

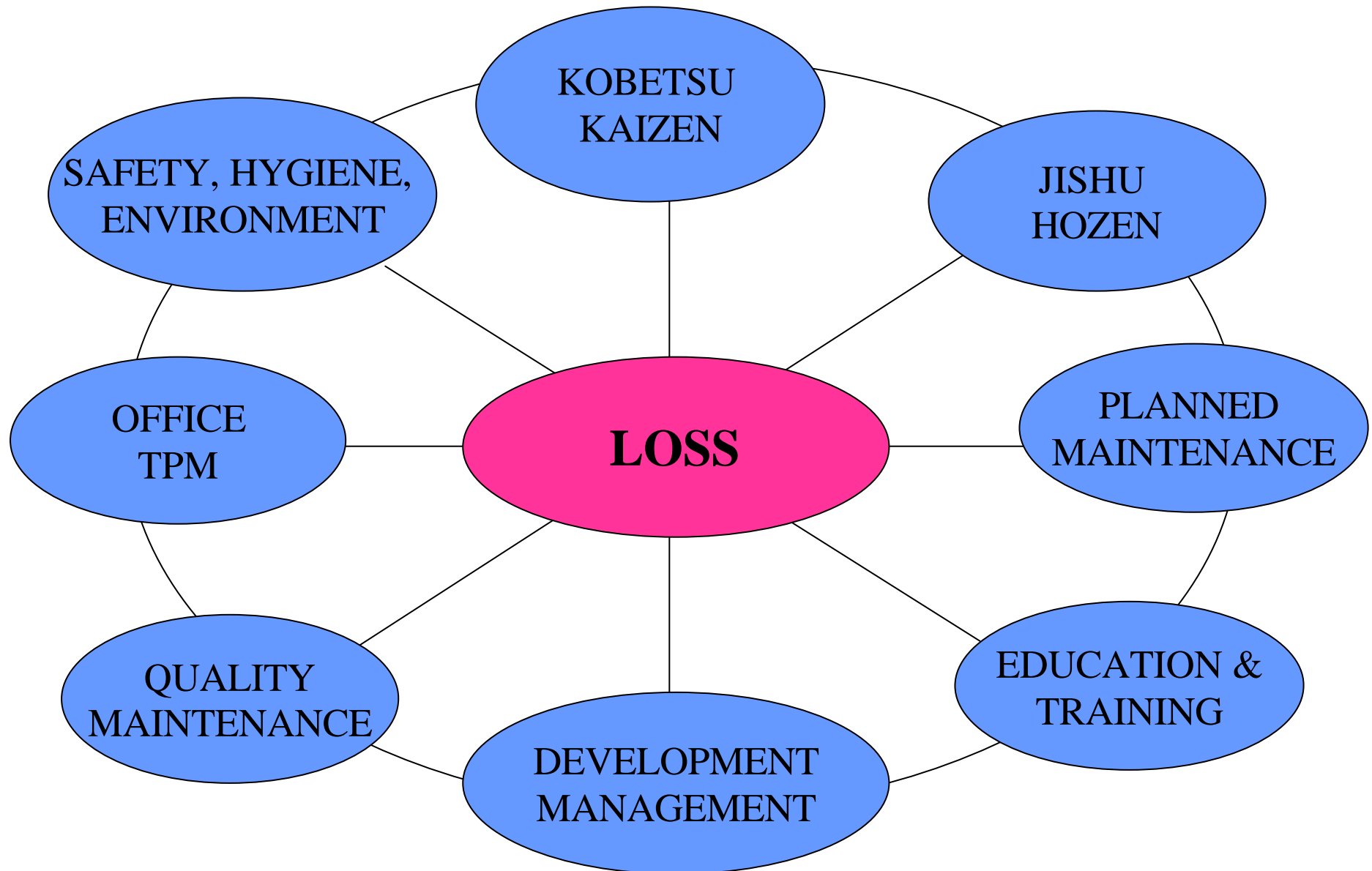
TPM (Maintenance and Management) Management Index and Activity Index

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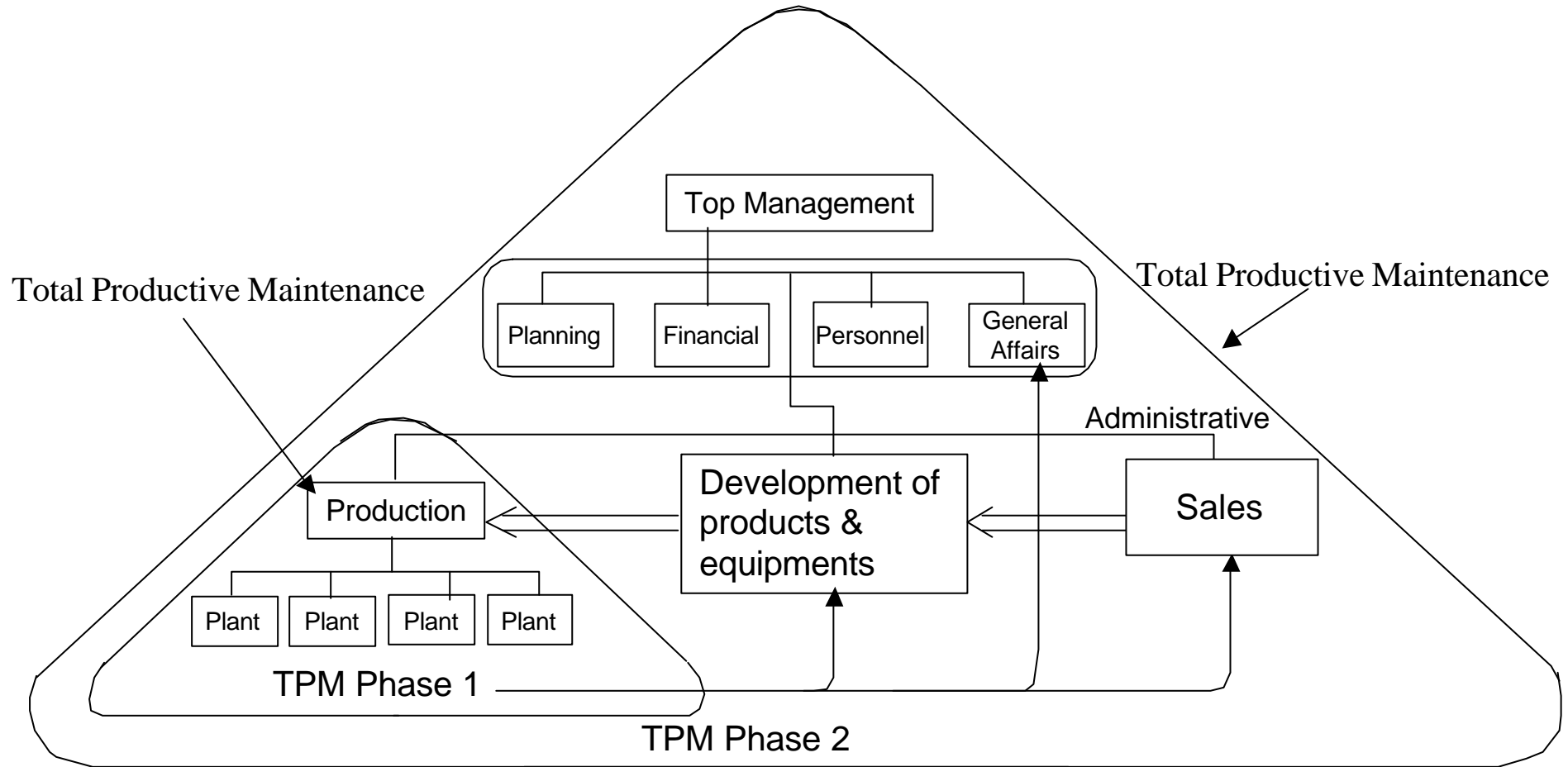
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8 Activities and Loss



From TPM of Production Department of Company-wide TPM Covering All Company Activities



TPM Phase 1 TPM of Production Department

TPM Phase 2 Company-wide TPM encompassing production, development, sales and administration

KOBETSU- KAIZEN (Individual Improvement)

- **Example** -

Management Index	Activity Result Index	Activity Index
<p>1. Increase Production</p> <ul style="list-style-type: none"> • Increase Productivity $\left[\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}} \right]$ <p>2. Decrease Cost</p> <p>3. Customer Complaint reduction</p> <p>4. Zero Accidents</p>	<p>1. Overall Equipment Efficiency</p> <p>2. Overall Line Efficiency</p> <p>3. Overall Plant Efficiency</p> <p>4. W I P</p> <p>5. Total Down-Time</p> <p>6. Total Saved Money</p>	<p>1. Number of Kaizens by</p> <ul style="list-style-type: none"> - project team - circle member - engineering staff <p>2. Number of Kaizens for 16 Loss</p> <p>3. Number of Kaizens for each loss</p> <p>4. Number of Horizontal deployments</p> <p>5. Number of Cases in which various methods are used</p>

JISHU-HOZEN (Autonomous Maintenance)

- Example -

Management Index	Activity Result Index	Activity Index
<p>1. Increase Production</p> <ul style="list-style-type: none"> • Increase Productivity <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}}$ </div> <p>2. Decrease Cost</p> <p>3. Customer Complaint reduction</p> <p>4. Zero Accidents</p>	<p>1. Time reduction of cleaning, inspection, retightning, lubrication</p> <p>2. Breakdown reduction due to poor JH</p> <p>3. Defect reduction due to poor JH</p> <p>4. Downtime Reduction</p> <p>5. Reduction, Elimination of quantity – Parts and materials , which drop during processing</p> <p>6. Total saved money by preventing leakage of oil, material.</p>	<p>1. Number of Tags attached and removed</p> <p>2. Number of One-point Lesson sheets</p> <p>3. Number of 'Good to Find' cases</p> <p>4. Number of JH Kaizens</p> <p>5. Number of repairs by operators</p> <p>6. Score of 5's' activity</p> <p>7. Number of repaired malfunctions by operators</p> <p>8. Education Time by using One-Point Lesson Sheets</p> <p>9. Trends of JH STEP</p> <p>10. Number of Visual Controls</p> <p>11. Upgraded Skills</p> <p>12. Number of suggestions</p>

PLANNED MAINTENANCE

- Example -

Management Index	Activity Result Index	Activity Index
<p>1. Increase Production</p> <ul style="list-style-type: none"> • Increase Productivity <div style="text-align: center; margin: 10px 0;"> $\left[\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}} \right]$ </div> <p>2. Decrease Cost</p> <p>3. Customer Complaint reduction</p> <p>4. Zero Accidents</p>	<p>1. Reduction of downtime due to Breakdown</p> <p>2. Improvement of MTBF, MTTR</p> <p>3. Reduction of Spare-parts</p> <p>4. Reduction of Oil Consumption, Electricity</p> <p>5. Reduction of Downtime</p> <p>6. Reduction of repair cost (manpower, subcontractor)</p> <p>7. Number of Inspections, repairs transferred in-house from subcontractor</p>	<p>1. Preventive Maintenance implementation rate</p> <p>2. Number of Corrective Maintenance activities</p> <p>3. Number of MP Sheets</p> <p>4. Number of machines under CBM</p> <p>5. Number of Breakdown re-occurrence</p> <p>6. Skill upgraded of maintenance workers</p> <p>7. Multi-skilled maintenance workers</p> <p>8. Number of Red-Tags removed</p>

QUALITY MAINTENANCE

- Example -

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Management Index	Activity Result Index	Activity Index
1. Increase Production <ul style="list-style-type: none"> • Increase Productivity <div style="text-align: center; margin: 10px 0;"> $\left[\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}} \right]$ </div> 2. Decrease Cost 3. Customer Complaint reduction 4. Zero Accidents	1. Reduction of quality defects, rework 2. Amount of saved money 3. Reduction of Inspection time, manpower 4. Reduction of Customer Complaints	1. Number of Kaizens 2. Zero cases <ul style="list-style-type: none"> 2 – 1 Product items 2 – 2 machines 2 – 3 lines 3. Duration of Zero cases <ul style="list-style-type: none"> 3 – 1 One month 3 – 2 three months 3 – 3 six months 3 – 4 more than six months 4. Number of revised standards

EDUCATION & TRAINING

- Example -

Management Index	Activity Result Index	Activity Index
<p>1. Increase Production</p> <ul style="list-style-type: none"> • Increase Productivity <div style="text-align: center; border-left: 1px solid black; border-right: 1px solid black; padding: 5px;"> $\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}}$ </div> <p>2. Decrease Cost</p> <p>3. Customer Complaint reduction</p> <p>4. Zero Accidents</p>	<p>1. Reduction of Downtime, Breakdown due to lack of knowledge and skill</p> <p>2. Reduction of Downtime, Breakdown after getting knowledge and skill</p> <p>3. Reduction of quality, Defect, rework after getting knowledge and skill</p> <p>4. Reduction of sub-contractor job after getting skill</p>	<p>1. Total time of Education , Training for Operator and Maintenance worker</p> <p>2. Total item of E & T</p> <p>3. Number of One-Point Lesson Sheets</p> <p>4. Number of delegates for seminars</p> <p>5. Evaluation of knowledge & skills</p> <p>6. Number of Kaizens proposed</p>

SAFETY AND ENVIRONMENT

- Example -

Management Index	Activity Result Index	Activity Index
<p>1. Increase Production</p> <ul style="list-style-type: none"> • Increase Productivity <div style="text-align: center; border-left: 1px solid black; border-right: 1px solid black; padding: 5px;"> $\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}}$ </div> <p>2. Decrease Cost</p> <p>3. Customer Complaint reduction</p> <p>4. Zero Accidents</p>	<p>1. Reduction of accident</p> <p>2. Reduction of noise</p> <p>3. Create excellent workshop – 5S -</p> <p>4. Reduction of downtime by no accidents</p> <p>5. Saving by reduced energy consumption</p> <p>6. Reduction of Industrial waste quantity</p>	<p>1. Number of Kaizens for unsafe place, action</p> <p>2. Number of safety proposals</p> <p>3. Total time of safety patrol (daily, monthly)</p> <p>4. Number of Poka Yoke Kaizens</p> <p>5. Score of 5S activity</p>

OFFICE TPM

- Example -

Management Index	Activity Result Index	Activity Index
<p>1. Increase Production</p> <ul style="list-style-type: none"> • Increase Productivity <div style="text-align: center; border-left: 1px solid black; border-right: 1px solid black; padding: 5px; margin: 10px 0;"> $\frac{\text{Production}}{\text{Manpower} \times \text{Manhour}}$ </div>	<p><u>Marketing</u></p> <ol style="list-style-type: none"> 1. Numbers of new customers & new orders 2. Reduction of customer order cancellations 3. Reduction of Inventory due to wrong Judgement 	<ol style="list-style-type: none"> 1. Total time for visiting prospective customers 2. Number of Kaizens for job revision
<ol style="list-style-type: none"> 2. Decrease Cost 3. Customer Complain reduction 4. Zero Accidents 	<p><u>R & D</u></p> <ol style="list-style-type: none"> 1. Number of new products 2. Reduction of lead-time 3. Reduction in number of design changes 4. Minimising vertical – startup time 5. Reduction in numbers of Trial & Error 6. Saved Money 	<ol style="list-style-type: none"> 1. Number of Kaizens 2. Try and Error 3. Lead time reduction 4. Total meeting time with Customer, Marketing, Manufacturing, purchasing dept. 5. Number of VA-VE ideas implemented 6. Number of Kaizens for Job revision

OFFICE TPM

Contd.....

Management Index	Activity Result Index	Activity Index
	<p><u>Purchasing</u></p> <ol style="list-style-type: none"> 1. Reduction of Downtime due to no material from vendor 2. Number of acceptable purchased items at a lower rate 3. Saved Money 4. Reduction of incoming material inventory 	<ol style="list-style-type: none"> 1. Total meeting time with vendor 2. Number of Kaizens for vendor 3. Reduction in number of vendors 4. Number of Kaizens for job revision
	<p><u>Other</u></p> <ol style="list-style-type: none"> 1. Reduction of manpower and Job hours 2. Reduction of monthly accounts settlement 	<ol style="list-style-type: none"> 1. Number of Kaizens for Job Revision 2. Preparation of standard manual and basic manual 3. Reduction of Job lead-time 4. Scoring on 5S activity

$$\text{Profit} = \text{Turnover} - \text{Cost}$$

<< example >>

DIVISION	TURNOVER	COST
Marketing	<ul style="list-style-type: none"> • Get New Customer • Sale New product to present customer 	<ul style="list-style-type: none"> • Cancellation • Inventory <ul style="list-style-type: none"> • Finished goods •WIP
R & D	<ul style="list-style-type: none"> • Create New Product (Shorter Lead Time) 	<ul style="list-style-type: none"> • Trial & Error • VA • VE
Manufacturing	<ul style="list-style-type: none"> • Down Time reduction • Speed – up (Loss Elimination Reduction) 	<ul style="list-style-type: none"> • Save <ul style="list-style-type: none"> • Material • Energy • Consumables (Oil, Tool, Spare – parts etc)
Purchasing	<ul style="list-style-type: none"> • JIT (Down Time reduction) 	<ul style="list-style-type: none"> • Cheaper material • JIT (Inventory reduction)
Other Division	<ul style="list-style-type: none"> • Higher efficiency • Job Time Reduction 	<ul style="list-style-type: none"> • Manpower • Manufacturing in Cheaper place

* **Manpower Reduction, Manufacturing abroad**