

Steps profile. it creates opportunities to explore

[Business](#), [Strategy](#)



Steps toward the smart factory Taking steps towards smart factory is really a bold decision not everyone has courage towards to do. There are various variants of smart factory; one has to choose wisely depending on the company profile. It creates opportunities to explore more things. The journey towards smart factory starts with defining needs, planning, and executable actions. There is an old saying " Think big, start small and scale fast" Before starting to talk about procedure to implementation, let's talk something basic; " investment". Investment should be focused into a single asset. Once an asset is identified it should be explored and find ways to maximize its performance. The reason behind this is mostly identifying the source of value creation and then building infrastructure around it.

Then as series of single asset should be connected to form a network which can be production line ; which then connected to form a global network. A manufacturer should build a strategy for specific problems, since each problem is different and its need to be addressed in different ways through smart factory. Planning is commissioned by the following steps 1. Digital planning 2. Virtual inaugurate3. Incorporation of the digital planning with actual plants1. DIGITAL PLANNING Ideally planning starts with customer needs and with these needs, planning how a factory should look starts with a design phase. The primary objectives are process and hardware which is identified based on the customer requirements.

Planning is like heart of the entire factory. So intense research should be carried out before developing. According to economist gurus, 75% of investments are directed to early stages of planning process. All the decisions made after start of the project accumulates for final outcome, so if

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a wrong decision is made at start then the entire foundation collapses. So wise decisions should be taken before jumping into actions. The first steps for data planning are creation of “ common database”. Since planning is always a time consuming process and step by step procedure, it should be accelerated as quickly as possible.

There are many ways to accelerate it; one of the methods is Parallel process where planning is done in parallel. To realize this stage, factories should create a common database where data is stored centrally which can be accessed across various departments; and can also be modified for their specific needs. For example a factory is build according to blueprints; and there is a 7 tons crane which moves across the factory floor, then comes the Heating, Ventilation and Air Conditioning (HVAC) department which drills and inserts tubes across roof tops for ventilation, this created a problem because crane and tube might collide which created major accident because of this miscommunication various department should come together and plan.

Smart Devices, machines equipments, algorithms, storage, safety, purchase should be planned and readily available. The production line should be created based on past data or with instincts. Common Interfaces should be created since most of the equipment is interchangeable. Software's should be created which created a perfect interface between human and works. 2. VIRTUAL INAUGURATE Once planning is done its time for implementation. Before implementing it's necessary to commission the factory in virtual environment. Manufactures don't want problems after commission so for the

same reasons virtual commission is recommended where rigorous test is done.

Data is collected as much as possible and constantly improved the outcome of a factory. For example Siemens plant simulations run a virtual factory in a computer, using this software we can find throughput times, bottle-necks machines, order times harmonization, etc

3. INCORPORATION OF THE DIGITAL PLANNING WITH ACTUAL PLANTS

Once planning and virtual commission is done, it's time to merging plans with factories. Once incorporated; next step is to run it as long as possible without human intervention. When there is a breakdown which causes factory to standstill, necessary steps should be taken before there is any damage to both humans and machines. For this reason each checkpoints of machines are permanently monitored with smart sensors, surveillance of factory floors which are then feed to central control room.

Based on this information, technicians can initiate necessary task before it's too late. Since there is always a threat from outside on network, valuable information is stored in paper format. Maintenance work is carried out regularly based on the data available from central control room.

Thanks to isometric view of software's, problems which occurred somewhere deep can be identified with pinpoint accuracy. The longer the plant is operational, the greater the data which will be more reliable in finding the deviations from actual to proposed plans. Here are some of the benefits of smart factory

- Data protection is really good, cause of autonomous.
- Placing

orders is really quick. •Downtime is reduced because of predictive methods. •Documentation of parts is easy and less messy.