

Paperless Manufacturing – A Digitally Connected Workforce



Technology, computational power, and connectivity have made slow, but significant inroads in the manufacturing industry, changing its bottom-line processes. The manufacturing companies are coming to an understanding that it's important to abandon paper-based processes for digital solutions if they are willing to grow. The quest for *Paperless Manufacturing* has started to bear fruit, and digital advances are improving manufacturing dynamics, whether it's product scheduling, assembly, or data management. To begin with, *Mobility in Manufacturing* is a big catchphrase already. Floor environments are fast paced where decisions can't wait, so mobile and wearable technology goes a long way to ensure an easy, efficient, and streamlined flow of information. Additionally, manufacturers are developing all-automated floor spaces to drive improved efficiencies and stay above the fray.

However, a couple of manufacturing industries embracing the change don't represent all. Most companies are still heavily reliant on manual and paper-based processes, and there are a few studies to substantiate the claims. A new research from [Fellowes](#) found that UK workers are wasting over a million hours per week in searching the documents, costing a loss of around £20 million to businesses. It further suggested that 1 in every 5 workers complained about excessive paperwork cluttering their workspace. Another study found that companies, which print the documents only to get them duly signed, are lagging behind the competition, costing businesses more than £42 million per day in wasted resource.

Supervisors and managers still depend on paper trail and push physical documents within decision-making apparatus to manage operations and get necessary approvals respectively. This is a labour-intensive and arduous exercise, which also increases the odds of data inconsistency, redundancy and data loss. Additionally, it can also cause operational slowdowns and distract workers from actual tasks. Given the magnitude of improvement still required, it isn't wrong to say that we've only achieved a fraction of what *Paperless Factories* aspire to be. The road to digital transformation is longer than expected and punctuated by several process hurdles.



A Paperless Manufacturing relies on software and automated solutions for its set of processes that form a value chain and eliminates paper. In a candid speak, it relinquishes pen & paper and progresses to clicks and swipes of modern-day gadgets, applications, and other machine-control development programs. Doing so, it accelerates task streams at various levels, boosts efficiency, and improves turnarounds for maximum revenue. However, one shouldn't limit the scope of *Paperless Manufacturing* to abandoning paper and converting data into its digital form. The idea of going 'paperless' is far-reaching and reigns much beyond reading the documents on an interface. Not only does it entail the flow of information digitally within a connected floor facility, but also emphasises the type, machine-level compliance, interactivity, management, and quality & revision control of the data. To recapitulate, it's a whole cycle of data transition that saves time and money and allows the enterprise to focus on important tasks.

Industry 4.0, the fourth industrial revolution, is dawning, which is largely viewed as a herald of digital technology in the industrial space and the end of paper-based processes. According to experts, this industrial revolution will mark a 360-degree change in the way manufacturing companies work. This will be the onset of a full-scale *paperless* culture in the sphere of manufacturing.

Inhibitors to Paperless Culture in Manufacturing Industry

Going paperless and replacing manual processes with digital solutions is a scenario that fascinates and promises substantial gains in terms of costs, efficiency, and the modus operandi of a company. However, it isn't as easy as it sounds. Why? Let's take up some numbers.

As per [Forbes](#), 84% of companies fail at digital transformation - The [Annual Manufacturing Report 2017](#) states that only 25% of UK manufacturers feel, they have sufficient knowledge to identify and evaluate the opportunities of Industry 4.0.

#1 It's evident that manufacturers are keen to embrace the change to digitisation but are clueless about the course of action and the method to spot and capitalise on the opportunities. This is arguably the biggest impediment to establishing a paperless factory. **Most manufacturers know the token stuff and have no real knowledge about the kind of digital solutions that may fit the goals and influence positive outcomes.** They dwell on a rosy picture that boasts about digitisation, but don't know the exact drivers of transformation to target. Remember that a healthy digital transformation requires mature, overarching solutions that offer new technologies while integrating the existing legacy systems point-to-point.

#2 Manufacturing floor environments demand greater accuracies of operations to avert costly factory reworks and scrapped assemblies during production. However, **most companies, on account of basing operations on manual processes, have a huge volume of physical data that creates risks of human errors and inaccurate representation of factory environments.** Processing details from physical documents and integrating them on to a digital system requires manual intervention and is labour heavy. It causes slowdowns in data processes, which is an anathema to an aspiring digital solution.

#3 Another inhibitor is **the inflating costs of integrating digital solutions**, which most manufacturing companies find intimidating. Advancing to a digital culture requires a range of top-performing, agile solutions that can push a company's budget too far than imagined in the first place. Also, there is a series of complex customisations and integrations to the existing facility systems that may turn up costly. Companies, with a limited scalability of budget, sink into this discouragement and call a halt to their digital transformation.



These challenges are dismal, but a right solution can help neutralise them all. A solution that's comparatively reasonable, necessitates minimal training, and is available to all. And, the writing on the wall is - Mobile Technology.

Mobility in Manufacturing - The Dawn of Revolution

With mobility setting its foot inside the manufacturing space, the days of paper-based processes are numbered. The use of mobile technologies has facilitated a culture of uber-connectivity, allowing employees to access performance metrics and other production-related information via easy hand-held devices; thereby, freeing them from the onus of being present around their desk-bound computers. Mobile technologies have also encouraged a fluid workflow system inside floor environments, where the information travels faster, in real-time and ensures effective decision-making. According to an analysis of **LNS Research's MOM survey data**, *over 65% of manufacturers using mobile technology have performance-related information with them within a day or sooner.* It further added -

"With the Internet of Things (IoT), big data analysis, and other next-generation technologies poised to continue delivering faster and better information, this is only the beginning."

Following are the ways mobile technologies are empowering the manufacturing sector in bolstering its operational value and unlock top-notch growth avenues.

Mobility Improves Operations

Mobility in manufacturing has shown potential in boosting operational performance in more ways than one. Firstly, it expedites the flow of information within the floor environments in real-time and cuts red tape, which supports immediacy of decisions, better responsiveness, and proactive operational control at all levels. Secondly, it proves beneficial when connecting the traditional workforce in remote areas with heavy-facility units in the value chain. Thirdly, the automated data management systems have provided a faster, securer, and more accurate way of data entry and sharing; thus, optimizing productivity at all levels and cutting staff overheads. And lastly, it averts potential shop floor risks, arising out of flawed, below-par, and badly controlled documentation.

Mobility Impacts Performance Management

Harnessing the power of mobile technologies, workers within manufacturing floor facilities can access performance and role-based information a tap of a button - anytime, anywhere. If there's a need to update or rectify data, it can be done digitally in-context, so the fears of data being misfiled or lost are mitigated. Plus, the real-time notifications ensure that everyone within a facility is up to speed of current production scenarios, performance variations, and emergencies. The elimination of paper-based processes trims down the long cycle of product management into a half, and keeps crucial stages in loop, saving huge time and hassle and reducing go-to-market time.

Mobility Breeds Innovation

Paperless manufacturing units, powered by automated and connected environments, reinforce the mindsets of workers, channel new thoughts, and breed a culture of active ideation and creativity. The employees, who were earlier stuck doing menial tasks of handling physical documents and stacking them up in a shelf, focus on actual value-added tasks and participates in brainstorming to execute companies' strategic initiatives.



Mobility Improves Business to Customer Interactions

Manufacturers with mobile platforms and right service optimisation applications have been successful in creating satisfying customer experiences. Since they are connected to a wider world online, addressing queries, suggesting solutions, coordinating for product orders, pushing out feedback forms, and tracking product awareness analytics in real-time, they have been able to deliver personalised experience to customers and forge a greater bond.

Conclusion

Manufacturing environments of today are facing a stress-test of breeding an operational culture that's imbued with reliability, resiliency, and efficiency. Paper-based processes are doing a disservice to these aspirations.

Out of many remedial methods available for building a paperless culture, mobile technology is the most viable, cost-friendly, and easy-to-adapt solution. It exploits the need gap to achieve a truly enterprise-wide digitisation, along with standardising inconvenient processes, leveraging more compliant workflows, and reducing production timeframes. It's also instrumental in delivering customer experiences, essential for paving way to newer markets. Manufacturing floor facilities, denying to sync with this dominant speed, will lack competitive advantage.



Providing End-to-End business solutions:

- Mobile apps to replace paper forms
- Custom solutions built exactly to customer requirements
- Field Operations and Factory floor activity management automated and linked to ERP & Financial reporting
- Asset tracking & inspection, GPS Solutions including Data analytics & Augmented Reality

We Drive Value from Data

Manufacturing Process → **Live KPI's**

KPI Dashboard

- Productivity: 71
- Quality: 87
- OEE: 52

Automated Actions by Function

Live Alerts to Device

Live Status Production Issues

| # | Time | Issue | Triggered by | Assigned to | Due | State | Status |
|---|---------------|--|--------------|-------------|---------------|------------|---|
| 5 | 26/9/18 13:00 | Unit per hour miss xx units No other issues | Line monitor | Operations | 26/9/18 15:00 | Waiting | Issue root cause updates here from Ops Mgr device |
| 4 | 26/9/18 12:00 | Unit per hour miss xx units No other issues | Line monitor | Operations | 26/9/18 14:00 | In Process | Issue root cause updates here from Ops Mgr device |
| 3 | 26/9/18 11:00 | Axiality xx% at robot station | Line monitor | Quality | 26/9/18 13:00 | In Process | Issue root cause updates here from Quality Mgr device |
| 2 | 26/9/18 10:00 | Quality xx% at robot station | Line monitor | Quality | 26/9/18 12:00 | Closed | Bad material batch #1234. Replaced |

Value ↑

Closed Loop Corrective Action & Preventive Maintenance

Any paper form can be automated

- Asset Tracking
- Inspection
- Health & Safety
- Time & Attendance

Paper Form → **Mobile App** → **Automated Reports**

Digital Transformation example

Daily Log Sheet for Phranov8 liquid nitrogen storage compound

Compound Secure and Clear?

- Yes
- Lighting OK?
- Yes
- Any Leaks?
- Compound Secure and Clear?
- Yes
- Lighting OK?
- Yes
- Any Leaks?
- Yes
- Signature
- Signature Date
- Accepted

Daily Log Sheet for Phranov8 liquid Nitrogen Storage Compound

Week Commencing: 2018-06-19

| MON | TUE | WED | THURSDAY | FRI | SAT | SUN |
|------|-------|-------|----------|---------|-------|-------|
| 5.00 | 15.00 | 30.00 | 50.00 | 55.00 | 40.00 | 10.00 |
| 1.89 | 5.63 | 11.25 | 18.75 | 20.63 | 22.50 | 10.00 |
| good | good | good | good | not bad | good | good |
| YES | NO | NO | NO | NO | NO | NO |
| NO | YES | YES | YES | YES | YES | YES |
| YES | YES | YES | YES | YES | YES | YES |
| YES | YES | YES | YES | YES | YES | YES |
| NO | NO | NO | NO | YES | NO | NO |

We ensure technology delivers results:

- We can help you build your Business & Industry 4.0 strategy
- We create the Vision, build a step by step plan to achieve results
- We deliver value at each step
- We create the right balance across People, Process & Technology
- We engage your business at all levels
- We are experts in Change Management

Contact us at: www.cofficient.co.uk