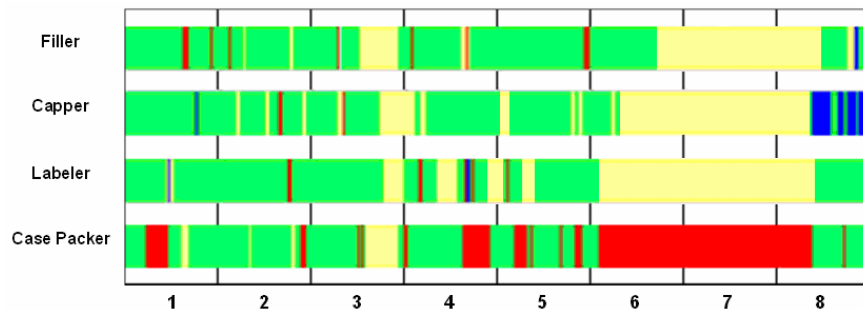# Intelligent Execution

Measuring OEE is Easy - Finding Losses is Not
by Chris Chandler

OEE – or overall equipment effectiveness – is an efficiency measure for production lines and equipment. If a line is rated to produce 100 units per scheduled hour of production, but only produces 60 units, then its OEE will be measured as 60%. OEE is a great way to identify poorly performing assets.

But OEE can only tell you that a problem exists. You have to know when, where, and why the losses occurred if you want to improve performance.

In this example, a particular filling line was exhibiting poor performance and resulting in OEE of 60.57%. The Acumence line flow analysis tool shown above was used to visualize the operating state of each machine on the line during a shift. The Case Packer was identified as a significant bottleneck in the process with downtime being identified as the contributing factor.

Getting Value Step-by-Step:

1. Use OEE to measure line performance and identify poorly performing lines.
2. Lines with low OEE have higher scrap, downtime, or speed losses than other lines.
3. Use OEE analytics and loss analysis tools to focus improvement efforts on the right machines and problems.

Using Acumence's OEE analytics, like the Event Shift Analysis tool shown below, downtime states were quickly identified. In this case, most of the case packer downtime was caused by problems that can be avoided or fixed.

Line 1 Casepacker		60.57%	725		01:24:53
Event	**Event%**	**Elapsed**	**Occur**	**Avg Time**	**Events/K**
Running	60.57%	02:09:58	20	00:06:29	226.50
Case Infeed Jam	18.97%	00:40:42	17	00:02:23	192.53
Manual Stop	8.63%	00:18:31	15	00:01:14	169.88
Loading Error	7.01%	00:15:02	6	00:02:30	67.95
Case Erector Manual Stop	2.61%	00:05:36	3	00:01:52	33.98
Line Backup	1.92%	00:04:07	1	00:04:07	11.33
No Fault Manual Stop	0.28%	00:00:36	2	00:00:18	22.65

A quick look at scrap rates and speed losses confirmed the case packer as the downtime culprit. The plant focused its resources on improving uptime, resulting in a significant improvement in line performance.

Manufacturing business intelligence is more than just an OEE measurement and reporting system. It is a comprehensive analysis solution for pinpointing losses and focusing scarce plant resources on the right problems at the right time.