

## ANALYSISMANAGEMENT

# Getting the right factory layout

As *Tim McLean\** reports, getting a factory's layout right can pay big dividends both in terms of capital cost and in ongoing operating cost by minimising wasted space and wasted movement.

TAKING a bit of time to get a factory's layout right can pay big dividends. Here are some valuable guidelines manufacturers can easily adopt when deciding where to put things.

## Start with the customer

Determine your rate of production by the needs of your customers now and in the future, not by the output of your machinery.

This means working out the "takt time" or the rate of customer demand for your process.

For example, if your business plan projects annual sales of your products will be 100,000 units and your plant works one shift of 7.5 hours, then you can calculate the takt time to be approximately one minute.

That means, on average you factory needs to make one product every minute of every shift all year.

Every machine and each process step in your factory needs to be able to process one product in just under one minute.

The takt time therefore provides an effective yardstick to use when working out the size of machinery and the number of work stations you need.

## Map the process

Use value stream maps to identify your key production flows and eliminate unnecessary production steps and waste.

This helps you take a birds eye view of your operation and make sure that every step of the process is adding value for the customer before you build those steps into your layout.

It may also reveal opportunities to

combine process steps, reducing waste even further.

## Don't have to use all the space

Keep things close together and design U-shaped cells if possible to minimise walking and transport distances.

This also improves productivity by enabling operators to switch easily between neighboring functions when underutilised.

Don't worry about not using all the space, it is more important that your operation is efficient than it fills up the building.

## Operations first, storage second

If you are building a factory then achieving good, safe production flow must be the number one consideration.

Design a good production flow first to minimise waste and then any space left over can be left for storage.

If you do not think you will not have enough storage space focus on storing less, not on rearranging the plant layout to put in more pallet racks.

## Minimise or eliminate forklifts

Forklifts are expensive to run, a major hazard around people and need lots of space for aisles and turning circles.

Challenge yourself to minimise forklift movements and find other ways to move products safely between processes.

This will lead you to move processes together and potentially link them into "one piece flow".

You may still end up needing forklifts for some tasks, but you will surprise yourself what can be achieved

without them.

## Involve the workers

Make sure that you consult widely and involve the operators, team leaders and maintenance teams.

They will have to live with the layout and if they don't like it they will remind you about it for the rest of your working life!!

Make sure that your value stream mapping team has representation of team leaders and front line people and that the draft layout is shared with all the team to give them a chance to offer their input.

Hanging the plan on the lunch room wall is a good way to solicit feedback.

## Pilot new ways

If you have followed our advice and developed a new layout concept from the ground up, it is likely that it will represent a big change from your current way of operating.

Therefore it makes sense to trial these ideas in your existing plant before you move to the new plant.

Trying things out on a small scale gives you a chance to iron out any bugs and to build experience and confidence in the new systems before you move.

## Plan the move carefully

Moving your operation or changing your layout is likely to be a complex exercise that brings with it a high risk of disruption to your business and your customers.

Therefore thorough planning and allocating the correct resources are essential.



The sheet metal shop in Varian Australia, Melbourne is a great example of how efficient plant layout can maximise output in a small space.

Our experience with our clients is that well planned and executed layout change can yield productivity improvements of up to 40% and lead to reductions in inventory and production lead time exceeding 50%.

So a small investment in time up front can pay dividends for many years to come.

\* *Tim McLean* is Principal of TXM, 040 448 0517.

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## Measuring employee engagement

AUSTRALIA is experiencing its lowest levels of unemployment in more than 30 years and with 21% of Australians tertiary qualified, there is more reason than ever to engage and retain good staff.

This focus on employee engagement has led many organisations to commit substantial funding to measure engagement, and importantly, the cost of disengagement in the workplace.

LifebyDesign.com.au has launched an online calculator which eliminates the confusion associated with measuring the financial implications of employee engagement.

The calculator, which is available at

[www.lifebydesign.com.au/engaged/2\\_EngagementEconomics.php](http://www.lifebydesign.com.au/engaged/2_EngagementEconomics.php), allows organisations to determine the costs incurred as a result of employee disengagement and to highlight the savings potential of effective employee engagement programs.

Research conducted by the company identified that an organisation of 1000 employees with an average salary of \$60,000 and 25% turnover, loses approximately \$18m annually in decreased productivity, recruiting and lost training.

By engaging employees and reducing turnover by just 3%, an organisation could save over \$2.1m per annum.

According to the company, the calculator is simple to operate.