PPC – DASHBOARD

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PPC Broadband Fiber Ltd. A BELDEN BRAND

DEFINE

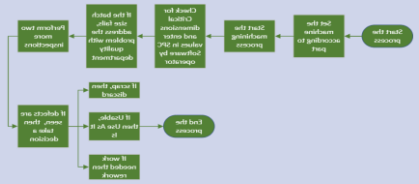
ABOUT PPC: Manufacturer of connector technology, True end-to-end broadband solutions provider, Clientele includes telecommunication companies like Verizon and AT&T.

PROJECT SCOPE: Collect Data from SPC.
Based on the data, create an analytics dashboard for machines and materials to showcase the scrap and rework percentage.
Analyze the data and draft an instruction manual.

GOAL: Create an interactive live dashboard

SIPOC:

HIGH PROCESS FLOW:



CTQC:

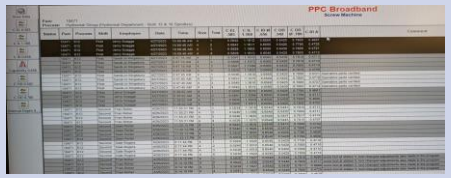
CUSTOMER	NEED	DRIVER	CTQC
AT&T,Verizon, Assembly Line	Quick Delivery Timeframe	Proper Timely Delivery	Within a span of 5 business days from order date
AT&T,Verizon, Assembly Line	High Quality	High precision and accurate dimensions	Parts comply with the tolerance limits
AT&T,Verizon, Assembly Line	Consistency	Fewer Defects	Manufacturing high-quality goods
AT&T,Verizon, Assembly Line	Issue resolution	Quick resolvent	Positive feedback - Helps to maintain the business deal
AT&T,Verizon, Assembly Line	Customer service	High Functioning team providing quick services.	Customer contentment

MEASURE

DATA COLLECTION PLAN:

KEY PERFORMANCE INDICATOR:
1) DPPM- 540
2) Rework Goal MTD- 5.40%
3) Scrap Goal MTD- 0.93%

SPC SOFTWARE:



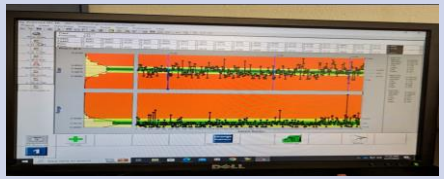
DATA COLLECTION SAMPLE:

Department	Machine Number	Material	Operator	Reason Code	Reason Description	Standard Cost	Quantity	Value
HYDROMAT	606	850125-01R	158560	L2	Length-Undersize Interni Depth	1.0879	58	$63.10
HYDROMAT	610	10625-01R	159257	P7	Parts - Shallow/Missing Recess	0.9944	88	$87.51
HYDROMAT	610	10625-01R	159257	P7	Parts - Shallow/Missing Recess	0.9944	265	$263.52
HYDROMAT	610	10625-01R	159251	D2	Undersized Outside Diameter	0.9944	287	$285.39
HYDROMAT	606	850125-01R	159262	P2	Parts are missing an oper(s)	1.0879	59	$64.19

MEASURING INSTRUMENTS:

ANALYSE

SPC CONTROL CHART:
1) PPC uses Statistical Process Control software to monitor the production process.
2) The CPK (0.73) and the Cp values are well below 1, which means the process is not capable.
3) There are also many outliers that further indicate the process is incapable.

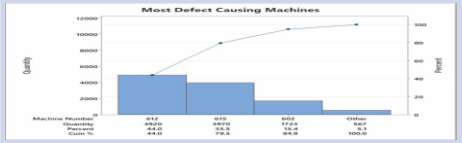


FISHBONE DIAGRAM:

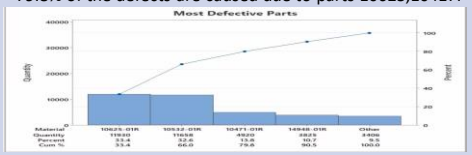
The 3 major causes are::
1) Gap in knowledge transfer
2) Hesitant to put true values
3) SPC data entry by operators

PARETO CHART – REASON CODES:
79.6% of the defects are caused due to L3, L2, D1, T3.

PARETO CHART – MACHINES:
79.5% of the defects are caused due to M/C 612 and 615.



PARETO CHART – MATERIALS:
79.8% of the defects are caused due to parts 10625,10417.



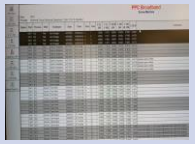
IMPROVE

DASHBOARD
We created the dashboard to analyze all the data at one place.

1) It represents Scrap % by machines, parts, Scrap Indicator & value
2) Rework % by Machines, parts & value
3) Failure mode analysis

WHAT ISSUES WE HAD BEFORE CREATING THE DASHBOARD?
1) Defective items were acted upon late.
2) SPC software lacked data display.
3) Process variation is not easily detected.
4) Operators are unaware of SPC's significance.

WHAT WILL BE THE USE OF DASH BORAD?
1) Excel reduces defective item response time.
2) Dashboard aids in quick production assessment.
3) Graphs display process variation.
4) Operator-friendly dashboard boosts engagement



SPC

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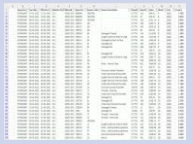

DATA

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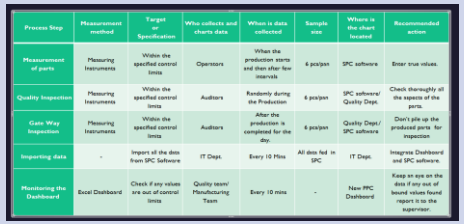
DASHBOARD

CONTROL

CONTROL PHASE ELEMENTS:
1) Regular monitoring of the process is necessary to ensure consistent quality and timely detection of any issues.
2) Live data representations, such as real-time dashboards, enable quick feedback on the process status, which helps in making faster decisions and taking corrective actions.
3) Finally, having a structured approach for investigating and resolving issues is critical to preventing future problems and ensuring continuous improvement.

CONTROL PLAN:
Based on the analysis we came up with a control plan that can improve & enhance the workflow of the PPC.



Process Step	Measurement method	Target or Specification	Who collects and charts data	When is data collected	Sample size	Where is the chart located	Recommended action
Measurement of parts	Measuring Instruments	Within the specified control limits	Operators	When the production starts and then after few intervals	6 pcs/pan	SPC software	Enter true values.
Quality Inspection	Measuring Instruments	Within the specified control limits	Auditors	Randomly during the Production	6 pcs/pan	SPC software/ Quality Dept.	Check thoroughly all the aspects of the parts.
Gate Way Inspection	Measuring Instruments	Within the specified control limits	Auditors	After the production is completed for the day.	6 pcs/pan	Quality Dept./ SPC software	Don't pile up the produced parts for inspection
Importing data	-	Import all the data from SPC Software	IT Dept.	Every 10 Mins	All data fed in SPC	IT Dept.	Integrate Dashboard and SPC software.
Monitoring the Dashboard	Excel Dashboard	Check if any values are out of control limits	Quality team/ Manufacturing Team	Every 10 mins	-	New PPC Dashboard	Keep an eye on the data if any out of bound values found report it to the supervisor.

RECOMMENDATIONS
1) To ensure comprehensive data collection, it is recommended to include several key pieces of information for each data point. This may include the specific day, week number, and year when the data was collected, as well as the corresponding machine number. By including these details, it becomes easier to track and analyze trends over time and identify any patterns or correlations that may be relevant to the process being monitored.

2) While Excel is a useful tool for managing and analyzing data, it may have limitations in terms of scalability and performance. As the amount of data being input increases, the software may become slower and less effective. For processing and visualizing real-time data more efficiently, it may be beneficial to consider alternative software options like Power BI or Tableau, which are designed to handle larger datasets and offer more advanced visualization capabilities.

3) It is crucial for the plant's operation that employees are instructed to input accurate values