An appropriate manufacturing strategy model for the Thai food processing industry

Chaitamlong Pongpattanasili

University of Wollongong

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AN APPROPRIATE MANUFACTURING STRATEGY MODEL FOR THE THAI FOOD PROCESSING INDUSTRY

A thesis submitted in fulfilment of the requirements for the award of the degree

DOCTOR OF PHILOSOPHY

from

UNIVERSITY OF WOLLONGONG

by

Chaitamlong Pongpattanasili

MEngSC (UNSW)

Faculty of Engineering

2004
DECLARATION OF ORIGINAL AUTHORSHIP

The work contained in this thesis has not been previously submitted for a degree or diploma at any other University of higher education institution. The thesis contains no material previously published or written by another person except where due reference has been made.

Chaitamlong Pongpattanasili

24 August 2004
ABSTRACT

Thailand is well recognised for its high potential as an agricultural country and major food supplier. It provides a major source of agricultural product and agricultural manufacturing based industries. The most important sector is the food processing industry. This area is the most important sub-sector in Thai industry. The value in exports in the year 2002 was approximately 14.4% of the country’s total GDP. However, a high potential for growth still exists.

Food production in Thailand is based on local agricultural raw materials, comprising of fruit and vegetables, cereal and oils, fish and livestock and provides employment to 20 million people within the agricultural and food processing sector. This thesis discusses the characteristics of the Thai food processing industry and suggests an appropriate manufacturing strategy model is needed in order for it to achieve manufacturing excellence.

This study presents a classification of the Thai agricultural industry and compares one of its sectors, the agricultural manufacturing industry with another industrial sector viz. the electrical/electronic industry. The thesis investigates both industries contribution and reveals why the food processing industry is important for Thailand. After an overall analysis of the industry and its importance, the results of a survey of 350 food processing companies are compared, including characteristics of the Thai food processing industry, the focus of manufacturing strategies and the implementation of manufacturing practices.

Based on this, and in order to assist the Thai food processing industry to achieve manufacturing excellence, the thesis then develops an integrated model combining GMP, HACCP, TPM and TQM, and provides guideline for their implementation.
Acknowledgement

I am deeply grateful to my Academic Supervisor, Associate Professor Peter Gibson and Co-Supervisor Professor Guenter Arndt, for their kind support, guidance and encouragement at all stages. Without their valuable criticisms, comments, and suggestions, I would not have been able to complete my thesis.

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Pongpattansasili C.
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<td>ASEAN</td>
<td>Association of South East Asian Nation</td>
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<td>BOI</td>
<td>Board of Investment (Thailand)</td>
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<td>BOT</td>
<td>Bank of Thailand</td>
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<tr>
<td>CCP</td>
<td>Critical Control Point</td>
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<td>DEP</td>
<td>Department of Export Division</td>
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<td>DIP</td>
<td>Department of Industrial Promotion (Thailand)</td>
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<td>FDA</td>
<td>Food and Drug Agency (Thailand)</td>
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<td>FSCS</td>
<td>Food Safety Control System</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GNP</td>
<td>Gross National Product</td>
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<td>GMP</td>
<td>Good Manufacturing Practice</td>
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<td>GHP</td>
<td>Good Hygiene Practice</td>
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<td>HACCP</td>
<td>Hazard Analysis Critical Control Point</td>
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<td>HRM</td>
<td>Human Resource Management</td>
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<td>ISIC</td>
<td>International Standards of Industry Classification</td>
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<td>ISO</td>
<td>International Standards Organisation</td>
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<td>JIT</td>
<td>Just-in-Time</td>
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<td>MMS</td>
<td>Maintenance Management System</td>
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<td>NESDB</td>
<td>National Economic as Social Development Board (Thailand)</td>
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<td>NSTDA</td>
<td>National Science and Technology Development Agency (Thailand)</td>
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<td>PM</td>
<td>Preventive Maintenance</td>
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<td>QA</td>
<td>Quality Assurance</td>
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<td>Quality Control</td>
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<td>Quality Control Circles</td>
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<td>Quality Management System</td>
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<td>SMEs</td>
<td>Small and Medium Enterprise Sector</td>
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<td>TDRI</td>
<td>Thailand Development Research Institute</td>
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<td>TPM</td>
<td>Total Productive Maintenance</td>
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<td>Total Quality Control</td>
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<td>Total Quality Management</td>
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<tr>
<td>WCM</td>
<td>World Class Manufacturing</td>
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