Improving production and supply chain performance
Case studies from EY/P&G and client partnerships

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Introduction

Companies that are able to make and sustain improvements in production are able to achieve better supply chain performance overall, and can thus compete more effectively with their peers. Lagging productivity as a result of ineffective planning, high labour costs, underperforming equipment and a lack of integration to the overall supply chain are emerging as renewed areas of focus for global players, especially where other parts of the supply chain have already been substantially streamlined.

Challenging growth, changing customer behaviours and difficulties in controlling costs are putting organisations supply chains under pressure not only to reduce costs, but also to increase agility and responsiveness. However, despite numerous improvement programmes, many organisations still struggle to reduce product costs and inventory levels.

Figure 1: Supply chain challenges

Operational management systems

In response to these ongoing pressures, organisations are investing in robust operational management systems that promote sustained improvements in their production processes. These systems integrate multiple disciplines to improve production throughput, improve OEE levels, and improve positioning vs their competition. They typically include strategy, people, IT, process and commercial aspects, as outlined in Figure 2.

IWS (or Integrated Work Systems) is P&G’s operational work systems. EY and P&G have formed a partnership whereby EY assist clients to implement aspects of P&Gs IWS, as part of their efforts to improve performance, and as part of P&G’s efforts to introduce additional learning into IWS.
Although IWS is tailored specifically to P&G, there are many aspects of the approach that are relevant for others:

- The system has been designed to unlock the collective intellectual capability of the workforce in a standardized approach to deliver the needs of the business;
- Comprehensive systems combine the best of Lean, Six Sigma, TPM (Total Preventative Maintenance), Toyota Production System, etc, backed up by detailed analytics required to monitor progress and deliver world class manufacturing performance;
- The 11 pillars of IWS combine manufacturing ‘know-how’ of P&G as well as insight gained through advanced analytics and EY’s global manufacturing experience and capabilities;
- IWS focuses the power of solving the right problem in order to deliver better performing products at the right cost to the consumer;
- The IWS maturity journey aligns to an organisation’s existing maturity, but is designed to achieve and sustain improved manufacturing standards and systems that create a competitive advantage; and
- Extensive focus is placed on mastering “reliability” of the production process. Related to this is the concept of rate, whereby a production systems reliability is closely related to the production rate. In many industries, rate is not properly understood, resulting in operations that run too fast and at higher costs and lower performance.

Typical benefits resulting from operational excellence programmes are depicted below:
Case Studies

Working with P&G, EY recently leveraged selected components of IWS to assist other organisations to improve their production environment, with beneficial results.

**Case Study 1 – Leading cigarette manufacturer**

EY assisted a leading cigarette manufacturer to improve throughput in some of its plants by assisting with a Run-To-Target implementation (RTT is a subset of IWS, where selected tools and techniques were adapted to address the specific client need for breakthrough performance). At multiple client sites, a 16 week programme was followed whereby the various RTT tools and techniques were implemented and monitored.
**Figure 4: Case Study 1 Implementation and Success Drivers**

A key driver for improvement was rigorous daily focus on elimination of Top Stops (the key problems that stopped processing on the line). Through daily focus and planning sessions, the top stops were tracked and preventative maintenance or machine rehabilitation actions were implemented to address the root causes of the stops. This focused effort ensured that Unplanned Downtime was gradually reduced, resulting in improved MTBF (Mean Time Before Failure), Availability, and OEE (Overall Equipment Effectiveness), resulting in increased reliability and throughput.

Key implementation results included:

- A reduction in the number of stops (planned and unplanned);
- Stabilisation of the production system; and
- Operator understanding of leading practices regarding line maintenance, and OEE improvement.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Results</th>
<th>MTBF</th>
<th>Stops</th>
<th>UPDT</th>
<th>OEE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country 1</td>
<td>increased 6.8 → 9.5</td>
<td>reduced 1,111 → 792</td>
<td>reduced 16% → 14%</td>
<td>increased 60% → 64%</td>
<td></td>
</tr>
<tr>
<td>Country 2</td>
<td>increased 3.8 → 4.7</td>
<td>reduced 1,797 → 1,618</td>
<td>reduced 18% → 13%</td>
<td>increased 56% → 63%</td>
<td></td>
</tr>
<tr>
<td>Country 3</td>
<td>increased 5.4 → 13.2</td>
<td>reduced 959 → 267</td>
<td>reduced 27% → 20%</td>
<td>increased 61% → 64%</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1: Example implementation results**

**Case Study 2 – Leading global mining company**

EY assisted a leading global mining company to identify and implement production process improvements in its ore handling operations, using advanced simulation and analytics tools from the IWS toolset.

By developing a simulation model of the production process (depicted below), various bottlenecks and process improvement opportunities were identified.
The simulation model enabled a detailed analysis of the actual and theoretical performance of each component of the production system. This also enabled competing cause analysis to be performed, indicating the key bottlenecks and most likely points of failure in the system. The output of the analysis was used to formulate improvement actions.

In addition, the simulation tool was used to perform scenario analysis for the overall value chain. This was used to develop a portfolio of options designed to increase throughput, which included capacity development (Capex), debottlenecking, and optimisation.
Conclusion

Operational excellence systems are being leveraged by many organisations globally to improve production discipline and throughput, contributing to stronger marker performance and more effective supply chains. These systems been proven to provide organisations with a leading edge over a sustained period. In many cases, methods and practices from one industry can be successfully applied in others. The EY/P&G partnership makes some of these leading production practices available to organisations in other industries and market sectors, and also provides a channel for new discoveries and enhancements to be channelled back to P&G.
SPEAKER PROFILE

Richard leads the EY Operations Excellence competence for Sub Saharan Africa, assisting companies to improve the productivity and effectiveness of their operations. His experience includes productivity improvement, process transformation within supply chain, freight forwarding, business process management, and IT design and implementation over a period of 15 years. He has consulted to a broad range of companies in the transportation, mining, automotive, FMCG, and public sectors. Prior to joining EY, Richard worked for global 3PL company, one of the big four SA banks, and at Transnet. Richard holds a Master’s degree in Industrial Engineering.

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