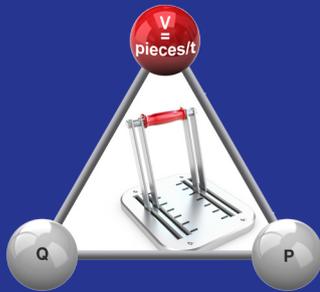




CONSULTING GROUP

In brief

- Successful companies work fast and avoid errors
- Velocity and quality are the drivers of higher productivity
- An overall optimum can only be reached by comprehensive changes

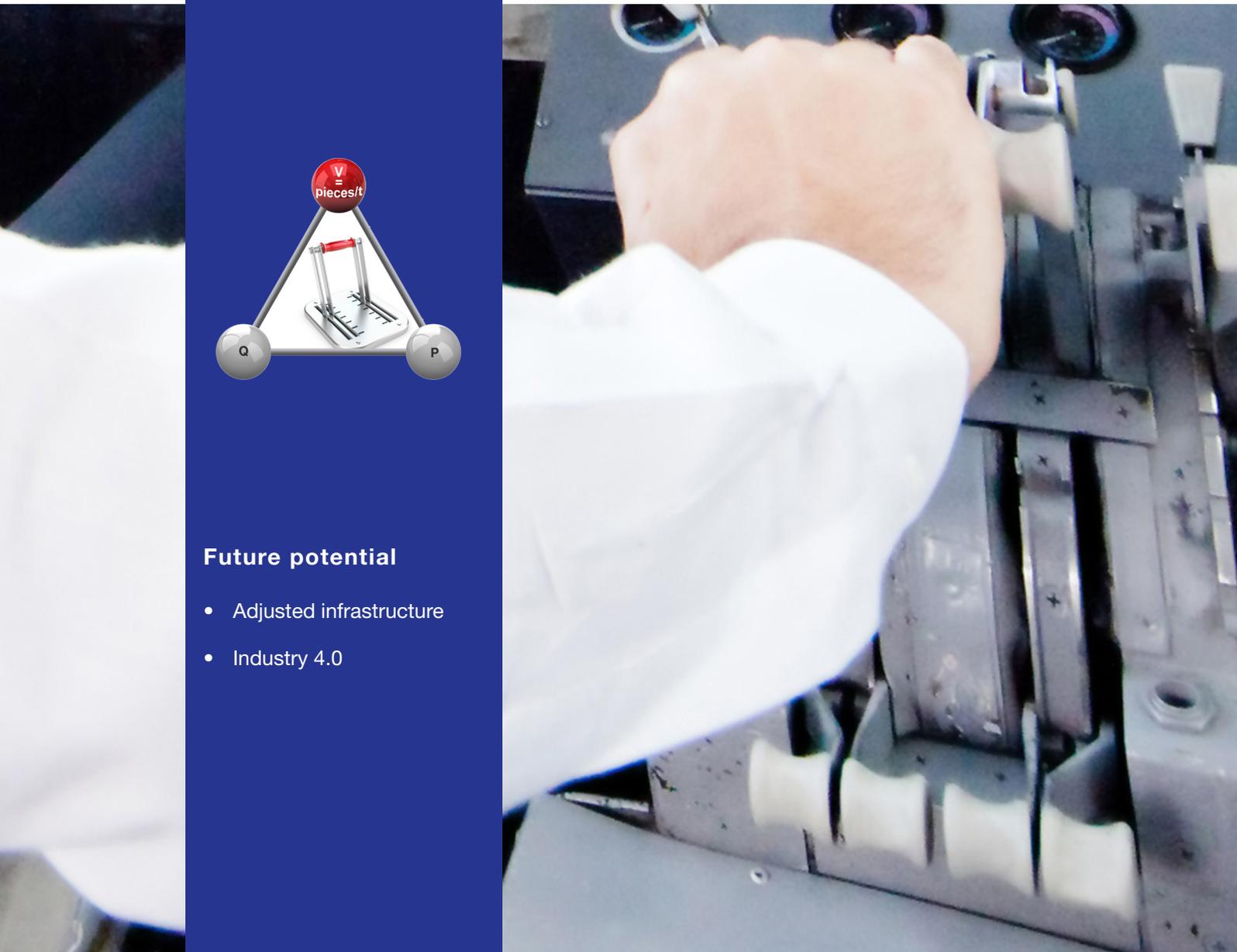


Future potential

- Adjusted infrastructure
- Industry 4.0

ACCELERATE YOUR COMPANY!

SUCCESSFUL PRODUCTION SYSTEMS –
LESSONS LEARNED, FACTS & FIGURES
BASED ON RECENT PROJECTS



Accelerate your company

25 years of experience in improving productivity

In the past 25 years ConMoto has devised and implemented projects to achieve efficiency gains in factories and production plants in a wide variety of industries and businesses. This study highlights the insights and results of more than 100 projects of the past five years.

In my view the most important lesson is this:

There is no lack of awareness, but there are serious problems in implementing solutions!

Even though companies know the starting point for improvements, they are incapable to implement necessary changes. Thus they will fall behind their competition. On the one hand international competitors have improved and are raising external pressure, on the other hand complexity has increased dramatically because of the high number of product variants.

Additionally there are many external factors forcing companies to restructure their production systems rigorously:

- Demographic change leads to an increase in the average age of employees. That has practical implications, e.g. workstations have to be designed to meet the ergonomic prerequisites of older employees. At the same time the number of employees decreases, despite the increase of the retirement age.
- Globalization is an exceptional challenge for suppliers. They supply a customer on e.g. three continents with five sites and have to follow the customers into new markets. This requires multiple investments into the same or similar infrastructure.
- A further trend results from the interconnectedness of the flow of goods and data: „Industry 4.0“ is the keyword that fosters discussions about technical solutions which are on the horizon or already implemented.
- In light of the vast regional differences in labour costs – not only globally, but also within Germany or Europe – the question about the proper depth of production and the best location needs to be addressed at ever shorter intervals.

In companies we are working for lean methods like Kaizen and others have been on the agenda for years. In most cases our clients have appointed a Lean Manager and whole departments deal with lean production issues. Many companies have even established their own production system based on generally accepted principles of effectiveness.

Despite all these efforts the efficiency gains achieved by ConMoto projects are substantial. The data of more than 100 projects speaks for itself:

Lead time:	-42 % to -65 %
Inventories:	-33 % to -46 %
Floor space required:	- 7 % to -53 %
Setup time:	-10 % to -59 %

The productivity was improved by twelve to 33 percent. Depending on size and complexity of the production plant the change process can take between six and 18 months.

Some figures of a project in a plant of an automotive supplier further illustrate the improvements which are the result of a concerted, structured efficiency programme:

Direct employees:	ca. 900 FTE
Productivity indirect:	+ 13,9 %
Staff productivity:	+ 15,0 %
Inventories:	./ 31,0 %
Lead Time:	./ 30,0 %
Total savings:	13,8 Mio.€
External project costs:	1,0 Mio.€
Duration of project:	8 Month

After eight months 80 percent of these measures were cost-effectively implemented. This particular plant had won a renowned competition in the category international automotive supplier – even before the project! All managers were highly motivated and qualified, and were continuously trained. What is more there was a methodologically excellent productivity controlling.

The evidence is simply astonishing: Even companies with a big amount of know-how in lean practices are underachievers when it comes to productivity. Considerable gains are not realised.

Based on many years of practical experience in numerous optimization projects my answer is: productivity increases on the scale expressed in our project data are not the result of a continuous improvement process!

CIP and Kaizen are excellent tools, but they do not test the entire production system radically and fundamentally. Also implementation successes are not measured comprehensively. The plant manager described the difference between isolated improvements and a encompassing optimization project with an integrated approach:

“Everyone was proud when they were able to report improvements in the manufacturing process. There were X seconds saved there or Y percent of production time. Now we have learned that the implementation is only complete once the working time as man power can be effectively taken out of the production process.”

You might say this is trivial, but it is also the reality on the shop floor!

Here are the advantages of a project with an integrated approach:

- After a rigorous assessment of potential gains, improvement goals for the entire system are defined
- The implementation period as well as those responsible are defined
- A steering committee is informed periodically (e.g. every 4 weeks), makes decisions, releases the budget, and checks the results

This structured approach raises awareness among managers and production workers, provides a clear focus and accelerates the change process.

Such a project can be – but doesn't have to be – supported by an external consultant. What a successful consultant can bring to a project is technical, methodological and social expertise. Those are the basics. Once you add trust and communication skills across all hierarchical levels and all type of staff, from the worker to the worker's council, the success can almost be ensured!

Long-time experience has taught me that in-depth change projects establish a chain of causation:

1. A production system or a value-added system is or will be competitive once it has a high velocity (V). Thus the velocity needs to be measured, e.g. as produced parts per unit time. Working hours per product can also be used as a yard stick. This value must be measured like the O.E.E. (Overall Equipment Effectiveness) and is the only objective baseline.

Here is a sample calculation:

At a production line 100 employees are working fulltime (7 h). This adds up to 100 FTE x 7 h x 205 work days (30 days vacation, 15 days sick leave) = 143,500 annual hours. If 10,000 products are produced you work (and pay for) 14.35 h per product.

These hours are paid by you, regardless what your plant manager or the production planning tell you! In the work schedule there are maybe only 12 hours assigned per product. That is of no consequence as long as you pay for the 14.35 h.

2. The second important factor is quality (Q) in a comprehensive sense. Problems engrained in the production process keep you from being faster:

- The organization is too complex and centralized
- There is no continuous chain of responsibility
- Layout and ergonomics are not optimal
- Capacities are not harmonized
- Processes and procedures are not standardized
- The workers are not trained properly
- The quality of material is inadequate etc.

This list of problems slowing down the velocity and leading to losses can be continued almost indefinitely.

3. Once the production system is working with high velocity and is not disrupted by mistakes and problems, one automatically achieves high productivity or low manufacturing costs (P) respectively!

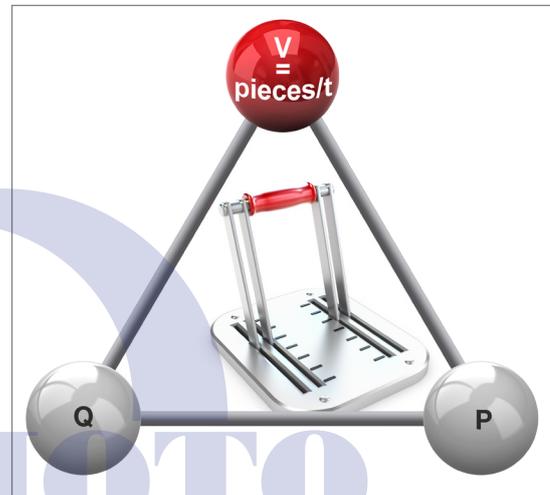


Figure 1: The magic triangle: $P = V + Q$

I have overseen several comprehensive reorganization projects as an external consultant over the last couple of years. My years of experience in industry before becoming a consultant have helped me tremendously. Experience means having learned from mistakes. This is another reason to get external help because not all mistakes need to be repeated!

The accelerator is in your hand, use it to accelerate your company. CON MOTO means “with movement” or in music it means play “with more speed.” This is our goal:

We want to help you to become better faster!

Yours,

Dr.-Ing. Ralf Feierabend

The pages 4 to 11 are not included in this preview.

Should you be interested in the whole study "Accelerate your company! Successful production systems – lessons learned, facts & figures based on recent projects", please contact:

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Established in 1990, we are the management consultancy with clout when it comes to implementation.

In musical terms, "con moto" means "moved" or "with movement". We named ourselves ConMoto, because we are convinced that consulting is only successful, if it moves people to take action and results in verifiable improvements.

Our consultants have a wealth of managerial experience and adopt an entrepreneurial approach to create sustainable value enhancement for our customers. Using innovative methods and acting in a spirit of partnership, we systematically develop and implement solutions, efficiently change structures and processes and successfully motivate people.

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