Developing Effective Problem Solvers

Dave Wakeman – Head of Continuous Improvement
Roger Martin – Crawley CI Manager

C1 - OPEN

Agenda

▍ **Introduction to Dave, Roger and David**

▍ **Thales who?**

▍ **Why develop effective problem solvers?**

▍ **Our approach**

▍ **Let try it**

▍ **How did we do?**

▍ **9 Lessons from a Lean Coach**

▍ **Q&A**

…..Lunch!

Developing Capability

Supporting Strategy & Transformation

Aligning Competencies

Fostering Innovation

C1 - OPEN

Introductions

UK Head of Continuous Improvement

+14 years with Thales
A lifetime of working in business improvement

David.Wakeman@uk.thalesgroup.com

Crawley Industry Continuous Improvement Manager

Many decades with Thales

Roger.Martin@uk.thalesgroup.com

David Marriott, Senior Lean Coach, Lean Enterprise Academy

THALES
Building a future we can all trust

Agenda

Introduction to Dave, Roger and David

Thales who?

Why develop effective problem solvers?

Our approach

Let try it

How did we do?

9 Lessons from a Lean Coach

Q&A

Developing
Capability

Supporting Strategy
& Transformation

Aligning
Competencies

Fostering
Innovation

C1 - OPEN

Thales Overview

Over 77000* employees

* Excluding ground transportation

68 Countries Global presence

€1bn Self-funded R&D**

** Does not include externally financed R&D

Sales in 2022 **€17,6bn**

THALES
Building a future we can all trust

Our Customers' Big Ambitions Make the World Go Round

GOVERNMENTS

INSTITUTIONS

CITIES

COMPANIES

THALES
Building a future we can all trust

Thales's Mission

**Sensing
& data gathering**

⬇

**Data transmission
& storage**

⬇

**Data processing
& decision making**

Digital Identity and Security

Defence and Security

Aerospace

Space

Ground Transportation

We help customers master decisive moments by providing the right information at the right moment

THALES
Building a future we can all trust

Our Markets

Digital Identity and Security

Defence and Security

Aeronautics

Space

Ground Transportation

3,000+ **financial institutions** rely on us to protect their payment and banking services

11.5 year contract to produce the new **UK ePassport**

Managing identities and protecting data for **Billions** of people and things every day .

Mexico City: the most advanced urban security project in the world. **Crime rates have been reduced by 56% in the last 10 years.**

Over 50 **countries** protect their populations and territories with Thales defence systems.

1m **passengers** use **Thales in-flight entertainment** systems every day.

2 out of 3 **aircraft in the world take off** and **land** using Thales equipment.

All telecom constellations operating today were built by Thales Alenia Space.

Thales Alenia Space has supplied **50%** **of the International Space Station.**

THALES
Building a future we can all trust

Thales: A Research and Development Powerhouse

Albert Fert
Scientific director of the CNRS/Thales joint physics unit and winner of the **2007 Nobel prize in physics.**

10 times winner
2013, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, **2023**

Clarivate Analytics

TOP 100 GLOBAL INNOVATORS

Expertise in a uniquely broad range of technical domains, from science to systems, applied across businesses.

An extensive intellectual property portfolio of 20,500 patents.

THALES
Building a future we can all trust

Corporate Responsibility: A strategic Choice, Key to Business Performance

Embedded in every business process and day to day work

❩ Code of Ethics and dedicated organisation.
❩ Robust policies and internal control.
❩ Focus on employee training, awareness and ownership.

❩ Group-wide environmental, social and governance programmes.
❩ Promoting responsible dialogue with all stakeholders.

❩ Driving industry-wide initiatives (corruption prevention, best practices).

Member of Global Compact since 2003. Thales has achieved Global Compact Advanced level.

Carbon Disclosure Project. Thales ranked CDP « Leadership A/A- »

Thales has been ranked in the top 3, in the Defense/Aerospace sector by the Dow Jones Sustainability Indices (DJSI) Europe and World, for the last 3 years.

THALES
Building a future we can all trust

Thales: Engagement and Accountability

Supporting Diversity and Inclusion Everywhere

Concrete targets for gender equality:

- Women accounted for 32% of new hires in 2018
- 49% of management committees included at least 3 women in 2018

Actively Contributing to the Fight Against Global Warming

- 16% reduction in carbon intensity over the last 3 years
- Commitment to reduce the carbon footprint of our activities and those due to our products and provide innovative and eco-responsible functions and services that enable our customers to reduce their own
- Emissions reduction targets consistent with the 2°C trajectory of the Paris agreement : reduction of direct emissions from operations by 40% and indirect emissions by 15% in 2030

Building Resilient Infrastructure, Promoting Sustainable Industrialisation and Fostering Innovation

- Extremely ambitious R&D policy based on local partnerships (Universities, research institutes, start-ups, etc.)
- €879 million invested in R&D and 350 patents filed in 2018
- 11.2% reduction in energy intensity (TOE/k€) between 2016 and 2018

THALES
Building a future we can all trust

Thales: Engagement and Accountability

Promoting Just, Peaceful and Inclusive Societies and Institutions

Thales's solutions and partnership ethos support governments, international organisations and companies in the fight against terrorism, crime and corruption.

Promoting Inclusive and Sustainable Economic Growth, Employment and Decent Work for All

Thales invests in long-term, responsible relationships with employees, suppliers and subcontractors:
- 97.4% of jobs on long-term contracts and 93.1% on full-time contracts
- Responsible Supplier Relations certification since 2012

Making Cities Inclusive, Safe, Resilient and Sustainable

Thales solutions help make cities safer, more attractive and easier to live in:
- The ATSsoft Energy Saving solution significantly reduces energy consumption by metros and trams
- In Mexico City, Thales solutions have cut emergency response times by a factor of 6

Ensuring Sustainable Consumption and Production Patterns

Thales applies eco-design principles in all its industrial processes:
- All new products to incorporate eco-design principles by 2023
- Environmental policies of 84% of Thales suppliers (80% of total purchasing spend) assessed between 2016 and 2018

THALES
Building a future we can all trust

Agenda

Introduction to Dave, Roger and David

Thales who?

Why develop effective problem solvers?

Our approach

Let try it

How did we do?

9 Lessons from a Lean Coach

Q&A

Developing Capability

Supporting Strategy & Transformation

Aligning Competencies

Fostering Innovation

We are a **LEAN** business where we **WOW** our Customers; developing our people into **Leaders** who continuously **improve** everything we do

THALES
Building a future we can all trust

The 3 Reasons We Start Out As Lousy Problem Solvers

Let me ask you a question:

> If a bat and a ball cost £1.10 and the bat costs £1 more than the ball.

> How much does the ball cost?

This is "System 1 and System 2" thinking in action

> **Daniel Kahneman** – Psychologist and 2002 Nobel Prize winner for Economics

> **Thinking Fast vs. Thinking Slow**

System 1 : Fast	System 2 : Slow
Impulsive	Chess Masters
Emotional	Data driven
Optimistic	and…
follow 1st impressions	Lean Problem Solvers

98%   vs.   2%

Reason 1:
Cognitive Bias

THALES
Building a future we can all trust

You will need the piece of paper on your desk with 2 dots

> Fold the paper in half

> Hold the #1 side in front of you

> With the solid blue dot on the left hand side

> Close your left eye

> Stare @ the solid blue dot with your right eye

> Move the card in and out slowly while staring @ the solid blue dot
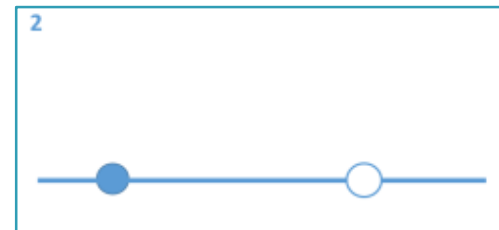
> **What happens?**
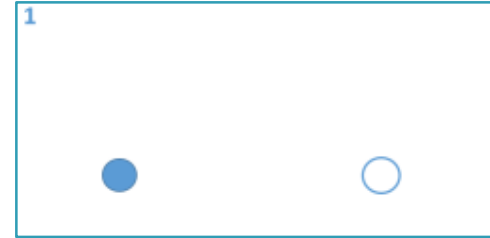
**Reason 2:
We have BLIND SPOTS and don't see what's there**

THALES
Building a future we can all trust

Flip the piece of paper over

> Hold the card in front of you

> With the solid dot on the left hand side

> Close your left eye

> Stare @ the solid dot with your right eye

> Move the card in and out slowly while staring @ the solid dot

> **What happens?**

**Reason 3:
Our brain makes it up!
And you can't see
what's there**

If you are trying to learn new skills or

Sharpen an existing skill

> Get a Coach!

You are wanting to change behaviour

It will be difficult to sustain because of learnt behaviour "Neural Pathways"

❖ NeuroPlasticity

THALES
Building a future we can all trust

The 8 Reasons Why Getting a Coach a Good Idea?

1. **Expertise and Experience:** Business coaches are experienced professionals who have dealt with various problems and challenges in different industries. They can provide valuable insights and guidance on problem-solving strategies based on their knowledge, skills and expertise.

2. **Objective Perspective:** A business coach can offer an objective perspective on issues, helping identify blind spots, and facilitating the development of innovative solutions. They can challenge assumptions and encourage critical thinking, leading to more effective problem-solving.

3. **Personalised Approach:** Business coaches can tailor their approach to the unique needs and strengths of each individual or team. They can help identify areas for improvement, build on existing skills, and develop new problem-solving techniques that are most effective for the specific situation.

4. **Accountability and Support:** A business coach provides a structure for accountability and support, ensuring that individuals and teams stay focused on their goals and continue to develop their problem-solving capabilities.

THALES
Building a future we can all trust

The 8 Reasons Why Getting a Coach a Good Idea?

5. **Skill development:** A business coach can help improve communication, leadership, and teamwork skills, which are essential for effective problem-solving. They can also help individuals develop a growth mind-set, resilience, and adaptability, which are crucial in navigating complex challenges.

6. **Enhanced decision-making:** Business coaches can help individuals and teams develop better decision-making processes, including effective data analysis, risk assessment, and evaluation of alternative solutions.

7. **Boost performance and productivity:** By developing more capable problem solvers, businesses can become more efficient, agile, and competitive. Improved problem-solving skills can lead to better decision-making, reduced costs, and increased overall performance.

8. **Long-term benefits:** The skills and techniques learned from a business coach will continue to benefit individuals and teams long after the coaching engagement has ended. Improved problem-solving abilities can lead to a more innovative and resilient organisation, better prepared to face future challenges.

THALES
Building a future we can all trust

Why Problem-Solving is Crucial for Organisations?

> Enhancing competitiveness

> Increases efficiency

> Boosts productivity

> Reducing costs

> Promotes adaptability and resilience

> Fostering innovation

> Encourages a culture of continuous improvement

> Facilitates teamwork and collaboration

> Mitigates risks and crisis management

> Improving employee engagement and satisfaction

Ask yourself:

"What is the cost of ineffective problem-solving in my organisation?"

Robust Problem Solving: A Standard Approach

4 Key elements of Robust Problem Solving:

1. Clear problem identification
> Do you really see the problem?

2. Systematic analysis

3. Evaluation and selection of solutions

4. Effective implementation and monitoring
> Sustainability

…but Which One?

THALES
Building a future we can all trust

Agenda

Introduction to Dave, Roger and David

Thales who?

Why develop effective problem solvers?

Our approach

Let try it

How did we do?

9 Lessons from a Lean Coach

Q&A

Developing
Capability

Supporting Strategy
& Transformation

Aligning
Competencies

Fostering
Innovation

Our Approach to Developing Effective Problem Solvers

▌Lots of "Standards" being used across our sites in the UK

> ❯ What should our 'Standard' be?

> ❯ How could we train people in it when sites are in Lock-down?
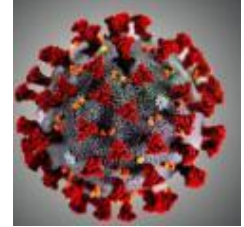
▌During Covid-19 we needed online training materials

> ❯ Our own Thales Learning & Development team overwhelmed with demand

> ❯ Some big priority jobs meant we were not :-(

> ❯ Looked at many external providers

> ❯ Settled for

Lean Enterprise Academy ®

THALES
Building a future we can all trust

Problem Navigation Adopted Standards

LEA UK Lean Institute (all training materials PPS/RPS available online):
- **PPS** (A3) **Practical Problem Solving**
- **RPS** (A4:PDCA) **Rapid Problem Solving**
- **JDI** (PDCA) **Just Do It**

JDI Problem Solving

Kaizen Continuous Improvement 6-Steps
- WWWWWHH (QQOQCP)
- SIPOC
- In/Out of Scope
- 5 Whys
- Fishbone diagrams
- 5s
- TPM
- Set-up Reduction (SMED)
- Error Proofing (Poke-Yoke)
- Spaghetti Diagrams
- SOP
- Visual Management

- **Kaizen Blitz**
- **Gemba Routines**
- **SIM & QRQC**

KEEP CALM AND KAIZEN ON

THALES
Building a future we can all trust

Our Approach to Developing Effective Problem Solvers
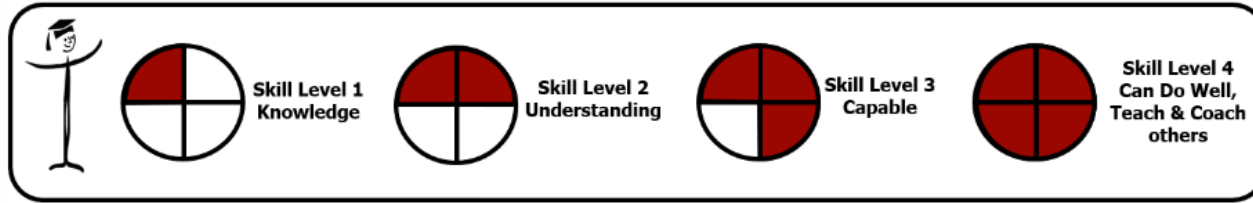
Train… lots and lots of

> See one (on-line worked example)

> Do one (pick a real-life problem)

> Teach one (teach others the 2 steps above)

> Self sustaining

> Build Autonomy in Problem Solving…

All materials available on-line

> Bite sized Learning and Application

HOW DO YOU EAT AN ELEPHANT?
ONE BITE AT A TIME!

THALES
Building a future we can all trust

Get A Coach…

> David Marriott & David Brunt

> Practical Problem Solving (PPS) 16 week programme rolled out across all UK Industrial sites

Assess Capability

> Evaluation criteria: assessment against standard

> Overtime can quantify continuous capability improvement

Aim to create Autonomous / Self Reliant teams

C1 - OPEN

THALES
Building a future we can all trust

Agenda

Introduction to Dave, Roger and David

Thales who?

Why develop effective problem solvers?

Our approach

Let try it !

How did we do?

9 Lessons from a Lean Coach

Q&A

Developing Capability

Supporting Strategy & Transformation

Aligning Competencies

Fostering Innovation

Interactive Exercise: Applying Robust Problem Solving (15 minutes)

> A. Divide yourselves into small groups 3-4 people

> B. One of you come and get a copy of the problem statement

> C. Come up with the 'Problem Statement' - the problem to solve

> D. Discuss group findings and insights

Agenda

- Introduction to Dave, Roger and David
- Thales who?
- Why develop effective problem solvers?
- Our approach
- Let try it
- **How did we do?**
- 9 Lessons from a Lean Coach
- Q&A

Developing Capability

Supporting Strategy & Transformation

Aligning Competencies

Fostering Innovation

C1 - OPEN

▌ Let's ask our Coach

▌ Section 1.0

Score Yourselves

?

(10 minutes)

PRACTICAL PROBLEM SOLVING (PPS) A3 EVALUATION CRITERIA

THALES
Building a future we can all trust

Executives see
4% of the problems

Middle Managers see
9% of the problems

Supervisors see
74% of the problems

Frontline workers see
100% of problems

So whom should you seek out if you really want to **understand** the problem?

… Go to the **Gemba** talk to many people … get the **Data**

THALES
Building a future we can all trust

Without **Data** you are just another person with an opinion

C1 - OPEN

How Much You Learn

From Mistakes

From Practice

From Theory
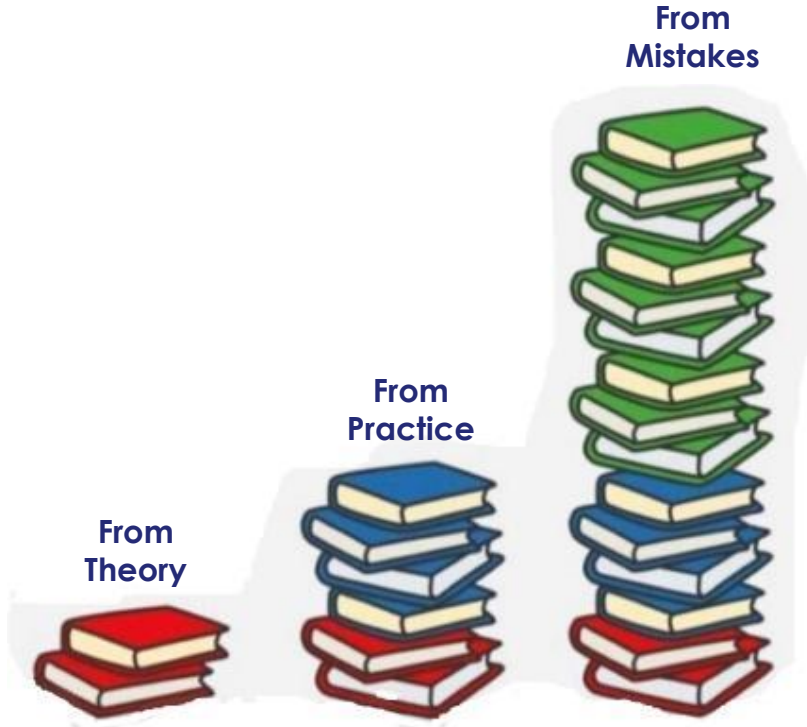
"To err is human" Alexander Pope 1711

Practice, Practice, Practice…

Create new ways of working → new 'neural pathways'

THALES
Building a future we can all trust

Make Problems Visible

Ethos:

The '1-3-10' Rule

| 1 second |
| Are we Winning or Loosing? |
| 3 seconds |
| Where are we Winning or Loosing? |
| Look at the trends |
| 10 seconds |
| What are we doing about it? |
| What activities we are doing to address these areas? |

Daily 4 levels of SIM:
> Cell/Line
> APRU
> Site
> UK Industry CBU

THALES
Building a future we can all trust

Agenda

Developing Capability

Supporting Strategy & Transformation

Aligning Competencies

Fostering Innovation

C1 - OPEN

C1 - OPEN

Involve all stakeholders in the roll out and communication of a new process, avoid the angry mob!

THALES
Building a future we can all trust

▍**The Problem to solve was based on an objective from the annual strategic plan. The target had been set at 90%. The performance in the previous year was 56%. The target was extremely ambitious and actually probably not achievable**

▍**Part of a managers wish list and not a SMART objective**

Wish List
Safety - Zero accidents
Quality - Defects 0.1 PPM
Cost - 50% Reduction
Delivery - 99.7%
People - ?

THALES
Building a future we can all trust
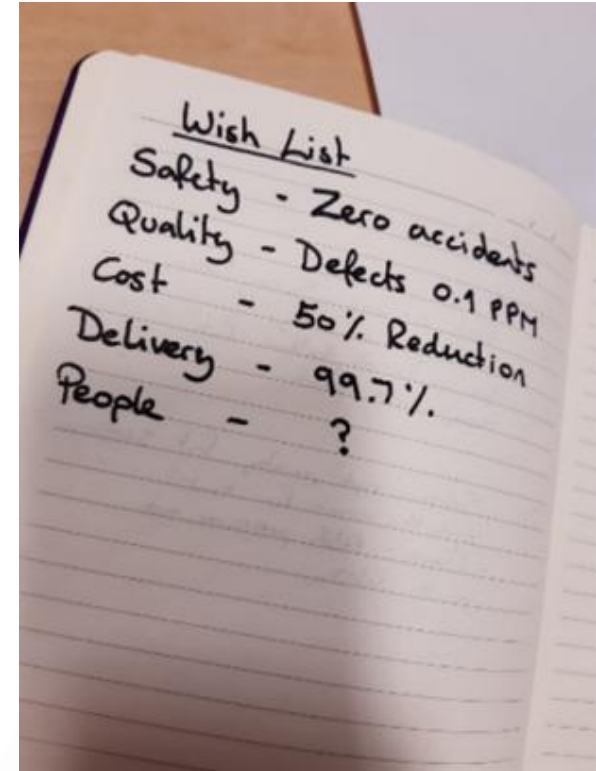
Problem background –

> Why are we looking at this?

> What problem are we trying to solve?

Make sure it is absolutely clear WHY, there must be a clear Problem Statement

THALES
Building a future we can all trust

Make sure that you look at what may be an obvious start point at the beginning
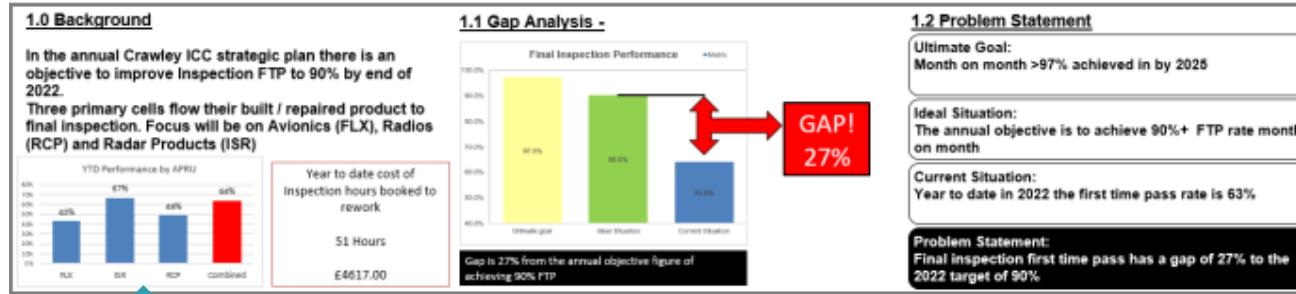
This information wasn't used and actually could have been a clue to getting some initial quick results

The cost information was not used as it turned out to be unreliable, it should have bee removed from the problem background

THALES
Building a future we can all trust

Making the Problem Clear
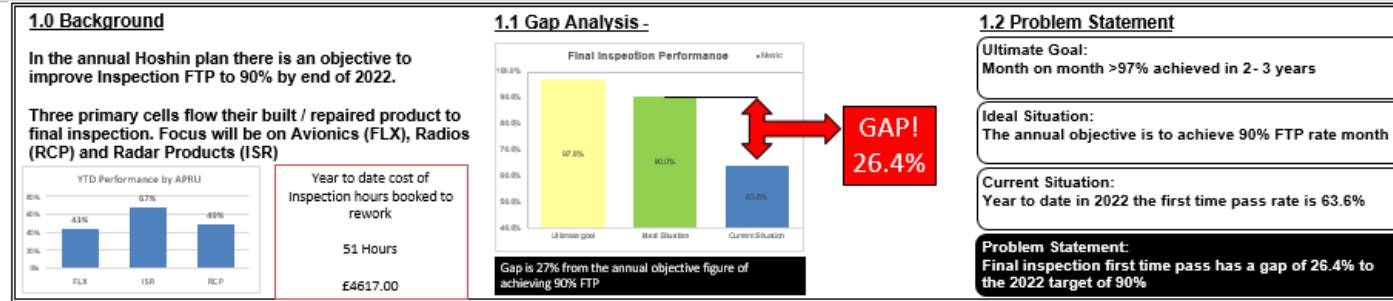
First version

1. People were talking about the cost of rework so I felt it must be important so it was added as "part of the problem", in fact the cost was an incidental consequence should have been ignored

2. The performance by workstream confirmed there was a problem across all three cells but the actual performance difference could have resulted in confusion
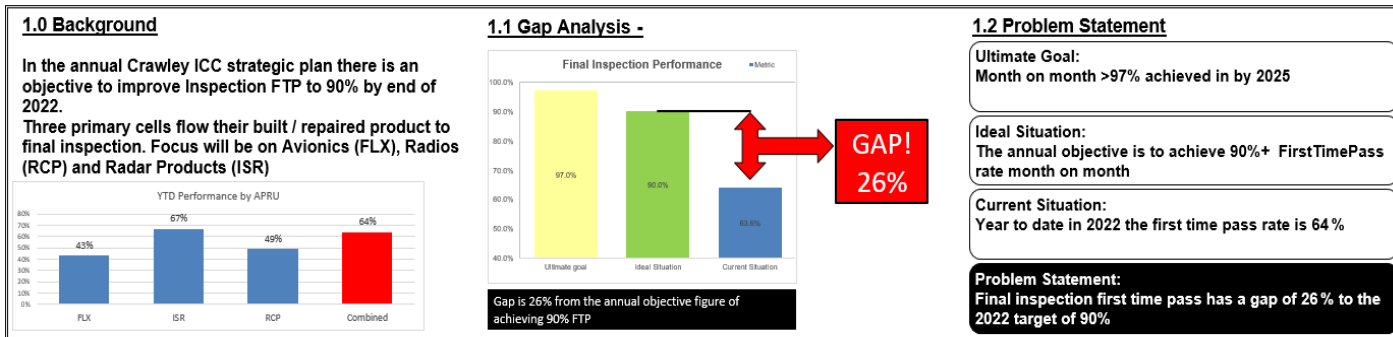
Final version after coaching

THALES
Building a future we can all trust

Improvement on Final Assurance first time pass rate <u>BUT</u> it was pointed out to me that FA is already a containment action to protect the customer from poor upstream output! (from David Brunt). I hadn't thought about it in that way. Rewrite A3!

The power of coaching! I was focused on fixing the pass rate and had thought about it in the wrong way

D'OH!

First Time Pass Rate

Containment action started here

THALES
Building a future we can all trust
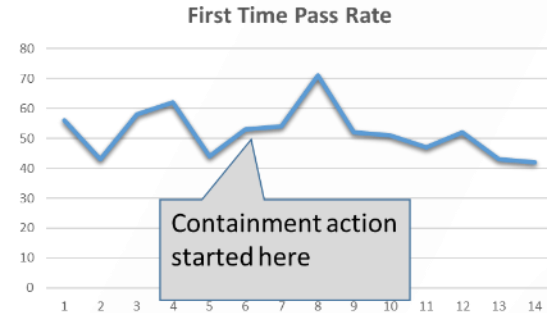
The Hidden Factory - Putting in an improvement in flow to stock post FA uncovered a whole heap of problems with hidden process defects that were being corrected out of sight so that people didn't get in trouble or thought it was just slowing things down!

Hidden Defects

Make it a good thing to expose problems and make them visible, then find the best way to make them visible out in public so they can be solved!

THALES
Building a future we can all trust

Once you have decided on the Direct Cause to focus on don't get distracted by another related but new cause that can throw you off track, you end up with problem WIP. Solve the causes one by one, stick to plan
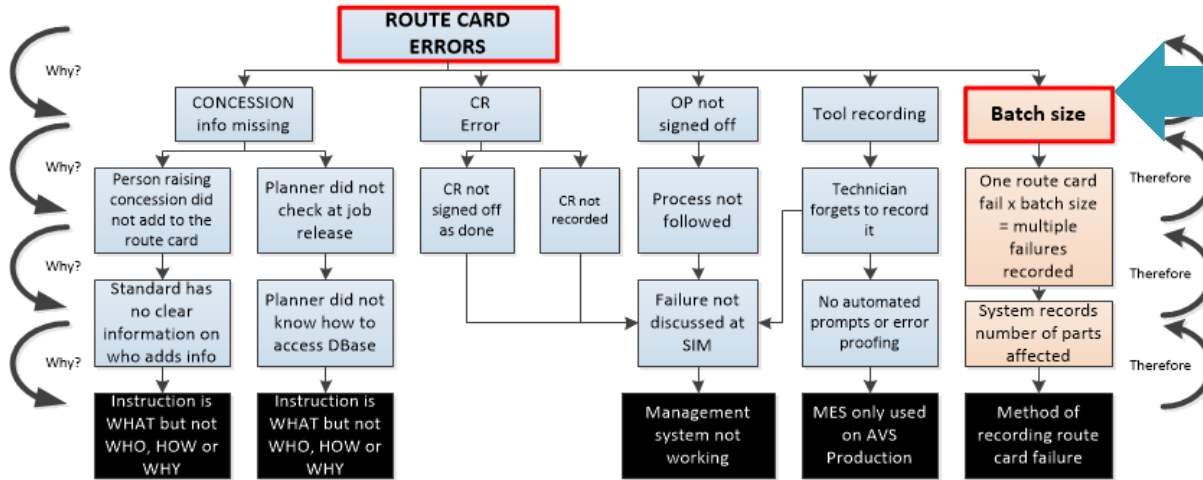
Added later as it appeared as an issue later but we hadn't solved the others yet either.
Seen as a way to quickly make the numbers look better

Problem analysis and breakdown

Even if you have a data rich problem to solve you must go and talk to those who do the job and run the processes every day. Get their perspectives on the issue as there may be a golden nugget of information you have missed or doesn't show in the data!

THALES
Building a future we can all trust

Removing human error opportunity.

> **Poke Yoke is a great tool but…..it really does need to be human proof!**

Email

Please enter your email address in format:
yourname@example.com

On manual work such as signing off bits of paper, data entry it doesn't matter what you put in place someone somewhere will do it wrong or try to get round it. The same with putting parts together that won't fit

THALES
Building a future we can all trust

Summary

The Top 7 Outcomes of Developing Effective Problem Solvers

1. **Adaptability in a Changing Environment:** In an ever-evolving business landscape, organisations must be able to adapt to new technologies, market trends, and customer demands. Robust problem-solving capabilities enable businesses to navigate change effectively and stay ahead of the competition.

2. **Enhancing Customer Satisfaction:** Identifying and resolving customer issues promptly not only improves customer satisfaction but also builds brand loyalty. Strong problem-solving skills help organisations anticipate and address customer needs, giving you a competitive edge.

3. **Streamlining Operations and Reducing Costs:** Efficient problem-solving allows organisations to identify bottlenecks, inefficiencies, and potential cost-saving opportunities. By optimising processes and eliminating waste, businesses can improve their bottom line and maintain a competitive advantage.

4. **Driving Innovation and Growth:** Effective problem-solving capabilities foster a culture of innovation and continuous improvement. Organisations that can think critically and creatively are more likely to develop new products, services, and solutions, which are essential for long-term growth and competitiveness.

C1 - OPEN

THALES
Building a future we can all trust

5. **Talent Retention and Attraction:** Organisations with strong problem-solving skills create a more positive and collaborative work environment. This not only helps retain top talent but also attracts the brightest minds who want to work in an environment where their skills can be effectively utilised.

6. **Risk Management and Mitigation:** Effective problem-solving allows organisations to identify potential risks and develop strategies to mitigate or avoid them. This helps ensure the long-term stability and sustainability of the business in the face of unpredictable challenges.

7. **Agility and Responsiveness:** Robust problem-solving capabilities enable organisations to respond quickly and decisively to unexpected challenges and market shifts. This agility allows businesses to capitalise on new opportunities and maintain their competitive edge in an increasingly fast-paced world.

8. **+++**

Standardise Approach

Get the Data ~~opinions~~

Train… lots and lots of

Get a Coach

Practice, Practice, Practice …

Have Fun ;-)

THALES
Building a future we can all trust

Agenda

- Introduction to Dave, Roger and David

- Thales who?

- Why develop effective problem solvers?

- Our approach

- Let try it

- How did we do?

- 9 Lessons from a Lean Coach

- **Q&A**

C1 - OPEN

Developing Effective Problem Solvers

Q & A

David.Wakeman@uk.thalesgroup.com
Roger.Martin@uk.thalesgroup.com

Thank You…

David.Wakeman@uk.thalesgroup.com
Roger.Martin@uk.thalesgroup.com

….. Lunch!

THALES
Building a future we can all trust