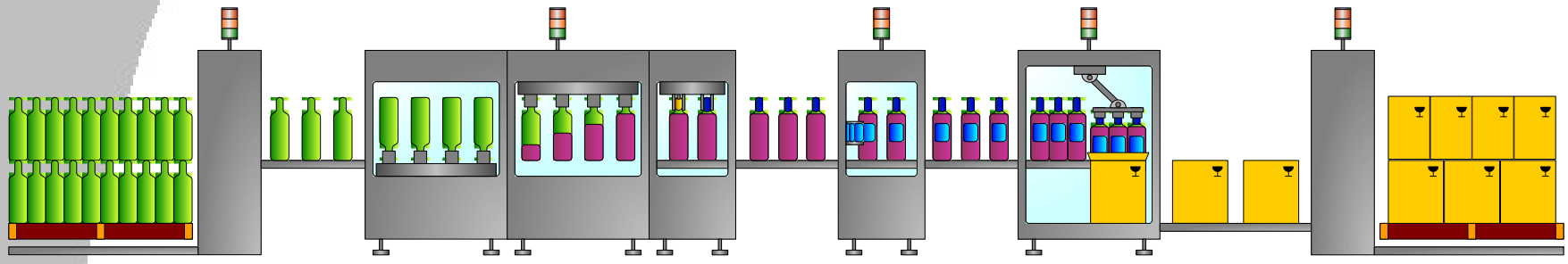
SAGE AUTOMATION

WINERY ENGINEERING ASSOCIATION - LIMITED -

Manufacturing Intelligence for the Winery Industry



"If you can measure it, you can manage it"

- Accurate & Timely Facts support Decision-making
- Key Indicators evaluate effectiveness of decisions

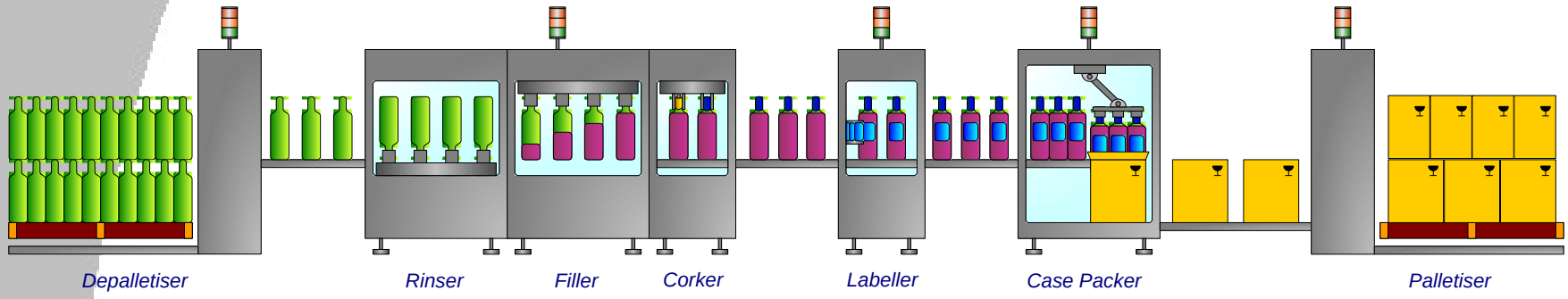
Benefits by Job Role

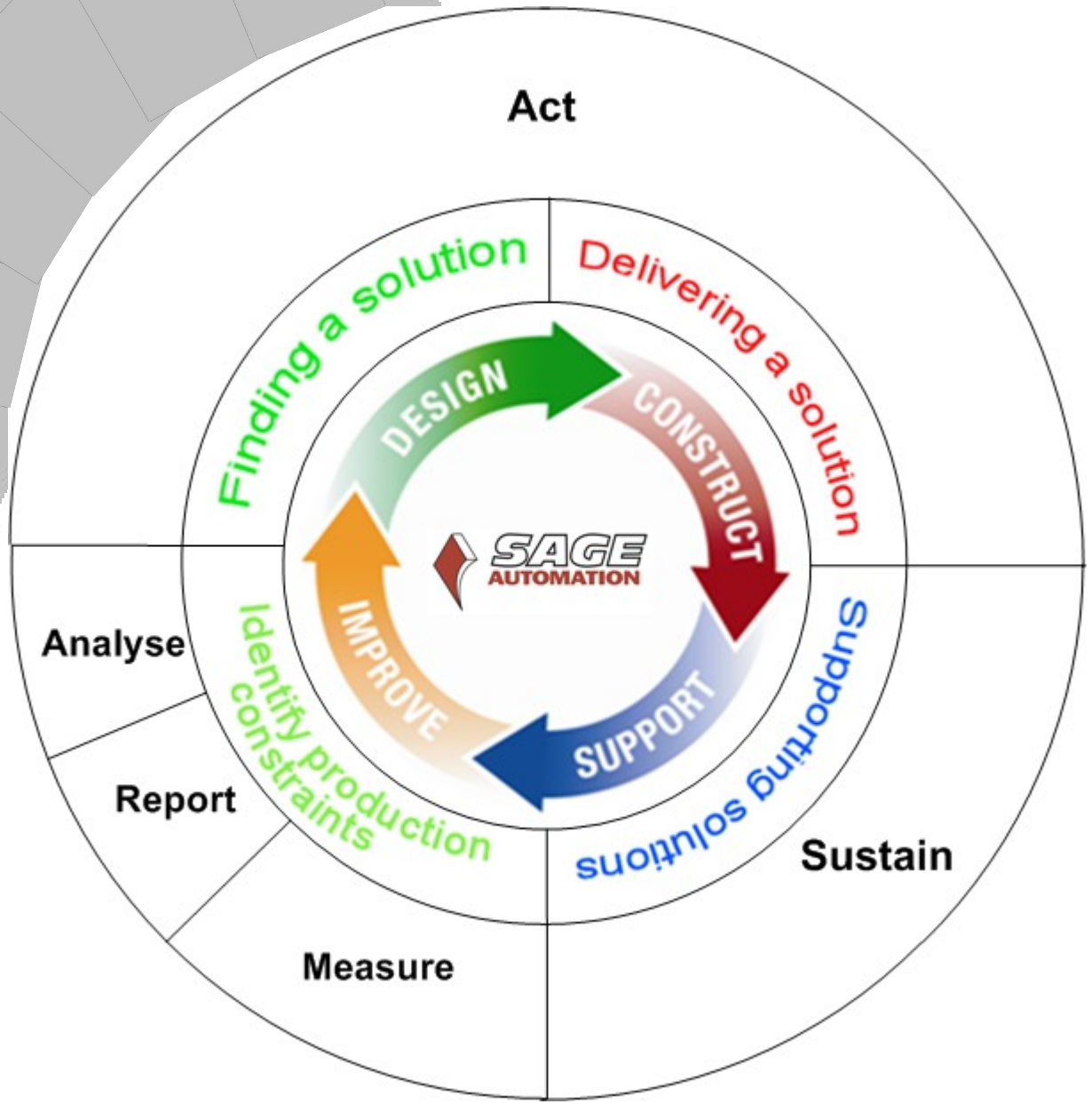
- **Production Manager**
  - Know exactly what is happening right now across all lines
  - Accurate reporting of downtime and overall line performance
- **Production Scheduler**
  - Real time tracking of production against schedule
  - Accurate measurement of changeover and setup times to assist with future planning
- **Team Leader**
  - Quickly identify operational issues affecting throughput and be able to fix them
  - Accurately determine ‘time to completion’ for product runs and be better prepared for changeovers
- **Line Operator**
  - Reduced effort to collect more data
  - Live display of actual vs. target production
- **Maintenance Manager**
  - See top causes of unplanned downtime and target resources more effectively
  - Develop planned and predictive maintenance strategies based on accurate machine run data
- **Quality Manager**
  - Ensure compliance with quality procedures
  - Electronic quality record archival
  - Eliminate manual paper-based quality sheets
- **Warehouse Manager**
  - Accurate case / pallet counts for stock going into the warehouse
  - Track dry goods usage more accurately

What to Measure?

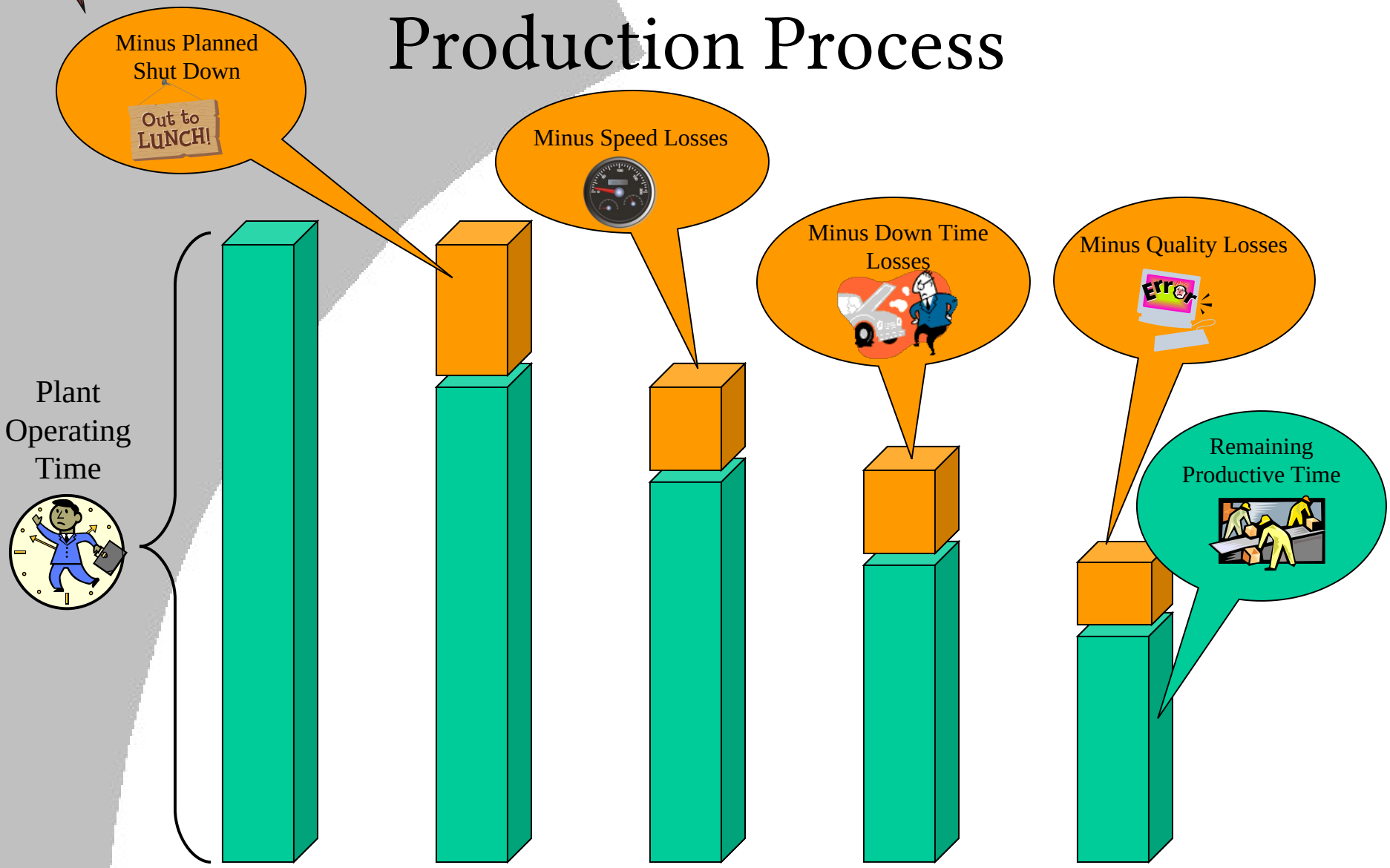
Tank Farms

Packaging Lines

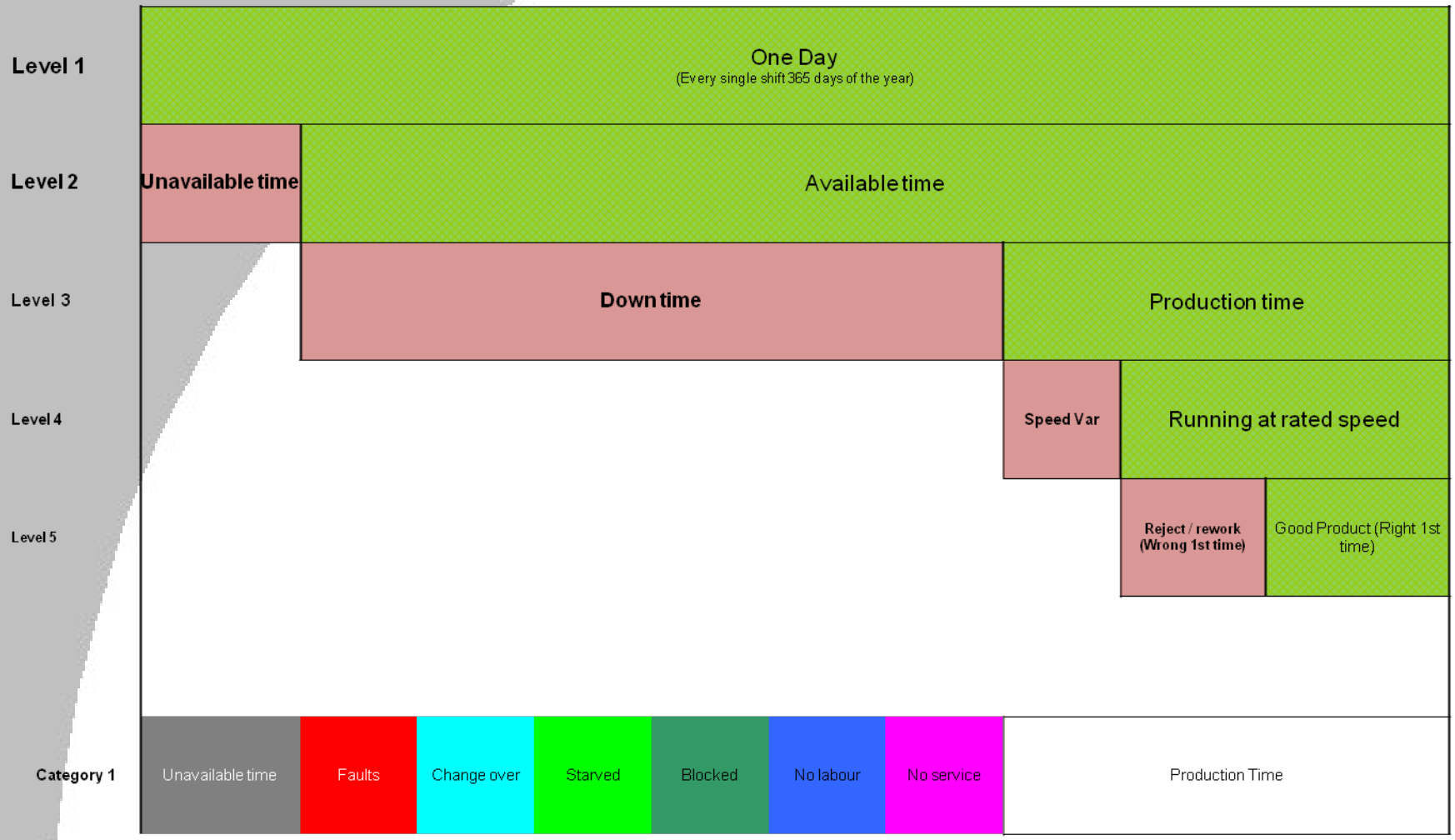



Act
Finding a solution
Delivering a solution
DESIGN
CONSTRUCT
SUPPORT
IMPROVE
SAGE AUTOMATION
Analyse
Report
Measure
Identify production constraints
Supporting solutions
Sustain

Losses in a Production Process



Losses in a Production Process



The Theory of Constraints

Theory of Constraints is based on the premise that the rate of goal achievement is limited by at least one constraining process. Only by increasing throughput (flow) at the bottleneck process can overall throughput be increased.

The principles are treated as axioms, and therefore have no proof

Source: http://en.wikipedia.org/wiki/Theory_of_Constraints

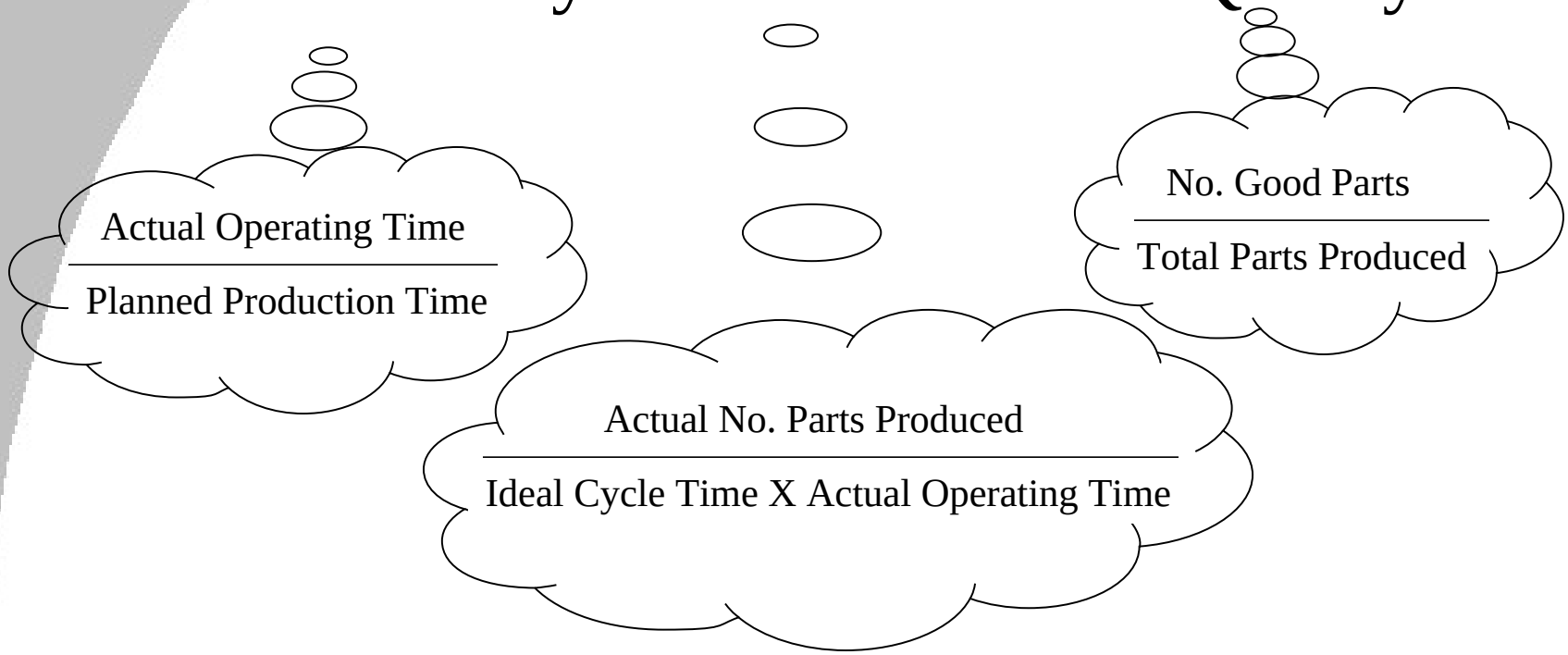
SAGE AUTOMATION

How to Monitor the Losses?

Overall Equipment Effectiveness (OEE)

How to Calculate OEE

OEE=Availability X Performance X Quality



Machine Reporting

Shift Reports

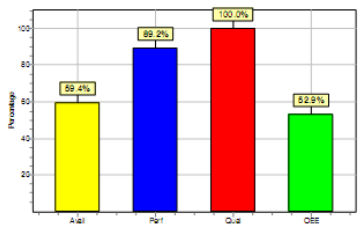
Shift Report RA120 Page 1

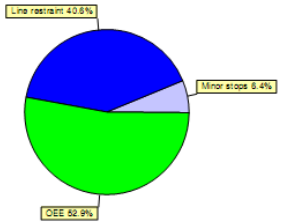
Date	15/10/2007
Shift type	Late Shift
Team	Team A

Length of shift		480 min
Operators		
Planned	1.00	465 min
Actual	1.00	465 min

Production	276 min
Failure	0 min
Idle	0 min
Line restraint	189 min
Unscheduled	15 min
No data	15 min

	Output	Equivalents
Target output	**215**	**215**
Good product	192	192
Scrap	0	0
Rework	0	0





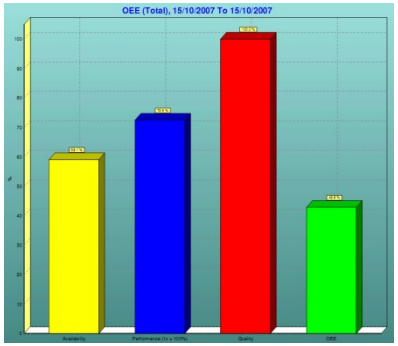
Activity	Length	Frequency	Operators	Planned	Category
Blocked	3	1	1.00	1.00	L
Breakdown	0	1	1.00	1.00	F
Clear Line	11	67	1.00	1.00	L
In Production	276	1	1.00	1.00	P

Product	Description	Quantity	Category
Good	Good Product	192	G

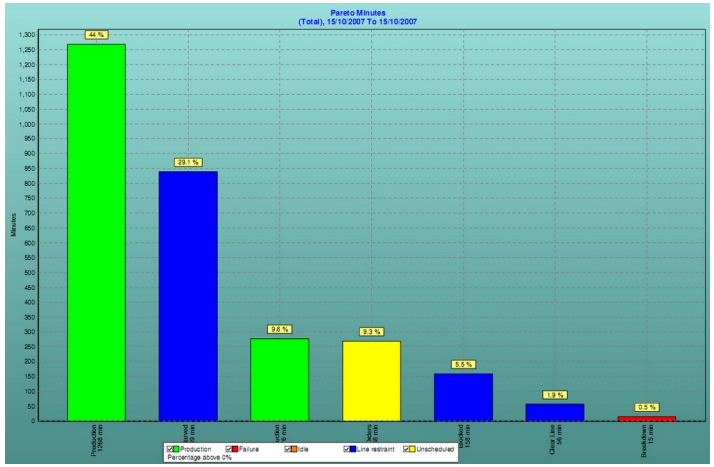
Starved	175	30	1.00	1.00	L
No Orders	15	1	1.00	1.00	U

Logbook

OEE Summary

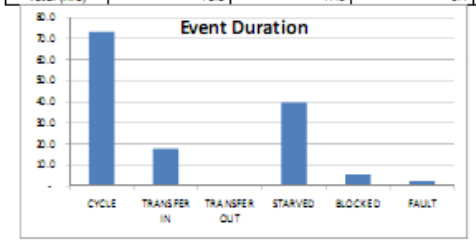


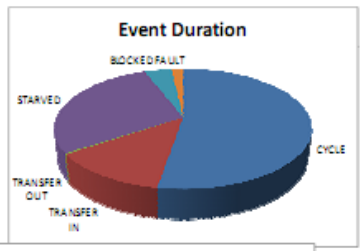
Downtime Pareto

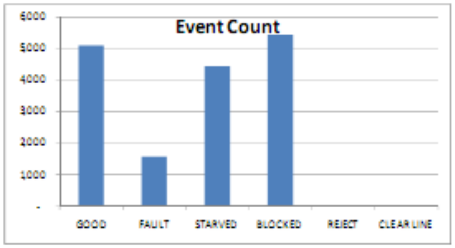


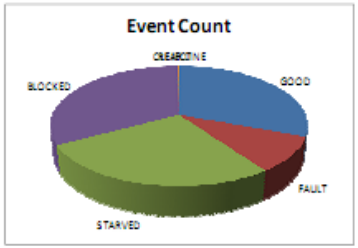
Line Reporting

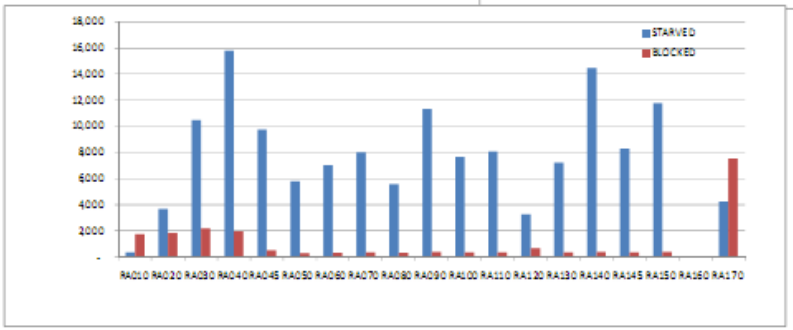
CYCLE TIME DATA						SHIFT							
						DATE							19/03/2008
	TOTAL TIME						JOB COUNT						
STATION	CYCLE	TRANSFER IN	TRANSFER OUT	STARVED	BLOCKED	FAULT	ALL	GOOD	FAULT	STARVED	BLOCKED	REJECT	CLEAR LINE
RA010	18,942	-	-	343	1,756	5,256	282	280	158	2	18	2	0
RA020	17,668	4,626	20	3,668	1,840	79	283	278	15	45	328		5
RA030	10,854	4,188	13	10,502	2,200	78	287	278	277	285	67		9
RA040	10,220	14	166	15,825	1,945	2	284	279	4	284	71		5
RA045	12,042		574	9,767	503		283	283	0	283	281		
RA050	16,277	5,048	20	5,810	303	601	282	282	33	101	409		
RA060	15,522	5,228	22	7,022	321	67	293	293	5	284	912		
RA070	14,893	4,727	13	8,007	354	22	284	283	3	286	283		1
RA080	16,977	5,092	14	5,580	326	25	285	285	10	284	470		
RA090	16,172	24	25	11,324	375	183	287	287	14	287	287		
RA100	15,022	5,005	14	7,852	352	86	288	287	4	287	287		1
RA110	14,273	4,628	15	8,100	353	486	289	287	16	289	287	1	1
RA120	19,246	4,839	416	3,274	669	1	290	288	13	290	291	1	1
RA130	16,236	7,046	23	7,243	366	42	291	289	9	290	289	1	1
RA140	12,686	158	-	14,473	382	370	291	290	290	291	290	1	
RA145	11,460	7,437	-	8,306	367	539	291	290	289	291	289	1	
RA150	14,910	15	-	11,799	375	852	289	287	150	288	296	1	1
RA160													
RA170	10,395	5,887	96	4,236	7,523	14	279	277	278	279	276	1	1
Total	293,796	63,966	1,433	142,930	20,300	8,703	5,138	5,103	1,568	4,446	5,431	9	26
Total (Hrs)	73.3	17.8	0.4	39.7	5.6	2							



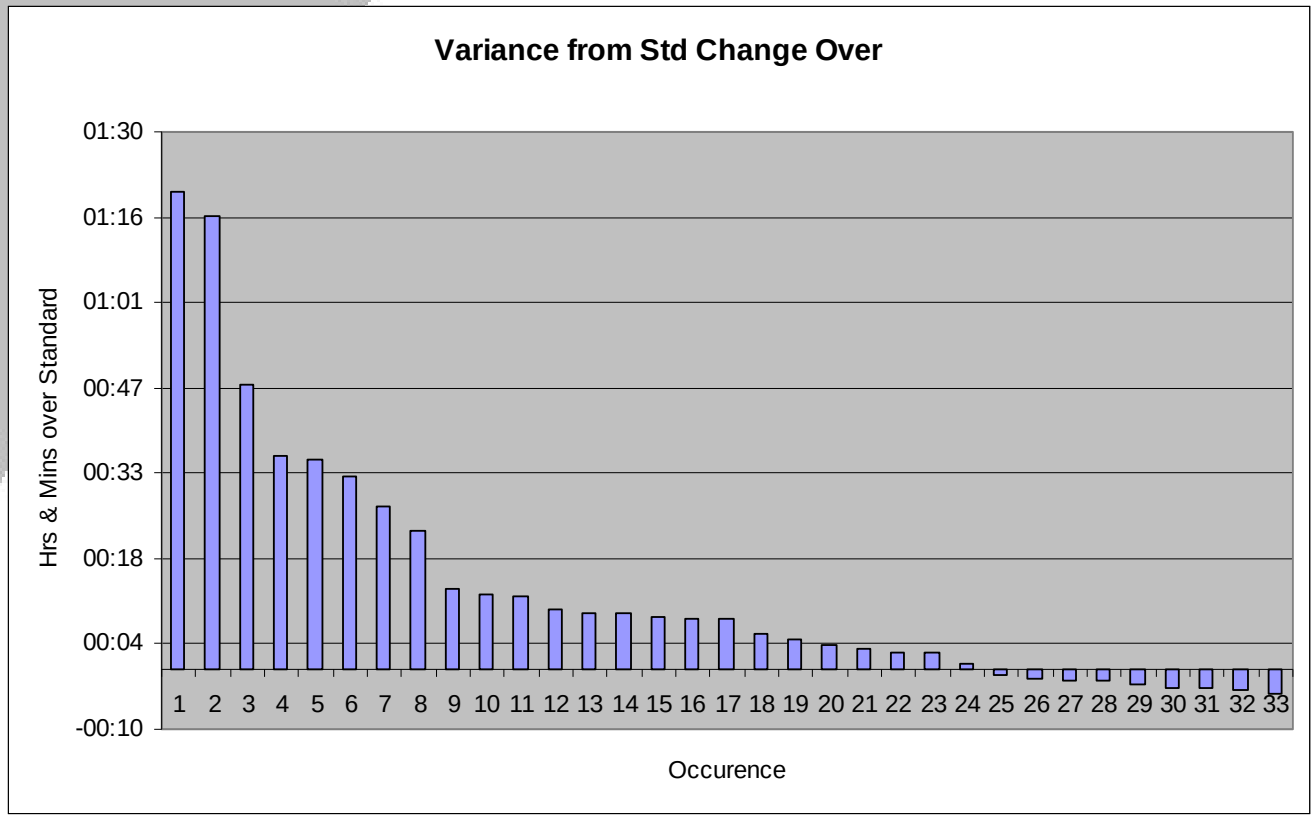








Activity Reporting



Reporting Options

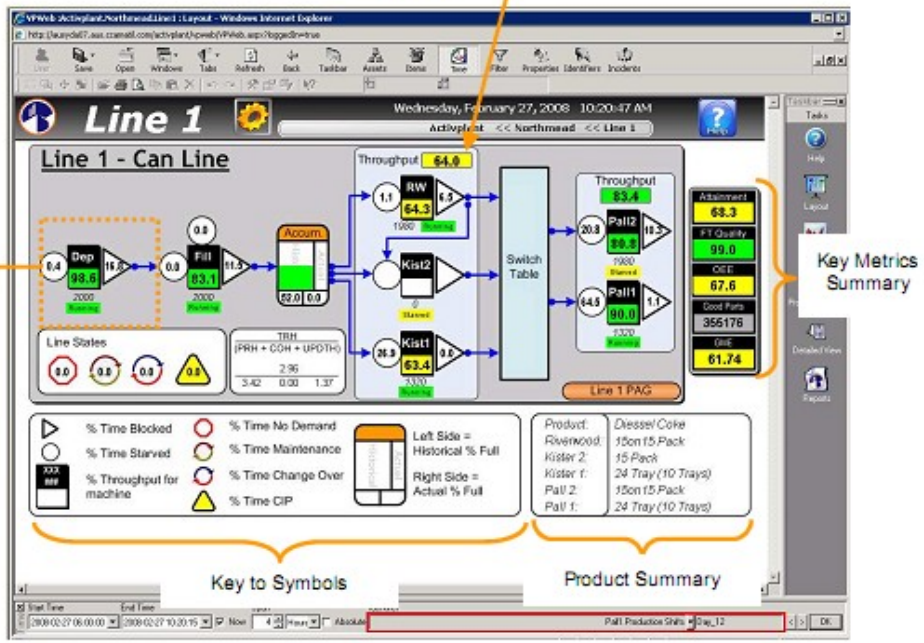
- Manual
- Excel-based
- Custom Code
- Manufacturing Intelligence Software product

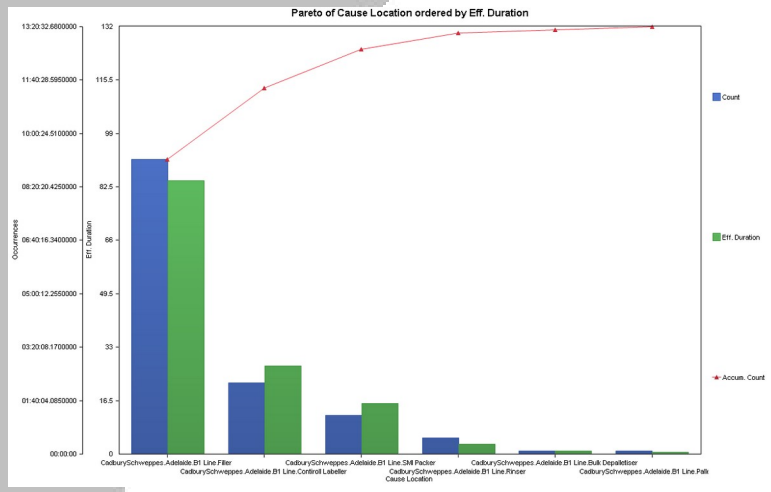
MI Examples

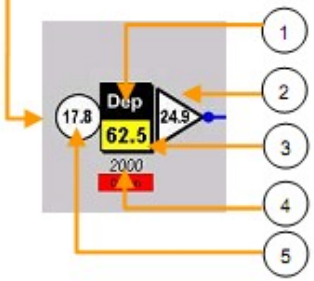
1 THROUGHPUT ANALYSER

1.1 *Balance Map*

Figure 1





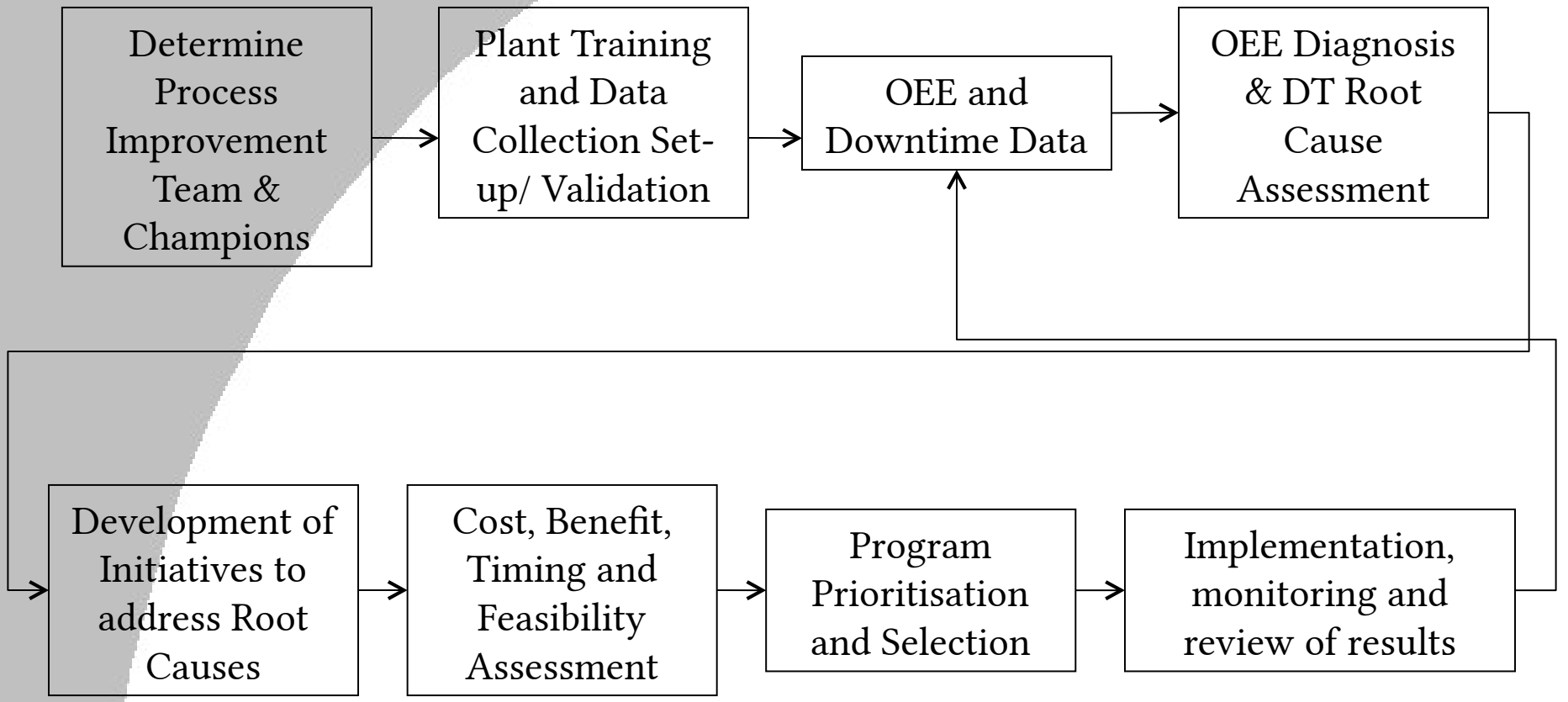


Item	Description
1	Throughput Capability
2	Blocked
3	Target production count per minute
4	Current machine state
5	Starved
6	Line Constraint

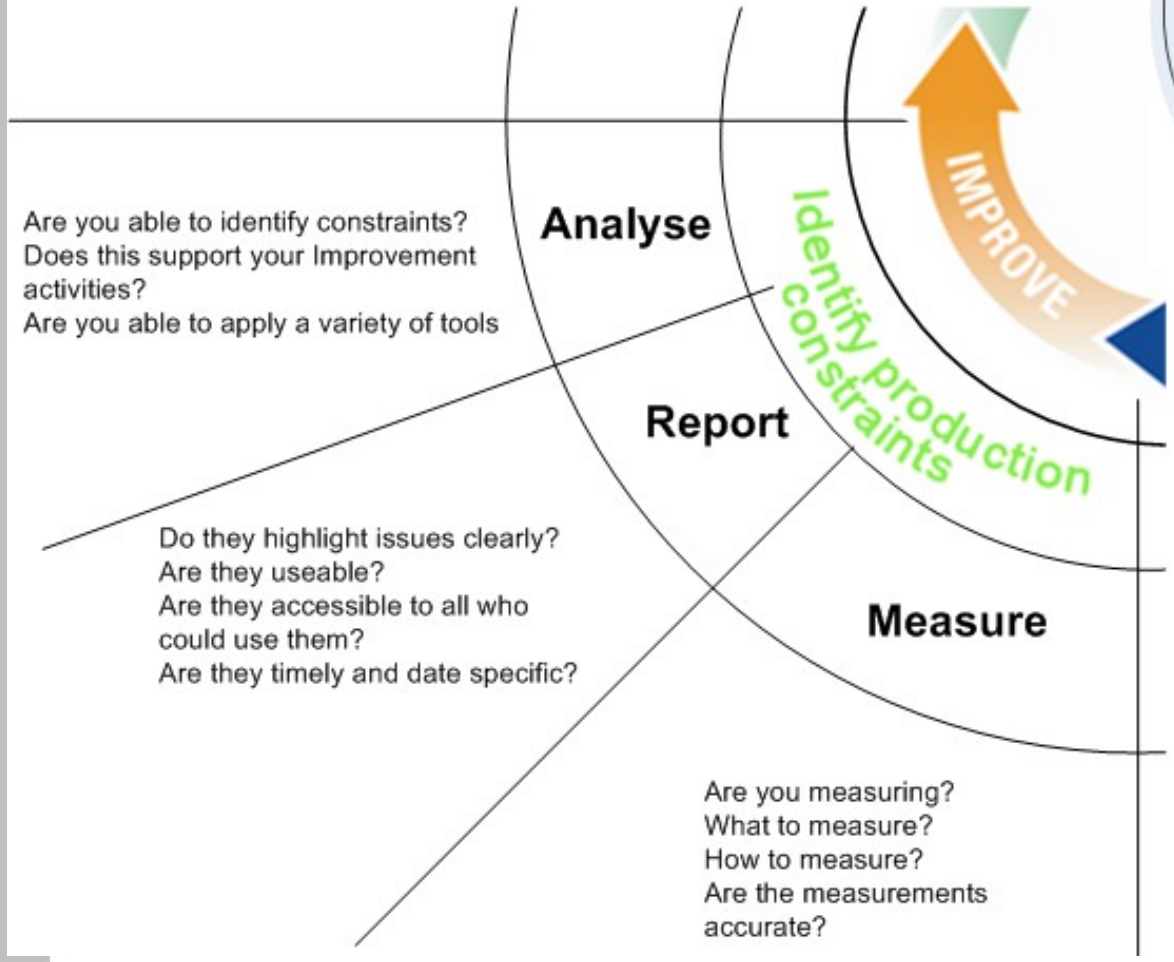
Making Process Improvement Happen

- Commitment
- *Kaizen*- Continuous Improvement
- Focus
- Involvement

A Template for Process Improvement Implementation



Finding a solution
Delivering a solution
Supporting solutions
Identify production constraints
DESIGN
CONSTRUCT
SUPPORT
IMPROVE
SAGE AUTOMATION


Are you able to identify constraints?
Does this support your Improvement activities?
Are you able to apply a variety of tools
Analyse
Identify production constraints
IMPROVE
Report
Do they highlight issues clearly?
Are they useable?
Are they accessible to all who could use them?
Are they timely and date specific?
Measure
Are you measuring?
What to measure?
How to measure?
Are the measurements accurate?