

## NATIONAL PRODUCTIVITY

“Improvement of Productivity in the Engineering Sector Industries and Challenges”

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# Productivity

- ❖ Productivity measures the level of efficiency and effectiveness with which resources are used to produce goods and services.
- ❖ Productivity in industrial sector depends on a combination of efficient employees, equipment and processes.
- ❖ Continuous improvement in all of these areas involves examining the current practices in workplace and making adjustments to systems, employee training and even the equipment used to generate parts and components.
- ❖ Before adopting any method for continuous improvement for productivity, industry may need to measure their existing output levels, create a baseline and implement solutions for measuring change.

## Ways to increase Productivity at Manufacturing Facility

- ❖ Production Workflow analysis
- ❖ Shop Floor/Work Floor Processes
- ❖ Training and Employee Education
- ❖ Machinery/Equipment Maintenance
- ❖ Coordination/Information flow
- ❖ Material Management and Inventory Control
- ❖ Adaptation of Lean Manufacturing
- ❖ Adopt 14 Management Principles: The Toyota Way (Toyota Production System TPS)
- ❖ Planning for New Product Design & Development to Increase Productivity

## Production Workflow Analysis

Share current workflow problems with production team to develop continuous improvement plans for the manufacturing process and also apply application of computer integrated manufacturing (CIM) approach to increase the speed of the manufacturing process and uses real-time sensors and closed-loop control processes to automate the manufacturing process. This could mean reassigning resources to different areas of the manufacturing floor. Manufacturing companies often find that a machinery upgrade helps them stay competitive in a new and innovative market. Be sure to systematically evaluate performance and interpret any appropriate changes.

## Training and Employee Education

- ❖ The manufacturing industries are constantly changing.
- ❖ There's always a new technology promising to make manufacturing floors more efficient than ever.
- ❖ Technological advancements often change the skills required for certain tasks, and workers will require access to regular training to keep up with more advanced specialist skills.

## Machinery/Equipment Maintenance

- ❖ There's a link between the costs associated with downtime and the time and budget invested in preventive measures.
- ❖ While new equipment can boost productivity, it also requires maintenance to ensure that it continues working at an optimum level.
- ❖ It is important that employees know how to troubleshoot instances of system downtime to quickly find root causes of errors.
- ❖ Don't be too quick to blame the tool for problems.
- ❖ Remember to think about the process, the material and more.

## Coordination/Information flow

- ❖ The shop floor is most productive when everyone works together toward the same goal with as little waste and conflict as possible.
- ❖ While focusing on work is important, it's also crucial to ensure that each staff member feels comfortable as part of a team.
- ❖ The better the members of your team can work together, the more they will encourage a productive workplace culture.
- ❖ Continuous improvement takes culture as well as process and technology into account.

# Material Management and Inventory Control

- ❖ Optimizing inventory is especially important following the lean manufacturing principles.
- ❖ Usage of software will track inventory data and create automatic notifications of shortages



# Adaptation of Lean Manufacturing

- ❖ Lean manufacturing is a methodology that focuses on minimizing waste within manufacturing systems while simultaneously maximizing productivity.
- ❖ Waste is seen as anything that customers do not believe adds value and are not willing to pay for.



# Adopt 14 Management Principles: The Toyota Way (Toyota Production System TPS)

- ❖ Base your Management Decisions on a Long-Term Philosophy, Even at the Expense of Short-Term Financial Goals
- ❖ Create Continuous Process Flow to Bring Problems to the Surface
- ❖ Use “Pull” System to Avoid Overproduction
- ❖ Level Out the Workload (*Heijunka*)
- ❖ Build a Culture of Stopping to Fix the Problems, to Get Quality Right the First Time

# Adopt 14 Management Principles: The Toyota Way (Toyota Production System TPS)

- ❖ Use Visual Control So No Problems are Hidden
- ❖ Use only Reliable, Thoroughly Tested Technology That Serves Your People and the Processes
- ❖ Grow Leaders who Thoroughly Understand the work, Live the Philosophy, and Teach it to others.
- ❖ Develop Exceptional People and Teams who Follow Your Company's Philosophy
- ❖ Respect Your Extended Network of Partners and Suppliers by Challenging Them and Helping Them Improve

# Adopt 14 Management Principles: The Toyota Way (Toyota Production System TPS)

- ❖ Standardized Task are the Foundation for Continuous Improvement and Employee Empowerment
- ❖ Go and See for yourself to Thoroughly Understand the Situation (*Genchi Genbutsu*)
- ❖ Make Decisions Slowly by Consensus, Thoroughly Considering All options; Implement Decisions Rapidly
- ❖ Become a Learning Organization Through Relentless Reflection (*Hensei*) and Continuous Improvement (*Kaizen*)

# Planning for New Product Design & Development to Increase Productivity

## Step- I: Product Definition & Planning

Identification of Potential Product

Develop Tasks by Manufacturer

Research Market

Estimate Schedule & Cost

Initial Drafting

Project Plan & Approval

## Step- II: Assigning & Conceptual Designing

Project Assigned to Institutions/ Design Centers

Generate Engineering Specifications

Evaluate Concepts

Make Concept Decisions

Set Targets

Refine Project Plan

Concept Approval

## Step- III: Final Approval & Development

Final Consultation with Manufacturer

Manage Engineering Changes by R&D Team

Project Approval & Support

Product Development

Testing & Performance Analysis

Estimate Final Product Cost

Retire Product/ Prototype

## Challenges/ causes of decline in production

EDB has consulted local industry, and subsequent upon fresh comments received from the Industry following are considered as main causes of decline in production.

- ❖ Devaluation of Pak Rupee against USD and other foreign currencies.
- ❖ Federal Excise Duty (FED) from 2.5 to 7.5% against different vehicle categories increased the prices of vehicles.
- ❖ The increase in Additional Custom Duty (ACD) 2% to 4% and 7% against tariff lines 16%, 20% and above custom duty added further to the cost/price.
- ❖ Organized sector is paying duties and taxes (CD/ACD/FED/ST etc) whereas unorganized sector does not pay any of duties and taxes
- ❖ Duties and taxes on input raw materials are at higher rate and finished whereas finished products are imported at lower duty.

# Conclusion

- ❖ A thorough review of current production processes and equipment can uncover hidden bottlenecks that may be easily remedied by a change in the process or new technology. Maintaining equipment in good repair reduces unexpected work stoppage. Training and good organization will provide a safe work area and could result in new suggestions from the workers themselves about resolutions for problems they see every day.
- ❖ Finally, increased productivity results in increased revenue and the opportunity to expand the business, take on more work, or increase wages or new equipment purchases. Make it a policy to review your processes regularly. New manufacturing equipment, materials, and techniques arrive all the time. Be prepared to adopt those that provide the most value for your company.



Thank You