IT'S A NEW WORLD
INDUSTRY 4.0

Steele Young

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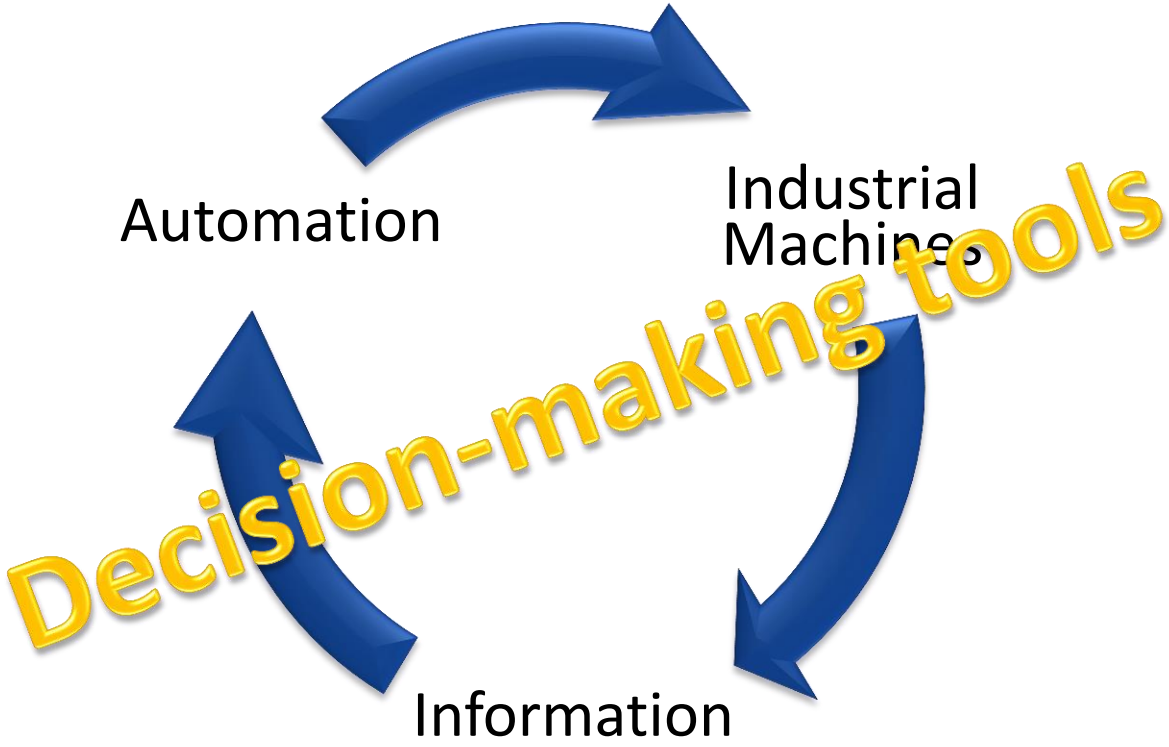
CONFUSING HUH?

Lets Break it Down



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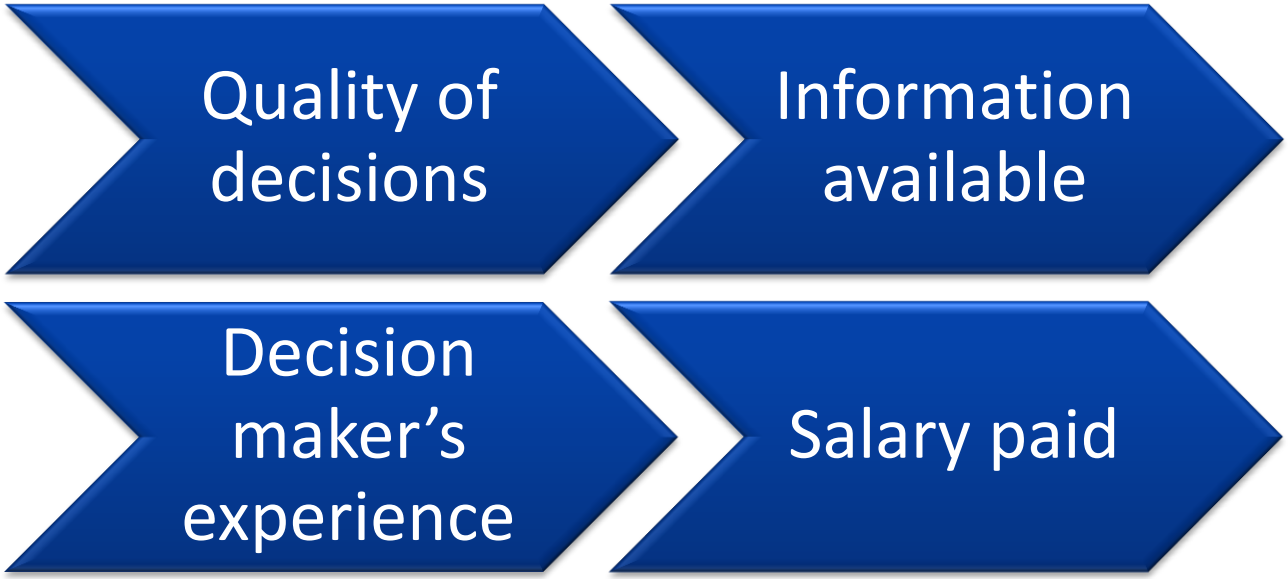
DECISION MAKING TOOLS



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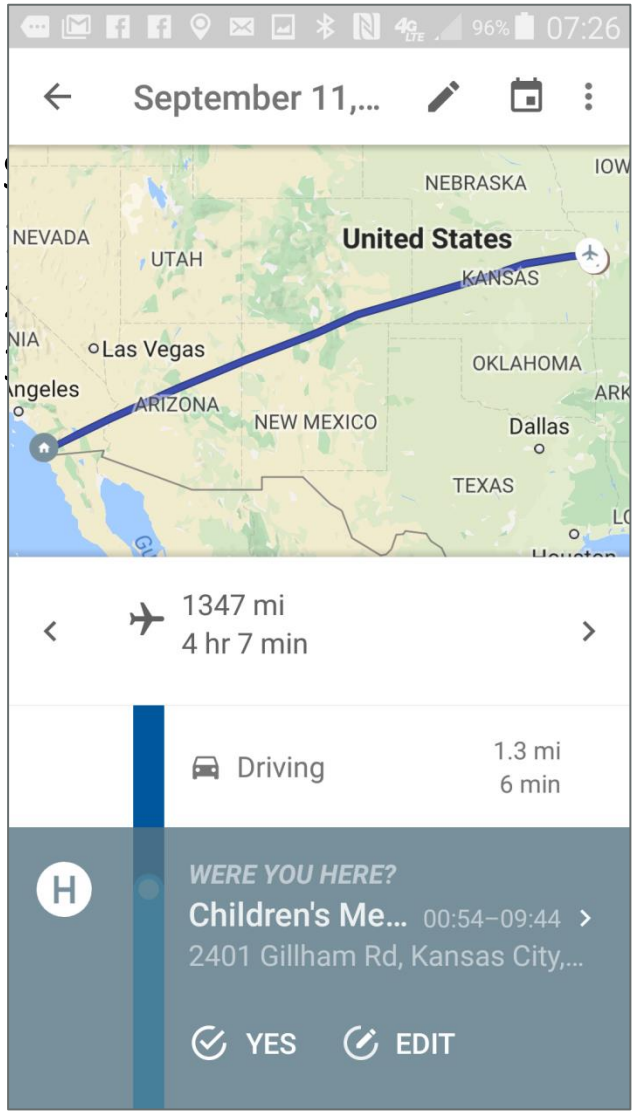
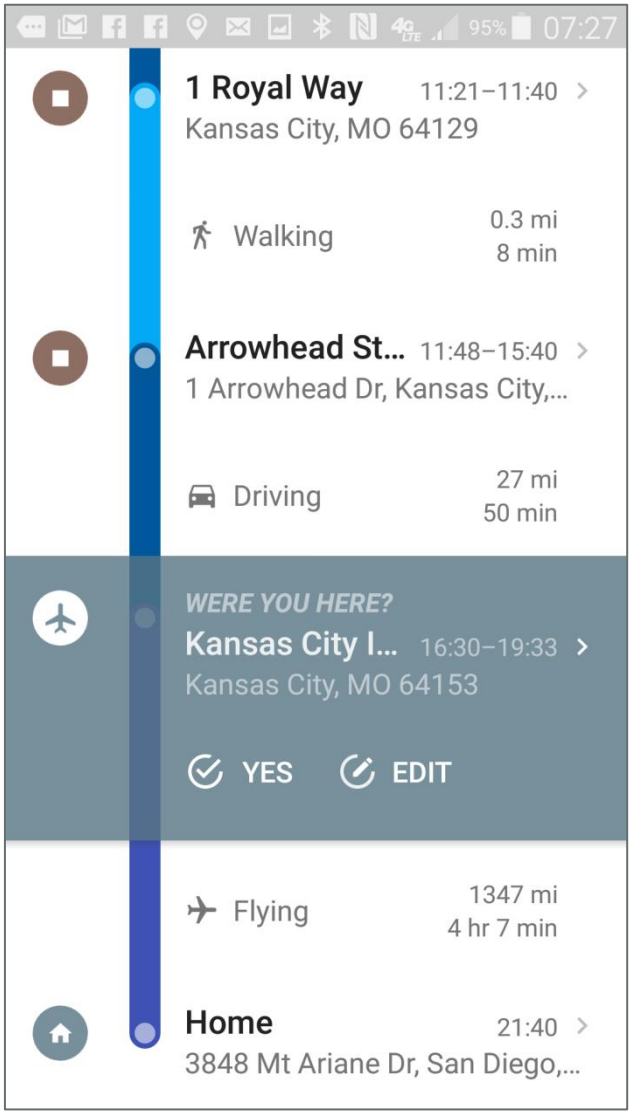
WHERE DOES THE DATA COME FROM?





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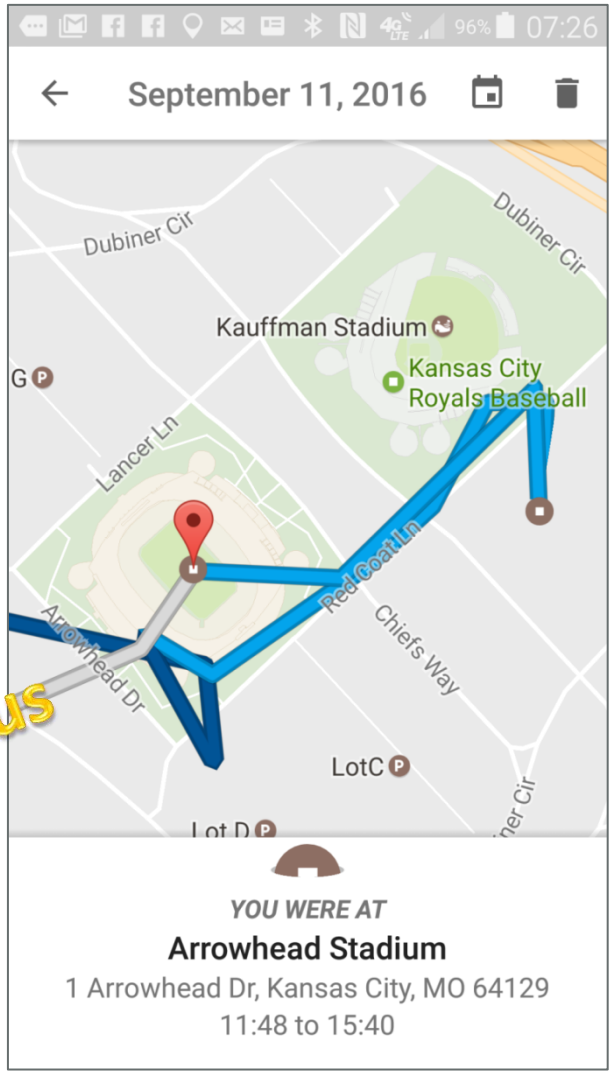
PROCESSED DATA BECOMES USEFUL

Forensic data

Data organized into a comprehensive, useful, and relevant report.



Our Devices know a lot about us

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WHAT DATA HAVE YOU BEEN USING

Information / Reports used to make decisions

Typical Production Report

- Jobs in / Jobs out: Yesterday, Last Week , or Last Month
- Avg days to deliver
- Breakage: Yesterday, Last Week, Last Month
- Breakage: By Category, Type, or Department
- Jobs Produced per Man Hour
- Costs Per Job
- Jobs per Hour / By machine

Mostly Forensic Data
Some Real Time Data being used via Dash Boards

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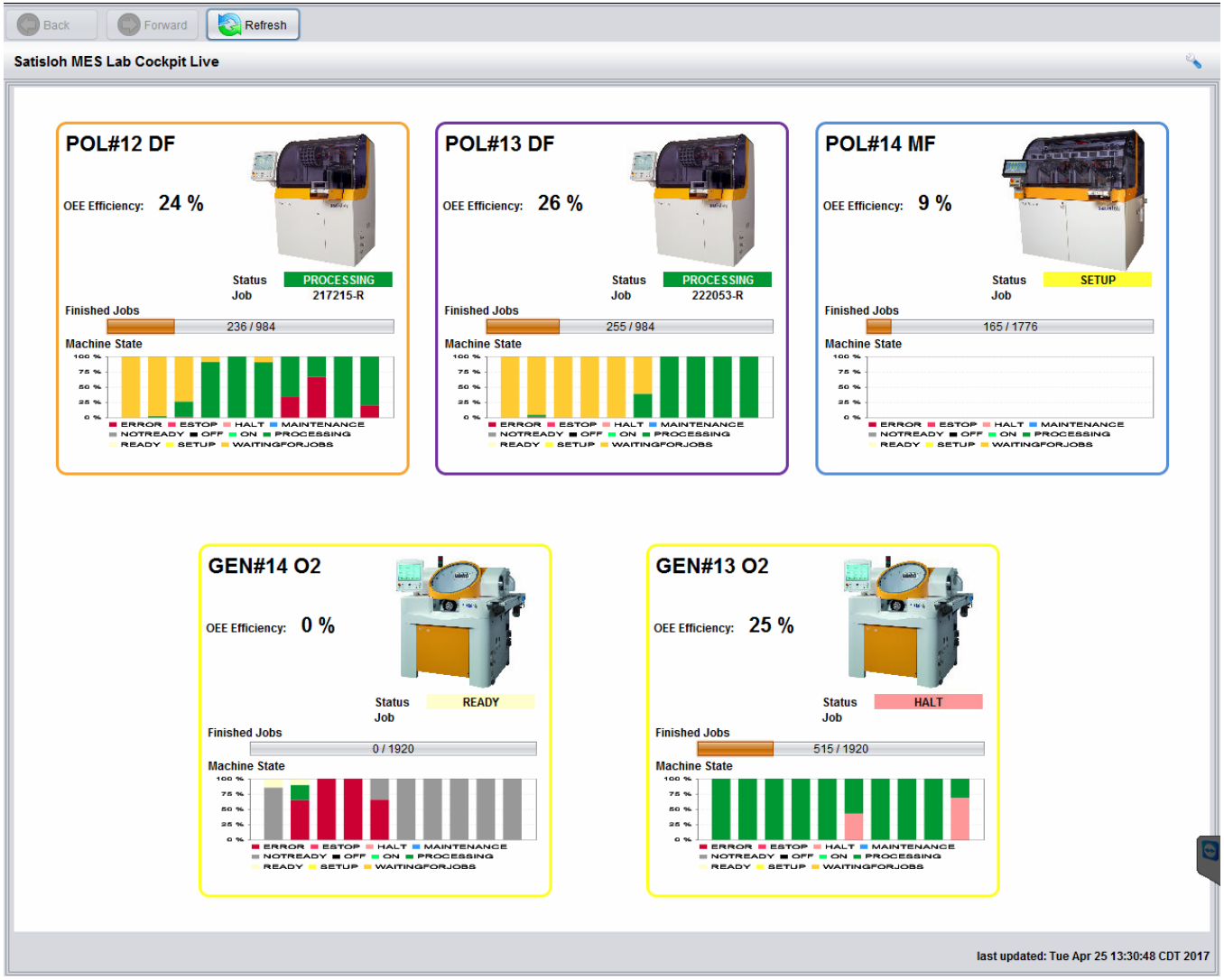
WHAT DO YOUR MACHINE HAVE TO SAY?



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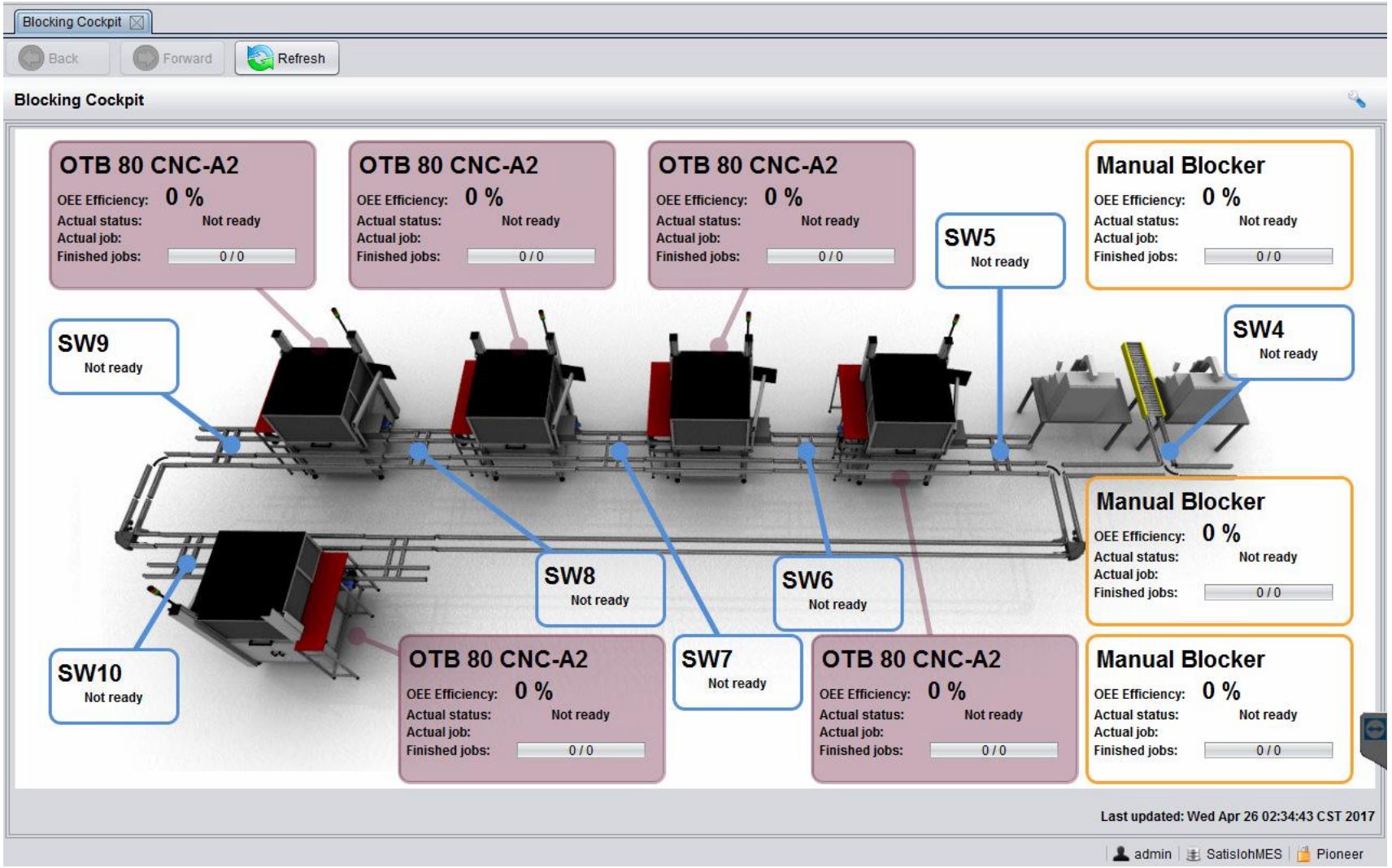
WHAT DO YOUR MACHINE HAVE TO SAY?



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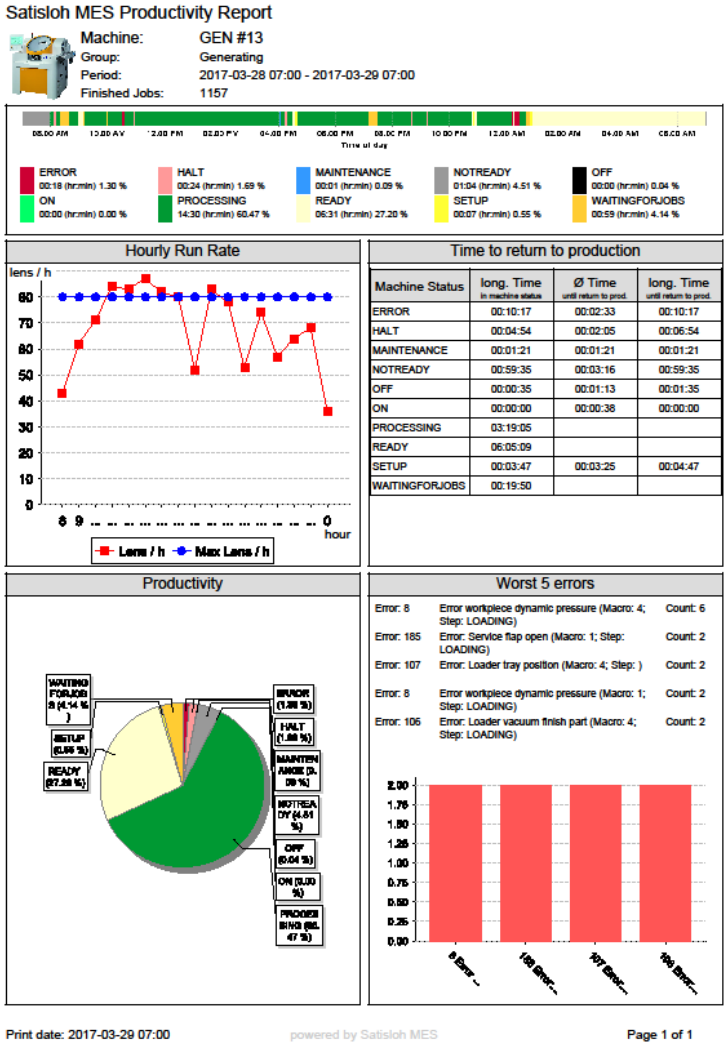
PROCESSED MACHINE DATA

Useful / Relevant = Tells a story



Satisloh MES Productivity Report

Machine: GEN #13
Group: Generating
Period: 2017-03-28 07:00 - 2017-03-29 07:00
Finished Jobs: 1157

ERROR 00:18 (hr:min) 1.30 %
HALT 00:24 (hr:min) 1.69 %
MAINTENANCE 00:01 (hr:min) 0.09 %
NOTREADY 01:04 (hr:min) 4.51 %
OFF 00:00 (hr:min) 0.04 %
ON 00:00 (hr:min) 0.00 %
PROCESSING 14:30 (hr:min) 60.47 %
READY 06:31 (hr:min) 27.20 %
SETUP 00:07 (hr:min) 0.55 %
WAITINGFORJOBS 00:59 (hr:min) 4.14 %

Hourly Run Rate

lens / h
hour
Lens / h
Max Lens / h

Time to return to production

Machine Status	long. Time in machine status	Ø Time until return to prod.	long. Time until return to prod.
ERROR	00:10:17	00:02:33	00:10:17
HALT	00:04:54	00:02:05	00:06:54
MAINTENANCE	00:01:21	00:01:21	00:01:21
NOTREADY	00:59:35	00:03:16	00:59:35
OFF	00:00:35	00:01:13	00:01:35
ON	00:00:00	00:00:38	00:00:00
PROCESSING	03:19:05		
READY	06:05:09		
SETUP	00:03:47	00:03:25	00:04:47
WAITINGFORJOBS	00:19:50		

Productivity

Worst 5 errors

Error: 8 Error workpiece dynamic pressure (Macro: 4; Step: LOADING) Count: 6
Error: 185 Error: Service flap open (Macro: 1; Step: LOADING) Count: 2
Error: 107 Error: Loader tray position (Macro: 4; Step:) Count: 2
Error: 8 Error workpiece dynamic pressure (Macro: 1; Step: LOADING) Count: 2
Error: 106 Error: Loader vacuum finish part (Macro: 4; Step: LOADING) Count: 2

Print date: 2017-03-29 07:00 powered by Satisloh MES Page 1 of 1

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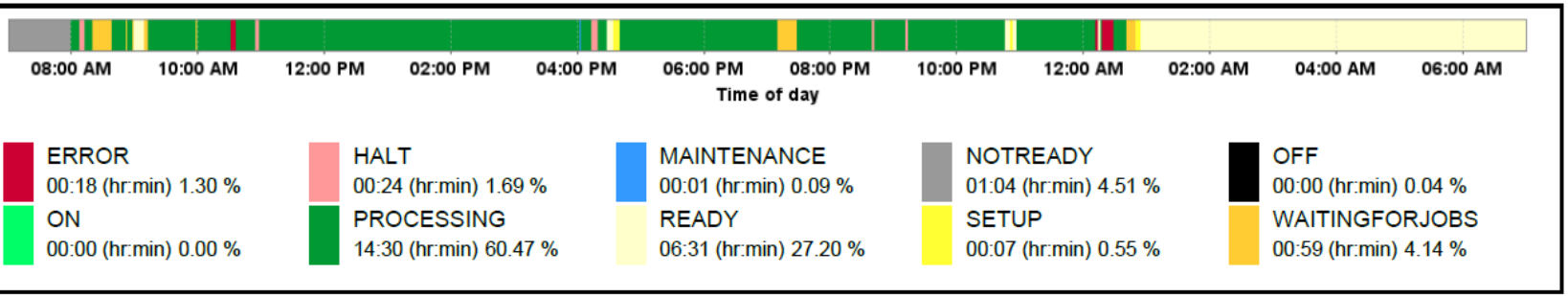
PROCESSED MACHINE DATA

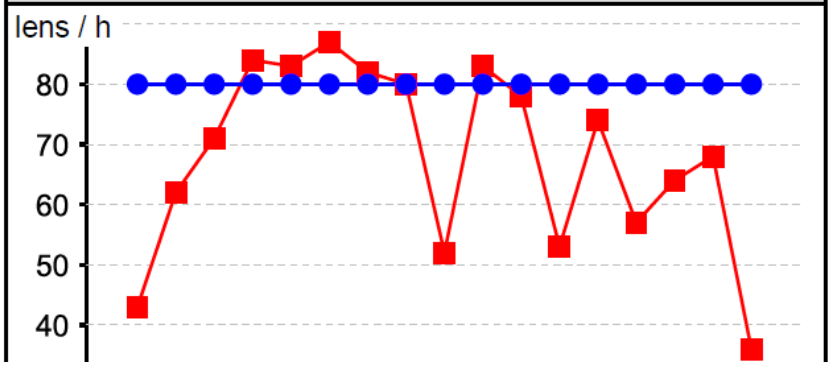
Useful / Relevant = Tells a story

Satisloh MES Productivity Report

Machine:	GEN #13
Group:	Generating
Period:	2017-03-28 07:00 - 2017-03-29 07:00
Finished Jobs:	1157



Hourly Run Rate



Time to return to production

Machine Status	long. Time in machine status	Ø Time until return to prod.	long. Time until return to prod.
ERROR	00:10:17	00:02:33	00:10:17
HALT	00:04:54	00:02:05	00:06:54
MAINTENANCE	00:01:21	00:01:21	00:01:21
NOTREADY	00:59:35	00:03:16	00:59:35
OFF	00:00:35	00:01:13	00:01:35
ON	00:00:00	00:00:38	00:00:00

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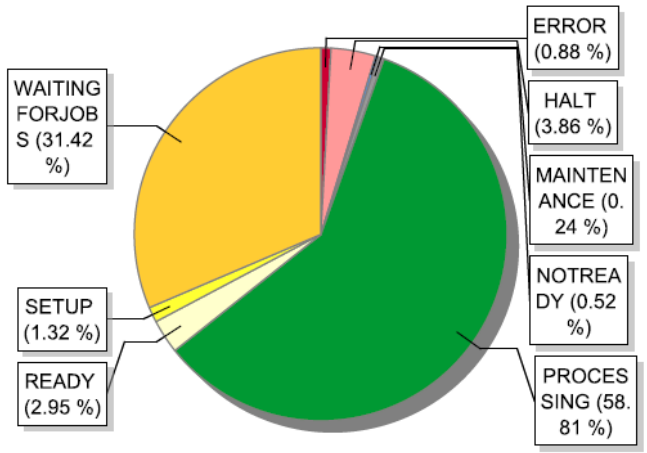
PROCESSED MACHINE DATA

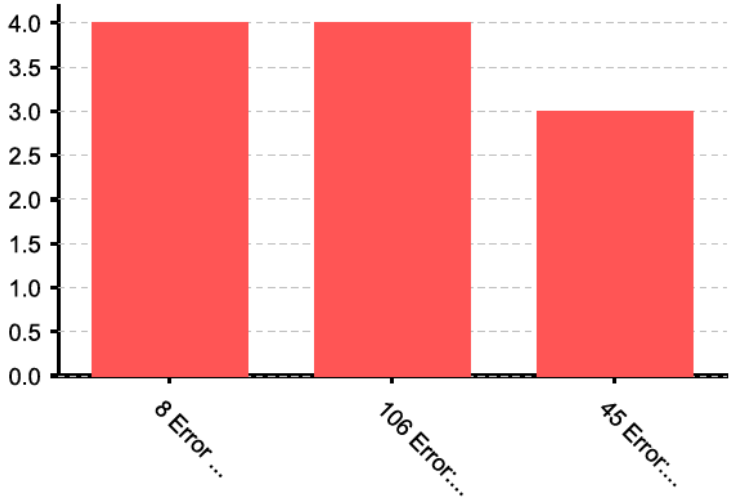
Useful / Relevant = Tells a story

Productivity



Worst 5 errors

Error: 8	Error workpiece dynamic pressure (Macro: 1; Step: LOADING)	Count: 6
Error: 8	Error workpiece dynamic pressure (Macro: 4; Step: LOADING)	Count: 6
Error: 8	Error workpiece dynamic pressure (Macro: 5; Step: LOADING)	Count: 4
Error: 106	Error: Loader vacuum finish part (Macro: 4; Step: LOADING)	Count: 4
Error: 45	Error: Remove the part from the chuck (Macro: 4; Step: LOADING)	Count: 3



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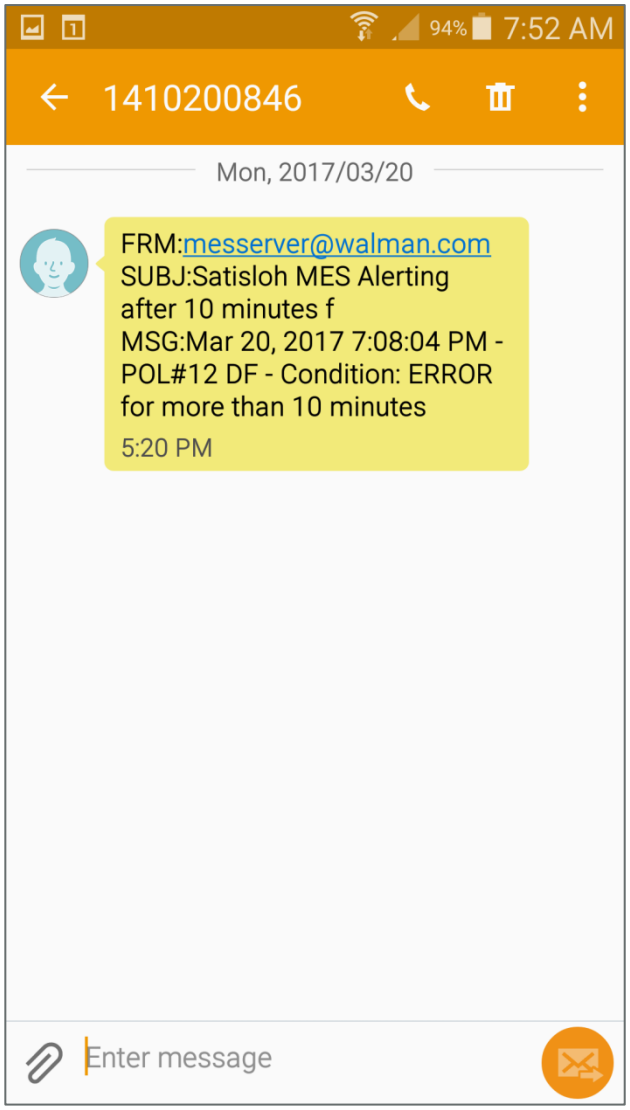
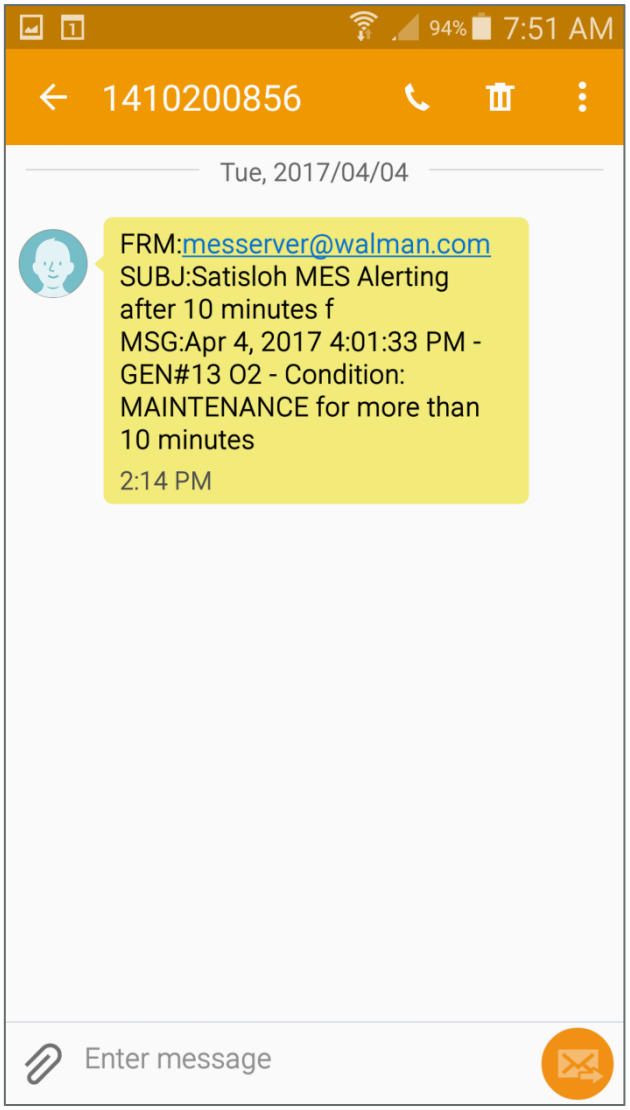
DATA USED FOR REAL-TIME ALERTS





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SMART LAB – LIVE AUTOMATIC DECISION MAKING

- Dynamic and automatic decision making
- Routing based on real-time status
- Dynamic, estimated time of completion
- Priority routing

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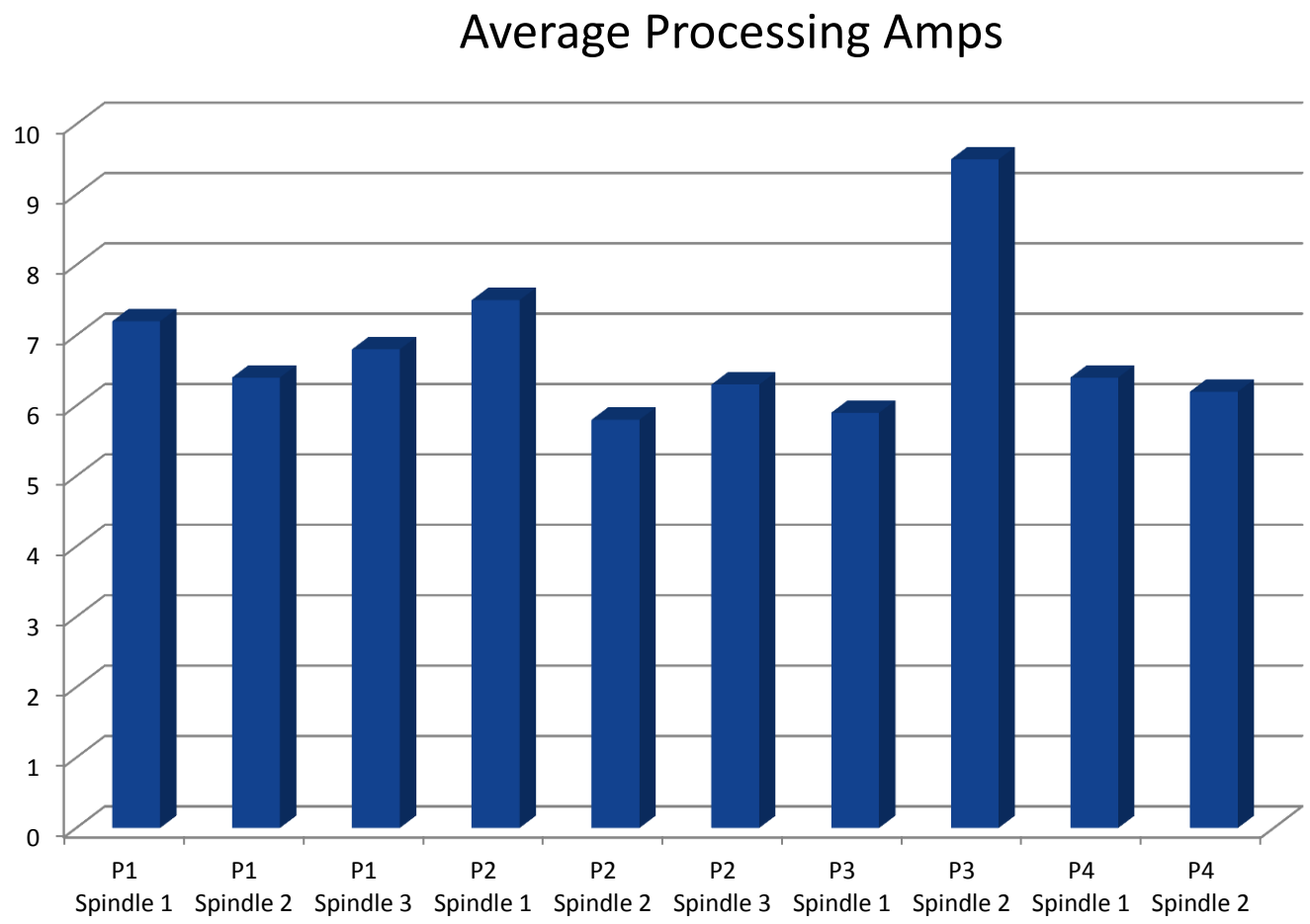
WHAT WOULD YOU LIKE TO KNOW?

Predictive Maintenance



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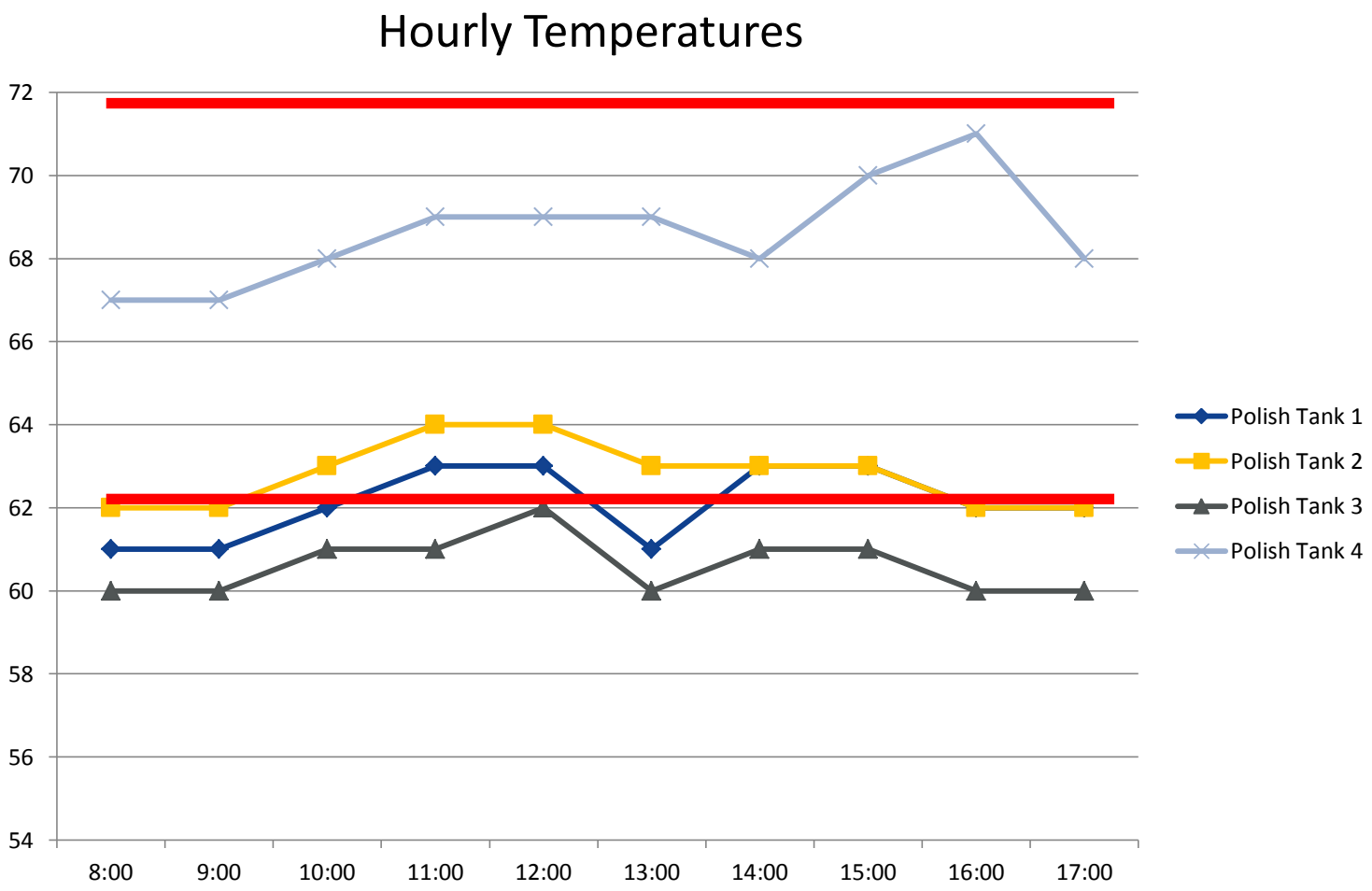
WHAT WOULD YOU LIKE TO KNOW?

Statistical process control



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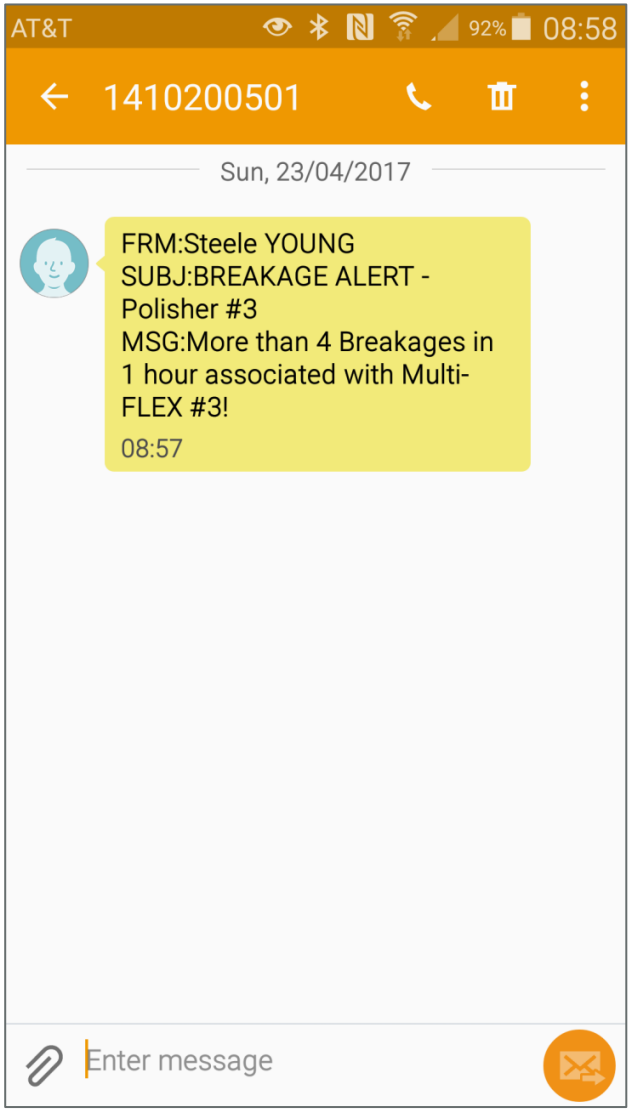
QUALITY ALERTS 2017

Machine-specific



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WELCOME TO 2017

LDS

(Lens Design Software)

LMS

(Lab Management Software)

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INDUSTRY 4.0
THANK YOU FOR YOUR TIME

Steele Young

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