



**Hochschule für Technik
und Wirtschaft Berlin**

University of Applied Sciences

B19 Innovation Management

Winter Term 2010/11

Lecturer: Nora Dörr, Dr. Tobias Müller-Prothmann

Presenter: Janin Viere and André Mattke

5 Whys



A Problem-Solving Method



5 Whys – Agenda

- Introduction
- History
- The Method
- Example/ Worksheet
- Class Experiment
- Pro's and Con's
- Alternatives
- Conclusion
- Sources



5 Whys – Introduction

- Problem-solving method: Ask WHY!!!
- Technique to get to the root of a problem
- Involves asking "Why" 5 times in succession
- Don't be fooled by it's apparent simplicity!
- Can be used for almost any problem or process



Why?





5 Whys – History

- Earliest written version in a John Gower's poem, 1390
- Developed by Sakichi Toyoda and used within Toyota Motor Corporation
- Component of problem-solving training as part of production system
- Nowadays used by many companies, Kaizen and lean manufacturing



5 Whys – The Method

5-WHY ANALYSIS SHEET			
Failure Mode	Enamel Finish Defects	Department/Area	Porcelain Plant
		Equipment	Top Coat Spray
<p>WHY #1: Orange Peel from holding spray guns at wrong angle.</p> <p style="text-align: center;">↓</p> <p>WHY #2: New Operators are not fully trained.</p> <p style="text-align: center;">↓</p> <p>WHY #3: Excess absenteeism is disrupting the training schedule. New operators are placed on the job before they are trained.</p> <p style="text-align: center;">↓</p> <p>WHY #4: Production demands are given priority over fully training operators.</p>		<p>WHY #5: The production culture is oriented toward volume. Due to yield problems, using untrained operators actually produces fewer good units even though the line keeps running.</p> <p style="text-align: center;">↓</p> <p>TEMPORARY COUNTERMEASURES Date <u>6/18</u> New policy to slow line speed during high absenteeism to allow extra time for less experienced sprayers.</p> <p style="text-align: center;">↓</p> <p>FINAL COUNTERMEASURE Name <u>Jess Fixit</u> - PERMANENT CORRECTIVE ACTION Date <u>6/19</u> Establish sprayer certification program and train pool of backup sprayers - change volume oriented culture. Launch absenteeism reduction program, including attendance bonus and tighter employment screening.</p> <p style="text-align: center;">↓</p> <p>VERIFICATION: No Recurrence in Three Months? <u>TBD</u> Date _____ Single-Point Lesson? <u>Yes</u> Date <u>6/20</u></p> <p>DO THE 5 WHY'S MAKE SENSE WHEN READ BACKWARD?</p>	
<p>Note: Continue on separate page if 5-Whys are not enough to determine root cause.</p>			



5 Whys – The Method

- Goal: Determine the root cause of a defect/problem
- Key: Avoidance of assumptions and logic traps by tracing the following chain:
Effect => Layers of abstraction => Root cause
- Can be taken to a 6th or 7th level if necessary
- 5th "Why" aims to a process that is not working well or not even existing



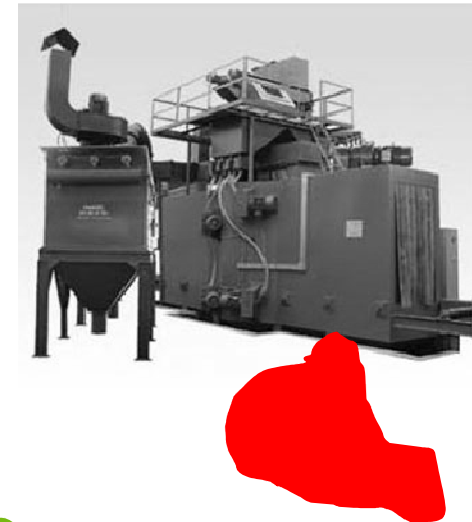
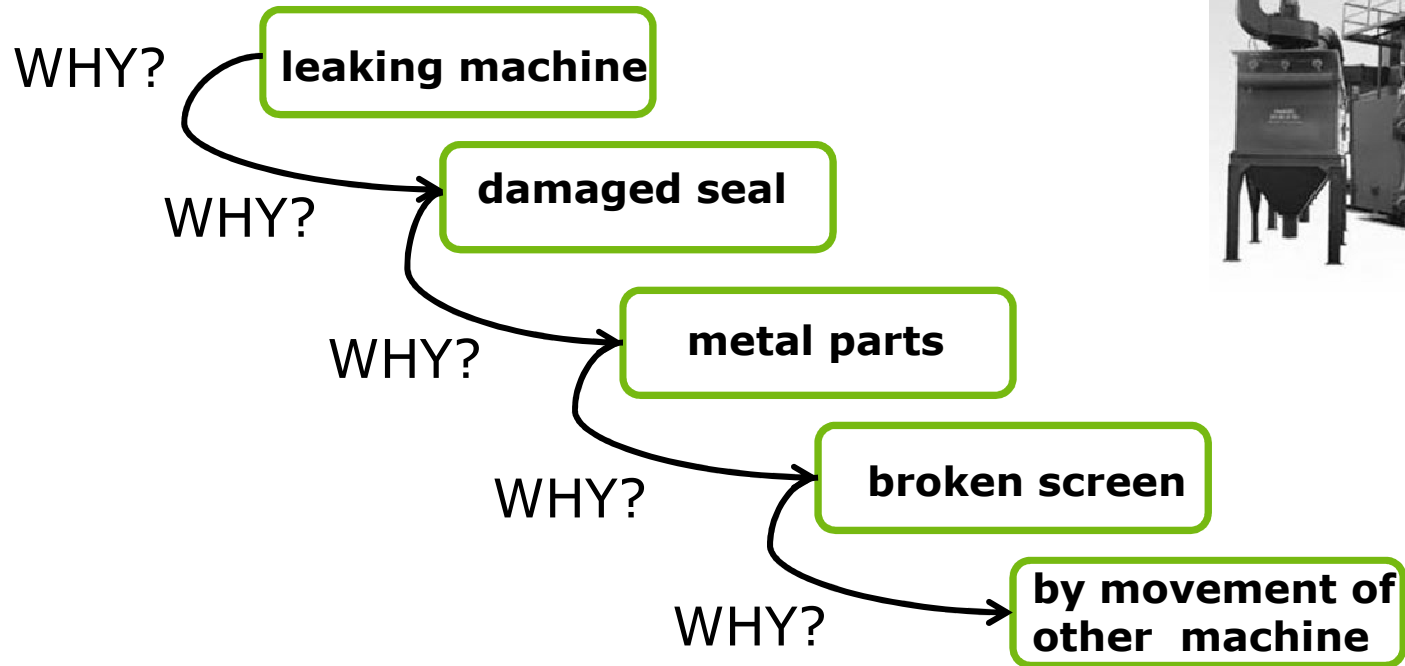
5 Whys – The Method

- Often people stop at 1st or 2nd answer blinded by symptom (that is **almost never** the root cause)
- Method requires intelligent application, discipline and persistence to follow the method
- Much practice and experience is needed

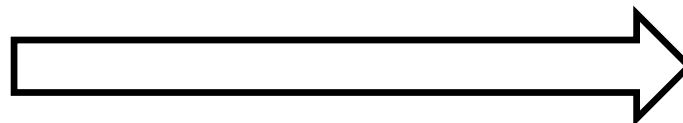


5 Whys – Example/ Worksheet

PROBLEM: → Cooling-liquid on the floor



Root Cause



located in-appropriately



5 Whys – Example/ Worksheet

- Validating the root cause:
 - Is there any proof?
 - Knowledge indicating this root cause created problem?
 - Anything that this root cause requires to produce the problem?
 - Could other causes produce same problem?



5 Whys – Example/ Worksheet

The 5 Whys Worksheet

What is the abnormal condition?

Confirmation
Required? Method

Why did this occur (1)?

Yes →
No

Why did this occur (2)?

Yes →
No

Why did this occur (3)?

Yes →
No

Why did this occur (4)?

Yes →
No

Why did this occur (5)?

Yes →
No

Root Cause



5 Whys – Class Experiment

- Now it's your turn class!!!



5 Whys – Pro's and Con's

- Easy to implement/ to teach
- Inexpensive
- Effective
- Flexibility
- Comprehensiveness
- Engaging
- Too basic
- Inability to go beyond current knowledge level
- Different people, different answers
- Biased results
- Not ask right "why-question"

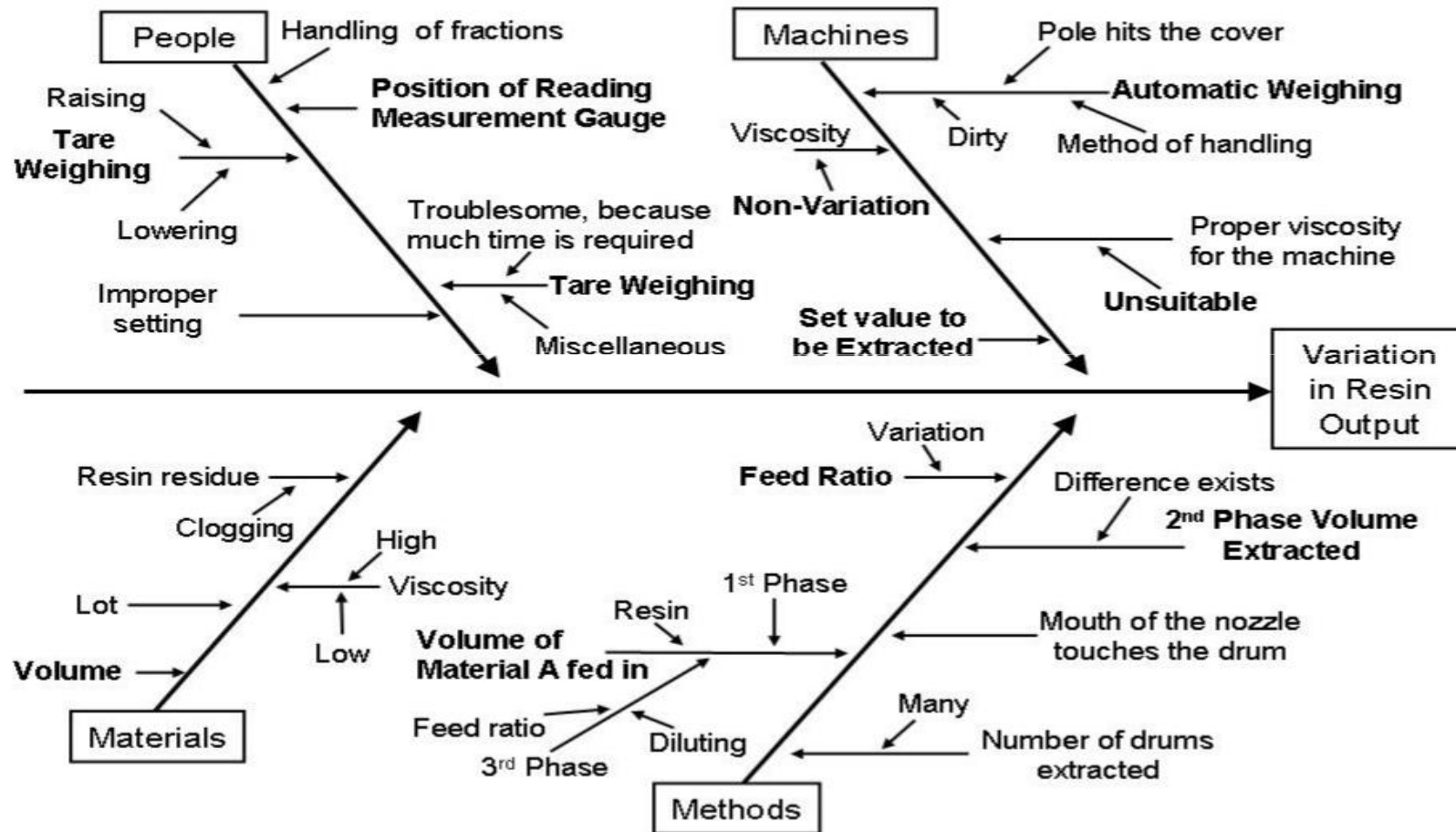


5 Whys – Alternatives

- Cause-Effect-Diagram
- Closely related to the „5 Whys“
- A tool that helps identify, sort and display possible causes
- Illustrates the relationship between a given outcome and all influencing factors



5 Whys – Alternatives





5 Whys – Conclusion

- Simple and effective method for private and professional use, everyone can apply
- Give 5 whys a try on your next tough problem!!!
- ‘Only the inquiring mind solves problems!’ (Edward Hodnett)
- Or in German: ‘Wer, wie, was, wieso, weshalb, warum, wer nicht fragt, bleibt dumm!!!’ (Sesamstrasse)



5 Whys – Sources

- 'Innovation, Product Development and Commercialization'; D.Rafinejad; J. Ross Publishing '07
- 'The New Lean Toolbox'; John Bicheno; Picsie Books 2006
- <http://www.toyotageorgetown.com/tps.asp> (18.Oct.'10, 18h)
- http://blogs.hbr.org/cs/2010/04/the_five_whys_for_startups.html
- http://en.wikipedia.org/wiki/5_Whys (21.Oct. '10, 19h)
- http://www.isixsigma.com/index.php?option=com_k2&view=item&id=1308:&Itemid=49 (18.Oct.2010, 16h)
- <http://www.youtube.com/watch?v=zvkYFZUsBnw> (18.Oct.10,17h)



Hochschule für Technik
und Wirtschaft Berlin

University of Applied Sciences

Thank you for your attention!!!