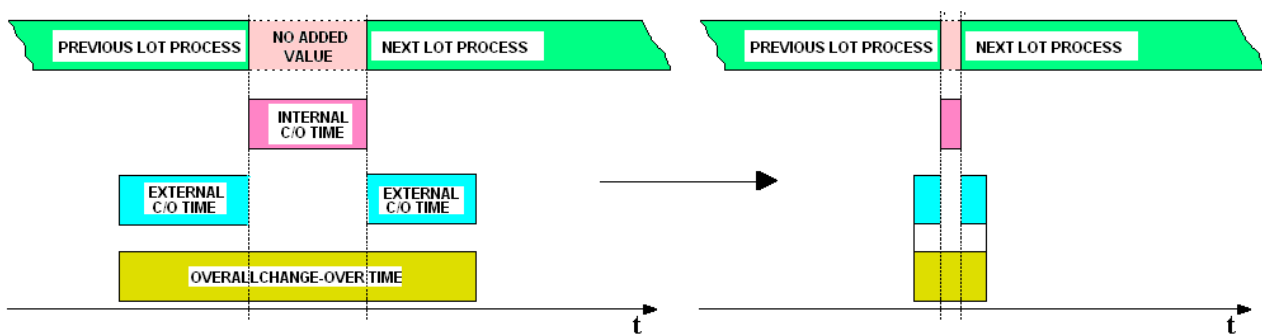




Achieving Quick Change-Over: dream or reality?



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By Carlo Scodanibbio

Just consider this little story. Coming back home from honeymoon, life becomes "normal" after a while for husband and wife: it consists more and more of routine activities. And what does husband discover?

He discovers that wife has a pretty peculiar system of organising her cooking ménage.

When she prepares chicken à la Maltese, she cooks some 8 chickens in one go, one after the other. When she bakes lasagne, she does 12 pans of lasagnes one after the other. And when she does beef stroganoff, at least 10 large pots of beef are prepared and cooked one after the other in a row. In this way, the deep fridge is always well stocked.

The end result is good: food cooked by wife tastes OK, but husband still does not fully understand her peculiar style. When he asks her why she operates that way, invariably she answers that this is the best, most efficient way of cooking: in fact, once she is geared to prepare chicken, the best is to cook whatever quantity the family needs for approximately three months, which is a safe and convenient storage period in the deep fridge. By doing so, she utilises pans and pots and kitchen utensils once, minimising washing and cleaning etc. The same applies to lasagne and beef: she knows what is going to be required in the next 12 weeks: why going into the trouble of baking a lasagne every week every Friday, when that can be done in one go?

Efficiency is tremendous, she says: the same baking pan is used 12 times without washing it, and, most essential, the oven is already warm and letting it cool down would be a tremendous waste.....

Amazing, isn't it? But a similar mentality is still present in many sectors of the manufacturing industry.

If one asks production managers what they consider difficult in production, the answer, 9 out of 10, is: "diversified, small-lots production".

And if one asks them why this is difficult, invariably the answer is: "because of the frequent set-up activities required to produce a large variety of goods in small lots".

Set-up (or "change-over") activities like die-changing, mould-changing, re-tooling, line setting and the like are seen like evils by production personnel, exactly like the housewife in the story above considers problematic and inefficient whatever is required to prepare a different meal every day: getting geared and organised, having all necessary utensils and ingredients ready, warming up, cooling down and cleaning the oven, washing and putting everything in order after cooking, etc.

The roots of this mentality are found in three misconceptions:

- 1) set-ups are difficult, problematic, and require particular skills (therefore the less set-ups we do, the better it is)
- 2) set-ups are long and time consuming, and therefore producing in large lots somehow compensates the costly effects of set-ups
- 3) since producing in large lots generates excess stock (which also costs), there must be a way of optimising the two types of costs - set-up costs and stock costs. This is achieved by working per "economical lots", similarly to the 3 months' stock of rabbit of our housewife

The root cause of this mentality lies in over three decades' confusion with regard to the main relation between market (demand) and productive system (supply).

The general tendency has been to mix up the features of the demand (high volumes) with the features of the supply (large lots).

Only recently we have learnt that the two concepts should be thoroughly separated, as a feature of demand cannot form the basis of the discipline of production. If, in fact, high volumes are demanded by the market, and are also desirable in order to amortise the high costs of capital equipment, the supply side can still respond with a different style, basing production on numerous repetitions of small-lot productions and consequently keeping reactive to a change in demand.

Which is exactly what is happening nowadays, with customers wanting a more and more diversified range of products in smaller and more frequent lots.

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Manufacturers that have understood the market change and the basic confusion in the above mentality have reacted, in the last decade, in a revolutionary mode: they have moved from the style of large-lots production of products that "should" sell to the style of "confirmed production", performed in small-lots, based on orders actually received. This style of production is called "Flow Production", driven by customers and piloted by their needs and expectations.

Where is the main feature of such a revolution? In its very conception: the design of a manufacturing system that is integrally responsive to market change, with minimal inherent waste (thus very efficient), flexible, "lean" (Lean Manufacturing), geared for quality, and client-driven.

And what is the main "technical" secret of such a revolution? It is definitely in the set-up issue.

For years set-up and change-over operations have been considered a big problem in production, but still a marginal aspect of the manufacturing process. Only in the last ten-fifteen years this issue has been addressed and brought to its real status of "key to Change Manufacturing".

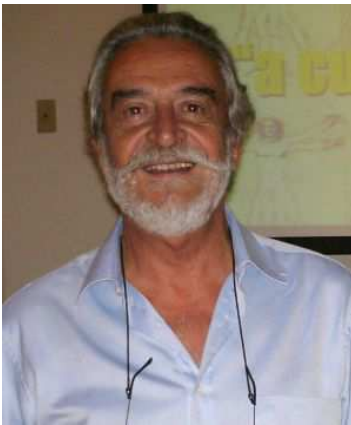
In fact if set-ups become fast (minutes if not seconds, instead of hours), and easy (presenting little or no difficulties and accomplishable with limited-skill personnel), the door to Flow Production opens wide: lead-times are minimised, stocks are decimated, bottlenecks are eliminated, and diversified/small-lot production, as market demands, becomes a reality and a "human" task.

Today achieving **Quick Change-Over** is possible and easy in practically all manufacturing contexts.

Tools and techniques are readily available for the purpose, all based on and extrapolated from the famous "SMED" (Single-Minute-Exchange-of Dies) system of Shigeo Shingo.

Obviously, the ideal set-up is no set-up at all. But if set-up is to be done, this should be designed as a "one-touch" operation, like if our housewife had a "magic wand" to get everything ready for cooking in a twinkling and for cleaning up and putting everything in order in a matter of seconds.

Dream or reality? For today's Manufacturing Industry, definitely a reality. And time is coming also for housewives.....



Carlo Scodanibbio, born in Macerata (Italy) in 1944, holds an Italian doctor degree in Electrical Engineering (Politecnico di Milano - 1970).

He has over 49 years of experience in Plant Engineering, Project Engineering and Project Management, as well as Industrial Engineering and Operations Management.

Free-lance Consultant since 1979, he has worked in a wide spectrum of companies and industries in many countries (Southern Africa - Italy - Cape Verde - Romania - Malta - Cyprus - Lebanon - Mauritius - Malaysia - Kenya - India - Saudi Arabia), and operates as an Independent Professional Consultant and Human Resources Trainer to industry.

His area of intervention is: World Class Performance for Small and Medium Enterprises in the Project, Manufacturing, and Service sectors.

His favourite area of action is: the "lean" area.

He has co-operated, inter-alia, with the Cyprus Chamber of Commerce, the Cyprus Productivity Centre, the Malta Federation of Industry, the Mauritius Employers' Federation, the Romanian Paper Industry Association, the United Nations Industrial Development Organisation and the University of Cape Town.

His courses and seminars, conducted in English, Italian and French, have been attended by well over 20.000 Entrepreneurs, Managers, Supervisors and Workers. They feature a very high level of interaction, and are rich in simulations, exercising and real case studies. The approach is invariably "hands-on" and addressed to immediate, practical application.

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