Appendix B

QUESTIONNAIRE

Please mark the selected answer with an “x” in the relevant box

Section A

About you

In order for me to be able to categorise you I require the following information.

a. Which of the following best describes your current position?
   - First line supervisor
   - Foreman
   - Manager
   - Senior manager
   - Other

b. c. Indicate which one of the following best describes your highest qualification

<table>
<thead>
<tr>
<th>Less than grade 12</th>
<th>grade 12 or equivalent</th>
<th>Post-school diploma or equivalent</th>
<th>University or Technikon Degree</th>
<th>Post-graduate degree</th>
</tr>
</thead>
</table>

Section B

About your manufacturing company

The following questions elicit information about your company. The information supplied in this section will be used for descriptive purposes only.

According to the government’s white paper, companies are classified as small, medium or micro enterprises (SMMEs). The next question will help me establish in what category your company falls.

a. How many permanent, full-time employees are employed at your company?:

<table>
<thead>
<tr>
<th>Less than 50</th>
<th>At least 50 but less than 200</th>
<th>At least 200 but less than 1000</th>
<th>1000 or more</th>
</tr>
</thead>
</table>

b. Which of the following describes the business of your company? Mark all applicable.

<table>
<thead>
<tr>
<th>Electric products for electricians</th>
<th>Wood products</th>
<th>Manufacturing of industrial tools</th>
<th>Manufacturing of components and parts for the motor industry</th>
<th>Manufacturing of medical products excluding pharmacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home appliances</td>
<td></td>
<td>Manufacturing of machinery for the mining industry</td>
<td>High-tech military products</td>
<td>Manufacturing of railway products</td>
</tr>
<tr>
<td>Other: Specify in the block</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section C

Techniques used
This section covers a number of selected lean manufacturing techniques identified in the literature. In each case a short description of the technique is given and the possible value the technique may add.

<table>
<thead>
<tr>
<th>Technique 1</th>
<th>ABC analysis:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technique description:</strong> Dividing inventory into percentage categories based on customer demand and cost per unit, part complexity and lead time. “A” category products will be 80% of the customer demand and have the highest cost per unit. “B” category products will be 20% of customer demands and cost per unit.</td>
<td></td>
</tr>
</tbody>
</table>

a Are you familiar with this technique?  
Yes | No  

If the answer is No, please proceed to Technique 2
If your answer is Yes, please proceed to the next question

b How often do you use this technique?  
Not at all | Sometimes | Often | Always  

If the answer is “Not at all” please proceed to Technique 2.

c If you utilise the technique, to what extent does ABC analysis reduce your inventory?  
To no extent | To a small extent | To a moderate extent | To a large extent  

d To what extent does ABC analysis assist in improving inventory control?  
To no extent | To a small extent | To a moderate extent | To a large extent  

<table>
<thead>
<tr>
<th>Technique 2</th>
<th>Assembly line balancing:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technique description:</strong> This technique entails ensuring that each workstation spends the same amount of time on the task allocated to it. Hence, no workstation has to wait for the previous workstation to complete a task and the manufacturing process is continuous. The time it takes for each workstation to complete its task, before handing it over to the next station in the cell, is equal.</td>
<td></td>
</tr>
</tbody>
</table>

e Are you familiar with this technique?  
Yes | No  

If the answer is No, please proceed to Technique 3.
If your answer is Yes, please proceed to the next question.
f. Do you currently use this technique?
   Not at all  Sometimes  Often  Always
   If the answer is “Not at all” please proceed to Technique 3

g. If you utilise the technique, to what extent did assembly line balancing reduce idle time?
   To no extent  To a small extent  To a moderate extent  To a large extent

h. To what extent did the productivity improve?
   To no extent  To a small extent  To a moderate extent  To a large extent

<table>
<thead>
<tr>
<th>Technique 3</th>
<th>Cell manufacturing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technique description: Bringing machines and people together that were previously scattered across different sections or departments, either in a U shape or straight line to complete the process or product in one place.</td>
<td></td>
</tr>
</tbody>
</table>

i. Are you familiar with this technique?
   Yes  No
   If the answer is No, please proceed to Technique 4.
   If your answer is Yes, please proceed to the next question

j. How often do you use this technique?
   Not at all  Sometimes  Often  Always
   If the answer is “Not at all” please proceed to Technique 4

k. If you utilise the technique, to what extent did cell manufacturing reduce inventory?
   To no extent  To a small extent  To a moderate extent  To a large extent

l. To what extent did the productivity improve?
   To no extent  To a small extent  To a moderate extent  To a large extent

<table>
<thead>
<tr>
<th>Technique 4</th>
<th>Cycle time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technique description: The maximum time for a product to be completed at all the workstations.</td>
<td></td>
</tr>
</tbody>
</table>

m. Are you familiar with this technique?
   Yes  No
   If the answer is No, please proceed to Technique 5.
   If your answer is Yes, please proceed to the next question

n. How often do you use this technique?
   Not at all  Sometimes  Often  Always
If the answer is “Not at all” please proceed to Technique 5.

o If you utilise the technique, to what extent did cell manufacturing reduce inventory?

- To no extent
- To a small extent
- To a moderate extent
- To a large extent

p To what extent did the productivity improve?

- To no extent
- To a small extent
- To a moderate extent
- To a large extent

Technique 5: Just in time (JIT):

Technique description: On time delivery when you need it, with no inventory or as little as possible and to eliminate waste (reduction of tasks that do not add value to the product – unnecessary movement and handling, reworking etc.)

q Are you familiar with this technique?

- Yes
- No

If the answer is No, please proceed to Technique 6
If your answer is Yes, please proceed to the next question

r How often do you use this technique?

- Not at all
- Sometimes
- Often
- Always

If the answer is “Not at all” please proceed to Technique 6

s If you utilise the technique, to what extent did JIT reduce inventory?

- To no extent
- To a small extent
- To a moderate extent
- To a large extent

t To what extent did the productivity improve?

- To no extent
- To a small extent
- To a moderate extent
- To a large extent

Technique 6: Single-minute exchange of dies or (quick changeover):

Technique description: The reduction of changeover from one product run to the next by moving some of the set-up operation to before and after the actual set-up takes place. This means keeping the actual set-up time to a minimum and using quick snap in locking devices rather than bolts and nuts.

u Are you familiar with this technique?

- Yes
- No

If the answer is No, please proceed to Technique 7
If your answer is Yes, please proceed to the next question.
v How often do you use this technique?

| Not at all | Sometimes | Often | Always |

If the answer is “Not at all” please proceed to Technique 7.

w If you utilise the technique, to what extent did quick changeover reduce inventory?

| To no extent | To a small extent | To a moderate extent | To a large extent |

x To what extent did operating cost improve?

| To no extent | To a small extent | To a moderate extent | To a large extent |

Technique description: Allowing employees to be responsible for some of the maintenance tasks. Employees must take responsibility for their machines.

y Are you familiar with this technique?

| Yes | No |

If the answer is No, please proceed to Technique 8. If your answer is Yes, please proceed to the next question.

z How often do you use this technique?

| Not at all | Sometimes | Often | Always |

If the answer is “Not at all” please proceed to Technique 8.

aa If you utilise the technique, to what extent did total preventative maintenance reduce inventory?

| To no extent | To a small extent | To a moderate extent | To a large extent |

bb To what extent did operating cost improve?

| To no extent | To a small extent | To a moderate extent | To a large extent |

Technique description. Whatever does not contribute to profit is waste. Every action that does not add value is waste, overproduction = waste, waiting time = waste, unnecessary transportation = waste, unnecessary inventory = waste, defects and rework = waste, excessive walking or reaching = waste.

cc Are you familiar with this technique?

| Yes | No |

If the answer is no go straight to “More technique in the table.”
How often do you use this technique?

| Not at all | Sometimes | Often | Always |

If the answer is “Not at all” please proceed to “More techniques in table”

dd If you utilise the technique, to what extent did waste elimination reduce operating cost?

| To no extent | To a small extent | To a moderate extent | To a large extent |

e To what extent did productivity improve?

| To no extent | To a small extent | To a moderate extent | To a large extent |

### More techniques in table

Please indicate which of the following additional lean manufacturing techniques you utilize in your assembly operation.

<table>
<thead>
<tr>
<th>Technique</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Continuous flow</td>
<td>Allow the work to flow from one process to the next without inventory build-up in front or after each process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 One-piece flow</td>
<td>Products are passed one piece at a time from operation to operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Product quantity (p-q) analysis</td>
<td>Use product quantities to arrange products in percentage groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Poka yoke</td>
<td>To design a fool-proof device or technique that ensure a product without mistake, time after time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Takt time</td>
<td>Producing at the rate of customer demand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Total quality management</td>
<td>The management of the entire organization to deliver products and services that exceed the customer’s expectations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Value stream mapping</td>
<td>Mapping all the actions needed to manufacture a product from supplier to customer. Mapping mainly material flow and information flow on one chart</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

KINDLY FAX THE COMPLETED QUESTIONNAIRE TO: 011 664 8158 attention Herman Palm