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Introducing Cost-Effective Technology into a Small New Zealand Manufacturing Company

A Thesis presented in partial fulfilment of the
requirements for the degree of
Master of Technology in
Manufacturing and Industrial Technology at
Massey University

Mark Caukill
2001

Abstract

Precision Manufacturing Limited (PML) is a small general engineering firm in Feilding, New Zealand. It is a general job shop (with a few specialty products) well known in the region for producing timely, high quality results.

Southchain Conveying Systems Limited was purchased in November of 1998 and is the only conveyor chain manufacturer in New Zealand. Soon after taking over Southchain, the company found it difficult to compete against chain imports in the New Zealand conveyor chain market with a manual operation. At this point in time Precision Manufacturing owner, Garth Thelin, contacted Massey University and the idea of a GRIF project was introduced.

The project commenced on November 1 1999 and ran for 14 months. The technical goals of the project were to reduce manufacturing costs by 30% and limit capital expenditure to \$100,000.

A numerical process model was built using Microsoft Excel based around a combination of a Bill of Materials model and a Route Sheet model. After completing the process model, it was then analysed to obtain a list of first order savings projects in the company. Dollar savings vs. the estimated cost of implementation, as well as interdependencies between the issues, was used as a criteria to rank projects as first order.

Two projects were then chosen to be pursued: pin induction automation and roller induction heat treatment. The induction automation project covered the design of the mechanical apparatus, building and testing of working models, building of the production machinery, and the industrial control systems to integrate the mechanics to the induction heater. The roller induction heat treatment project investigated using the in-house induction heater to case harden the chain rollers and divest the company of a high external expense.

Six months after the project was completed the company had reduced its costs considerably and as a result, was more profitable. The key to this was the reduction in

roller costs. With better margins the company has been able to increase its sales and hence boost production levels. Being more profitable also means the company is in a better position to implement more cost saving measures and become more competitive in the market place.

Acknowledgements

I would like to acknowledge the staff and management of Precision Manufacturing Limited and Southchain Conveying Systems Limited. Every person in these companies always had both a smile and a helping hand for the scarf in their midst.

My supervisors, Harvey Barraclough and Ralph Ball, have imparted to me their considerable knowledge and guidance over the two years since the beginning of the project. This project would not have been as successful, nor as enjoyable, as it was without their support and encouragement.

To my family - Nicky, Aleisha, Vanessa and Hamish: all these pages contain part of you too. Thanks for giving me the support, and the space, to do this.

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