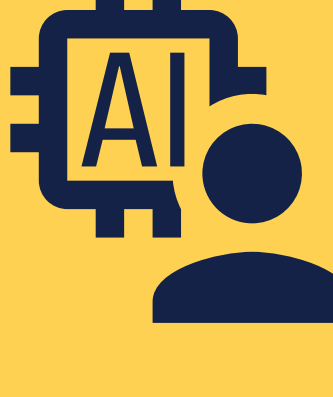
Real-Time Monitoring and Automated Inspection:

Continuous data streams enable real-time monitoring of production lines. AI instantly detects variances, reducing errors and ensuring consistent quality. AI-driven computer vision systems inspect products precisely, ensuring adherence to quality standards.



Process Optimization

Data-driven insights enable optimizing manufacturing processes, enhancing efficiency, and ensuring higher quality standards.



Human-AI Collaboration:

Actionable insights provided by AI and analytics support effective quality control procedures, enhancing human decision-making.

Partner with LatentView Analytics to Elevate Quality Control in the Industry 4.0 Landscape

Leverage the expertise of our data engineers, scientists, and analysts to integrate data analytics and AI into your manufacturing workflow seamlessly. Contact us to achieve improved precision, efficiency, and agility to meet Industry 4.0's dynamic demands.