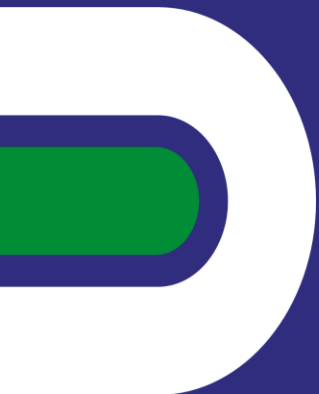


ENVIRONMENT AND HEALTH & SAFETY

Break-out session



drive
sustainability

ANTI-TRUST

Regarding your company's and/or your competitors' product and services, **it is forbidden:**

- To discuss current or future prices or supply conditions.
- To discuss any increase or decrease in price or change of supply conditions.
- To discuss pricing procedures.
- To discuss standardizing or stabilizing prices or supply conditions.
- To discuss current or future demand.
- To ask competitors why a previous bid was so low, or to describe the basis for a previous bid.
- To discuss profit levels.
- To discuss controlling sales or allocating markets for any product.
- To discuss future design or marketing strategies.
- To discuss credit terms.
- To discuss banning or otherwise restricting legitimate advertising by competitors.
- To discuss allocating customers.
- To discuss volumes.
- To discuss any other subject likely to restrict competition.

Regarding your company's and/or your competitors' selection of their supplier companies, **it is in particular forbidden:**

- To disclose or discuss the identity of suppliers if this identity is a competitively sensitive information.
- To discuss any boycotting of a company because of its pricing or distribution practices.
- To discuss strategies or plans to award business or remove business from a specific company.
- To discuss prices, margins, payment terms, volumes, markets, customers or marketing strategies of suppliers with competitors.

Regarding your company's and/or competitors' trade secrets, **it is forbidden:**

- To discuss trade secrets or confidential information of your company or any other member

CHATHAM HOUSE RULES

Please also keep in mind

- Participants attending the training **may discuss the details** of the discussion in the **outside world**, but **may not discuss who attended or identify what a specific individual said**
- Provides anonymity to speakers and encourages sharing of information;
- Used throughout the world;
- Allows people to speak as individuals, and to express views that may not be those of their organizations;
- Encourages free discussion

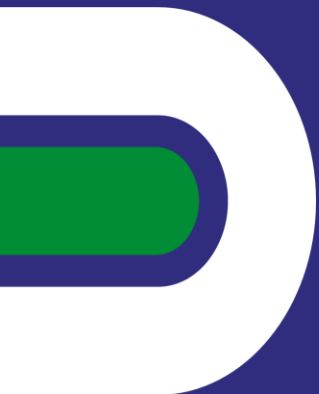
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Participants regroup	
16:40 – 17:00	Closing

INTRODUCTION

Expectations towards the industry: Guiding Principles



drive
sustainability

THE GUIDING PRINCIPLES

Environment

Companies are expected to support a **proactive approach to environmental responsibility** by protecting the environment, conserving natural resources and reducing the environmental footprint of their production, products and services throughout their life-cycle.

The screenshot displays the top portion of a document titled 'Global Automotive Sustainability Practical Guidance'. At the top, there is a row of logos for member companies: BMW GROUP, DAIMLER, FCA, Ford, GM, HONDA, JAGUAR, LAND ROVER, NISSAN, SCANIA, TOYOTA, VOLKSWAGEN, VOLVO (Volvo Car Corporation), and VOLVO (Volvo Group). Below the logos, the document is divided into two main sections: 'Environment' and 'Human Rights and Working Conditions'. The 'Environment' section contains the following text:

Companies are expected to support a proactive approach to environmental responsibility by protecting the environment, conserving natural resources and reducing the environmental footprint of their production, products and services throughout their life-cycle.

A comprehensive approach includes but is not limited to:

- **Energy Consumption & Greenhouse Gas Emissions:** Companies are expected to implement a comprehensive energy reduction strategy and management program while increasing use of renewable energy.
- **Water Quality & Consumption:** Companies are expected to effectively reduce, reuse, and recycle water with responsible treatment of wastewater discharges to protect the environment and improve overall water quality.
- **Air Quality:** Companies are expected to routinely monitor, appropriately control, minimize/minimise, and to the extent possible, eliminate emissions contributing to local air pollution.
- **Natural Resources Management and Waste Reduction:** Companies are expected to encourage and support the use of sustainable, renewable natural resources while reducing waste and increasing reuse and recycling.
- **Responsible Chemical Management:** Companies are expected to identify, minimize/minimise or eliminate the use of restricted substances in manufacturing processes and finished products to ensure regulatory compliance. Companies should also be aware of any use of reportable substances in processes and finished products, and actively investigate suitable substitutes.

For further details please refer to the Global Automotive Sustainability Practical Guidance located at AIAG: <http://aiag.org/corporate-responsibility> and Drive Sustainability: www.drivesustainability.org

The 'Human Rights and Working Conditions' section contains the following text:

Companies should respect the human rights of workers, and treat all people with dignity as recognized by the international community.

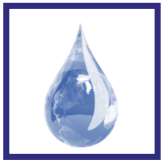
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- **Wages and Benefits:** Companies should provide compensation and benefits that comply with applicable local laws, including those relating to minimum wages, overtime compensation, and legally mandated benefits.
- **Working Hours:** Companies should comply with local law regarding working hours, including overtime.
- **Forced Labor/Labour:** Companies must prohibit any forms of forced, (bonded) or compulsory labor/labour, including human trafficking.
- **Freedom of Association:** Companies should allow workers to communicate openly with management regarding working conditions and management practices without fear of reprisal, intimidation or harassment. Companies should respect employee rights to associate freely, to join or not join labor/labour unions, bargain collectively, seek representation, and join workers' councils in accordance with local law.
- **Health & Safety:** Companies should provide workers a safe and healthy working environment that meets or exceeds applicable local laws and industry standards for safety and occupational health.
- **Harassment:** Companies should provide a work place free of harassment against workers in any form.
- **Non-Discrimination:** Companies should not tolerate any form of discrimination in respect of employment and occupation and should provide equal employment opportunities regardless of worker or applicant characteristics such as race, color/color, age, gender, sexual orientation, gender identity, ethnicity or national origin, disability, pregnancy, religion, political affiliation, union association, covered veteran status, genetic information or marital status.

THE PRACTICAL GUIDANCE

Environment - A comprehensive approach includes - but is not limited to:



Energy Consumption & Greenhouse Gas Emissions (including monitoring, energy management strategy)



Water Quality & Consumption (including assessment of water stress, conservation measures)



Air Quality (including monitoring, air emissions management plan)



Natural Resources Management and Waste Reduction (including waste reduction targets, waste management hierarchy, use of sustainable and renewable resources)

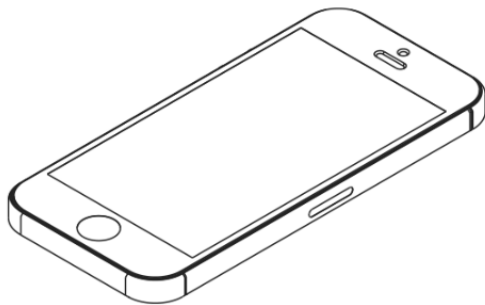


Responsible Chemical Management (including Safety Data Sheets, measuring data completeness against bill of materials)

POLLING EXERCISE

On which topic of the Guiding Principles/Practical Guidance would you like to receive more information?

Go to www.menti.com and use the code **38 05 62**



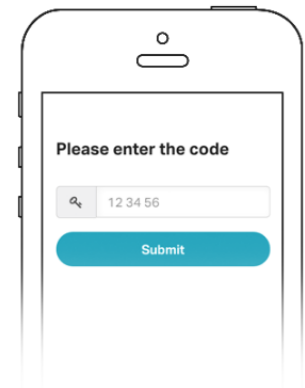
1

Grab your phone



2

Go to www.menti.com



3

Enter the code **38 05 62** and vote!

Development of an Environmental Policy



What experience do we have in responsible business?
Who are our key stakeholders?
What are their expectations?
What does our competition do?
How do we wish to make use of sustainable development to build a competitive advantage? How can sustainable development help build brand value and reputation, attract employees and manage the supplychain?

Stage 1: Analysis

Define experience and expectations

1. Ambitions
2. Experience
3. Internal expectations
4. External expectations

>



How do we wish to minimise our negative impact on the environment?
What opportunities do we wish to seize to create value?
Where do we want to be as a company in 5 years?
What objectives do we wish to achieve by then? How will they affect the development of our business and creation of competitive advantage?

Stage 2: Strategy design

Establish a vision and objectives

1. Vision development
2. Strategy design

>



What to do to achieve our objectives?
How will we measure whether we have reached our goals?
Who will be involved in the implementation of the strategy and what will be their role?
What will be the strategy timetable?

Stage 3: Strategy definition

Forge a path

1. Document production
2. Consultation and strategy approval

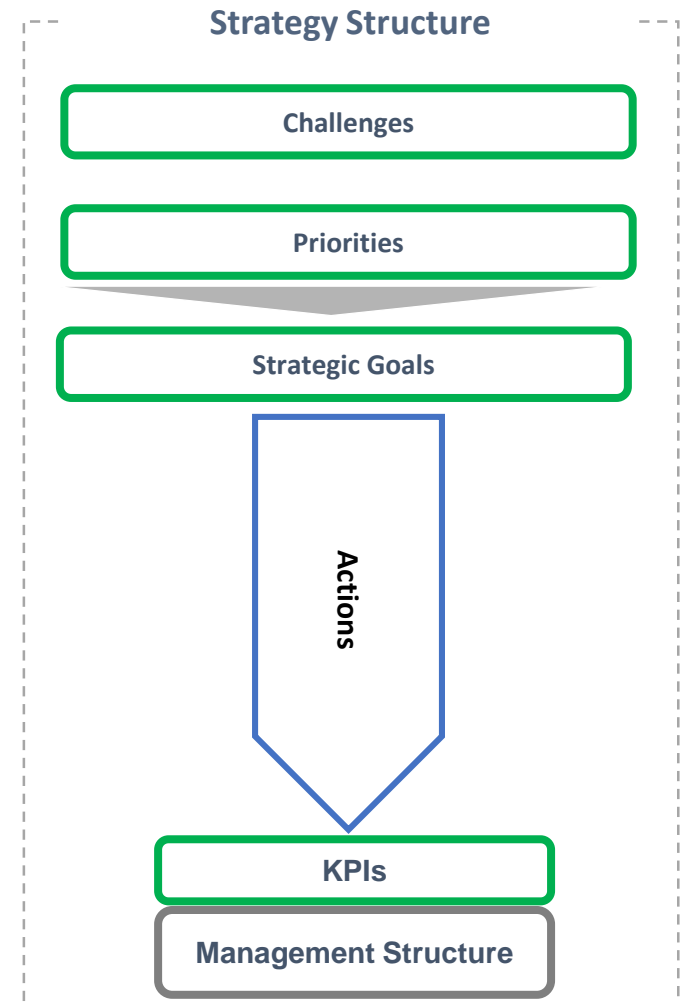
Sustainability Strategy - Inter Cars Group

What was the goal?

- To answer market, environmental and regulatory challenges
- To fulfill Respect Index requirements
- To define an integrated with business - responsibility strategy and the implementation of an approach to prepare non-financial report of Inter Cars. In effect, the company would like to strengthen its positive reputation, brand visibility, image of an attractive employer, a trusted company and a organization that through its core operations influences the good conditions for economic and social growth.

Strategy structure and assumptions

The strategic approach to implementing the concept of responsible business in the Inter Cars Group is based on the premise that the document was developed in co-operation with internal and external stakeholders and supports the implementation of a long-term business strategy in all markets.



Sustainability Strategy - Inter Cars Group

Results:

The responsibility strategy take into account:

- needs of the major Inter Cars functions
- Inter Cars to-date responsibility activities
- impacts across the value chain
- stakeholders' expectations
- global trends of responsibility in financial services industry
- trends in responsible business that are essential for the market

Additional benefits:

- engaged project team, ready to lead the implementation of the strategy and non-financial reporting
- educated internal and external stakeholders
- strengthened relationships with stakeholders through their involvement in co-design the responsibility strategy and non-financial report
- support for the transformation of the organizational culture at Inter Cars
- understanding of responsibility issues from the client's and authorities perspective
- internal and external recognition through effective communication



THE GUIDING PRINCIPLES

Health & Safety

Companies should provide workers a **safe and healthy working environment** that meets or exceeds applicable local laws and industry standards for safety and occupational health.

BMW GROUP **DAIMLER** **FCA** **Ford** **GM** **HONDA** **JAGUAR** **LAND ROVER**
NISSAN **SCANIA** **TOYOTA** **VOLKSWAGEN** **VOLVO** **VOLVO**

Environment

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THE PRACTICAL GUIDANCE

Health & Safety - A comprehensive approach includes but is not limited to:



H&S Management System (including risk assessment, training, policy & procedures, internal evaluation)



Permits, licenses, inspection and testing reports



Workplace safety (including machine safety, electrical safety, personal protective equipment, responsible chemical management)



Emergency preparedness (including fire safety, evacuation drills)

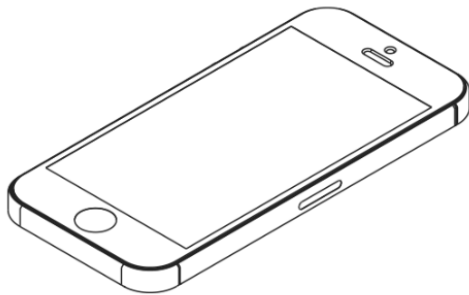


Employee health (e.g. health & hygiene procedures, insurance, health compliant work place)

POLLING EXERCISE

On which topic of the Guiding Principles/Practical Guidance would you like to receive more information?

Go to www.menti.com and use the code **71 41 16**



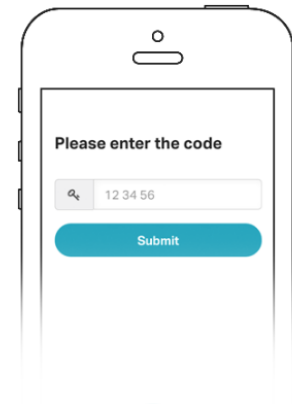
1

Grab your phone

www.menti.com

2

Go to www.menti.com



3

Enter the code 71 41 16 and vote!

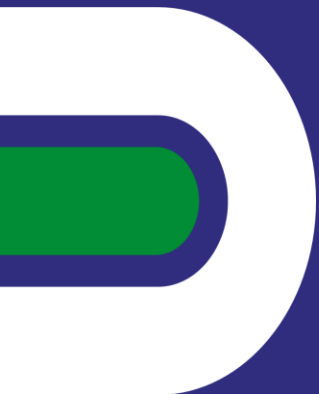
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Participants regroup	
16:40 – 17:00	Closing

IMPROVEMENT PLAN EXERCISE

Identifying key local challenges



THE IMPROVEMENT PLAN

How to make an improvement plan

- Establish a strategy to monitor improvements

Monitor

- Designate responsibilities
- Root causes analysis
- Identify and agree workable corrective and preventive actions

Identify

- Regularly communicate improvement plan status to key stakeholders

**Com-
municate**

- Allocate realistic budget
- Set aggressive & reasonable timeline

Act

GROUP EXERCISE – 1 H 30

Your group task for the day

<u>KEY CHALLENGES</u> <u>(SELECT 3)</u>	<u>ROOT CAUSES (SELECT</u> <u>3 PER CHALLENGE)</u>	<u>PLANNED</u> <u>CORRECTIVE AND</u> <u>PREVENTIVE ACTIONS</u> <u>(SELECT 2 PER ROOT</u> <u>CAUSE)</u>	<u>BUDGET</u>	<u>PERSON IN</u> <u>CHARGE</u>	<u>TIMELINE</u>

GROUP EXERCISE – 1 H 30

Format

40 min Brainstorming session

- Each table brainstorms:
 - What are the biggest challenges & issues you face/d in regards to Environment and Health & Safety?
 - Where do you need support?
- Each table creates top 3 list of challenges they want to address in improvement plan

50 min Group discussion & analysis

- Each table presents 3 top challenges
- Trainer presents data analysis on biggest challenges
- Comparison / discussion

WHAT DOES THE DATA SAY

The biggest local sustainability issues with direct, short-term effect are:

Health and Safety of employees and suppliers

Why: Health and safety issues are defined by the Labour Code and Regulation on Health and Safety. Commonly, companies have health and safety guidelines and management systems. However, the level of compliance is unknown, as it is not publically reported.

Driven by: society, regulations

Expectation: companies are expected to fully comply with health and safety law and standards, but also raise the bar to include best practices from their peers. Internal audits can increase the level of assurance that management systems are followed correctly.

WHAT DOES THE DATA SAY

The biggest local sustainability issues with direct, short-term effect are:

1) Health and Safety of employees and suppliers

Incidents rates by sections in 2017

(the number of injured people per 1,000 persons employed)

10,5 Manufacturing

5,0 Trade, repair of motor vehicles

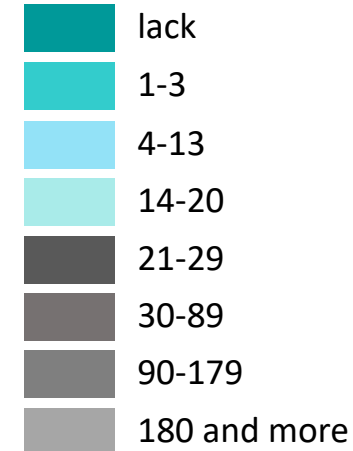
6,8 Average

Expectation: companies are expected to fully comply with health and safety law and standards, but also raise the bar to include best practices from their peers.

Persons injured in accidents at work by the number of days lost and sections in 2017



Days lost



WHAT DOES THE DATA SAY

The biggest local sustainability issues with long-term effect are:

1) Hazardous waste management (batteries, WEEE, oil) and circular economy

Why:

- Black market acting on an unauthorized basis and not complying with any environmental requirements
- Stricter regulations
- Circular economy – dependency on raw materials and certain precious metals

Driven by: regulations

Expectation: Development of the network for collecting and processing of hazardous waste. Minimize the generation of hazardous waste, as well as its integral management. Remanufacturing components and reducing waste.

Currently, in Poland nearly 50% of auto shredder residue is disposed of by landfilling.

The collection rate for batteries was 39% in 2016, i.e. still below the target rate set by the EU Batteries and Accumulators Directive.

Sources: Mohamed Alwaeli, End-of-life vehicles recovery and recycling, 2016; Eurostat

WHAT DOES THE DATA SAY

The biggest local sustainability issues with long-term effect are:

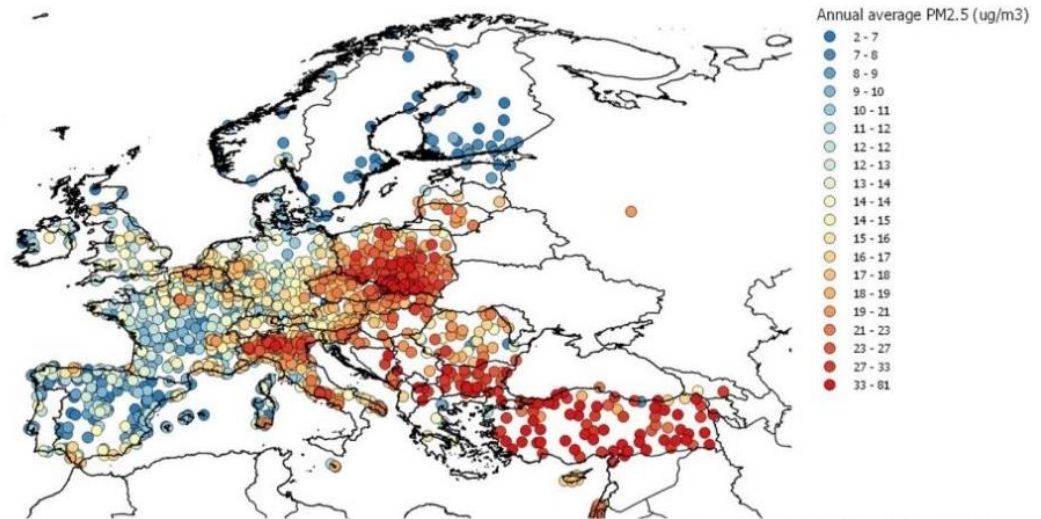
2) Energy Consumption & Greenhouse Gas Emissions; Air Quality

Why:

- Increasingly strict emission requirements
- Increasing growth of the segment of vehicles powered by alternative fuels
- Large organizations are obliged to develop appropriate energy efficiency strategy

Driven by: regulations

Average air pollution level in European cities



Source: WHO ambient air pollution database, May 2016

In 2016, Poland's greenhouse gas emissions amounted to **407 million tonnes** of carbon dioxide equivalent, representing **9% of total EU emissions**. In terms of the emissions volume, Poland ranked **fifth among the EU states**.

WHAT DOES THE DATA SAY

The biggest local sustainability issues with long-term effect are:

2) Energy Consumption & Greenhouse Gas Emissions; Air Quality

Expectation:

- Regulators are increasing the monitoring of the implementations and compliance with current laws.
- Automotive suppliers will have to adapt their distribution centres and factories by optimizing their own processes, making their machines more efficient, using new technologies to stick to the current and future regulations and reduce their GHG emissions and energy consumption in their plants and products.
- Also this kind of activity can bring economic benefits for suppliers.

GROUP DISCUSSION

Theory VS Reality

- What is your opinion when you compare the results of your previous discussion and the data we collected before this training?
- What is/should be your final top 3 list of issues & biggest non-compliances?

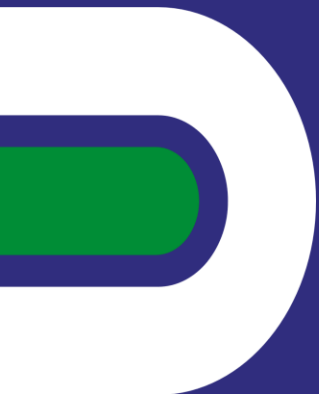
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IMPROVEMENT PLAN EXERCISE

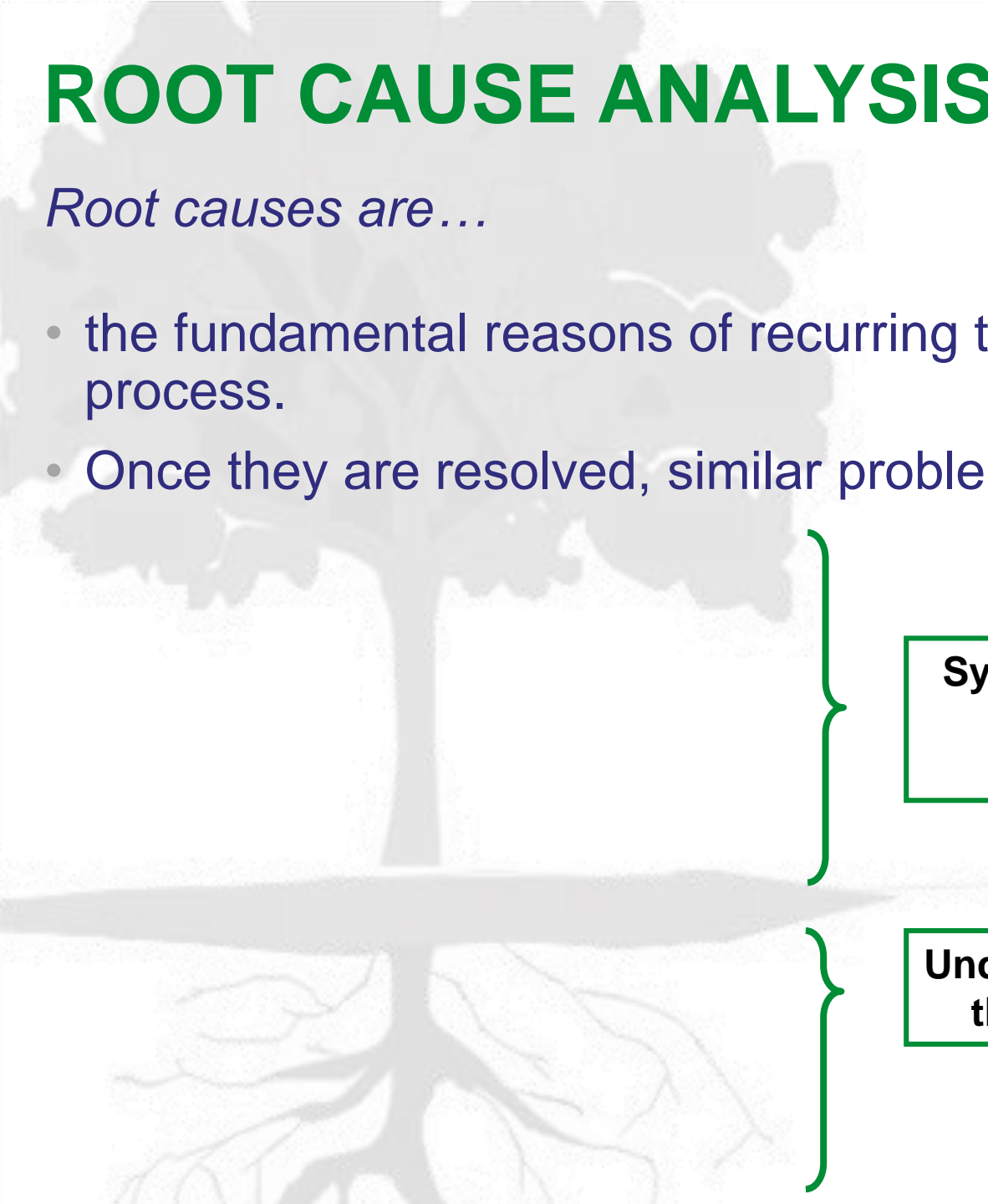
Root causes and actions



ROOT CAUSE ANALYSIS

Root causes are...

- the fundamental reasons of recurring trouble or failure of a process.
- Once they are resolved, similar problems won't reoccur.



**Symptoms of problems are
above the ground and
obvious**

**Underlying causes are below
the ground and obscure**

METHODOLOGY: ROOT CAUSE ANALYSIS

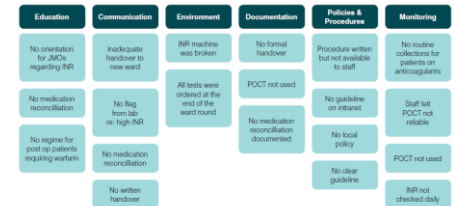
5 Whys



Fishbone methodology



Affinity diagrams



ROOT CAUSE ANALYSIS

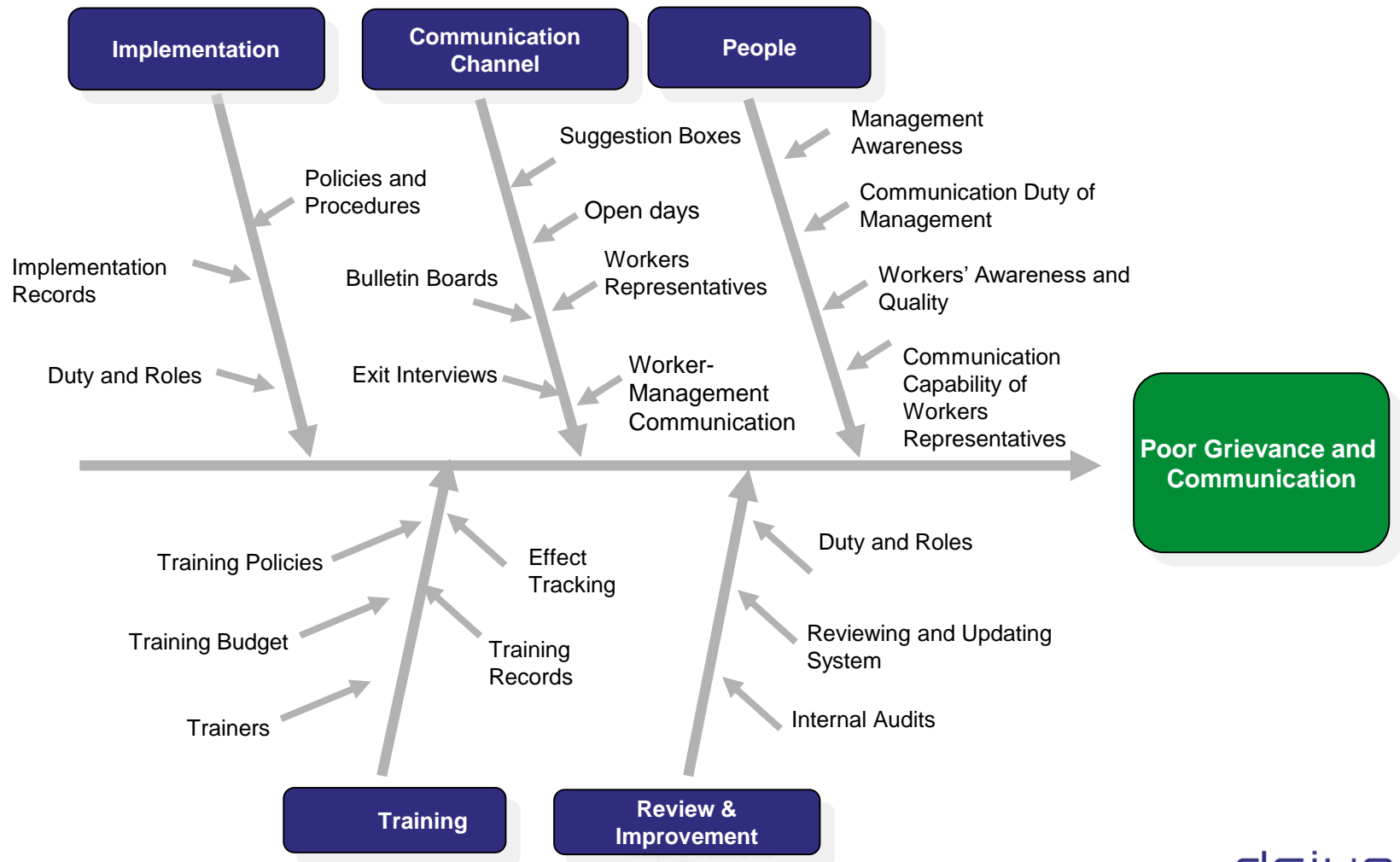
5 Whys

Case Study: Workers don't wear personal protective equipment

- **Q1: Why are workers dissatisfied?**
→ Because their concerns are not heard and addressed by the management e.g. unofficial pressure to do unpaid overtime.
- **Q2: Why are concerns not heard and addressed by the management?**
→ Because communication between workers and management is generally less direct and raising such concerns to the management is not part of the culture.
- **Q3: Why isn't the local corporate culture changing its ways?**
→ Because there is no program and target to drive such cultural change.
- **Q4: Why hasn't a program and target been set?**
→ Because worker satisfaction and communication are not set as key performance indicators and therefore are not prioritized by management
- **Q5: Why isn't upper management setting such KPIs?**
→ Because they lacked awareness of the issue before the employee satisfaction survey revealed that this communication channel is being missed.

ROOT CAUSE ANALYSIS

Fishbone methodology



ROOT CAUSE ANALYSIS

Affinity diagrams: Root cause classification

...generate, organize, and consolidate information




Lack of awareness



**Lack of management
commitment**



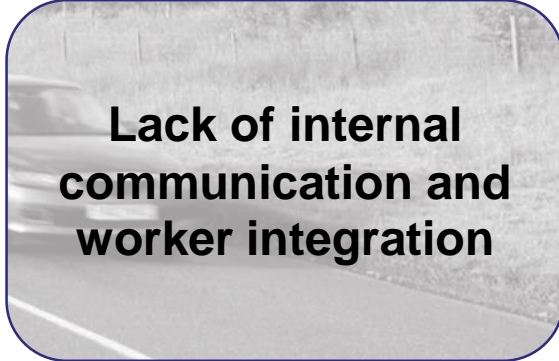
**Lack of procedure of
policy**



External cause



Cost



**Lack of internal
communication and
worker integration**

PLANNED ACTIONS

Corrective and preventive actions

Corrective action



Short-term

- Immediate remediation to remove / address the non-compliances

Preventive action



Long-term

- Address root cause issue
- Ensure issue does not reoccur
- Long-term implementation
- Focused on management systems

Lunch Break

12:45 – 13:30



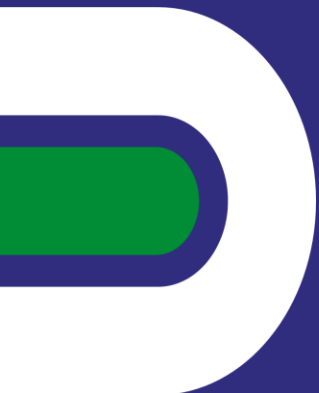
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IMPROVEMENT PLAN EXERCISE

Root causes and actions (cont.)



REMINDER

Morning session conclusion

- Top 3 challenges, issues, non-compliances
- Where do you need support
- Root cause analysis methodology

GROUP EXERCISE – 1 H 45

Improvement plan column 2 + 3

<u>KEY CHALLENGES (SELECT 3)</u>	<u>ROOT CAUSES (SELECT 3 PER CHALLENGE)</u>	<u>PLANNED CORRECTIVE AND PREVENTIVE ACTIONS (SELECT 2 PER ROOT CAUSE)</u>	<u>BUDGET</u>	<u>PERSON IN CHARGE</u>	<u>TIMELINE</u>

GROUP EXERCISE – 1 H 45

Format

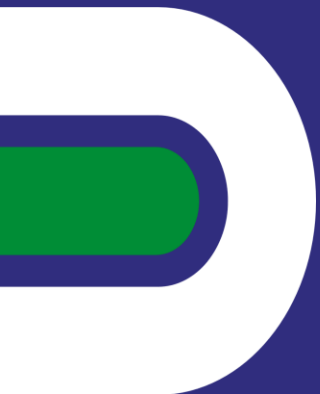
45 min Brainstorming session

- Each table brainstorms:
 - root causes and actions/countermeasures for each challenge
 - Participants share practical experience on how to deal with issues, what works, what does not work etc
- Each table creates top 3 list of root causes for each challenge
- Each table identifies two actions per root cause

60 min Group discussion

- Each table presents root causes and challenges
- Trainer presents best practices, case studies and solutions check-list to address challenges
- Comparison / discussion

Case Studies



drive
sustainability

Case Study 1: Renault

Focus topic: Waste management & circular economy

Issue:

Renault wants to create a stable and cost-competitive supply of recycled material so that cars can be manufactured economically and with a low environmental impact

Root Cause Analysis:

- Dwindling raw materials and volatile price fluctuations
- Minimizing costs of waste management
- Finding economic model that reconciles prosperity and the preservation of finite natural resources could be a competitive and reputational advantage in the market

Case Study 1: Renault

Focus topic: Waste management & circular economy

Corrective Actions: Circular economy building blocks

1) Circular design and production

Designers use feedback from maintenance activities and analysis of ELVs to develop design criteria, such as material choices and assembly protocols, which help increase future vehicle remanufacturing and recycling

2) New business models

- The company incentivises customers to increase collection rates, e.g. B2B discount scheme for remanufactured components if return is guaranteed
- Possible implementation of a bonus or deposit scheme

3) Reverse cycle

- Collection system already exists from remanufacturing operation
- Previously retained material to recycle internally, but now looking to external sources to keep up with demand

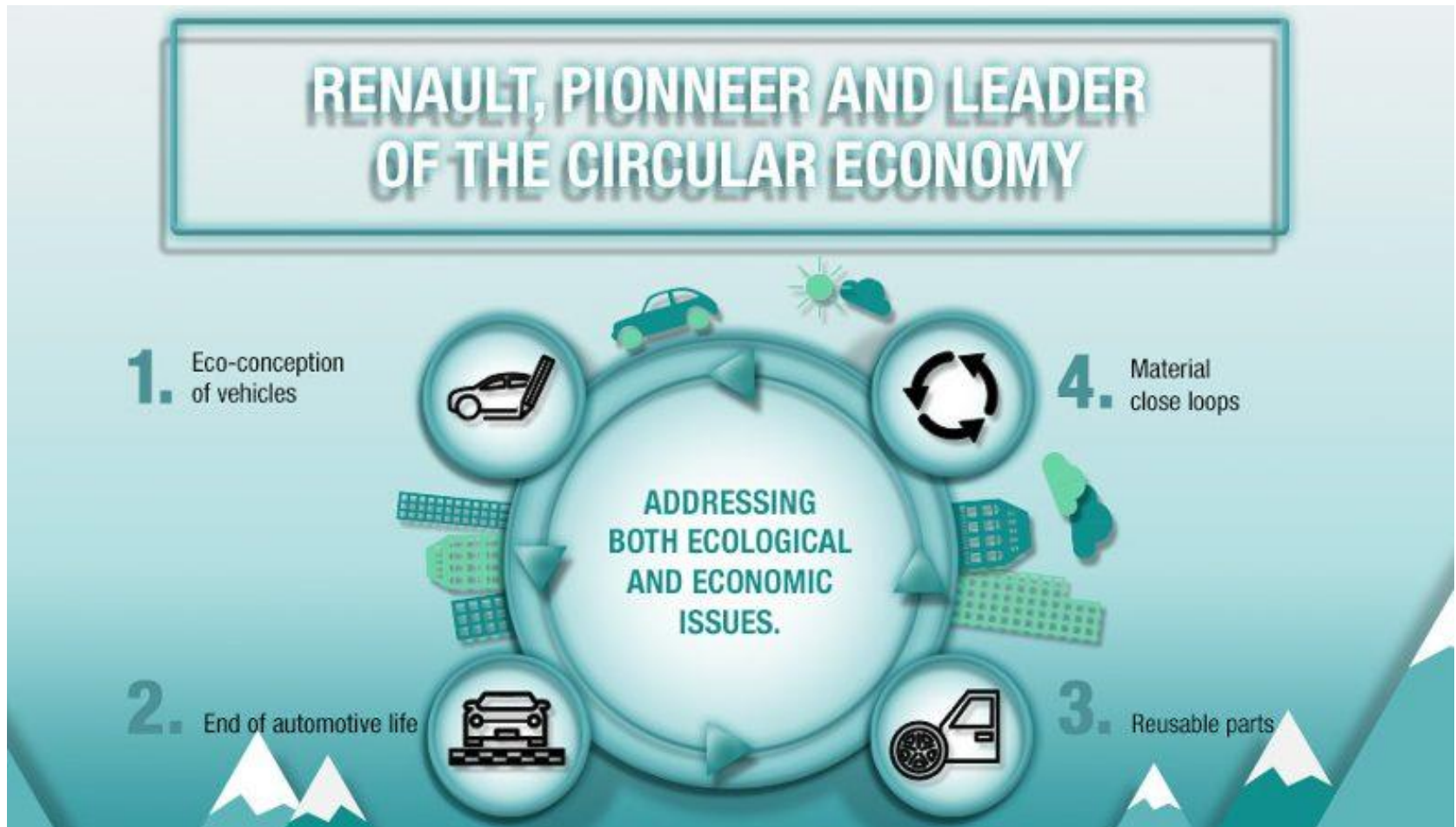
4) Enablers and favourable conditions

- Advances in material sorting technology
- Existence of an ecosystem that had to be adapted, rather than created
- **Collaborative approach**
- Education and skill development

Preventive Actions: Ensuring the operational feasibility of closed recycling loops.

Case Study 1: Renault

Focus topic: Waste management & circular economy



Case Study 1: Renault

Focus topic: Waste management & circular economy

Results:

Nowadays any Renault vehicle is made from 30% of recycled materials a figure set to rise to 33% by the end of 2016. By the end of 2015, Renault group could rely on five closed loops (recycling of: metallic parts, copper, polypropylene, platinoid group metals, metallic wastes from production processes).

In addition to the benefits of recycling, the project has brought additional value added:

- increase in skills of different actors involved in the project
- setting up standards for materials dismantling
- better collaboration between project partners for the collection and re-use of materials (including SMEs)

Lessons learned:

- Manufactured products too can be produced in a more energy-efficient way and brought back into the production process through repair, reuse or remanufacturing.

Case Study 2: Volkswagen & Veolia

Focus topic: Energy Consumption & Greenhouse Gas Emissions

Issue:

Clear market and legislative push combined with opportunity to reduce costs via improved production processes reducing energy losses and GHG emissions

Root Cause Analysis:

- Reduction of energy losses
- High costs of energy, financial benefits
- Innovative GHG reduction techniques yield competitive advantage
- Production of compressed air is energy intensive

Case Study 2: Volkswagen & Veolia

Focus topic: Energy Consumption & Greenhouse Gas Emissions

Corrective Actions:

Heat recovery from Volkswagen Poznan's industrial plant to a district heating network.

- **Forging collaboration and partnership with stakeholders** – the project is a result of joint effort and networking between Volkswagen and Veolia engineers as well as suppliers of air compressing and heating solutions. It took more than two years to develop.
- **Profit model development** - together with Volkswagen Poznan, Veolia has implemented a solution for reuse of heat recovered from the compressor cooling process and transfer of the heat to the heating network. Production of compressed air is energy intensive – as much as 80% of electrical energy consumed by air compressors is converted into heat (heated water), which is then cooled down. The project's concept is that the heat produced in the Volkswagen Poznan foundry is not dissipated into the atmosphere but transferred to the district heating network to heat buildings.
- **Process development** - the biggest challenges were posed by technological aspects of the processes. The first one was to combine two existing solutions of heat recovery from industrial units and district heat supply. The second one was to design and build two separate circuits, one to be used during heating seasons and one for warmer months of a year.

Case Study 2: Volkswagen & Veolia

Focus topic: Energy Consumption & Greenhouse Gas Emissions

Preventive Actions:

Veolia and Volkswagen are now working on another project to increase recovery of waste heat from the foundry. The objective is to recapture and use 25,000 GJ of waste heat and reduce carbon emissions by 2,500 tonnes.

Results:

Network and process innovations produced tangible results in the pilot phase of the project, with 12,000 GJ of waste heat reused, carbon emissions cut by over 1,100 tonnes, and more than 17 million litres of water saved.

Lessons learned:

- An innovation is a new and more efficient way of doing something.
- Innovation does not necessarily have to be about something completely new. Rather, it could just be a new application of already existing products and services.
- Various types of innovation translate into immediate economic benefits.
- Innovation is easier to achieve by building partnerships and collaborating.

Case Study 3: 3M

Focus topic: Implementation of environmental, health and safety management system (EHS)

Issue:

Provision of a safe and healthy workplace and works and reduction of environmental harm

Root Cause Analysis:

- Safety and health is an integral part of the management of 3M and ranks equally with all other activities of the organization
- They needed integrated policy at all levels of the company to: provide a safe and healthy workplace for employees, contractors and visitors; conduct management processes which are consistent with the nature and hazards of the workplace; meet applicable WHS legislation.

Case Study 3: 3M

Focus topic: Implementation of environmental, health and safety management system (EHS)

Corrective Actions:

1. Providing the framework, funds and resources for the organization to establish EHS goals and objectives linked to management responsibilities
2. The identification of workplace hazards, risk assessment of hazards and the control of risks
3. The ongoing auditing and review for the Safety and Environmental management systems
4. The identification of training needs and facilitation of training for all workers
5. Providing a tool that shall provide direction in the management of EHS issues at 3M sites

On an annual basis, the EHS training plan is developed by the EHS team. The plan is reviewed by executive management and approved by the Managing Director. KPI are identified, measured and monitored on a quarterly basis.

Case Study 3: 3M

Focus topic: Implementation of environmental, health and safety management system (EHS)

Corrective Actions:

EHS objectives, targets and key performance indicators are determined in consultation with management and ESH Committees with consideration of:

- organizational objectives
- legal requirements
- standards
- codes and guidelines
- EHS hazards and risks
- opportunities
- complaints
- past EHS performance
- technological developments
- and leadership and worker participation

Preventive Actions:

- EHS KPIs are identified, measured and monitored quarterly by sites. The KPI's include leading and lagging indicators.
- Informing and compelling the upper management and/or responsible managers of the need and benefit of implementing an EHS. This allowed for dedicated time and resources to be invested in setting up a system.

Case Study 3: 3M

Focus topic: Implementation of environmental, health and safety management system (EHS)

Safety KPI's for 3M

Priorities	Performance Indicators	Improvement Measure	Targets	Deadline	Initiatives
<p><i>Consideration of health and safety hazards and risks as well as past health and safety performance has resulted in commitment to the following priority:</i></p> <p>To reduce the number of person falls / strikes, lacerations and manual handling related injuries in 2017 (compared to 2016).</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Monthly Injury Statistics <input type="checkbox"/> 2016 Annual EHS Report <input type="checkbox"/> Quarterly site-based EHS KPI 	<ul style="list-style-type: none"> <input type="checkbox"/> ANZ LTI rate <input type="checkbox"/> ANZ RCI rate <input type="checkbox"/> Total incident rate <input type="checkbox"/> Injury cause data 	<p>Overall Targets:</p> <p>Manual Handling: 0 Person fall / strike: 0 Lacerations: 0</p> <p>2016 Results:</p> <p>Manual Handling: 10 Person fall / strike: 11 Lacerations: 10</p>	<p>Q4</p>	<p>1: Ergonomic Assessments to be completed at:</p> <ul style="list-style-type: none"> - Pemulwuy (Log Rolls) - Capital Safety (Snap Hooks) - Pemulwuy (Restacking pallets and cartons) <p>2: Training: Manual handling training – Blacktown, Nowra, Silverwater, Thomastown, and Pemulwuy.</p> <p>3. Risk Assessments and site inspections completed in accordance with site KPI Plans.</p> <p>4. Continued office and car ergonomic assessments at each site as required.</p> <p>5. Investigate the promotion project for the Take 5 Risk Assessment Phone App for work on non 3M sites.</p> <p>6. Complete / review risk assessments of the use of knives and sharps at each site.</p>

Source: Environmental, Health and Safety Strategy, 3M

Case Study 3: 3M

Focus topic: Implementation of environmental, health and safety management system (EHS)

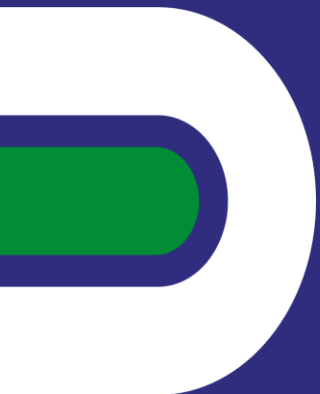
Results:

- Improvement of 3M's accident rates
- Effective risk identification processes have been implemented
- Monitoring and reporting upgraded
- Improvement of EHS employees' awareness, skills and qualifications

Lessons learned:

- EHS must cover all the fields of action and be integrated into all levels of the organization.

Solutions check-list



Health & Safety: Solutions to meet expectations

PLAN	DO	CHECK	ACT
<ul style="list-style-type: none">• EHS strategy, vision and targets• EHS organizational design• Change management, communications and training• Risk assessment (general or topic specific)	<ul style="list-style-type: none">• Management system development• Development of policies, procedures and programs• Goal and target setting processes• Management system implementation• Management system integration• Building motivation of employees	<ul style="list-style-type: none">• Performance management (scorecards, KPIs, incentive compensation)• Benchmarking (e.g. best practices, maturity assessments)• IT tool design and development (e.g. process management, data management)• Internal and external audit	<ul style="list-style-type: none">• Reporting (internal and external)• Efficiency & effectiveness assessments• Safety analytics• Implementing changes to existing systems, processes

Health & Safety: Solutions to meet expectations

Workplace Safety & Employee Health

- ✓ Develop **documentation and reporting** procedures
- ✓ Provide required **personal protective equipment**
- ✓ Implement **machine-safeguarding program** incl. training for workers
- ✓ Ensure **health at the workplace**: health & hygiene procedures, employee insurance
- ✓ Responsible storage/usage/disposal of **hazardous material**
- ✓ **Operational controls**: Temperature and radiations, machinery protections, gas canisters, electrical installations report



Environment: Solutions to meet expectations

Companies shall operate the necessary Systems of Control and Continuous Improvement using **permanent and reliable measures**.

Energy, Water and Air Consumption and Quality

- ✓ **Track and document energy consumption**, greenhouse gas emissions, air emissions
- ✓ **Energy and air emissions management program** gaining management commitment, identifying constraints, setting goals and energy, projects
- ✓ Develop a **water assessment and water balance** for each operation and site, establish a baseline, set goals for reduction

Natural Resources Management & Waste Reduction

- ✓ Set targets for waste reduction and **establish a waste management hierarchy** that considers in priority order: prevention, reduction, reuse, recovery, recycling, removal, disposal of wastes
- ✓ Encourage use of **sustainable, renewable natural resources**

Environment: Solutions to meet expectations



Responsible Chemical Management

- ✓ Proper **storage of chemicals** (especially catch basins, storage capacity and labeling).
- ✓ Provide Safety Data Sheets/Material Safety Data Sheets for chemicals that comply with all applicable laws
- ✓ Establish programs (IMDS or equivalent) to collect data from material manufacturers for all components, identifying all process chemicals and intermediates that are identified as classified hazardous substances
- ✓ Measure data completeness against bill of materials (BOMs), identify data shortages, and take corrective measures to assure data is traceable to the material manufacturers.

Implement Environmental Management Systems (EMS)

- ✓ ISO 14001, Eco-Management & Audit Scheme (EMAS) or Internal, Company-Owned Systems

More information can be found in the **Practical Guidance**.

GROUP DISCUSSION

Complete your list of actions: Which new actions can you add to your list?

Corrective action



Short-term

- Immediate remediation to remove / address the non-compliances

Preventive action



Long-term

- Address root cause issue
- Ensure issue does not reoccur
- Long-term implementation
- Focused on management systems

Coffee Break

15 min



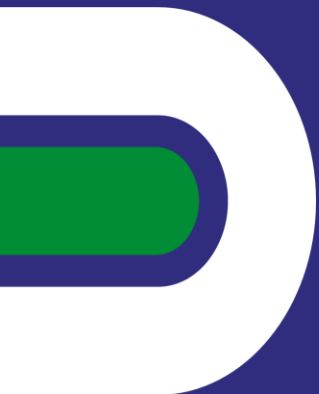
AGENDA: ENVIRONMENT AND HEALTH & SAFETY

Working & leaning together

10:15 – 10:45	Introduction Break-out session
10:45 – 12:15	Improvement plan exercise: Identifying key local challenges
12:15 – 12:45	Improvement plan exercise: Root causes and actions
12:45 – 13:30	Lunch
13:30 – 15:15	Improvement plan exercise: Root causes and actions (cont.)
15:15 – 15:30	Coffee break
15:30 – 16:30	Improvement plan exercise: Budget, responsibilities and timeline
Participants regroup	
16:40 – 17:00	Closing

IMPROVEMENT PLAN EXERCISE

Budget, responsibilities and timeline



drive
sustainability

GROUP EXERCISE – 1 H

Improvement plan column 4 - 6

<u>KEY CHALLENGES (SELECT 3)</u>	<u>ROOT CAUSES (SELECT 3 PER CHALLENGE)</u>	<u>PLANNED CORRECTIVE AND PREVENTIVE ACTIONS (SELECT 2 PER ROOT CAUSE)</u>	<u>BUDGET</u>	<u>PERSON IN CHARGE</u>	<u>TIMELINE</u>

GROUP EXERCISE – 1 H

Format

20 min Improvement plan best practice

- Trainer presents best practice improvement plan

20 min Brainstorming session

- Each table brainstorms:
 - Budget, person in charge, timeline for each action

20 min Group discussion

- Each table selects one challenge and presents full improvement plan for it
- Trainer gives feedback
- Closing and conclusion

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Issue: Performance metrics signaled increases in basecoat paint consumption at Ford's vehicle operations center.

→ upsurge driving production costs higher

→ increased solvent consumption leads to higher **levels of volatile organic compound (VOC) emissions**

Root Cause:

- Increase in paint consumption
- High production costs
- High environmental impact
- Poor customer satisfaction

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

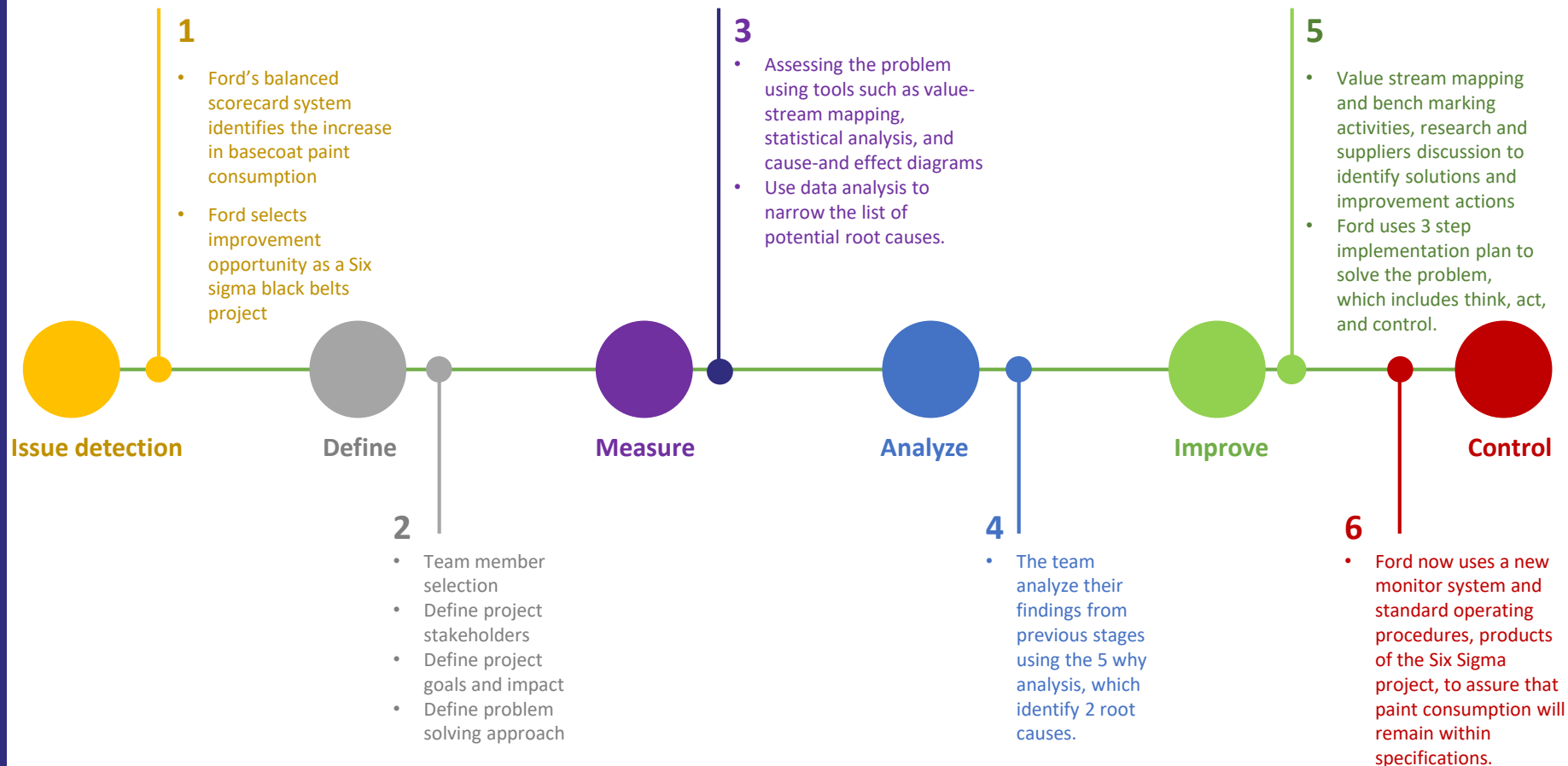
Define project:

- **Designate Team:** Ford puts together a 12-person cross functional Six Sigma Team to address the issue: Engineers, Foreman, Financial analysts, six sigma manager, area manager etc.
- **Set Project goal:** Triple bottom line
 1. Reduce paint consumption to lower production costs.
 2. Improve customer satisfaction: Improve process capability to better meet customer needs.
 3. Lower environmental impact
- **Define Approach:** Define, measure, analyze, improve, and control (DMAIC) approach:
 - Defining project stakeholders → Three groups:
 - Internal stakeholders (e.g. engineers, developers)
 - External stakeholders (customers)
 - Mixed stakeholders: mixed group included not only customers who purchase the cars, but also internal customers such as the process owners, in this case the paint shop and the quality control group

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Ford's Six Sigma Timeline



Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Measure and analyze root causes:

- Problem assessment:**

	Value-Stream Mapping	Brainstorming	Cause-and-Effect Diagrams	Statistical Data	Trend Analysis
How	Visualize the paint flow and application equipment	Free flow of ideas	Display all potential causes from the brainstorming	Collect data and analyze	Review consumption data to discover past events
Who	Customer Production Maintenance	All stakeholders	All stakeholders	Maintenance Buyer/controller Production	Supplier Final inspection Production
Why	To understand streamlining work processes using tools of lean manufacturing	To help a group create as many ideas as quickly as possible	To help the group consider all possible causes of the problem	To collect data and select appropriate analysis tools	To display historical data to determine the many attributes

- Narrowing down root causes:** Data collection plan to help narrow the list of potential root causes by focusing on the following factors or critical Xs:

1. Daily basecoat consumption. Is there any dependency based on day or shift?
2. Paint film thickness check. Is there an increase, and if so, why?
3. Consumption per robot (automated painter). Are there differences, and if so, why?
4. Consumption per manual painter. Monitor consumption to check the process capability.
5. First-time through rate versus consumption. A low rate means more repairs, which translates to higher basecoat use.
6. Application equipment. Check for damages or technical problems.

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Measure and analyze root causes:

- **Results analysis:**

- 5 Why analysis
- test trials on the six potential root causes

→ Result: defective solvent recovery valve was causing a direct paint flow from the color changer to the recycling tank, thus increasing consumption

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Corrective Actions:

• Identification of corrective actions:

- Value-stream mapping and benchmarking activities
- Research and discussions with suppliers

→ Result: plant could apply paint more efficiently by upgrading to an electrostatic paint application process

→ Selection of final improvement actions based on four primary methods: test trials, technical research, brainstorming and value-stream mapping to determine the effectiveness of measures taken

• Decision on corrective actions

- Replace plastic valves with stainless steel valves.
- Create an automatic recovery valve check system.
- Check the valves weekly.
- Eliminate the solvent recovery process.

• 3 Step implementation plan:

- Think: Plan all necessary implementation activities.
- Act: Implement the solutions.
- Control: Check if solutions were correctly implemented.

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Results:

Goal	Target	Result
Reduce costs	\$1.5 million annually	\$2 million annually
Improve customer satisfaction	127.000 ppm reduction	129.000 ppm reduction
Reduce environmental impact	Lower VOCs by 50.000 kg annually	VOCs reduced 70.000 kg annually

Preventive actions:

Ford's **balanced scorecard system** provides reporting tools that offer monthly values versus target figures, year-to-date/year-end values against target, and a prioritization system using red/green/yellow evaluations to pinpoint where improvement is needed

→ system identified the issue and will identify future issues!

Improvement plan best practice: *Reducing VOC emissions through the use of Six Sigma - Ford.*

Key challenge: Emission reduction

Lessons learned:

- Quality tools, like Six Sigma or DMAIC approach (define, measure, analyze, improve and control) can help to improve companies environmental impacts and at the same time reduce costs.
- Cross-functional teams can provide added value.
- Relationship building with stakeholders: Critical element in the project was overcoming stakeholder resistance to the solutions. This was accomplished through effective relationship building as well as providing data, training, and opportunities to discuss the project solutions.

GROUP DISCUSSION

- What is your feedback after doing the exercise?
- Did you encounter any difficulties?
- What are 3 words that summarize the discussion at your table?

CLOSING

Please regroup with other session

