



Smart Communication – Intelligent Networking for Your Shop Floor

Shop floor communication takes place in a highly dispersed and ineffective manner in most manufacturing companies. Information is only forwarded across departments in a limited manner and raw information is usually communicated in a way that is not prioritized nor individualized. Smart communication is the strategy for a communications structure that tackles these problems. The goal is to communicate generated information and work steps for each workstation individually in real time. Smart communication supplements existing information systems by equipping them with a superordinate logic. Contrary to centralized approaches such as BI solutions, process-relevant information is selected in terms of time and place from the sub-areas of the shop floor and delivered automatically to each respective screen at the required location individually by means of the superimposed logic.

How you can achieve not only Industry 4.0, but also Communication 4.0 using agile and smart automation

When you get a bird's-eye view of your manufacturing company's shop floor, you will see a complex communication network of workstations, departments, and project groups. Every process, every machine, every incoming order, every sensor and now also every employee is constantly producing data and knowledge. However, this communication takes place in a highly dispersed and less effective manner because it consists of systems, projects and platforms all operating in parallel: be it department- or project-specific collaboration solutions, bulletin boards, the dashboards of individual machines or the classic intranet.

Support every employee with intelligent communication

For your shop floor communication, this means that the information required at locations frequently gets there too slowly, incomplete, or sometimes not at all, especially at locations where this information is needed the most.

This basic problem can be avoided if you first make a strategic commitment to the subject of communication: which on-site workstation requires which type of information and from which source in order to operate as effectively as possible?

Using a strategic approach, which we will define here as “smart communication”, you can devote yourself successfully to this challenge. The following two examples, which deal with the typical weaknesses of shop floor communication, will illustrate what this can mean in concrete terms.



Networking instead of isolation

In technical terms, a cross-departmental exchange of information can frequently only take place in a limited manner. This is because the flow of information is different depending on the department and the associated “information sphere” and not harmonized with each other. This becomes especially problematic when processes need to function in a cross-departmental manner:

Taken in isolation, a breakdown of a machine on production line A is raw information that affects production, planning process, and possibly also the utilization of personnel. However, this event is also relevant for logistics. To be sure, what’s relevant here is not the fact that a machine is at a standstill and therefore there are new tasks to be completed in production. Rather there are follow-up questions here that are targeted to logistics-specific tasks: Can we deliver the goods that are supposed to be produced by this machine on time? And if not, then when will this be possible? Which current idle times and new capacity planning requirements are the result of this and if we need to catch up on the delivery, which bottlenecks need to be taken into account because of this? When the raw information “machine breakdown” is simply forwarded to intralogistics, then this ultimately means communicative isolation.

A smart communication approach would look like the following in this situation: Relevant follow-up questions like those listed above as examples are automated and defined in real time from the machine breakdown in information loop A (production) for information loop B (logistics). Based on this, the relevant information is then communicated to logistics and the reaction to this situation is also defined. Therefore, specific key figures and concrete work orders for logistics result from a machine's error messages.

The more complex the cooperation of the different departments is, the more important it is that relevant instructions are communicated to each individual department that provide them with a clear overview and allow them to work in an effective manner.

This may sound self-evident, but the flow of information within most companies is currently not being applied as it should: the intelligent communication of cross-departmental processes and therefore the higher success rates of various areas of a shop floor are intrinsically linked to one another.

Data quality over quantity

The large amount of information that is produced by the various shop floor elements brings with it a second significant challenge: to prioritize, reduce, and individualize communication exactly for each instance. This means ensuring that each relevant workstation or relevant individual person has access to the most important information for the next process step.

Error messages are constantly occurring in a large production hall at various production lines and are displayed at each respective machine. The problem is that the majority of the error and warning messages is relatively irrelevant for most workers. And, with a number of different lines, having each message constantly in view with all the implications is not just confusing, but superfluous as well.

Here, smart communication would mean that the information from all production lines would be collected automatically, subjected to a filter logic, and the messages would then be bundled and the relevant messages would be displayed at the location that signifies a prioritized task for a specific worker. Neither he nor his other colleagues would then have to read irrelevant information or perform irrelevant tasks. At the same time, it is also less likely that problems will be overlooked, or key figures interpreted incorrectly. This kind of logic is characterized by the fact that it individually separates what is relevant and irrelevant for individual workstations and simultaneously prioritizes this information.

Better communication – better results

Once you have overcome both of these central communication weaknesses, then the various departments, every workstation, and, lastly, every employee will have a constant communications link with one another. And the communication will be appropriate and useful for the respective location.



This added value for your digital shop floor management not only provides better communication, but also improves your processes as a whole. In particular, in terms of the following points:

1. Continual process optimization

Employees will develop a better understanding of overall processes, they will be better able to allocate their tasks within these processes, and they will also work more independently. Shift supervisors and managers can fulfill their leadership roles significantly more effectively and optimize processes in real time. And individually collected information, e.g. from production data acquisition (PDA), also helps data analysts and planners develop a comprehensive database, improved evaluations and a common process logic for the various production elements. A continuous improvement process (CIP) will therefore take place at the various hierarchy levels in entirely different ways.

As a result, this means a reduction in the amount of errors and time required in tangible terms, as well as improved reaction times, optimized utilization, and more refined planning options.

2. Employee commitment

In most companies, communication primarily takes place in one direction only: top down. Feedback cycles and bottom-up communication cannot take place at all or only slowly, and then via major detours.

Smart communication helps to enable exactly this type of exchange via transparent communication and direct feedback cycles. This helps to ensure indirect improvement of organizational development due to the improved integration and commitment of employees.

3. Controlling

Controlling work profits from an expedited and better coordinated interaction between company management and the operational areas. Conclusions and decisions from the systematic analysis of one's own company can be distributed "top down" from management systems equipped with transformation logics directly to the lowest levels and, above all, communicated individually. Thus, it becomes easier to implement the goals of improved business processes as well as improved customer and supplier relationships via the above-mentioned areas of process optimization and employee commitment.

4. Business success

A logical consequence of these improvements is improved output and success that can be specifically measured. Improved communication (meaning communication that is faster, targeted and containing informative content) always pays off when it comes to business success.

However, this doesn't just affect a company's balance sheets. Improvements in other areas, e.g. innovation and customer loyalty and customer satisfaction, can also be expected due to the aspects related to higher employee commitment and bidirectional communication.

Centralized solutions ruled out

Both smart networking of various shop floor areas and individual preparation of information can only succeed when communication takes place in real time and, especially, when it is continuously adapted. Therefore, the communication infrastructure must be agile and easy to customize. For example, this means that the information from randomly evolved IT structures such as cloud applications and Excel tables, all the way to PLC, PDA, MES or ERP systems can be selected, processed, and then prepared individually at any location.

It would be irresponsible to claim that you could meet all of these requirements for intelligent communication within a company with one central solution alone. Neither an ERP or PDA system nor an MES or BI solution as an analysis system of historic data, which actually comes from controlling, can ensure this flexibility and real time processes. What's lacking is either speed, processing options, display and technical adjustment options, or a sufficient link to the various components around the shop floor, such as the PLC.

Therefore, a central approach is incompatible with smart communication. Instead, you can do a lot more with a superordinate, decentralized, and supplementary logic at the required locations to ensure the best solution that establishes connections between all existing information loops and offers the best added value for employees.