

CUSTOMER TESTIMONIAL: HŽP

HŽP Prostějov, Czech Republic



An experience report by:

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FROM OPPONENT TO SUPPORTER

It was after an Executive development program at the Prague School of Economics, that our company's general and financial directors presented a proposal to our management **to transform the company into a lean firm according to ROI, including fundamental changes of the information system.** I was the only opponent to this proposal. I had worked in IT for nearly 15 years, I myself had programmed a substantial part of the information system, and so I had looked deeply into the nuts and bolts of ERP systems. A fundamental alternative to these traditional, conceptually identical systems seemed completely unreasonable to me.

Today I speak of PPROI as the forerunner of a new generation of information systems. I am completely convinced of this, because I as the leader of the entire transformation project, lived through the changes in my own thinking. PPROI's characteristics exceed all imaginable criteria. We are now able to economically describe our production process to an amazing precision. An

Information System should follow the reality of an enterprise for one hundred per cent, or at least as close as possible. I like to say that we even see in financial terms when we change the home location of a pallet a few centimeters closer to a machine. Which information system can achieve that?

HIDDEN POWER OF INFORMATICS

1. Process Description

Microphases & Financial

When PPROI consultants started their work at our firm, they insisted on the need **to rework all process routings and replace all time standards** as a necessary condition for introducing truly lean production. This involved over 4,000 active product parts, over 70,000 operations, and more than 200,000 time standards determined outside the IS, and over a million data reports in ERP, on which technologists and standardizers had been working for decades.

The absurdity of such a target only grew in my eyes when they stated the requirement **to break down operations into microphases** and to set detailed physical and financial parameters for each of them. To me, this meant entering **tens of millions of hand data records into the system and unimaginable demands on determining standards, as well as financial numbers outside of ERP.**

To my surprise, however, based on video recordings and analyses, the PPROI consultants documented for us how our standards were incorrect and unusable for planning and managing lean production. Then, even the standardizer leaned towards the necessity of changing all the standards.

So I felt that **we were in a trap** – facing the need to solve a key problem, but in terms of the work required the problem could not be solved. Today all of us at the company know that **the problem can be solved**, very effectively, but not by procedures that are traditionally used. The description of the process encompassed **science - mathematics** in particular, in a way we had never heard of, had never thought about, had never dreamed of.

2. Linked Operations

Breaking operations down into microphases also proved to be a condition for correct standardizing, planning, and overall management of flexibly integrated operations that are characteristic of lean production and are called „linked operations”

in PPROI. It was a revelation for me when the consultants explained to us that an isolated operation, the traditional basic unit of a process, is changing when linked with other operations, and that it makes no sense count the times of isolated operations. I was considerably surprised by automatic calculations of variant standards for connected operations, which PPROI counts for various numbers of workers on flexible lines, and which allow us to change the speed of production according to the demand in production plans.

3. True Data Integration Striving for the Same End

In connection with the properties of PPROI, for the first time, what the term "data integration," was supposed to mean, really dawned on me. The full interrelationship of information through mathematical equations in PPROI automatically reflects the physical parameters and prices of individual resources and products on the company's ROI.

It leads everyone, during improvement or optimization, in all positions in the company, towards maximizing the ROI as best as he can. In existing ERP systems this is unimaginable. Existing ERP systems now seem to me to be sets of nearly isolated parts - modules, with minimal mathematical relations among data. And so in comparison with PPROI these systems calculate nearly nothing; they are like data storage facilities, rather than calculation tools. When using the BPCS ERP system we never had problems with times of calculations, even with an obsolete, low-performance server. The utilization of its capacities was low. Conversely, PPROI calculations I put noticeable load on the latest servers. Now I am aware of the enormous potential of current information technologies, which is unused in ERP systems.

4. Detecting Bottlenecks

As a programmer I was fascinated by PPROI's ability to seek out bottlenecks. Each operation, even the operations in link, is limited in terms of time. Using the same equipment for various products, there are bottlenecks due to different parts of the machine. For example, for various products on a rolling line the bottleneck shifts among the furnace, the rolling mill stand, and the manipulators. I used to think that there was always just one bottleneck in production process, and that after improvement it would move elsewhere.

Today I see that bottlenecks are dynamic, and move at different circumstances among different pieces of equipment. I never saw PPROI's functionality to capture this anywhere else and hadn't even heard that it existed. I encountered several suppliers of APS systems, and in free discussions they confirmed that they have nothing like it.

PRODUCTION THROUGHPUT – A PARADIGM SHIFT IN PRODUCTION THINKING

Over time I fully understood PPROI's methods and as the leader of the restructuring project, I was striving to push it through in production processes. But foremen and workers thought it was nonsense. And I didn't find the required support among the production managers either. In order to overcome that opposition I was appointed to become the head of production.

The critical moment came on the first flexible line, which served as a pilot. The new way of work was to be tested by workers for the operations on three workstations in the link. The original standards for isolated operations had the following number of operators and operating times per unit:

Line	Cutting Press	Punch Press	Grinder
Number of Operators	2	1	1
Time/Unit in minutes	0,5	0,4	1,2

PPROI proposed for the three operations in link 3 workers and time per unit < 0.87 minutes, i.e., less than original $(2 \times 0.5 + 1 \times 0.4 + 1 \times 1.2) / 3$

An increase of labor productivity in standards was explainable due to the decline in manipulations compared with work at isolated workstations. But this was seen as a mathematical vagary, because the grinder limits the throughput and does not allow a time/unit of less than 1.2 minutes.

Only one of the workers was willing to take part in the experiment. I decided to demonstrate the new procedure personally in cooperation with the willing worker and an employee of the technical department. Neither this worker nor I had the proper manual routine. During the course of the experiment PPROI consultants led us.



Director Paleník (in the middle) demonstrates the correctness of the PPROI calculation to workers

Our flexible transitions and redistribution of work, as well as the performance as per the new standard, made a great impression on the others and broke the opposition. Today it is the common practice in our company

CHALLENGING FINANCIAL BELIEFS

Cost and Profitability

Like most managers, we took it for granted that the processes for a certain product must be evaluated according to cost, and various products according to profitability. The deep-rooted belief, refuted by Professor Matějka at his training sessions, was definitively struck down by two variants for producing door hinges for automobiles.

Assume a Hinge price = 4

Variant A: Production of 2 parts plus assembly

Cost = 3,5, Profit = Price - Cost = 0,5,

Profitability = Profit/Price = 0.125

Variant B: Only assembly;

the parts are purchased as components

Cost = 3,8, Profit = Price - Cost = 0,2,

Profitability = Profit/Price = 0.05

Everyone is under the illusion that variant A is more than twice as effective. But:

Variant A requires 5 times as much capital!

The yield of capital, ROI in variant B is more than twice higher than in variant A.

Because we calculated this example ourselves it was a profound experience. I recommend this example for the first pages of future management textbooks.

Inventories

The second belief of partial financial thinking is inventories, whose minimization is urged by all the world. Everyone who has encountered the issue of lean production surely knows the images of a smiling "one piece flow." However, optimizing production lines for this ideal can be enormously demanding in terms of capital.

You gain small financial benefits from decreased inventories and you lose lots of money in little used machines in lines that allow the longest

different flows of individual pieces. Therefore, as the financial director I find it hard to understand the focus of financial audits on each cent in inventories and the absence of interest in the demands of processes on fixed capital.

IMPROVING, PLANNING, AND FULFILLING PLANS

To me, support of improvement by PPROI and the dissemination of changes are completely fundamental.

Any physical change in a workshop is captured with the help of a single microphase. PPROI automatically extends this change to all products that go through a given workstation. Next week you already have it in the production plan, including the financial plan. And the fulfillment of actual plans is the priority of our daily management – not only in terms of JIT processes, but also in terms of consumption of resources.

MORE EFFICIENT PRICING TO THE MARKET

Our sales people constantly work with updated and very precise PPROI calculations when offering our products.

An erroneous price contract can seriously damage our firm. During difficult business negotiations we can go into absolute detail and make the correct decisions. Therefore, we can avoid losses to the company by using PPROI not just to manage production, but also to support sales to deliver true financial return to the company.

PPROI ACADEMY

PPROI has saved time and work for a great part of our workers who were either directly or indirectly involved in management. However, it has brought hitherto unrequired demands for knowledge of the PPROI methodology and skill in the proper use thereof. Therefore we have created our own "PPROI Academy" in our company to efficiently satisfy these needs for further education.

CONCLUSION

PPROI has brought us a realtime understanding of the exact financial condition of our company. We are now able to manage our daily production based on the return on investment – something we had never thought of before.

The financial transparency created in daily operation that PPROI has brought us, allows us to make the best pricing decisions, and to grow our business in an extremely competitive market.

ABOUT HŽP

HŽP is a lean and flexible supplier of leaf, parabolic and coil springs.

The company is the largest European supplier of coil springs for the railway industry, and also delivers to major European truck manufacturers.

Besides this, they are also increasingly active in the industrial coil segment.

<https://www.hzp.cz/en/home>

PPROI

THE ROI
IN ACTION

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T A
Č R

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www.tacr.cz
Výzkum užitečný pro společnost.