

The Impact of Wearables in Manufacturing

The market for personal use of wearables is growing fast, so is the market for industrial use of wearables. Using wearable tech in manufacturing improves productivity, employee safety, and field/ floor efficiency. Gartner predicts that wearables in manufacturing can save up to \$1 billion a year, five years down the lane. Are wearables the next technology in manufacturing?

INDEX

1. Wearables and Manufacturing Industry	03
2. How wearables contribute to empower workforce in manufacturing	04
2.1 The role of Smart Glasses	04
2.2 Optimal Workforce Management	05
3. How wearables improve efficiency in manufacturing	07
3.1 How wearables streamline Line Monitoring and Troubleshooting	08
4. Will wearables replace the need for training?	09
5. Improved workplace safety with wearables	10
6. Wearables- How the future looks like	11
About Suyati	12

1. Wearables and Manufacturing industry

Wearables are technically “always-on, computing devices” worn on the body, offering contextual information in an easy and effortless way.

Wearable devices assume many forms, from basic devices such as smart watches, to immersive technology powered devices such as smart glasses, and innovative gadgets such as smart gloves to smart sensors. Such devices are finding increasing application in manufacturing and allied industries such as mining, oil and gas, automobile, metallurgy, healthcare, and more, disrupting and transforming both the shop floor and the supply chain in a big way.

Related: [How Wearable Technology is revolutionizing healthcare services today](#)

BI Intelligence estimates the global wearables market to grow at **35% CAGR** over the next five years, with an estimated 148 million units shipped annually by 2019.

Wearables transform the manufacturing process, improving process efficiency, expediting workflows, increasing workforce productivity, and enhancing employee engagement.

2. How wearables contribute to empower workforce in manufacturing

Wearables offer the workforce direct interface to the smart systems that drive key processes. For example, smart glasses empower the front line workforce by offering critical information in front of their eyes, leaving their hands free. Workers wearing smart glasses linked with augmented reality, for instance, get enhanced vision of a fuller visual field, complete with annotation, with step by step instructions to do a particular task. The technology allows users to focus on their task rather than on the equipment.

Managers may feed critical alerts related to the process, supporting information about a process from the knowledge repository, alerts on any required intervention, or anything else. Hitherto, employees had to break from their work and access such information. Getting such potent information hands-free improves their productivity manifold.

2.1 The role of Smart Glasses

The possibilities with smart glasses are manifold.

- Construction workers could view blueprints or 3D visualizations of the projects they work on.
- A quality inspector could see metrics on the actual running

process, on real time basis, as he walks through the plant. A voice command or even eye gesture could bring the required specifications, defect patterns, or anything else, in front of his eyes. The inspector's work transforms from reactive to proactive.

- A warehouse worker could see a map of the warehouse with the location of the item needed, sparing him the time and trouble of seeking out the required item. It would even be possible to guide the worker with a description of each item, to aid the search, or simply offer an enhanced learning experience along with the work.

The potential is endless, limited only by imagination. Apart from the obvious gains, there is a spin-off benefit in wearable technologies boosting the self-confidence of employees, and increasing their loyalty, critical in a time when talent is in short supply and is a key source of competitive advantage.

2.2 Optimal Workforce Management

When all employees wear smart watches or some other wearable tags, managers get better visibility of the workforce, knowing exactly where an employee is positioned in order to move them in the case of emergencies or exigencies.

Managers may use wearable to track key metrics such as total volume of goods produced, rework rate, and more, and adjust employee allocation optimally to meet targets, all by a few taps on their smart watch. Assume the case when a machine malfunctions, interrupting the output on a production line. Managers could easily re-deploy the smart watch enabled workforce of the stalled line to another line until the machine is fixed, pre-empting slack. The

manager could simultaneously rush in a technical team to repair the machinery. When all these are done, notifications and alerts go to the concerned employees and stakeholders in real-time, automatically.

At a macro level, data from worker's wearable device allow managers to assign and monitor work, and manage shifts, on a proactive basis, based on the actual, instead of assumed or anticipated requirements. Today's business is highly fluid, and changing by the minute. Real time information about employee movement and nature of the job being done, derived from employee wearables, equip managers to make changes as and when required, and seize the moment.



3. How wearables improve efficiency in manufacturing

One of the key benefits and a big reason why wearable technology is gaining traction at the work-floor is its potential to boost operational efficiency in a big way. While micro-management is never a good thing, smart wearables actualize time and motion studies on a continuous basis, enabling stakeholders to refine the process, to eliminate any wasteful slack.

Managers get real-time actionable information on the work processes and workflows, enabling them to correct latent bottlenecks in double-quick time. For instance, tracking the employees' movements at the shop floor could unearth deficiencies in the work method, prompting a re-evaluation of the way work is done, and reducing waste.

Listen to our Webinar: [The impact of wearables in transforming manufacturing industry](#)

Location-aware smart-bands allow employees to log in and out of shifts automatically, doing away with administrative behemoths such as time spent in office and associated record keeping. Syncing the employee management app (for employee administration) with wearable devices like Samsung Gear or Moto 360 smart watches enable employees to clock in and clock out of any location automatically and seamlessly.

Smart wearables come with capabilities to capture and log data automatically, sparing the need to enter data on new supplies, record defects, and more. Eliminating such paperwork hassles saves considerable time, which could be used for furthering the core production activities or reducing labor costs.

3.1 How wearables streamline Line Monitoring and Troubleshooting

One area where wearables can disrupt the status quo in a big way is line monitoring. At present, employees remain tied to their workstations, monitoring the assembly line. The wearables of the shop floor employees can record line speed, temperature, pressure or failure of any machine or equipment automatically, all delivered to a central console for automatic alerts, doing away with the need for a separate function itself.

Smart wearables aid troubleshooting and accelerate the workflow. If an issue occurs with any equipment, employees may easily snap pictures of the broken machine and share it in live-stream, without using their hands, allowing experts to look into the matter instantly. The shop floor employee may himself be able to fix the problem with assistance from experts through the wearable glass, without having to wait for a technician to arrive and hold up the process until then.

Using wearables such as smart glasses, employees may connect with other experts, even situated in another location or even another continent, for advice to troubleshoot a particularly challenging

maintenance/ repair task. Operations manager can see the workflow and identify potential issues in real-time, even from a remote location. Managers may also use archived videos for running preventive maintenance tasks.

4. Will wearables replace the need for training?

Wearables such as smart glasses threaten to make training as we know it today obsolete. Smart glasses allow trainees to roam around the shop floor, exposed to the work they have to perform, rather than be stuck with classroom sessions or live labs. A case in point is General Motors' Google Glass solution that hosts tutorials for employees to learn on the actual production line. The data fed into the smart glass offers live instructions. With trainees having access to detailed information on what to do at each step in front of their eyes, both employees and employers get the best of both worlds, eliminating the drawbacks of both classroom training and on-the-job training. Validation of the trainee's actions and reviews also become instant.

A combination of digital finger pointing devices and smart glass enable the wearer to point at any bar-coded object and get content on the object in front of their eyes, sparing them the hassles of having to search information on it. The real-time feedback captured through wearable devices speeds up the onboarding process as well.

5. Improved workplace safety with wearables

Wearables contribute to safety in a big way, and the technology may even make the shop-floor accident-proof. By enabling hands-free environment, employees have greater control of the things they do. Wearables alert employees on definite and accurate information into hazards. The information supplied by these devices takes human judgment out of the equation, in favor of accuracy.

Smart bands and other wearables enable supervisors to monitor the employees' biometrics, such as body temperature, exposure to toxic gases, and other parameters, to pre-empt occupational hazards. Such information is now being put to increasingly innovative uses.

For instance, the smart caps (hi-tech caps) worn by the dump truck drivers at Rio Tinto Coal Mines, in Hunter Valley, has the ability to conduct regular EEG tests on the wearer. The data generated from the cap reveals the worker's alertness or their need to sleep, to pre-empt fatigue-related accidents. Honeywell and Intel's prototype of a personal "connected safety solution" contains a series of linked wearable sensors that measures heart rate, breathing, pressure, motion and other vital parameters.



6. Wearables- How the future looks like

The present wearables are just the tip of the iceberg, compared to what is now within the realms of possibility.

Consider the case of BMW's Chairless chair, created by Swiss startup Noni, now in the experimental stage. Employees strap this device trap to their legs, and at the snap of a button, it becomes a chair, sparing them the need to stand up for long hours, or even waste time finding a chair during the course of their work.

While the potential and possibilities are endless, success depends not just on gadgets alone, but on effective integration of wearable technologies with existing business solutions. Manufacturers need to develop cutting-edge, robust, and secure applications, peppered with excellent UX, to benefit from wearable technology.

There are numerous other devices present in the market to deliver the right information. The success of wearables depends on delivering the right insight, and helping translate such insights into action.

Transparency Market Research estimates the wearable technology market poised to expand in a big way in the coming years, with the global wearable technology market expected to reach **\$5.8 billion in 2018**, a quantum leap from the \$750.0 million level in 2012. As technology improves, wearables are adding new capabilities in biometrics, voice technology, communications, and becoming even more potent. Wearables are clearly out to disrupt manufacturing big-time.

About Suyati

Suyati is a fast-growing, digital transformation solutions company that helps you rebuild your customer experience for the digital consumer. We collaborate with businesses to strategize and implement impactful digital initiatives that position our clients ahead of the competition. We are digital-first and we focus on delivering digital transformation solutions that support your various engagement strategies. With our niche and rich expertise in a wide range of technologies and services- CMS, CRM, e-commerce, Cloud, IoT, Data Analytics, and Product Engineering- we help companies leverage their best on web/cloud/mobile platforms.

We enable you to create insights driven customer engagement across all touch points to build a unified marketing approach. Our custom technology solutions have been deployed successfully in companies across the globe, especially in the US, UK, Europe and Australia.

Learn more: www.suyati.com | Contact us: services@suyati.com

Reference

- <https://www.youtube.com/watch?v=cyX1Z-mhsWE&feature=youtu.be>
- <http://nistmep.blogs.govdelivery.com/wearable-technology-manufacturing-workplace/>
- <http://www.impomag.com/blog/2014/02/there-place-wearable-tech-manufacturing>
- <http://exclusive.multibriefs.com/content/wearable-technologys-impact-on-the-manufacturing-industry/science-technology>
- <https://www.pwc.com/mx/es/industrias/archivo/2014-11-pwc-the-wearable-future.pdf>
- <https://www.linkedin.com/pulse/impact-wearables-manufacturing-utility-sector-hannah-walsh>
- http://www.riotinto.com/media/media-releases-237_8713.aspx