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Benefit to Industry by using IoT coupled with AI

A. IoT in today's scenario can be fitted to any machine or process to give data on its working. This is BIG DATA, and it used to generate just reports in tabular or graphical manner. These reports form the basis of future action in improvement of machinery or process performance.

However, with the advent of fast, cheap and reliable data crunching computing power, far more information can be extracted from this BIG DATA. This, coupled with certain Artificial Intelligence (AI) tools, have given a new insight to decision making for the Management to make Shop Floor environment more Productive and Energy Efficient.

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How Big Data from IoT and AI help at Work to Boost Performance

- ✓ Data-driven diagnosis
- ✓ Data Visualizing in a 3D graphic
- ✓ Creating Relationship between different Process parameters
- ✓ Diagnosing Problems based on more meaningful information.
- ✓ Better in Managing Equipment because of Relationship linkage.
- ✓ Enhancing Human Capabilities to match machine performance requirement.
- ✓ Taking Action for Optimizing Productivity and Energy boosting Revenue.

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✓ Why IoT-AI synchronizing helps Productivity and Energy Optimisation

- ✓ Reducing Costs and Increasing Revenue from Equipment Maintenance .
- ✓ Predictive monitoring and Improved First Time Fix Rate
- ✓ Project Delays and Higher Costs eliminated.
- ✓ Increases Labour Productivity.
- ✓ Reduction in Unexpected Downtime.
- ✓ Reduce Long Wait Times for Repairs.
- ✓ Identification of Poor Service Quality.
- ✓ Decrease in Material Waste and Rework.

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✓ Managing the Risks of Deploying IoT-AR Solutions

✓ Cost

- ✓ The cost of implementation is NOT LOW. However, IoT accuracy class and number of measurement per unit time of data can significantly reduce the initial investment.

✓ Devices

- ✓ The number of devices and parameters also need initial expert attention, such that all the parameters required for Relationship Linkage are available in the same time frame. For every additional parameter a very marginal increase in cost is required.

✓ Connectivity

- ✓ Since data is on the Internet backbone, connectivity is very important. A break in Internet access makes the whole system stall, and all future reports suspect, unless local data storage is available. This also costs.

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✓ **Managing the Risks of Deploying IoT-AR Solutions**

✓ **Security**

- ✓ Data is priceless, and data security is important and costly. Also, data in wrong hands wrecks havoc. Hence, investing in data security is important and necessary. This also costs.

✓ **Speed**

- ✓ Internet speed varies. The system design be such that lowest Internet speed should be enough for data transportation. This also costs.

✓ **Data**

- ✓ Data of more than 1 GB needs to be transported safely, stored, segregated, analysed, and reported in near Real Time. This requires very strong infrastructure, which should be expandable. This also costs

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✓ Managing the Risks of Deploying IoT-AR Solutions

✓ Talent

- ✓ To read patient data from a MRI / CT SCAN requires expertise, and any Doctor cannot do full justice to its information. Similarly, this Big Data Analysis also requires expertise, and any Engineer cannot do full justice to its information. Also, expert on data analytic needs to have both IT Skill and Shop Floor Machine and Process knowledge for extracting meaning conclusions. This is normally from an external source, and also costs.

✓ Flexibility.

- ✓ To achieve long term gains from this system, built-in flexibility is required during design and installation. It is observed that process are changed for optimization after the system starts delivering the result, and the system needs to adopt to them.

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