



Monitoring



Optimize
Productivity



Lower cost of
Maintenance



Faster time
to Value



Improved
Production



Real Time Process
Visualization



Real-Time Data
Insight



Agility For
Rapid Changes

Scaling Financial and Operational Potential Through Digital Manufacturing: The Next Normal

What is Internet of Everything?

The Internet of Everything is the ability to converge people, processes, things, and Data. While data is the center of everything. It is a continuum - at the base you have connectivity or the network, out of which information is retrieved. This information further translates into insights which give the ability to have foresight. Once you have foresight, you can have different types of business use cases which could be automation, digitization or enhancement of productivity which ultimately leads to more efficient processes, faster growth, profitability, etc.

The foundation of all of this is technology, which is driven by the internet, along with numerous technologies coming together for the internet of everything to work. Critical components include **#Cloud**, which is the center of everything, the device is important & sensor technology is absolutely critical. Then comes **#DATA** which brings everything together, of which **network & connectivity** is a big part.

It's not only one piece that works in a silo, instead, all of these have to work together to make IoT work. At the same time, what also needs to happen in parallel, is that the consortium needs to come together. It is not something that one company or an individual can do - but **people** who really have to come together and work right.

💡 Digitization is the manifestation of the internet in the Manufacturing Industry. It is Profitability, revenue growth & workforce enablement by way of continuous intelligence and digitization & automation on the shop floor of your factory.

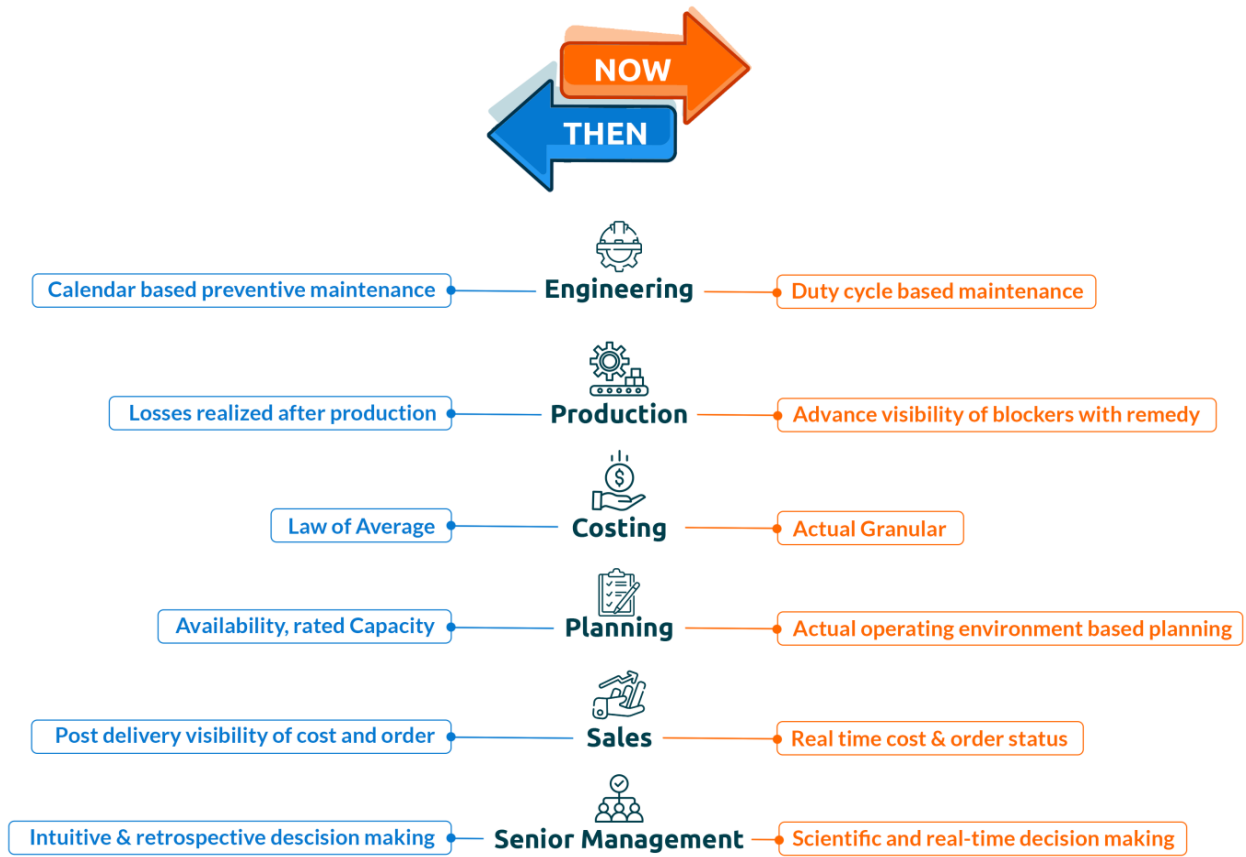
According to a [McKinsey research](#), by the year 2025, the improvements in operations driven by IoT applications could be worth more than **\$470 billion per year**. IoT applications for manufacturing deal with operations such as monitoring and optimizing equipment performance, production quality control, and human-to-machine interaction. For this reason, digital transformation is vital for the manufacturing industry. There are four building blocks of the Digitization journey-

1. **Connectivity**- to connect any device, control system, machine/asset, process, system and people.
2. **Data Management**- deals with the entire infrastructure of data from signals to structured databases, Data analytics, Data storage, data restructuring and architecture so that data is available for further processing, advanced analytics and predictive analytics.
3. **Dashboarding**- is used to inform, interact with and give actions to users. Users can be right from operators, to shift in-charges to department heads and plant heads. Dashboards provide personalized insights so that people can act upon them.
4. **Advanced Analytics**- are how systems help the organization on what is going to happen in the next couple of hours or shift by way of having predictive, prescriptive and proactive detailed analytics without much manual intervention.

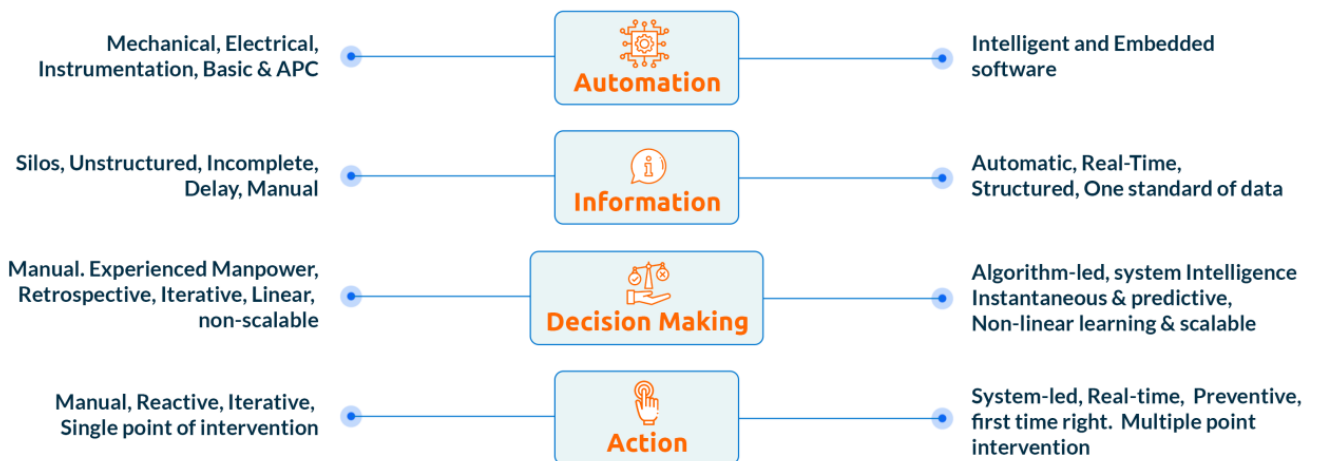
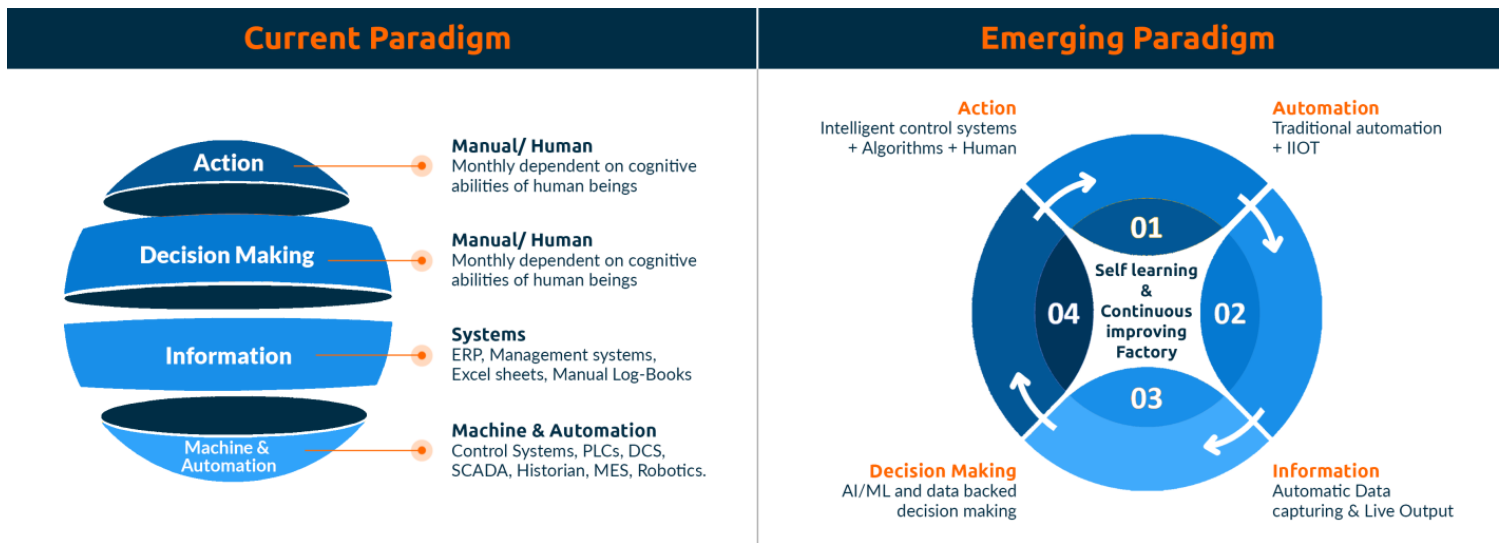
Importance of Digital Factory

As per ITIF research reports, IoT applications for monitoring machine utilization can increase manufacturing productivity by **10 to 25% and produce up to \$1.8 trillion** in global economic value by 2025. So let's look at the existing and the future of manufacturing plants.

Then vs now



How Decision making has evolved for Stakeholders in a smart factory.



Ensuring ROI

General Digitization Implementations

Cost Drivers - There are four factors of Cost for any digitization journey

Connectivity

- Heterogeneous Environment - Multiple PLCs, DCS, Sensors, devices & IT applications need to be connected, If factory needs to connect anything and everything then that's a cost
- Inefficient Measurement devices - Non-availability of sensors or measuring devices on shopfloor - this calls for an extra cost
- Time and Effort - Most of the OT connectivity and management is time-consuming and costly
- Future complaint data architecture - Its not just about connectivity but the architecture must be future complaint to ensure data availability for historical analytics and further advanced AI/ML algorithms.

Data Storage/ Management -

- High Volume high Speed Big Data - Any single plant with a full capacity may produce upto 20-25 Giga Bytes of data per day. Such large volume of data with milli second speed requires advanced data management system and storage ability.

Dashboarding -

- Platform Customization - Customized dashboarding with personalized use cases are time-consuming and are part of cost factors in any kind of digitization
- Rigidity - becomes a long-term cost

Advanced Analytics - It is an emerging tech in the market and requires a different talent and competence

- Qualified data sets
- Competence to develop algorithms
- Sustainable Solution

Value Drivers - Value comes only from Dashboarding and Advanced Analytics.

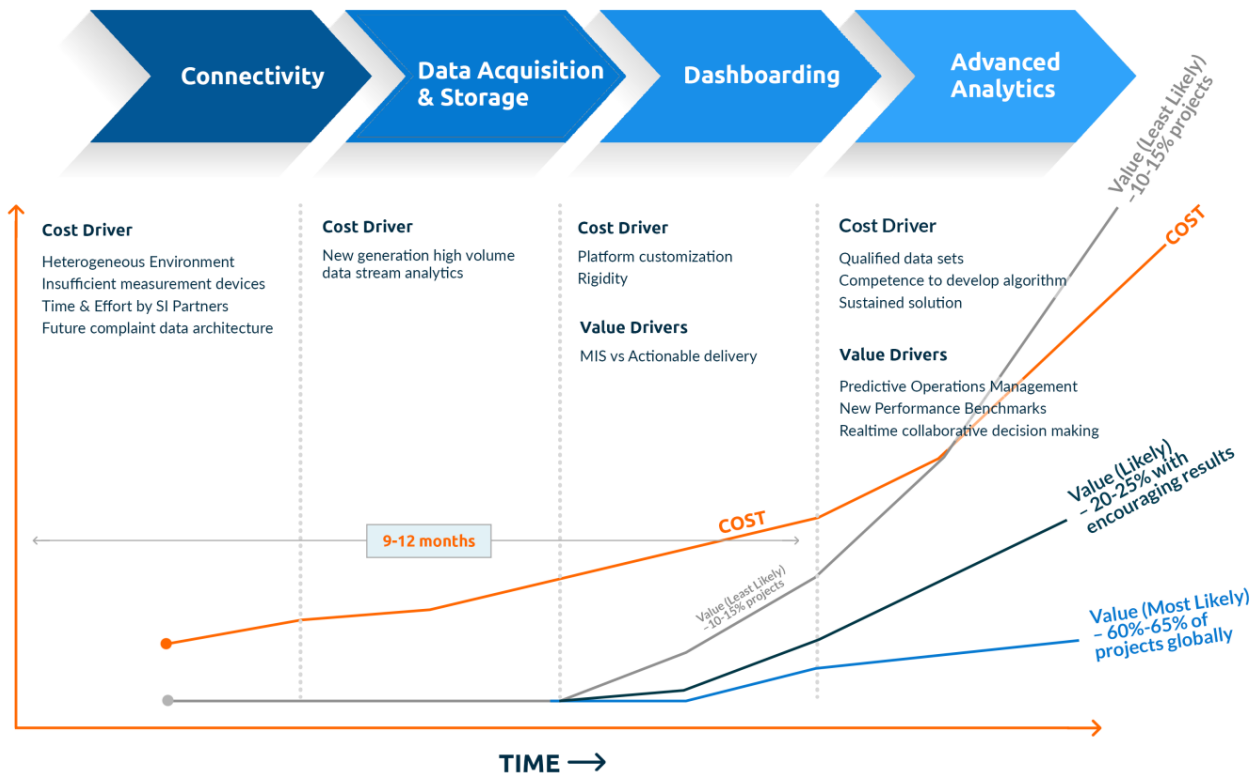
Dashboarding

- MIS vs Actionable Delivery - informative and interactive custom dashboards which help user to take actions on basis of data.

Advanced Analytics

- Predictive operation management
- New Performance benchmarks
- Realtime collaboration and decision making

Cost & Value Drivers – General Scenario



Brabo Digitization Implementations

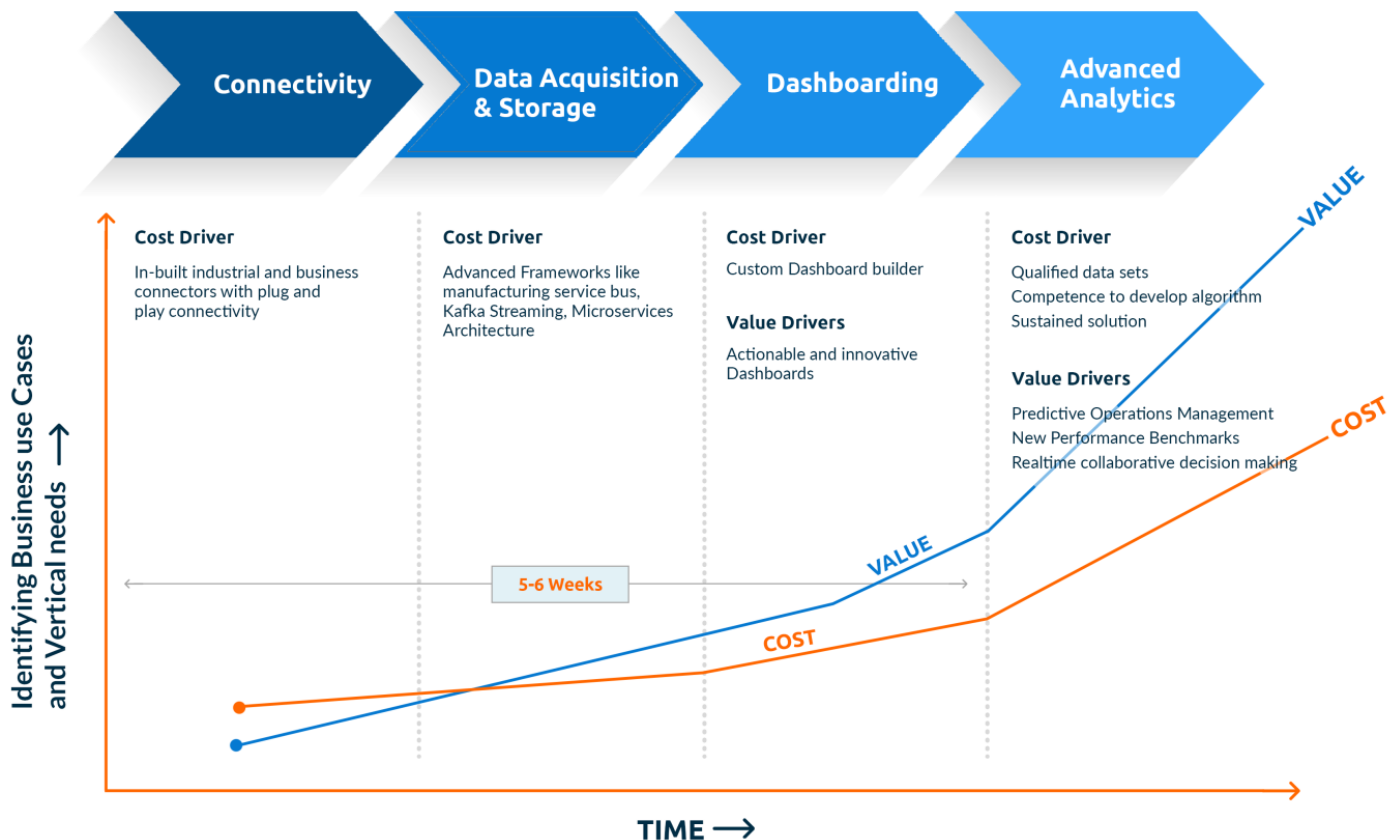
Significant costs and efforts go into managing connectivity & creating data infrastructure in any digitization project. Brabo, an Industry 4.0 platform, ensures it is risk-free and of nominal cost with its built-in functionality of connectivity & data infrastructure. This Edge platform reduces the whole cycle of implementation from 9-12 months to 5-6 weeks. The whole idea is, how we can grasp that cycle so that the business risk of organizations is significantly eliminated or becomes close to 0.

Cost and Value drivers are explained below with Brabo Digital Transformation -

- **Connectivity** - Built using cutting-edge **open-source technologies**, Brabo unravels the complexities of plant's heterogeneous **#OT** & **#IT** landscapes. Inbuilt **#Industrial** & Business connectors of **#Brabo** with plug & play connection reduce the implementation cycle from months to weeks.
- **Data Management** - With advanced frameworks like '**manufacturing service bus**', '**Kafka Streaming**' and '**Microservices Architecture**', high frequency and high volume effective data management can be achieved with Brabo Platform
- **Dashboarding & Alerting**- Dashboards are built with custom **Dashboard Builder** with drag & drop functionalities of widgets and No-Code architecture which helps users to create their own dashboards and reports.

- **Advanced Analytics** - With Big Data Availability & Dashboard app builder, users can quickly build their own Analytical models on Top of [Brabo Platform](#) such as Condition Based Monitoring (CBM), Statistical Process Control, Control Charts etc. The platform can also help in creating advanced AI/ML models such as Yield Optimization, Energy Optimization, Predictive Maintenance etc.

Cost & Value Drivers – With Brabo



How Brabo can Help in realizing ROI

In the world of manufacturing, Time is of the essence. There are only 8 hours in a shift and 24 hours in a day which equals 168 hours in a week. We cannot make more time but can recover the time lost, with the help of, Brabo Edge Platform.

According to Deloitte, "Predictive maintenance solutions based on the Industrial IoT are expected to reduce factory equipment maintenance **costs by 40% and generate an economic value of \$630 billion** annually by 2025. The solution leads the IoT adoption – 55% of businesses are at least piloting predictive maintenance projects. This is how it is carried out from the technological perspective."

Brabo Platform from [Solulever](#) can IDENTIFY, ANALYZE, PRIORITIZE, and IMPROVE bottlenecks and VALIDATE the financial impacts of those improvements. All of these are available in real-time, whether

downtime, changeovers, equipment failures, scrap/ quality losses or performance problems. Brabo identifies and alerts for improving production throughput by combining data from all the sources either OT or IT and delivering it to a powerful, scalable and secure on-premise or cloud-based platform. Brabo collects and contextualizes 100% of production time against the standard matrix of time loss. Brabo can automatically identify bottlenecks, prioritize the most impactful improvement opportunities, drive close-loop proof of financial impacts, and empower employees to take real-time and proactive decisions.

In conclusion, to achieve a strong return on investment in a digitization journey, manufacturers must focus on achieving the business benefit. By focusing on real business needs and current performance challenges, with [Solulever's](#) Brabo as the [#digitizationpartner](#), manufacturers can create a [#smartmanufacturing](#) vision for the future. All this can be gained while reducing operating costs, making data-driven decisions, empowering people with data, changing or simplifying manufacturing [#processes](#) and staying focused to reap the smart manufacturing benefits. In doing so, manufacturing leaders will find digitization can bring real, tangible bottom-line dollar value to their business with significant new business capabilities and a more flexible, agile, responsive competitive edge.

For more information, click [here](#) →

About the author:

[Divya Meghwanshi](#) || Product Manager || [Solulever](#)

Divya has 8+ years of rich exposure in consulting, data and operational analytics domains. A Product Owner with experience in shipping high-value IoT & Industry 4.0 solutions across various industries with exemplary problem-solving and stakeholder management skills. Inquisitive to identify untapped opportunities and provide innovative solutions to create business value and trusted customer engagements.



[Solulever](#)