Foundations of Production Thought

“Take This Job And Love It”

Production: the utilization of organization resources in terms of people and equipment to create and/or transform goods and services.
Production & Operations Management - the utilization of organization resources in terms of people and equipment to create and/or transform goods and services.

- Planning and Designing Operations Systems
- Planning Capacity and Facilities
- Managing Logistics
- Managing Quality.
The History of Manufacturing

Industrial Revolution

1750 1775 1800 1825 1850 1875 1900 1925 1950 1975 2000

“Scientific Management”

Assembly lines Standardization

World Competition

US leadership manufacturing

Decreased US Quality

Consumer activism

Intense Global Competition

Fuel energy applications

Foundations of Business Thought
Manufacturing Map of the U.S.

Source: Richard D. Irwin Inc., 1993 UNDERSTANDING BUSINESS, 3/e by Nickels, McHugh, and McHugh
Operations Management

Transformation Process

Controls

Transformation Process:
machine, person, tools,
procedures, knowledge

Inputs: raw
material, land, labor,
energy, information

Feedback

Outputs: goods,
services, ideas

Foundations of Business Thought
• **Assembly** - Manufacture individual, discrete products out of parts

• **Continuous** - Manufacture large quantities of single, non-discrete products

• **Intermittent** - *Job Shop*: specific number of product produced only once; *Batch*: same product produced in lots

• **Analytic** - break down materials into product

• **Synthetic** - Combine materials into entirely new products

• **Extratic** - extract product from raw materials

• **Project** - Product built in place
Quality is meeting or exceeding the customer’s expectations of the product or service.
## Quality - Old and New

<table>
<thead>
<tr>
<th>Old ideas of Quality</th>
<th>New ideas of Quality</th>
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<tbody>
<tr>
<td>• Product quality only</td>
<td>• Conforming to requirements</td>
</tr>
<tr>
<td>• Detection of problems</td>
<td>• Produced by all business functions</td>
</tr>
<tr>
<td>• Quality Control’s job</td>
<td>• Preventing problems</td>
</tr>
<tr>
<td>• Produced by production workers</td>
<td>• Responsibility of entire company</td>
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<tr>
<td>• Measured by product attributes</td>
<td>• A strategy</td>
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<tr>
<td></td>
<td>• Measured by cost of quality</td>
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Quality Control Process

1. Define Attributes
2. Establish Standards
3. Determine Analysis Program
4. Build Commitment

Feedback
Control Flow
14 Principles of Quality

1. Drive out fear.
2. Eliminate quotas and numerical goals.
3. Break down all barriers between departments.
4. Eliminate inspection. Learn to build products right the first time.
5. Institute a vigorous program of education and self-improvement.
6. Remove barriers that rob workers of their right to pride of workmanship.
7. Institute leadership. The aim of leadership should be to help people do a better job.
8. Eliminate slogans, exhortations, and production targets.
9. Adopt a new philosophy. This is a new economic age. Western managers must awaken to the challenge, learn their responsibilities, and take on leadership for change.
11. Improve constantly and forever the system of production and service.
12. Put everybody to work to accomplish the transformation.
13. Institute job training.
14. Create constancy of purpose toward improvement of product and service to become competitive and to stay in business and to provide jobs.

Over the Ages we have dared to dream.

Our dreams come from joy and happiness.
Our dreams come from sorrow and sadness.
Our dreams come from the promise of riches.
Our dreams come from the depth of ditches.

The future is connected by our dreams at the present.
Past dreams are connected by our knowledge at the present.
The silk web of all humanity is joined at this moment
By the dreams we possess and our plans for fulfillment.

We have choices to make and gardens to till.
We have jobs to do and careers to fulfill.
Cicero would hope that you do what you should
When the ring gives you power to do bad or good.

Business to everyone can be a good friend;
But it has vast power to break or to mend.
Which it will be will depend upon you
Your goals, policies and practices, too.

We dare to dream when we’re young or old.
We dare to dream when we’re timid or bold.
We dare to dream when we’re down and poor.
We dare to dream when we want no more.

Form this time forth: Dare to dream!

C.Boardman (1994)