Top 15 Smart Factory KPIs

Rank	KPI	Group	Importance[1]	Ambition[2]
1	Increase in overall equipment effectiveness (OEE)	Operational	86%	★★★
2	Increase in labor efficiency	Operational	79%	★★★
3	Increase in output	Operational	78%	★★
4	Decrease in costs	Operational	77%	★
5	Increase in quality	Operational	76%	★★★
6	Increase in supply chain resiliency	Supply Chain	73%	★★★
7	Increase in revenue	Marketing & Sales	69%	★★
8	Increase in on-time delivery	Operational	69%	★★
9	Decrease in reported safety incidents	Safety	67%	★★★★
10	Increase in operational resiliency	Operational	64%	★★
11	Increase in customer satisfaction	Marketing & Sales	63%	★★★★
12	Decrease of waste	Sustainability	63%	★★★★
13	Increase in ROE/ROCE	Finance	63%	★
14	Increase in market share / market penetration	Marketing & Sales	59%	★
15	Decrease in inventory levels	Finance	57%	★★

... of 27 measured KPIs in total   ■ Very important   ■ Important

Status quo	Future paradigm	Importance	What it will mean
Many manual processes	Scalable	★★★★★	Expand as demand grows, replicate across sites
Unique and restricted local setup	Automated	★★★★★	Autonomous processes with little human interaction
System/machine service dependent on few individuals	Serviceable	★★★★★	Ease of maintenance, troubleshooting, support
Limited access	Accessible	★★★★★	Providing intuitive / low-code interfaces and tools to use workflows and applications
Rigid and monolithic systems	Modular / Flexible	★★★★☆	Separate, self-contained units
Proprietary and isolated systems	Interoperable	★★★★☆	Seamless communication between tech components

Share of respondents who point to each challenge as Severe or Major

Challenge	%
Cybersecurity vulnerabilities	58%
Data management	49%
Integration complexity	48%
Change Management / Cultural Resistance	45%
Skill gaps	44%
Regulatory compliance	44%
Legacy system modernization	43%
Reliability and uptime	40%
Scaling solutions / devices	39%
Updating devices/assets/systems	38%
Energy Management / Sustainability	37%

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IIoT Solution Development: Build vs Buy-and-Integrate vs. Buy

Data based on 300 IIoT initiatives that finished between 2014-2022

① Custom-build approach

Share of initiatives using this approach: **47%**

Advantages	Disadvantages
+ Provides freedom to customize entire solution + Does not generate lock-in with any vendor + Provides the opportunity to develop a unique solution that may provide a competitive advantage	- Requires major in-house (IT) capabilities or a reliable partner - Typically leads to unpredictable costs - Typically has the longest project timeline (from start to large-scale roll-out)

Bold = key considerations

Share of initiatives exceeding expectations ★★★ **40%**

② Buy-and-integrate approach

Share of initiatives using this approach: **38%**

Advantages	Disadvantages
+ Allows to combine proven technology with freedom to customize majority of the solution + Is faster to set up (compared to custom-build) + Allows for shorter time-to-market (compared to custom-build) + Provides the ability to receive external support/maintenance for part of the solution	Requires management of multiple stakeholders (internal and external) Leads to increased solution complexity (compared to custom-build)

Share of initiatives exceeding expectations ★★★ **40%**

③ Buy approach*

Share of initiatives using this approach: **14%**

Advantages	Disadvantages
+ Allows the usage of tested and proven technology + Provides the ability to receive external support/ maintenance for the entire solution + Leads to predictable outcomes	- Makes it difficult to integrate specific security requirements - Has limited customization options - Does not provide ability to differentiate to gain a competitive advantage - Is difficult to integrate into own IT/OT architecture

Share of initiatives exceeding expectations ★☆☆ **13%**

Note: *In many IoT scenarios, a pure "buy" IoT solutions do not exist in the market
Source: Microsoft Digital Operations Signals Report – July 2023. IoT Analytics Research 2023, based on survey of 300 IIoT decision makers - We welcome republishing of images but ask for source citation with a link to the original post and company website.
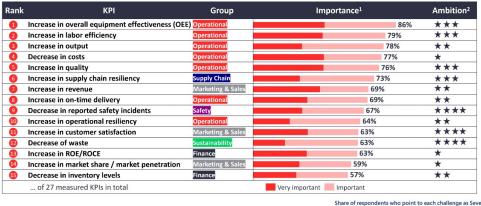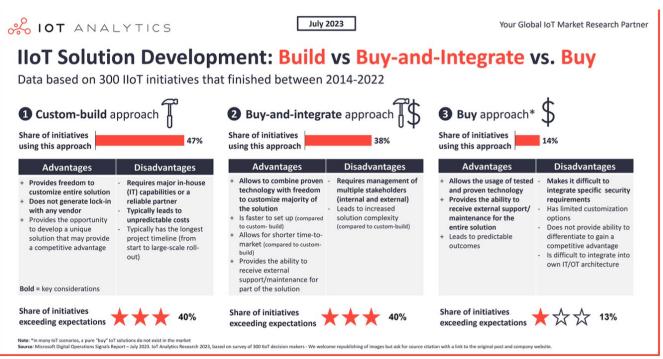
89% of large companies globally have a digital and AI transformation journey underway
31% have captured expected revenue lift
25% have captured expected cost savings

Downtime Specific Cost Estimates:

- Small Businesses: Downtime costs can range from $137 to $427 per minute.

- Large Enterprises: Downtime costs can reach $5,600 per minute or higher.

- Average Cost: The average cost of network downtime is around $5,600 per minute.

- Hourly Cost: Some studies estimate that a single hour of downtime can cost businesses over $1 million.

- Industry Examples:
- IT: $5,600 per minute

- Auto: $50,000 per minute

- Manufacturing: $260,000 per hour

- Enterprise: Over $1 million per hour

- Media: $90,000 per hour

- Healthcare: $636,000 per hour

- Retail: $1.1 million per hour

- Telecommunications: $2 million per hour

- Energy industry: $2.48 million per hour

- Brokerage service: $6.48 million