

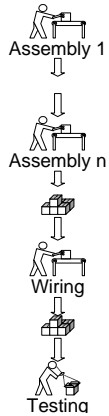
Changing the Manufacturing Methods for Telecommunication

This project shows the strength of the combination of LEAN manufacturing techniques and (CP-based) scheduling. The former techniques allow a business to take a critical look at its operations to identify areas for improvement, and in combination with the latter technique can be used to realise the potential of those improvements.

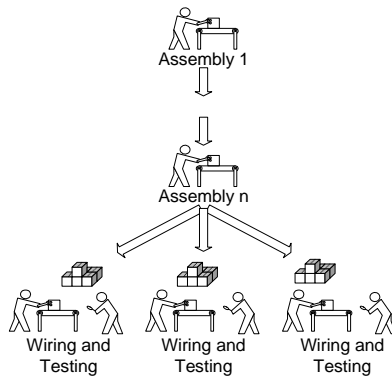
Cellular manufacturing

Cell based manufacturing allow teams to become specialised in certain types of cabinets. Throughput increases, yield increases and cost decreases, but ... it is more complex to schedule

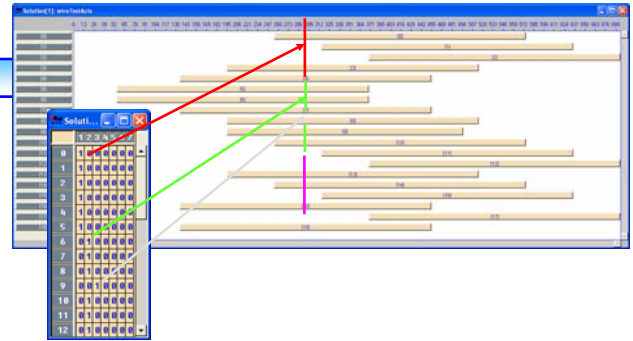
From this...



...to this...



... using this...



...based on an efficient model...



...because

- Standardised work
- Limited changeovers
- Better utilisation



Using Constraint-based Scheduling we developed innovative new search algorithms to efficiently and effectively schedule the operations of Alcatel-Lucent's System Integrations Centre in Columbus, Ohio, who moved to a cell-based work floor.

Deployed and in use

Actual benefits

- reduction in manufacturing interval (from 16 to 10 hours)
- reduction in work in process inventory (by 50%)
- increase in first test yield
- reduction in headcount
- reduced defects per unit
- users perception that delivery performance has improved

[1] J. Little, P. Creed, S. Goyal, S. Berry and D. Cokely, "Thermal Test Scheduling using Constraint Programming" in Proceedings of the 12th IFAC Symposium on Information Control Problems in Manufacturing, 2006. (awarded best industrial paper)

[2] R. van der Krogt and J. Little, "Scheduling for Cell Manufacturing", submitted to 13th International Conference on Principles and Practice of Constraint Programming, Sept 2007

