



# GET BACK TO MAKING MONEY

As Competitively As You Used To!

By Maurizio Porta

## MACHINING CENTERS: WHEN TOO MUCH FLEXIBILITY KILLS YOUR PRODUCTIVITY!

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# TOO MUCH DEMOCRACY AND TOO MUCH FLEXIBILITY ARE THE END

That explains the risk you are running if you are using too much flexibility in your production.



dare not imagine your face when you read the title of this article a while ago. Let's make it clear that I'm not here to talk about politics, but I've noticed several times that too much democracy is not the absolute good. With this I do not mean that regimes or dictatorships are the solution: it would take a little common sense and the right middle ground is difficult to find. It would be better to call it "progressive balance": a mix of freedom of thought and attention to progress. With this thought, I really think that I would lose any election ... so let's go back to the topic of manufacturing that is more familiar to me even though in this field there is a lot of production philosophy. Looking at the past to try to imagine the future is a method that works. So, given that we talk about industry, let's take a quick look to the past, to the industrial revolution.

What is the industrial revolution? The industrial revolution is a historical period that begins towards the end of the 18th century and is always evolving. In these periods, man goes from an old economic system to a new economic system, marking a strong break with the past.



**The first industrial revolution** began in the 18th century in England. We passed from a commercial artisanal agricultural system to an industrial system and then a natural shift of people towards the cities took place. The countryside emptied as the cities filled up. The revolution invested the lives of many people. Mechanical energy-driven machines were started, using new energy

sources such as steam generated by coal. Later, trade was also revolutionized thanks to the steam train that revolutionized the world of freight transport.



**The second industrial revolution** took hold in the early years of the 19th century when new sources of energy such as petroleum were discovered and new communication and transport systems were invented. Furthermore, the birth of mass production was seen. Henry Ford was the pioneer of mass production with the series chain of the famous Ford T, a simple and economical car, thanks to the large-scale production, which was only available in black.



**The third industrial revolution** began in the mid-twentieth century, after the Second World War and mainly concerned electronics, telematics and information technology. The first computers began to appear. Also important is the leap forward in industrial automation: in the manufacturing companies appeared the first machines governed by computers and robots that quickly replaced people in assembly lines.



**The fourth industrial revolution** (also called Industry 4.0) is the one we are experiencing today. This definition was used for the first time at Hannover fair in 2011 in Germany. In October 2012, a working group dedicated to Industry 4.0, chaired by Siegfried Dais of the engineering and electronics multinational Robert Bosch GmbH and Henning Kagermann of Acatech (German Academy of Sciences and Engineering) presented to the German Federal Government a series of recommendations for its implementation. On April 8, 2013, the final report of the working group was released at the annual Hannover Fair.





# FLEXIBLE PRODUCTION

Produce What You Sell, No Stock, No Stress, More Cash!

Visit the blog [www.flexibleproduction.com](http://www.flexibleproduction.com)

**Industry 4.0** is the transition where traditional industry will merge with the digital future. This is the new break with the past, the fusion between the real world of the plant / machinery and world virtual. This is called *Internet of things*, a system of intercommunicating devices and intelligence that through the network they will put objects, people, and places in contact.

According to this approach, the machines will have self-diagnostic capacity, the production process can be simulated virtually to anticipate any problems and resolve them before they occur on the machines.

Calling all this "Industry 4.0" is very simplistic, in my opinion. This revolution will also impact our lives, and not just industry. It's about a cultural revolution.

We will no longer make industry as we have done until today. There will be the need to:

- Design new business models;
- Implement new ways of working in offices, in the workshops;
- Rethinking the relationship between man / machine for increasingly flexible companies, more and more intelligent ... namely smart factories.

All this will affect not only the factories, but also people, and therefore technicians, workers, employees... turning them into workers 4.0.

At the base there are the people who put their own intelligence in the intelligent factory, so the 4.0 is the consequence of a different involvement of the people in the factories.



**The question is: will it be good or bad?**

The answer I do not know, I only know that being curious of nature, I want to understand each other as much as possible and that's why I am passionate about this theme and I try to imagine how the future of companies can be manufacturing and how to orient yourself to keep up with the changing times.



**Here is the great opportunity!**

From the beginning of the century to the present majority of the industry in the value creation has slowly moved to emerging economies. The added value of the manufacturing industry in '91 was concentrated to 80% in the traditionally developed areas (Western Europe, North America and Japan), but then slowly moved to emerging countries. These latter are now to represent 40% of the manufacturing

added value, doubling the percentage in two decades.

That said, here is the great opportunity:

Traditionally developed countries in the next 10 years will have the opportunity to resume a part of the ground lost, provided they can use digitization to give faster answers to market demands without falling into hyperflexibility that threatens to bury everything!

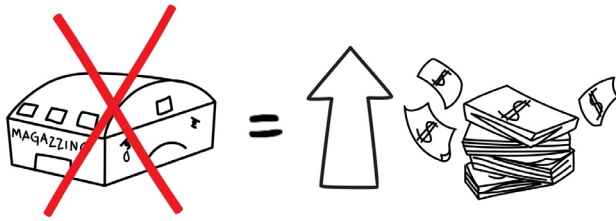
**Do not fall into hyper-flexibility  
because you risk burying everything!**

So we went from the fields to the first companies with machines driven by mechanical energy (first industrial revolution), then move on to new energies like oil and electricity they have allowed mass production (second industrial revolution). With the introduction of automation industrial, in manufacturing companies appeared the first machines governed by computers and robots they quickly replaced the people in the chains of assembly (third industrial revolution).

For the first part of industrial development, the progress has always searched and found new ways to produce faster and faster: this is the concept of productivity.



Reduce working space and cut energy consumption, halving the staff but *quadrupling* the production speed... with the new method "Flexible Production"



PRODUCE THE SOLD QUANTITY ONLY!

By doing everything in the name of productivity, we have arrived to design special machines with performance from Formula 1, known as transfer machines but they collapsed under the boulder of the new ones with lean production techniques. One above all is the Lean Manufacturing that Toyota has been carrying on for decades of success and that more and more companies are adopting.

After the collapse of productivity the magic word was **flexibility**. Here is this word so appreciated and so innocuous in appearance and promising, word that began to create even more imbalances serious compared to the first “productivity bubble” that the special transfer machines have triggered.

Nowadays, if you visit a machine tool fair you see an invasion of all identical machines - with different colors, but substantially all the same. Here, **these machining centers are the maximum expression of flexibility and will be the absolute evil for the future.**

That's why I created the “Flexible Production” method, that is a balance between flexibility and productivity, two basic ingredients to keep balanced both areas.

The method started to be applied first to those companies that had special machines in the department of high production, and that with the crisis of 2008 appeared as cannot keep up with the times because of the few quantities required by the market.

The “Flexible Production” method has solved (and is still solving) many cases giving an advantage notable to users of this sector who were used to change production in 8 or 16 hours due of the rigidity of their machines. Today they can instead change quickly in 15 minutes and retool the tools automatically thanks to the large amount of tool pockets present in the machinery.

***Reconfiguration of tools to change from one item to another happens automatically, leaving only the workholding to the operator - that can be changed in just 15 minutes.***

The Flexible Production method from 2005 until today has been successfully added to this customer segment which found less productivity than special machines, but much higher flexibility than they were used to until that moment.

**There are very few cases of customers who have stopped only at the first investment: around 80% of customers installed a second machine (then a third, a fourth, a fifth, and in some cases even ... A sixth!).**

After giving the solution to these companies, I have started to notice the appreciation of this method from part of an audience that I never thought would be a potential user.

This audience is precisely the users of machining centers, which in itself have enormous flexibility, but they suffer from lack of productivity.

This lack of productivity is apparently solved by them in the most instinctive way possible i.e. by installing more machining centers in the department: but this move, unfortunately, turns into loss of competitiveness.

If you have a series of machining centers, then I can tell you with absolute certainty that...

**You can go back to making money by reducing the working space, cutting energy, halving the staff and improving performance!**

All this by applying my innovative method called “Flexible Production”.

This is why the new book “Machining centers: Too much Flexibility Kills Your Productivity!”, that is dedicated to users of machining centers. I wrote it to give you new ideas and to suggest to you a method that allows you to not to die owing to too much flexibility.

This is my personal promise, and in the chapters of this book I will guide you step by step to understand if my method is for you - but be informed that there are some basic requirements you must respect to be sure to make the most of this innovative method.

***““In the next 10 years the traditionally developed countries will have the opportunity to resume a part of the lost ground, assuming that they are able to use digitization for give faster answers to the requests of the market without falling into hyper-flexibility that threatens to bury everything! “***

**Maurizio Porta**

In recent years several manufacturers of fittings and components in contact with drinking water are facing, with difficulty, the processing of their components that, due to regulations, no longer contain lead. This no-lead brass has a family that goes from the known Ecobrass until you get to the most terrible and fearful CW511L: if on the one hand is good news as it is eliminated lead (which harms the health), the other has sown the panic in the producers of these components. By removing the lead from the brass alloy, in fact, the workability of the material is reduced and the machines used up to that point due to insufficient power to the spindle motors, shavings of infinite length, vibrations in the working and very high cycle times are put out of play.

#### Brass color steel

The most common mistake with these alloys is to behave how we have always behaved: continue to apply techniques and rules designed for brass. In reality, an effective way to solve the problem is to treat it like a steel component. In this way, starting from tooling, it would not occur to use tools for brass. Furthermore, with traditional brass you may combine in a single multiple shaped tool for processing. On the contrary, with steel for each diameter to be used, dedicated tools are used in order to use the right cutting speeds. Always thinking to steel, in addition to separating the various diameters in several tools normally you have more power on the spindle motor. That's why all the reasoning "collapses" when dealing with this material in a traditional way.

# NO-LEAD BRASS: CHALLENGE WON!

**THE INTRODUCTION OF NO-LEAD BRASS HAS BROUGHT MANY SUB-CONTRACTORS INTO CRISIS DUE TO ITS LOW WORKABILITY AND USE OF UNSUITABLE MACHINES.**

**WITH MULTICENTER 3SPINDLES, PORTA SOLUTIONS ASSURES QUALITY AND PRODUCTIVITY AT MAXIMUM LEVELS.**

The problem of no-lead brass it is therefore not so much a technological problem, but of attitude: if approached in the right way, in fact, it is not at all difficult to work.

It is therefore essential to start from zero both from the type of tooling, both from the division of work, dedicating to each the correct tools in order to find the right cutting speed. At this point, the problem will adapt these considerations to machines available in the workshop: the working units will not be sufficient anymore having divided the operations into more phases, the power at the spindle will not be enough and it will be more difficult to evacuate long chips. The success on the Multicenter market of Porta Solutions was reached also because of the entry on the market of no-lead brass. In 2013 it was presented a preview of the new Multicenter 3Spindles, based on the casting of the most robust Multicenter Cast Iron Steel, re-projected in cooperation with the University of Brescia (Faculty of Mechanical Engineering) and proposed since then as a standard model for any material.

#### A practical case

An American customer struggling with a component from 2" brass with lead complained a cycle time of 10 minutes per piece. The request against Multicenter 3Spindles has been of a decided decline of the cycle times, all on its product component both in the version brass with lead, both in the



*Multicenter 3Spindles of  
Porta Solutions*

no-lead one. The estimated cycle time on the Multicenter was 75 seconds per piece: a substantial difference, so that the customer agreed he would sign the order provided that the estimated time was confirmed by a practical test. After having seen in person the results in Italy, the customer confirmed the order and, after installation in the USA, he used the machine to produce no-lead brass components with a cycle time 110 seconds per piece compared to 600 seconds.

# THE METHOD FLEXIBLE PRODUCTION AWARDED AT THE LONDON STOCK EXCHANGE

The event took place at the London Stock Exchange at the presence of the main national media, and international.

The evening organized by Le Fonti Awards has obtained a large media coverage with upcoming publication on RAI – RADIOTELEVISIONE ITALIANA, Il Corriere della Sera, The Economist, La Repubblica, Il Sole 24 Ore, Cbs, FOX NEWS, Bloomberg, Reuters, ADNKRONOS, Harvard Business Review, Il Giorno, Italia Oggi, Milano Finanza. Also this year, Le Fonti Awards hosted the CEO Summit, an exclusive debate with top executives managers of the likes of Apple, IBM who have given a vision on the importance of cyber security in the companies.

The selection of the finalists was elaborated by the Study Center Le Fonti, from the Institute of Sciences and Culture with editorial indications from magazines and newspapers: the monthly World Excellence, the monthly LEGAL and the newspaper Finanza & Diritto.

The selection was also made on the basis of the survey conducted at over 40,000 qualified contacts from the world of businesses and professions.

PORTA SOLUTIONS S.P.A. has been awarded in the following category:

**Excellence of the Year for Innovation & Leadership for Flexible Production Method.**

**For being an Italian excellence since 1958, innovative leader in the sector of Flexible Production Method in the manufacturing World.**

**In particular to be able to aim continually and strategically on innovation and customization to ensure the best performance and highest quality.**

Once again the **FLEXIBLE PRODUCTION** method hit the mark as innovative method at disposal of our customers to produce only the sold quantity, without stock and thanks to this with more cash on the customer's bank account!





**THE FLEXIBLE PRODUCTION METHOD AWARDED FOR INNOVATION AT LONDON STOCK EXCHANGE**

# Testimony of a client who applied the method Flexible Production



**KOMET AUSTRIA**

## HERE WHAT THE MULTICENTER SOLVED!

Below are the three questions that I asked one of my customers who uses the MULTICENTER.

Incidentally, let's give real names and surnames, because there are too many endorsements that praise certain products that are entirely made up. The funny thing is that it is never possible to verify them, and this aspect, which is the result of science-fiction marketing, upsets me a great deal!

Why? Well... Because there is no signature at the bottom of these endorsements; no one knows who this super satisfied customer is and, because of privacy laws, you are not allowed to know... This is a typical gimmick!

SO, WHAT DID I DO?

I simply asked my 3 questions and then asked for permission to publish the answers as an endorsement (in compliance with privacy laws) with all the necessary references so that anyone, even you, can contact the person/company in question and verify the truth of what is being reported!

Here are my three questions and the respective answers, verbatim:

1. What kind of problems were you experiencing before buying the multicenter?

*We had a horizontal center and were unable to deal with the work load due to many pieces and relatively small lots, so in order to solve this problem we would have had to purchase two additional machining centers, which also meant having to hire more personnel to operate the machines. Then we discovered the MULTICENTER.*

2. How did you solve this problem thanks to the multicenter?

*Thanks to the MULTICENTER, we were able to move all the milling jobs to one machine, since the processing time per piece was reduced to about 30% compared to a one-spindle machining center.*

3. What positive results have you achieved by using the multicenter?

*The major advantage of the MULTICENTER for us was without a doubt the fact that, with the same number of operators, we managed to deal with the work load, without hiring other technicians.*

*Another advantage is the fact that the machine takes up less space than three (machines), thus freeing up some work space at the workshop.*

*Moreover, once a piece is tooled the first time, the following tooling operations are quick and easy, thus simplifying the production.*

*Mr. Arno Drechsel  
Owner  
Komet Austria GmbH  
Julius Durst Str. 10  
9900 Lienz/Austria  
[www.kometirrigation.com](http://www.kometirrigation.com)*