



CONFIDENTIAL

Operational Excellence: Specialty Steel Company

**A Management case study
June 25, 2009**

KEY MESSAGES

- I. **Superior operations drives value creation**
- II. **Indian manufacturing companies face significant operations challenges**
- III. **New tools and mindset required to build operational excellence**
- IV. **Rewards from pursuing operational excellence can be large – the journey must begin now...**



SCENARIO

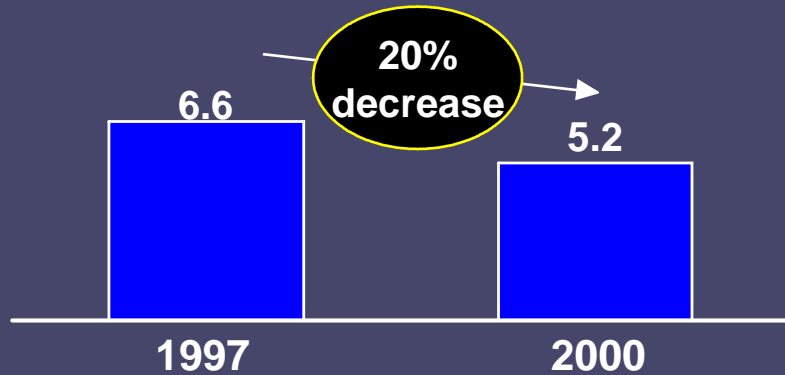
- Our manufacturing client had long been suffering from losses in steel industry, also facing new competitive challenges. Virtually all of the client's competitors had recently restructured on a large scale to cut operating costs. It was clear from our perspective that our client needed to follow suit and optimize its own production.
- At the very beginning of the engagement, we agreed with top management on the cost targets and improvement in bottom line benefits through operational excellence. The targets were aggressive and mutually agreed.
- We decided then to spend our days on the production floor to identify every possible savings opportunity. Wearing our hardhats, we examined the machines to understand the parameters of production and calculated improvements based on a constant flow of analyses. We proposed a new production approach to increase the volume of units produced at a given time by reducing losses, simplifying several production steps, and changing the flow of materials and streamlining value chain.



INDIAN MANUFACTURING COMPANIES FACE A PROFITABILITY CRISIS

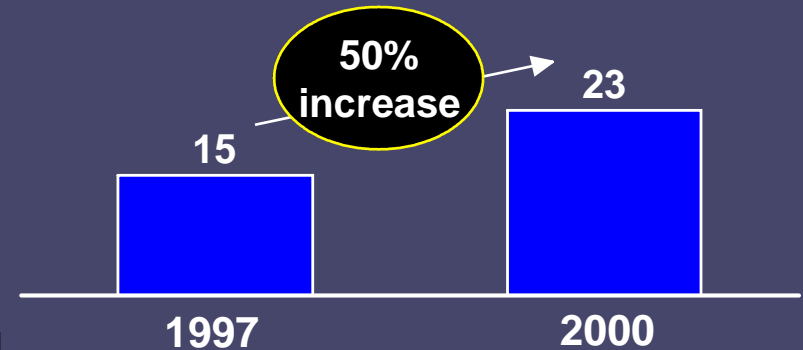
Profit margins*

PAT, percentage of sales



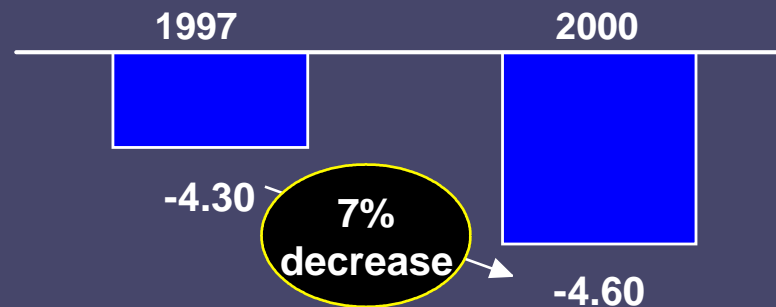
Percentage of companies making losses

Per cent



EVA (ROIC minus cost of capital)

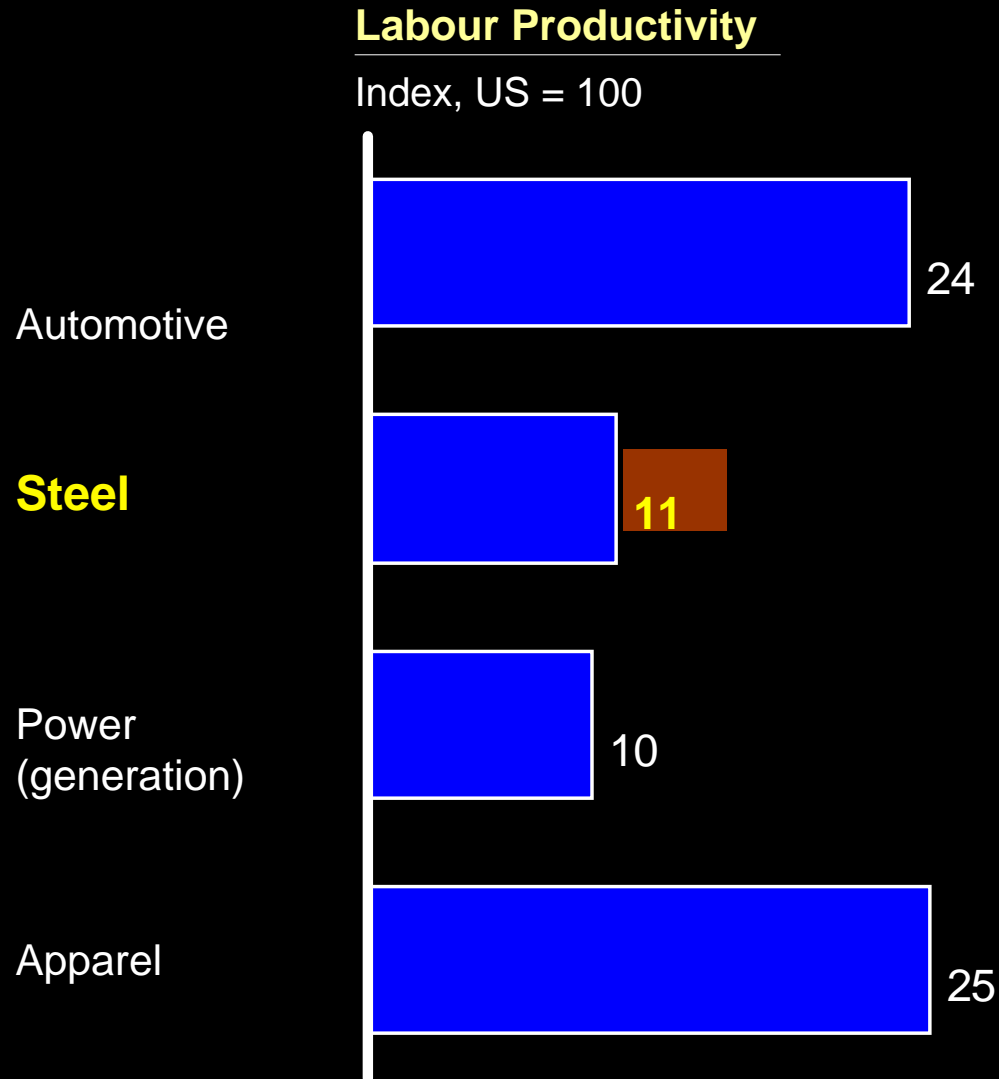
Per cent



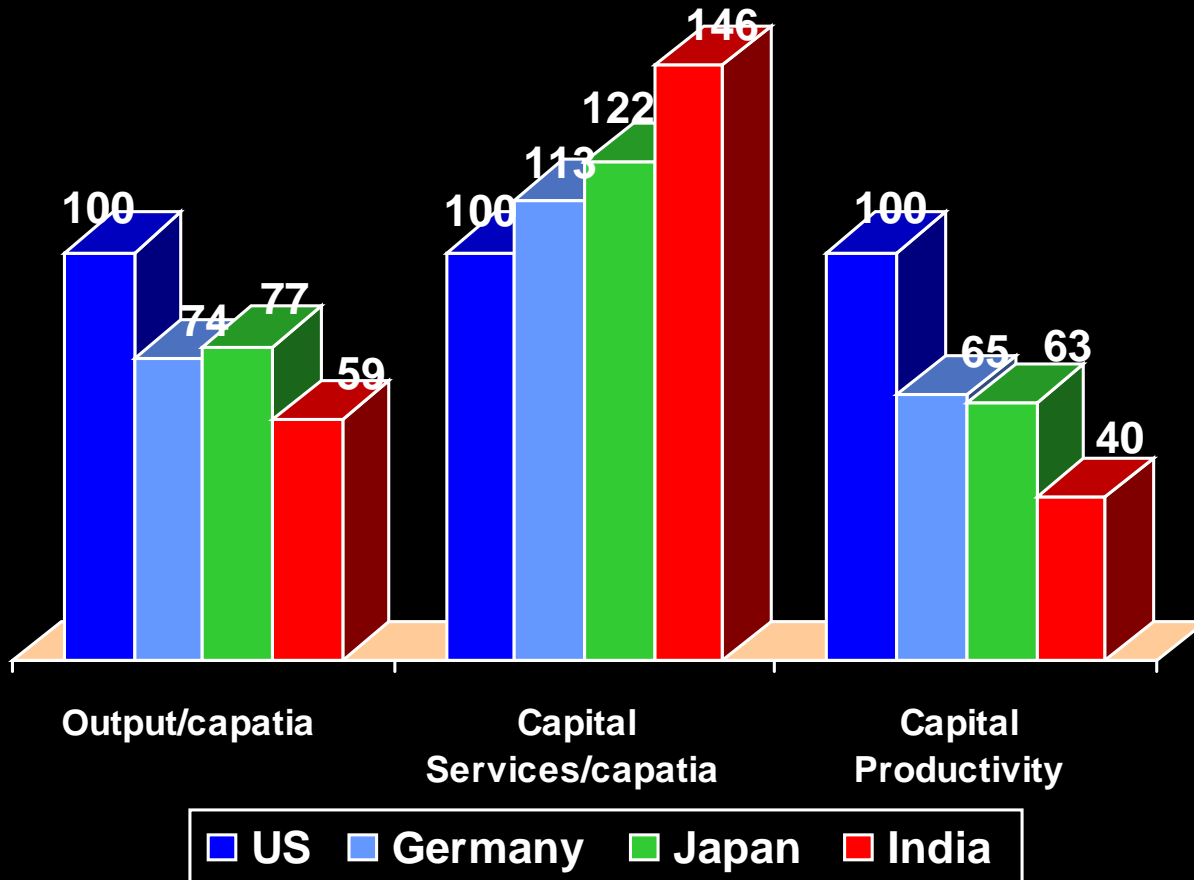
* Based on a set of 132 companies in 10 sectors (Industrial Machinery, Ferrous, Non Ferrous, Consumer Durables, Chemicals, Petrochemicals, Pulp & Paper, Power, Tyres and Automotive)
Prowess; McKinsey team analysis

POOR FINANCIAL PERFORMANCE IS DRIVEN BY POOR LABOUR PRODUCTIVITY AND ...

EXAMPLES



...CAPITAL PRODUCTIVITY



Improving Capital Productivity through Maintenance

Manufacturing companies are under pressure to minimize production costs. Reducing downtime and minimizing maintenance costs are the traditional approach. Improving production equipment effectiveness as prescribed in total productive maintenance (TPM) is a relatively recent development.

OEE outlines improving maintenance productivity through structural audit and improving production equipment effectiveness for discrete type production systems and continuous processes. It suggests continuous improvement of production equipment effectiveness by periodic evaluations



AREAS OF IMPROVEMENT

Enhancing production – Each stage

Steel melting Shop

- What are the major changes in Steel melting process resulting opportunities and risks?

+

Rolling mill Shop

- What are major areas to reduce process time substantially and cutting edge in competitive landscape resulting in can be strategic gained ?

+

Bright bar Shop

- How does optimum utilization of equipment resulting in increased production can be achieved ?

=

Streamlining Supporting activities

Organization restructuring/ PMS

- What is best fit structure that BU should pursue strategic initiative over the next 10 years?

+

Supply chain management

- What are gaps in value chain and way to eliminate NVAs ?
- How streamlining of supply chain will support other strategic initiatives?

+

Direct/ Indirect cost reduction

- What are alternative ways to reduce COGS and achieve the expected financial returns of strategy?

Throughput Improvement

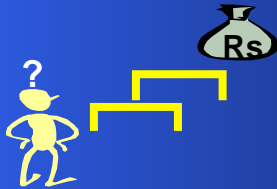
APPROACH TO IDENTIFY AND CAPTURE THE OPPORTUNITY

What's the opportunity?



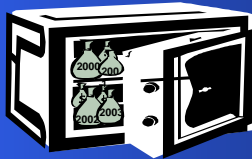
- Start with a diagnostic, including the business case
- Focus on all, relevant operational levers
- Set stretch targets based on benchmarking

How to capture it?



- Small pilot in each area and then quick roll-out
- Specific tools for each part of the value chain

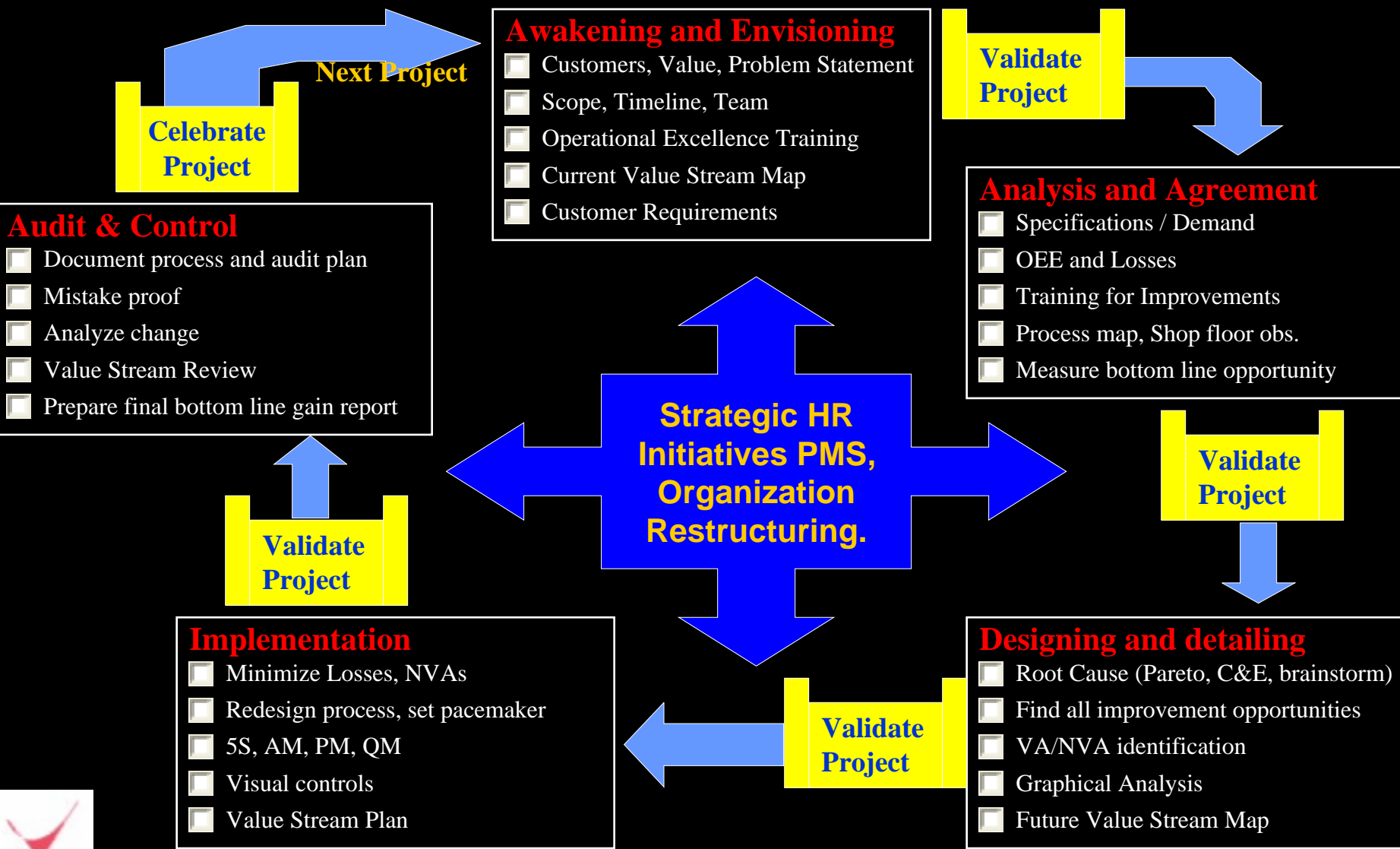
Sustaining Momentum



- Strong performance management systems
- Modified organization structure and people
- Ensure significant top-management involvement



METHODOLOGY

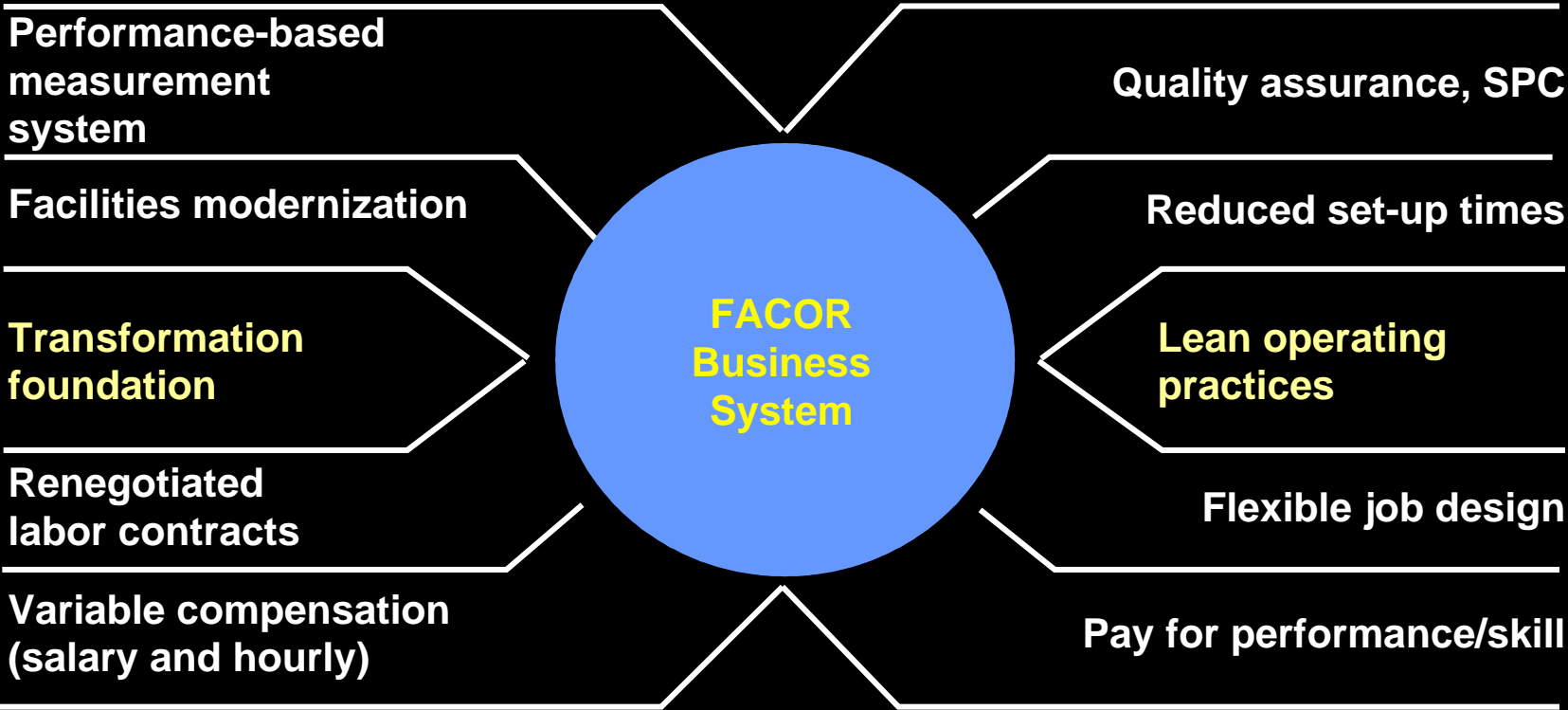


GAPS EXIST IN ALL AREAS OF OPERATIONAL PERFORMANCE

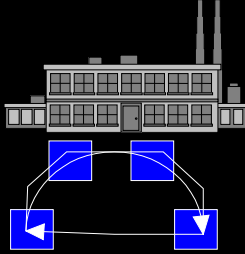


* Steel industry analysis

FACOR CASE STUDY – CORPORATE-WIDE LEAN TRANSFORMATION

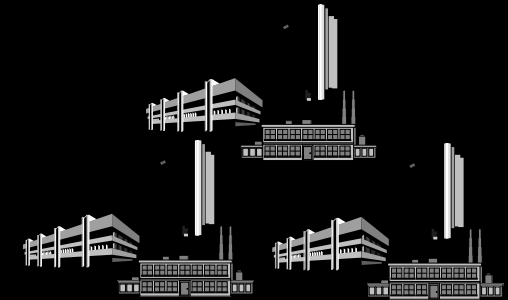
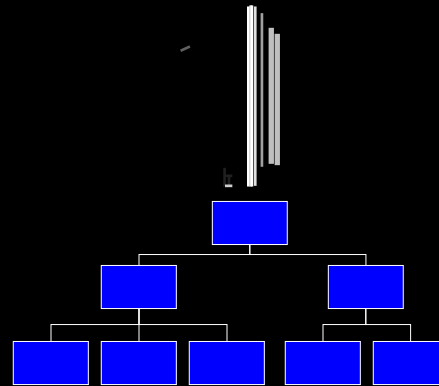


EVOLUTION OF THE OPERATIONAL EXCELLENCE JOURNEY



Lean “functions”

- Application of best practices and tools to achieve improvement in focused cells/processes



Lean value chain

- Application of best practices to redesign and optimize the overall end-to-end value chain

OPERATIONAL EXCELLENCE DRIVES THESE RETURNS (IN 8 MONTHS)

- Goal of throughput increase achieved resulting in gain of Rs. 3 Cr. through revised Production System & Value chain
- Each dept. of manufacturing operations set highest records of production and despatch
- Additional Rs. 7 Cr. savings targeted for 2008-09

- New production cycle time and cost 50% lower than competition
- Optimum utilization of Manufacturing floor space (required 25% less for comparable product)
- Order to delivery time less by 15%

- Make-to-order supply chain
- Inventory level 50% lower



NEW MINDSET REQUIRED TO DRIVE OPERATIONAL EXCELLENCE

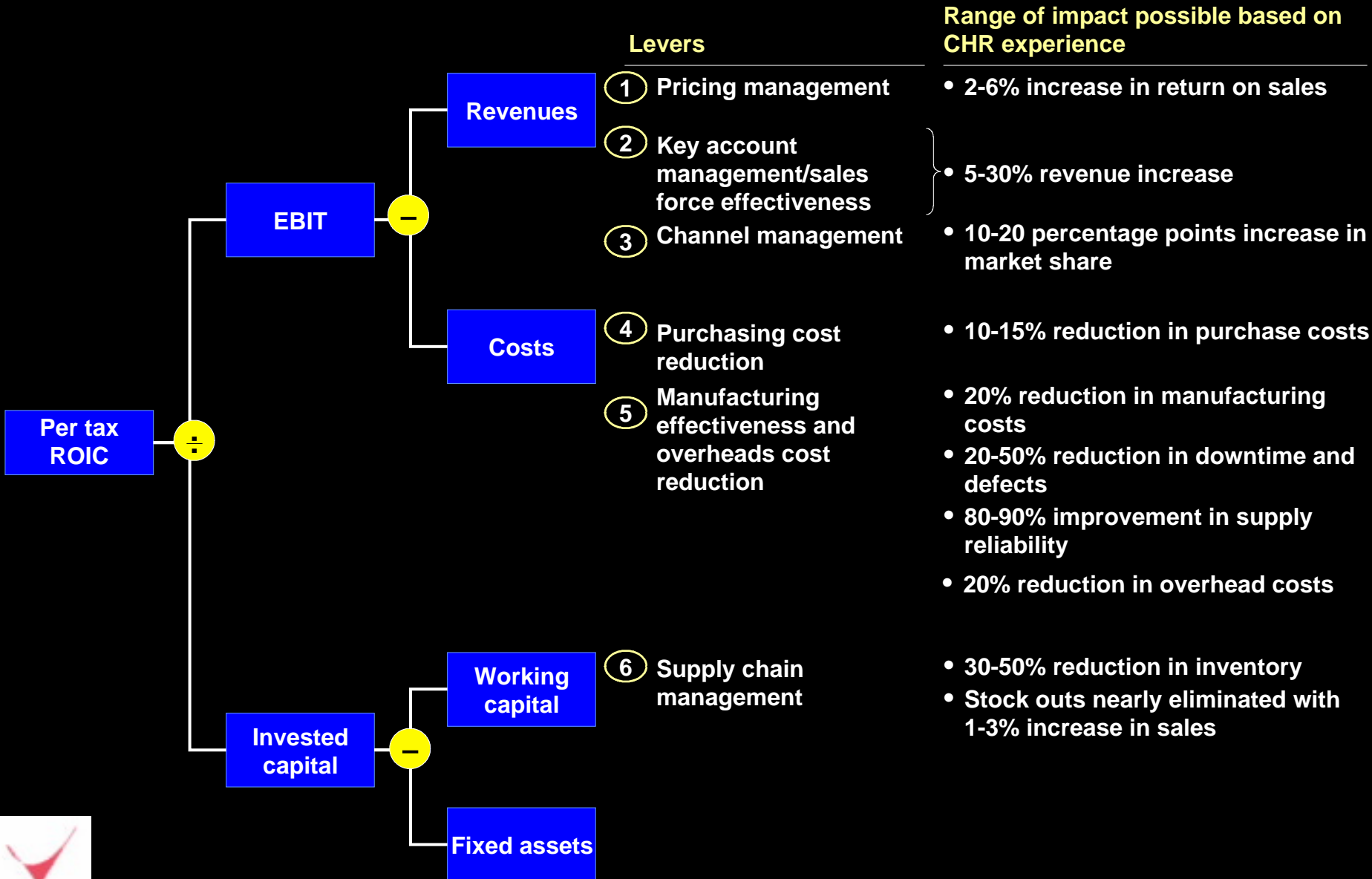
Typical mindset

- Limited top management involvement
- Incremental targets
- Subjective problem solving
- Ad-hoc implementation
- Programme driven by “sparable” executives

Required mindset

- Driven by CEO agenda
- Step-change improvement
- Focus on facts and root causes
- Relentless focus on change and consequence management
- Led by the brightest and the best

EACH AREA CAN HAVE SIGNIFICANT IMPACT ON PROFITS AND VALUE CREATION



BOTTOM UP IMPROVEMENT PROGRAMS (EVALUATE NUMEROUS IDEAS AND CAN YIELD LARGE BENEFITS)

Rigorous evaluation of simple ideas...

- In a typical program, more than 100 ideas are generated, rigorously evaluated and implemented
- Ideas are not capital-intensive
- Should yield payback in not more than one year
- Should be implementable in 3-6 months



...could yield impressive results

- **30-40% reduction in compressible costs (10-20% reduction in total manufacturing costs)**
- **Significant reduction in downtime**
- **Large reduction in defect rate**
- **Better reliability and shorter throughput time in deliveries**



BENEFITS: BIG PICTURE

From...

“Single solution for entire company” – one size fit all approach

“Redesign to meet competitive benchmarks”

“Push-system is the only way Indian supply chains work”

“IT system will solve all supply-chain issues”

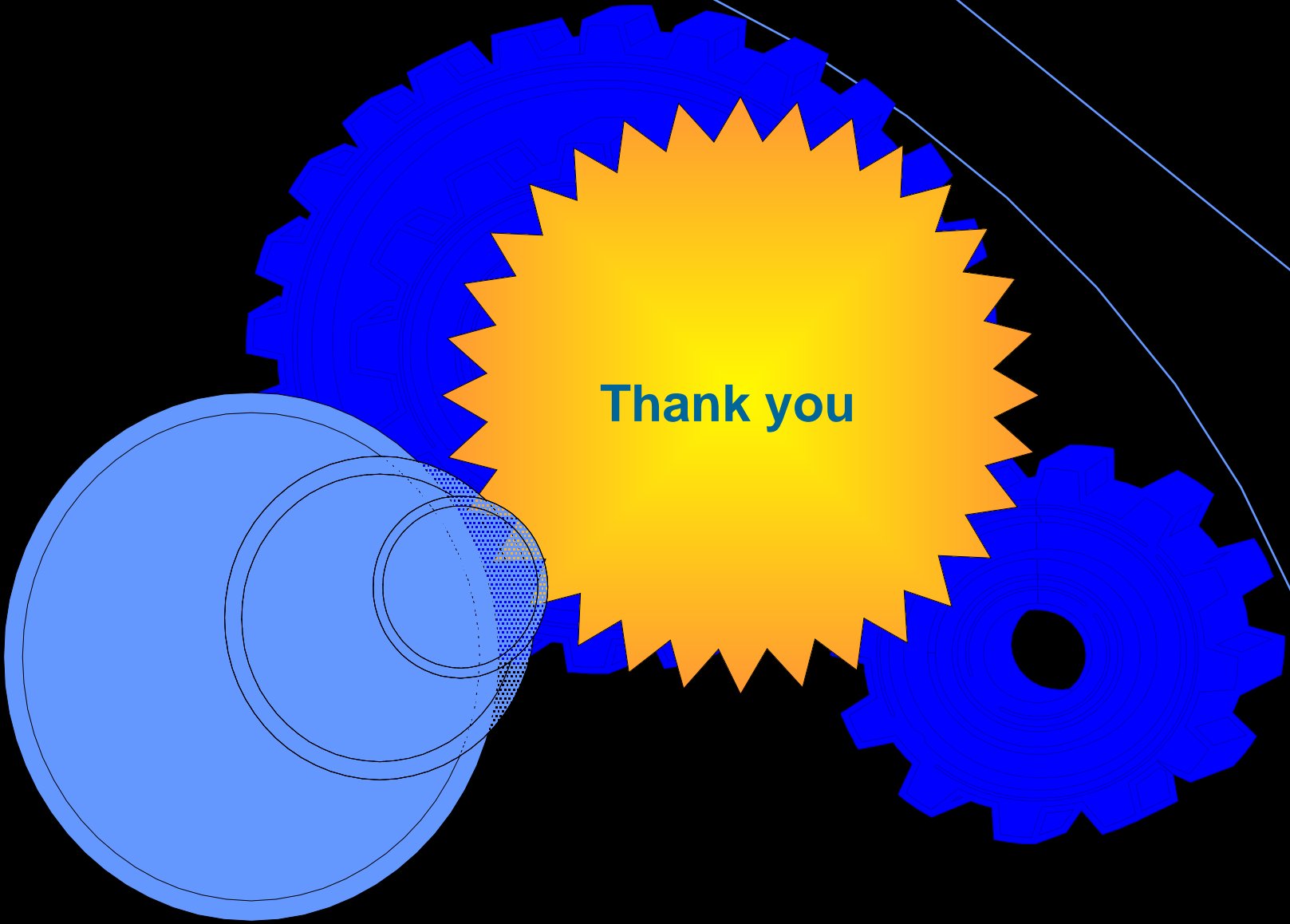
To...

- Define what needs to be offered
 - Different customer service levels
 - Product variety and configuration
- Multiple chains within a company

- Design to meet segment-specific customer breakpoints

- Pull (wherever possible) based on better forecasting and order management

- Use IT selectively (not before, but after redesign) for:
 - Information transparency
 - Order management and forecasting



Thank you

The 5 Ps of OEE

I. Plants

- Adding and locating new plants/machinery
- Expanding, contracting, or refocusing facilities

I. Parts

- Make or buy decisions
- Vendor selection decisions

I. Processes

- Technology evaluation
- Process improvement and reengineering

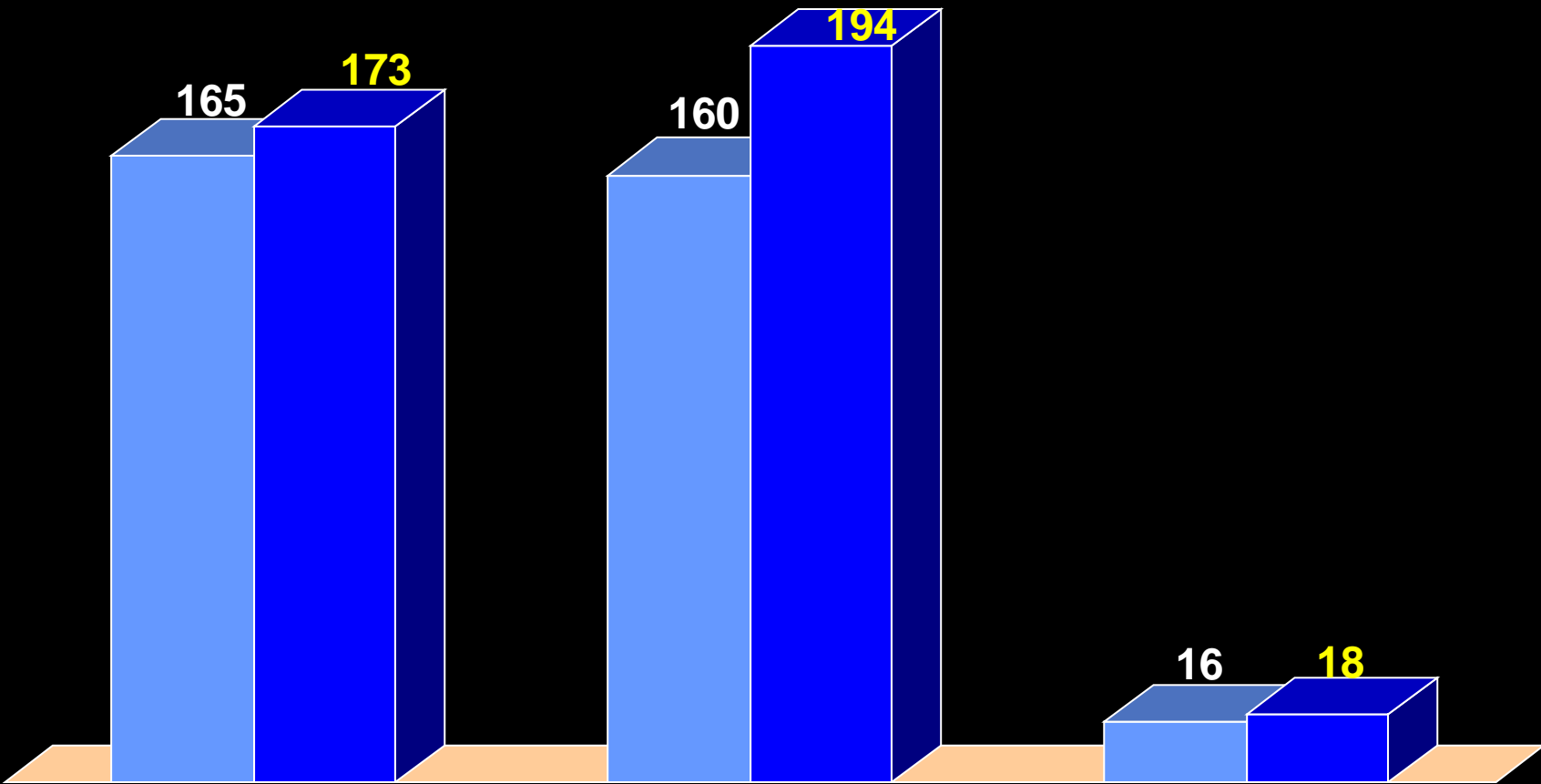
I. People

- Quality improvement
- Setting/revising work standards
- Learning curve analysis

I. Planning and Control Systems

- Supply chain management
- MRP
- Shop floor control
- Warehousing and distribution

HIGHEST PRODUCTION FIGURES

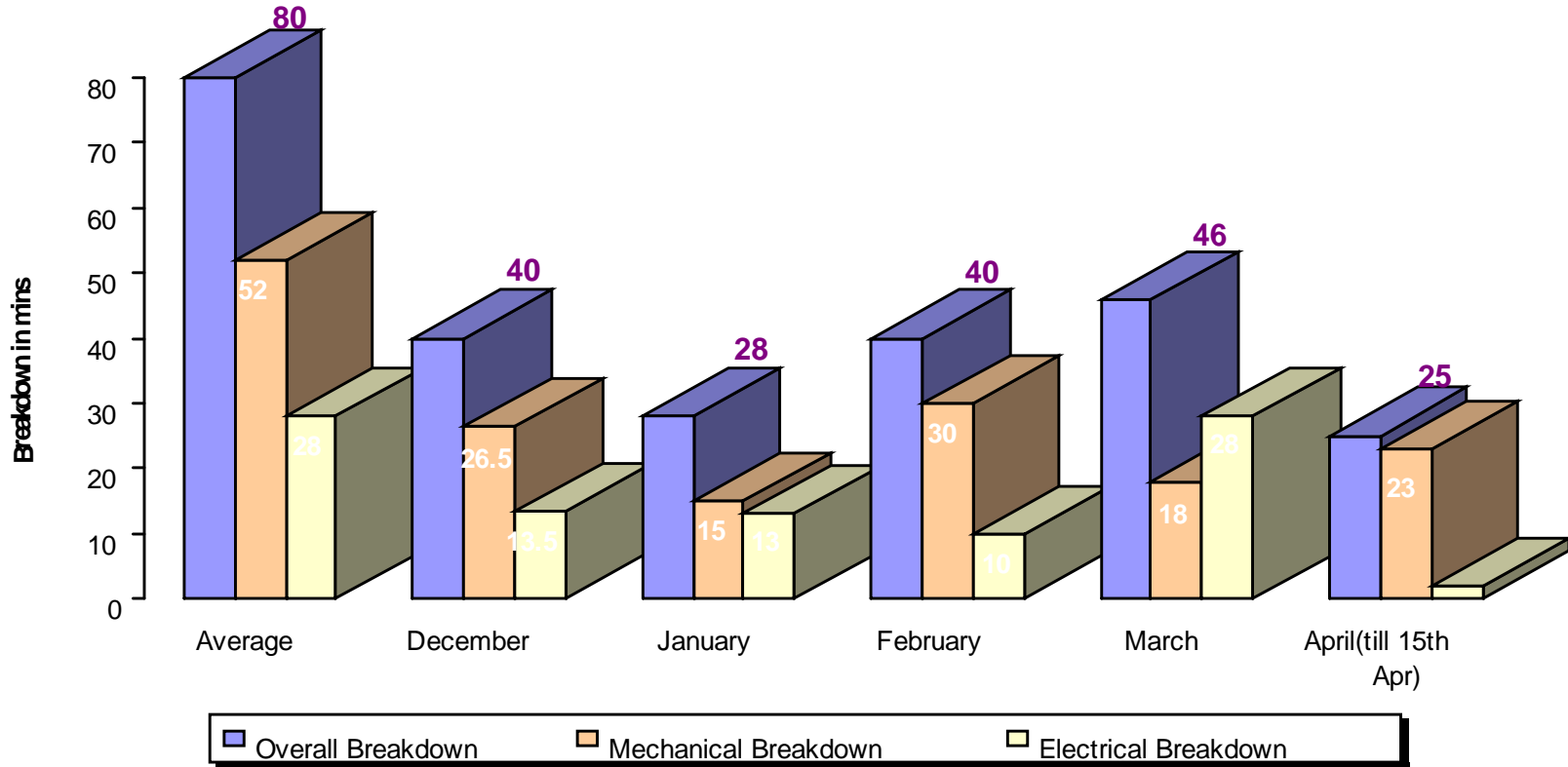


■ Average Production in MT/Day ■ Highest Production in MT/Day



RMS Benefits – Preventive Maintenance (for Apr'08)

Breakdown Status



Average breakdowns per day = 80 mins / day
Breakdowns per day = 25 mins / day
Overall reduction in Breakdown = 69 %

