Help! Our productivity growth is going down! Another four tips to boost your productivity (part 11)

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Belgium is the fourth most productive country in the world, but our productivity growth has been sputtering. In this series we present four tips each time to boost productivity in the office and on the shop floor.

In the first part of this series we discussed the productivity of Belgian companies. Productivity growth in our country has been substandard in recent years. For many companies, the biggest problem is finding suitable workers due to the tight labour market. You can hardly call the labour shortage a problem; in fact, it is the solution to the unemployment problem. The real problem is the lack of productivity growth, which means that we have to employ more and more people in order to continue the growth.

In order to support Belgian companies with their productivity improvements, we collected a number of tips that we will publish at regular intervals. These tips deliberately focus on improvements that require little effort and pay off quickly.

Tip 47: Optimise the design of milling parts

The design of a product has a significant impact on its production cost. Some claim that design choices determine up to 80 per cent of the production cost. This high percentage is disputed in the literature; the actual proportion may be lower, but it is still significant. One detailed study concluded, for example, that 47 per cent of the cost of a coffee machine is determined by its design.

Applying a few basic rules may often considerably speed up the production time. Milling is a good example. Milling is an important production method where simple basic rules have a major impact. A few examples:

- Ensure large radii inside the workpiece (at least 1/3 of the depth). This makes it possible to use cutters with a large diameter, which greatly increases the speed.
- Avoid thin sides. Thin sides cause problems with vibrations, requiring slower milling.
- Limit the number of dimensions to be finished with a small tolerance.

The video below gives a good overview of the most important design rules for reducing milling time and shows by means of an example how milling costs could be reduced by 40 percent if these rules are applied.

Accept marketing-cookies to watch this video. For FireFox users, disable the ‘Enhanced tracking protection’ of your browser to view this video.

For design tips on welding, see Tip 45.

Tip 48: Improve the collaboration between the departments



People are social beings who like to identify with their own group. However, this group experience also has a downside. Identification with one's own group increases prejudice against the other groups, decreases collaboration and increases conflict between the groups.

The same mechanisms apply to departments in companies. The hierarchical structure of organisations often reinforces this system. For example, managers are responsible for solving the problems within their own department, but often no one is responsible for solving the problems between the departments. As a result, people will often complain about the other departments, without actually trying to solve the problem.

Inadequate collaboration between departments is a major source of irritation and loss of productivity. For example, at a large company we recently saw that the work planners of the prototyping department received drawings in PDF format from the engineering department. This while the PDF format was not suitable for the work planners, so they first had to copy the PDF drawings back into the CAD-system. This work could easily have been avoided by providing the drawings in the correct format, but apparently nobody had ever insisted on this.

By making good agreements, the collaboration can be greatly improved. The problem is that this cross-departmental cooperation typically does not occur spontaneously. Therefore, the trick is to set up this cooperation in a structural way, for example, by formulating objectives for the cross-departmental activities, appointing those responsible for improving the ‘interfaces’ between the departments and, above all, by getting the departments to talk to each other.

We recently saw a company where the CEO had organised a dinner for the management team, with the departmental managers sitting at separate tables in pairs. During the meal, the department managers had to discuss how they could cooperate better. This initiative turned out to be an excellent way to get rid of mutual prejudices and to be finally able to discuss together the problems encountered. The departmental managers were very enthusiastic after this dinner and had gained a lot from their tête-à-tête.

Tip 49: Consider low-cost automation with karakuri

'Karakuri' is Japanese and is translated as 'mechanism', 'machine', 'trick', 'ingenuity' or 'device'. In the 17th century, karakuri dolls that could perform amazing actions were developed in Japan. Some dolls could offer a cup of tea. By placing a full cup of tea on the doll's saucer, a coiled spring was triggered and moved the doll forward. After drinking the tea, the empty cup was placed back on the saucer. The weight of the empty cup caused the doll to turn around and return to its original position. You can watch a video here.

The Japanese karakuri dolls were driven by ingenious mechanisms activated by levers, gravity or springs. Unlike modern dolls (robots), the karakuri dolls did not need an external energy source or electronic controls. Japanese manufacturing companies were the first to apply the karakuri methods in production as a form of low-cost automation, mainly for logistics operations. Just think e.g. of the loading/unloading of machines and workstations, manipulation of product carriers (e.g. trays, ...), transport to a production cell, etc. By the introduction karakuri-mechanisms a number of non-value adding operator tasks can often be eliminated.

The use of karakuri systems in production offers numerous advantages. Most karakuri systems use pipes and a set of connecting elements (so-called 'pipe-&-joint' systems), with which all kinds of structures can be easily built. The simplicity of materials and assembly keep the cost low compared to automated solutions (with sensors, processors, etc.). See also Tip 43: Use your head first, not your wallet.

Moreover, no specific expertise is required to build karakuri systems. This allows the operators to be fully involved in the development, refinement and maintenance of these systems. Therefore, Karakuri is not only a way of improving production, but also a way of training people to improve their workplace (see also Tip 2 on training).

Some clever examples of Toyota's karakuri systems are shown in the video below.

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More information about karakuri is available here.

Tip 50: Make videos of your improvements

Improving is an essential business activity, in which everyone must be involved. Creating a true culture of continuous improvement is not always easy.

Short video clips of improvements showing the before and after can be very inspiring for the employees. Making video clips is also an excellent way of showing appreciation for the work of creative people. You could show the video clips during the day's kick-off meetings or team meetings. Another option is to set up a WhatsApp group where everyone can share their improvement videos. Some companies go one step further and simply post their improvement videos on YouTube. The American company FastCap, for example, has meanwhile posted hundreds of improvement videos on its YouTube channel.

You may wonder whether making videos is not an expensive and time-consuming activity? Until recently, this was indeed the case. Nowadays, it is easy to make a professional-looking film using a smartphone and all kinds of free apps. See how Fastcap does it here.

Finally

Do you have any tips to share? Let us know so that we can share them and become more productive together! The best tipster gets a nice gift!

Shortening lead times makes it possible to grow as a company and to reduce lots of indirect costs. The quick response manufacturing (QRM) production strategy makes this possible for companies in a high-mix, low-volume environment. From ***March (Ghent)*** *we organise a next* ***QRM training cycle*** *(in Dutch). More information is available in our agenda!*

Click ***here*** *for an overview of the other parts in the series.*

(Source pictures: https://www.pexels.com)

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