

LIVE WEBINAR

# 2 TOOLS TO PRIORITIZE YOUR PROBLEM SOLVING



# SEMINAR SPEAKER



**Lorena Grimm**, Sr. Production Manager  
Boston Scientific

- ✓ Experience with Control Charts
- ✓ Listen to your people & process
- ✓ Don't wait for perfection

# Boston Scientific

Advancing science for life™

Manufacturers Alliance  
**Two Tools to Prioritize Problem Solving**

# Boston Scientific: Our Mission and Values

Boston  
Scientific



**Boston  
Scientific**

Advancing science for life™

**Boston Scientific is dedicated to transforming lives through innovative medical solutions that improve the health of patients around the world.**

Caring

Meaningful  
Innovation

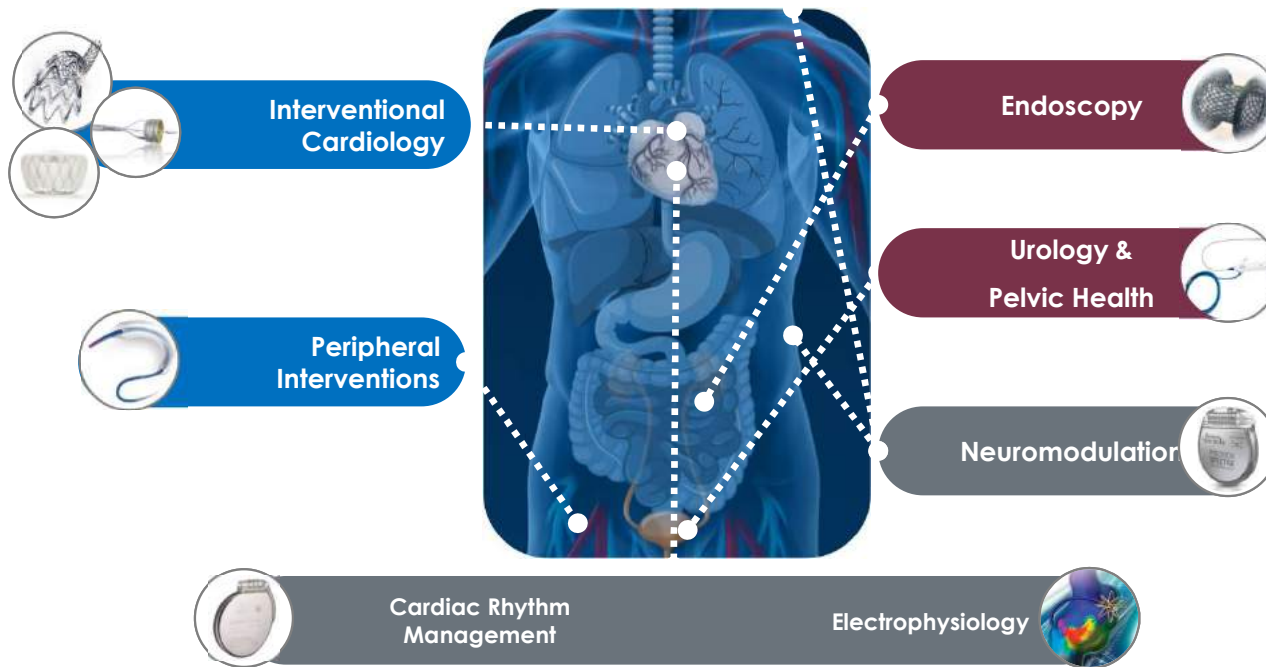
High  
Performance

Global  
Collaboration

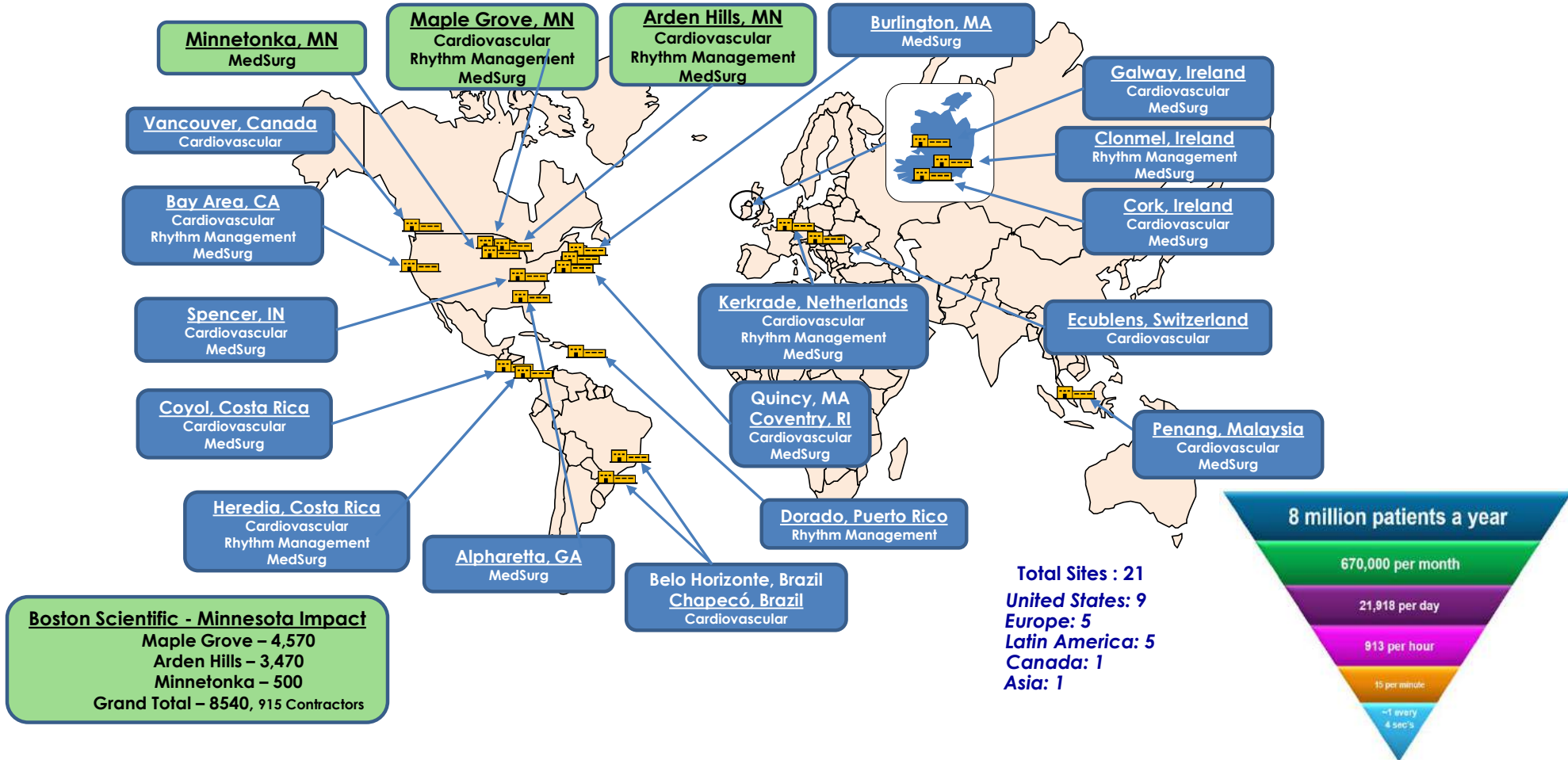
Diversity

Winning  
Spirit

# What solutions does Boston Scientific provide?



# Boston Scientific Operations Network

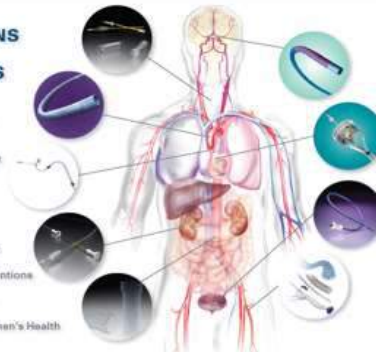


## ACCESS AND DELIVERY SOLUTIONS ASSEMBLY



### SOLUTIONS FOR ALL BUSINESS UNITS

- Cardiac Rhythm Management
- Electrophysiology
- Endoscopy
- Interventional Cardiology
- Neuromodulation
- Peripheral Interventions
- Structural Heart
- Urology and Women's Health



### ACCELERATING GROWTH



### Factory Highlights



230 Medical Device Specialists  
53 Indirect Labor Support



16 Manufacturing Lines  
1.3M Solutions per Year  
400k Earned Hours per Year  
\$52M VOP per Year



10 Product Development Projects  
6 Technology Development Projects  
3 Acquisitions

### Servicing Our Customers

Galway, Ireland

Eluvia™  
Epic™ E-Epic™  
Anio™

Cork, Ireland

Mamba™

Heredia, Costa Rica

Intellatip™  
MIFI™  
Luminize™

Kalamazoo, Michigan

stryker  
Guide™

Spencer, Indiana

Navigator™  
Navigator™ HD

Maple Grove, Minnesota

Innova™

Dorado, Puerto Rico

WallFlex™  
WallStent™  
Acuity™ Pro

TWA, Maple Grove

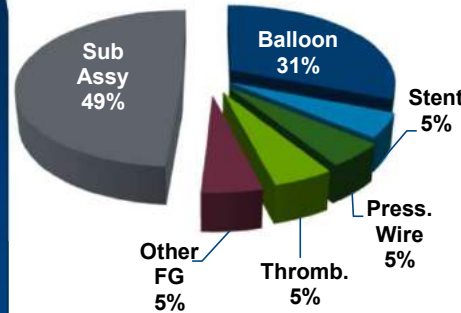
Guidezilla™  
iSleeve™



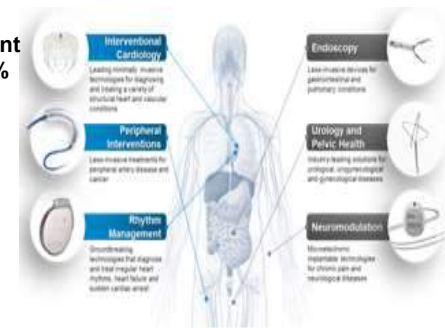
# Maple Grove: Delivering Value to our Customers

- 4,570 Employees on campus
- 2,600 Operations employees
  - 24 hours 7 days a week
- 5.5M finished products per year
  - >860k sq.ft. entire campus
- >170k sq.ft. of manufacturing space
- 15-year MN Governors Safety Award
- First LEED certified lab building in US

## Product Mix



## Divisional Support



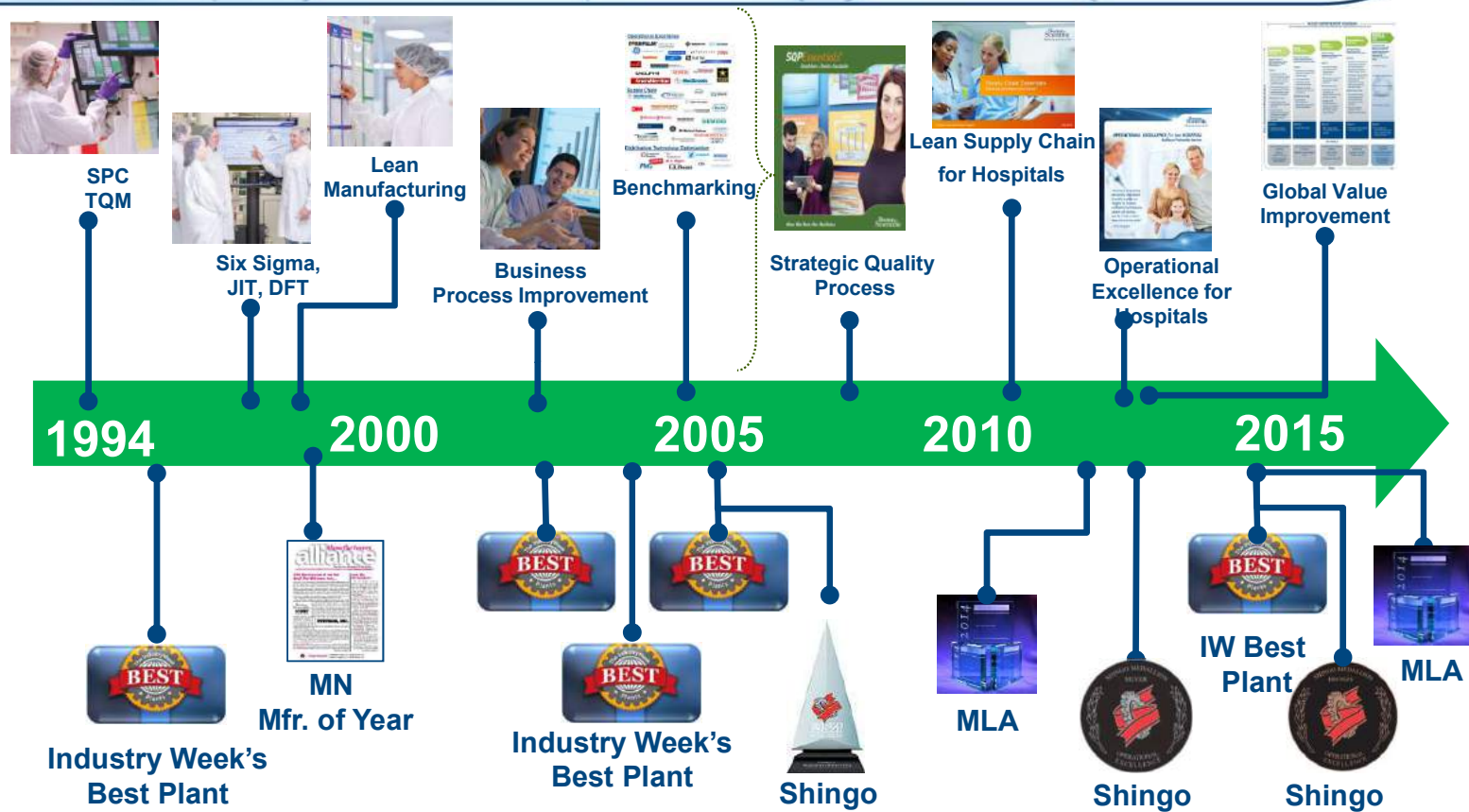
## Core Technologies

<p><b>Micro-bore Extrusion</b></p> <ul style="list-style-type: none"> <li>• Sophisticated geometries</li> <li>• Multilayer/Materials</li> <li>• Tapered</li> <li>• Material Transferring</li> </ul>	<p><b>Balloon Molding</b></p> <ul style="list-style-type: none"> <li>• Multilayered</li> <li>• 800+ models</li> <li>• 1 to 17mm diameters</li> <li>• 6 to 200mm lengths</li> </ul>	<p><b>Reflow &amp; Shaping</b></p>	<p><b>Braiding</b></p> <ul style="list-style-type: none"> <li>• Reel to Reel</li> <li>• Discrete</li> </ul>	<p><b>Polymer Bonding</b></p> <ul style="list-style-type: none"> <li>• IR feedback lasers</li> <li>• Hot Jaws</li> <li>• UV Adhesive</li> </ul>	<p><b>Cryogenic Polymerization</b></p> <ul style="list-style-type: none"> <li>• SIBS Excipient</li> <li>• PBMA Purification</li> <li>• Polymerization needs</li> </ul>	<p><b>Stent Crimping</b></p> <ul style="list-style-type: none"> <li>• Pressurized/Heated</li> <li>• Multiple materials</li> </ul>	<p><b>Metals Processing</b></p> <ul style="list-style-type: none"> <li>• Laser Cutting</li> <li>• Electro polishing/ Cleaning</li> <li>• Wire EDM</li> </ul>	<p><b>Micro Soldering and Welding</b></p>
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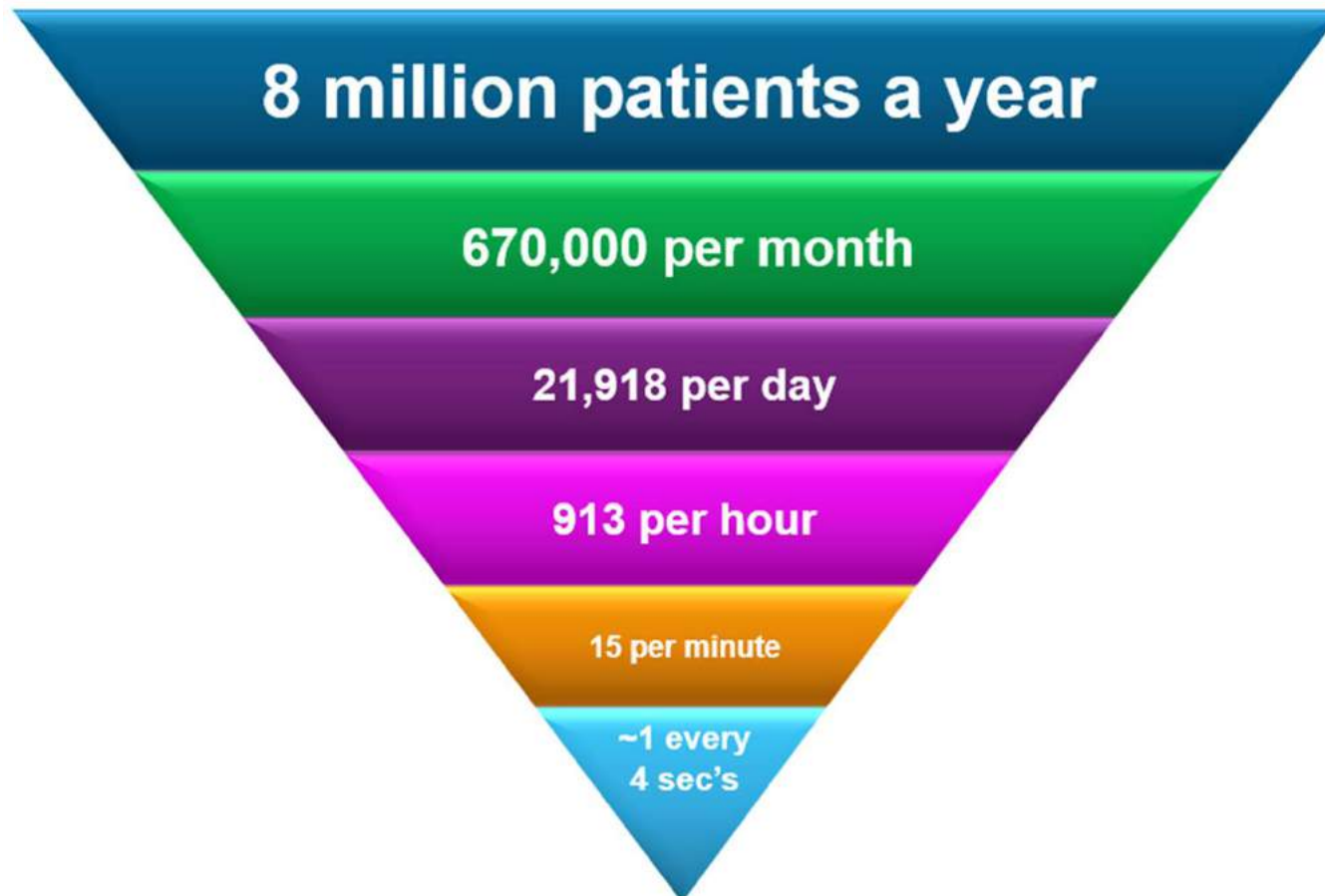
# Our Value Improvement Journey

## Continually Innovating the Operating Model



## Our Impact on Patients' Lives

Boston  
Scientific



- The essence of problem solving:
  - Prioritizing the largest problems and opportunities.
  - Prioritizing the most effective and efficient solutions to those problems and opportunities.



❖ Focus on ROI

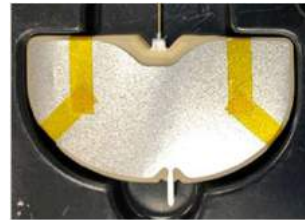
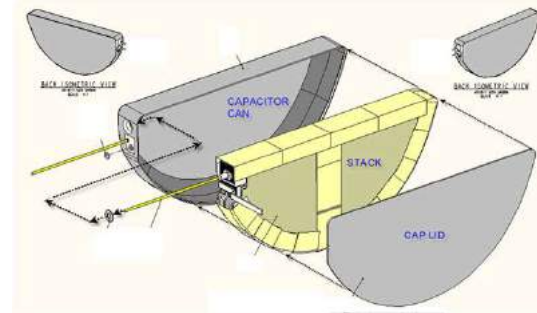
❖ Don't forget low hanging fruit

❖ Prioritize Prioritization

❖ Understand Magnitude

# Problem Solving Example: High Voltage Capacitor Manufacturing Scrap

- Subcutaneous Implantable Cardiac Defibrillator



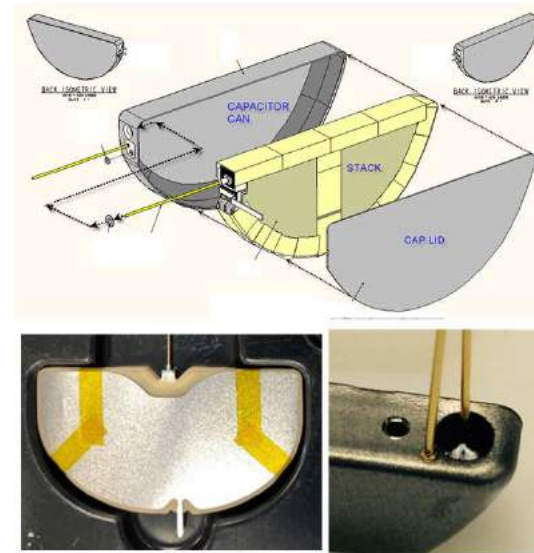
# Problem Solving Example: High Voltage Capacitor Manufacturing Scrap

## Process:

- 1) Capacitor is filled with electrolyte
- 2) Goes through a baking/aging process
- 3) Shelf factor is calculated
- 4) Part is tested prior to welding the plug
- 5) Parts that fail at final test are scrapped

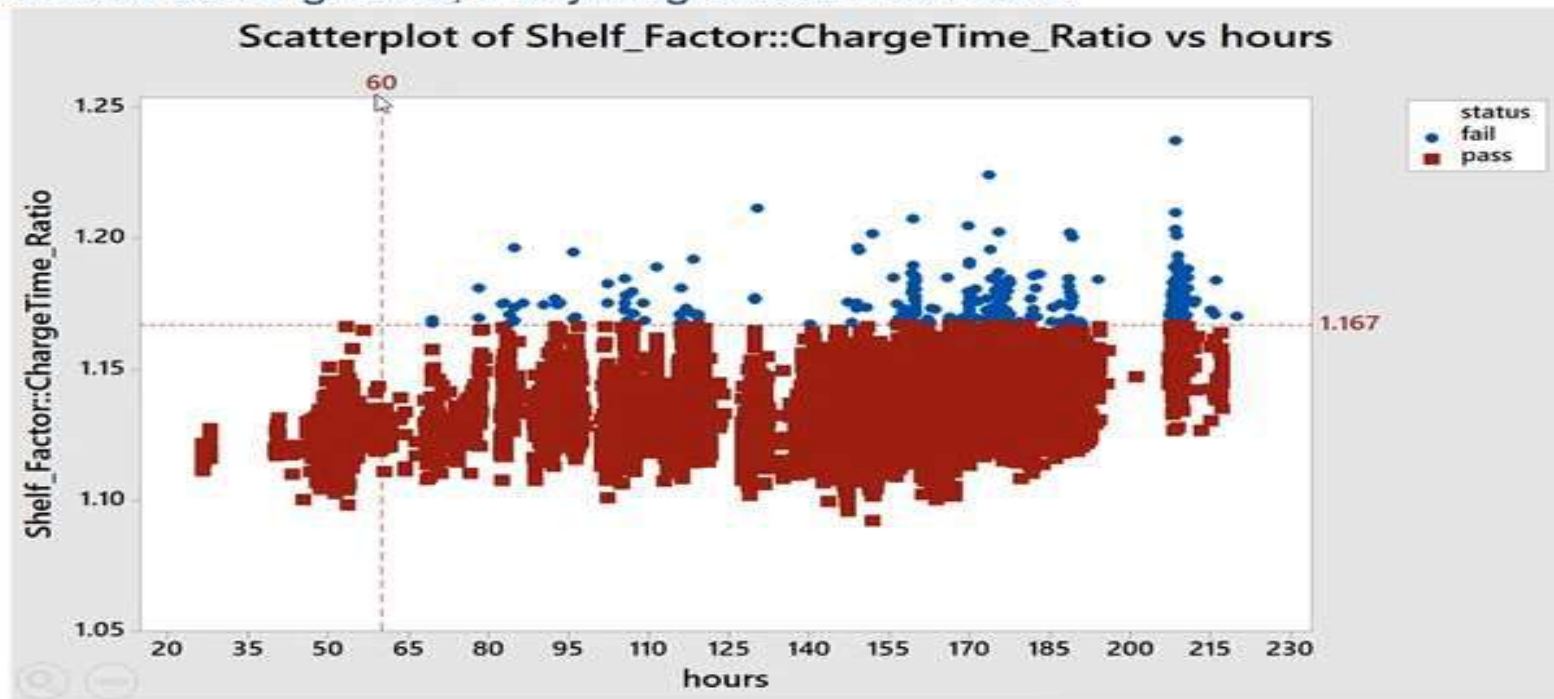
## Background:

- Mixed model process
- WIP was accumulating (Covid-19 absences)
- A DOE was performed two years prior
  - Parts sitting >60 hours at risk for humidity/unknown fails
  - Foil flatness and moisture is a factor



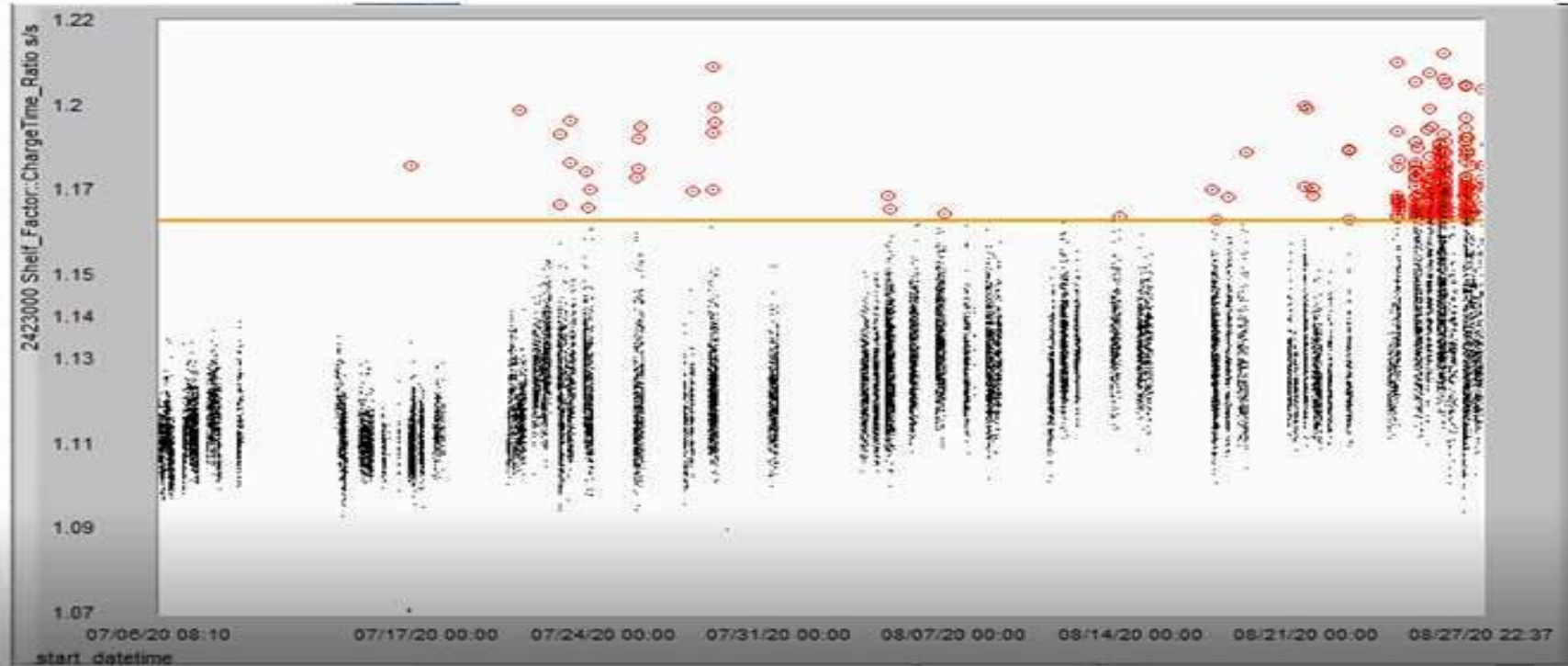
# 60 Hour Recommendation

- After 60 hours the data becomes sporadic and generates more failures. The signals at test are more susceptible to Shelf Factor non conformance.
- Why is there no time limit recommendation control in the WI?
- Why does the failure rate seem to vary even at longer unsealed times?
- Time limit should be no greater; if anything should  $\leq 48$  hours.



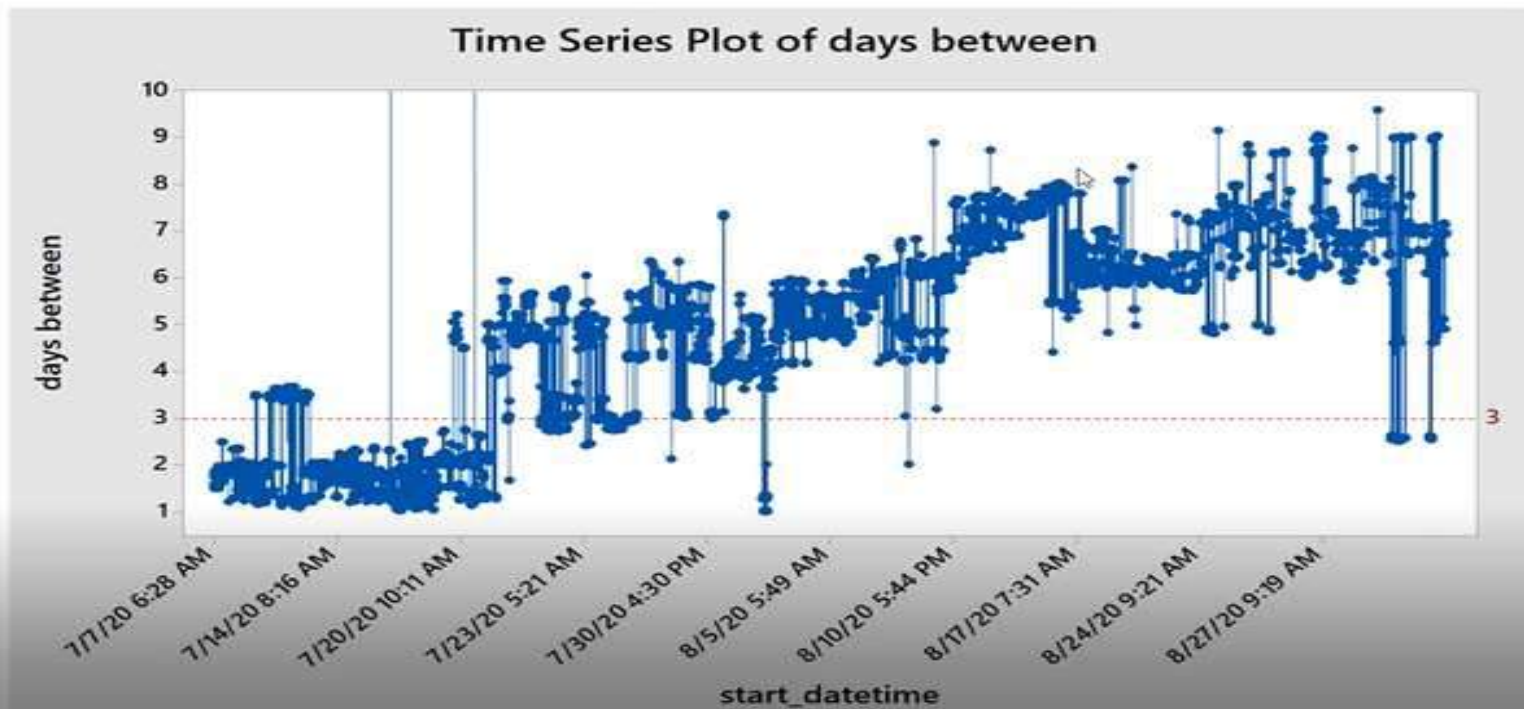
# Problem Solving Example: High Voltage Capacitor Manufacturing Scrap

- Shift upward in Shelf Factor, at the very edge of failure. Pass/Fail data does not give full visibility to the shift seen below.



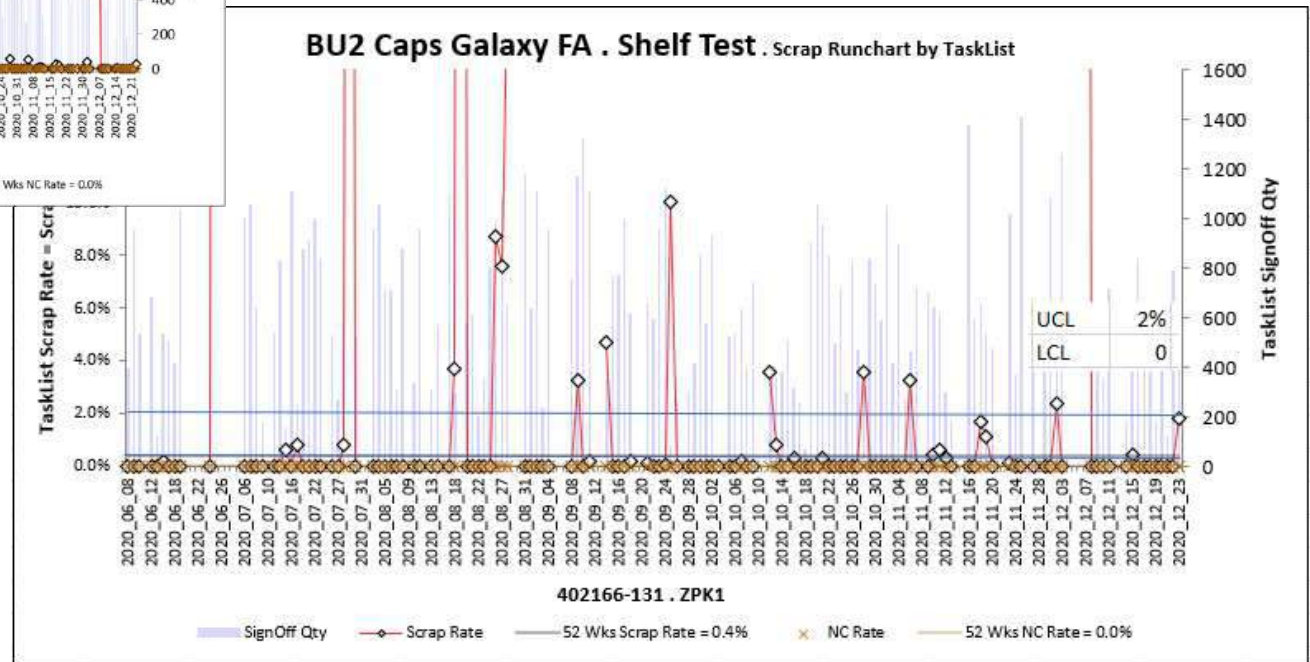
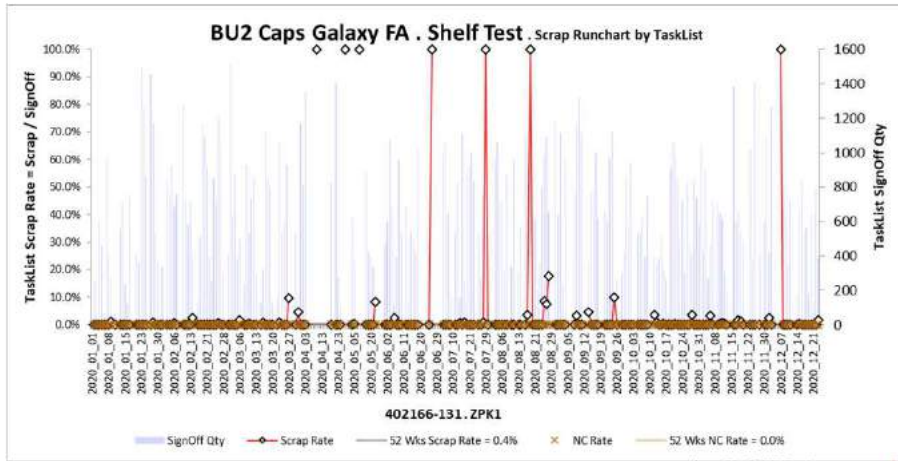
# When the shift occurred

- Starting around 20 Jul there was a shift up in the days unsealed.
- 1-Sep-20 the WIP rack has parts out of order: older parts toward the bottom as opposed to the top.
- Plug Weld is unstaffed for several hours a day.



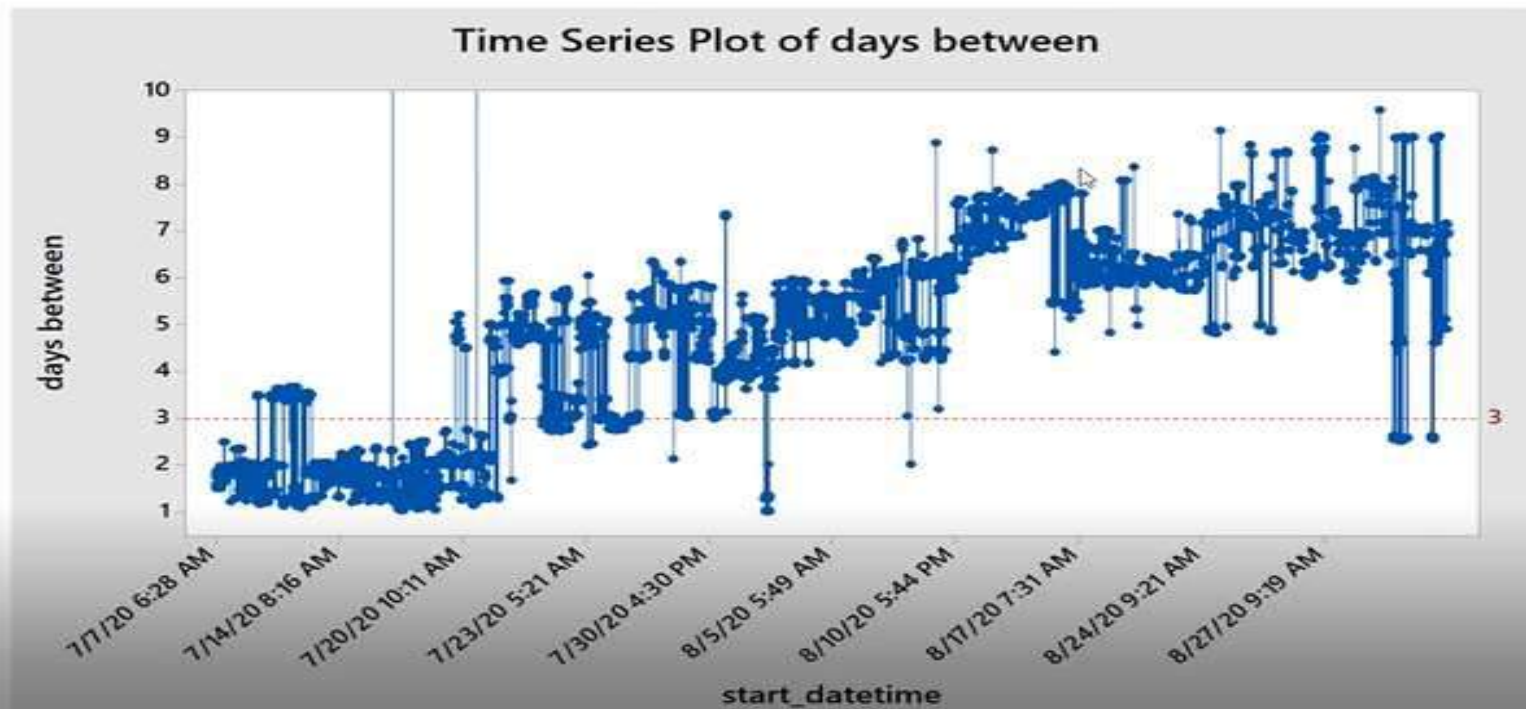


# Problem Solving Example: High Voltage Capacitor Manufacturing Scrap



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## Lessons learned:

1. Don't rely on one method of data collection (run charts, box plot, scatter plot, control charts)
2. Trust/listen to the people closest to the process (but verify with data)
3. Don't delay with perfect data or the perfect format

Thanks for joining us!

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