TORAY
Innovation by Chemistry

PFE BOOK 2026

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100th Anniversary

東レグループ会社案内

TORAY GROUP CORPORATE PROFILE

Who we are?

Toray Group is a global leader in advanced materials and high-performance chemicals, driven by a vision to "change lives through materials."
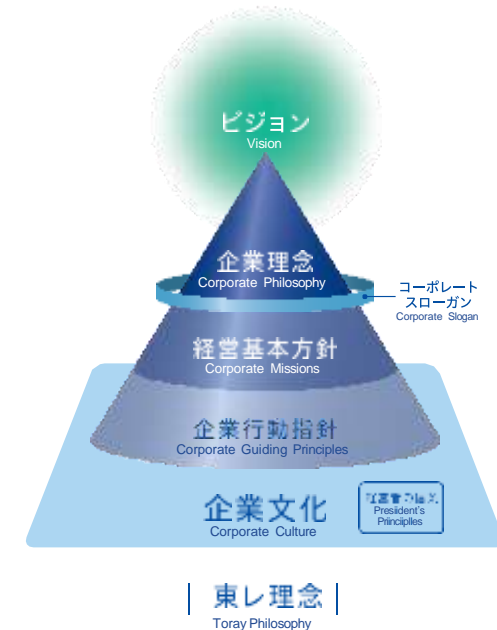Founded in **1926**, Toray started with textile fibers and has since grown into an integrated industrial group that shapes the future across many sectors.

1.Toray Philosophy

In May 2020, the Toray Group organized its approach to management in the Toray Philosophy, based on our Corporate Philosophy.
The Toray Philosophy comprises seven elements. In addition to our traditional management philosophy, the Corporate Philosophy, our Corporate Missions and Corporate Guiding Principles, these also include our Corporate Slogan, Vision, Corporate Culture and President's Principles.

ビジョン
Vision

企業理念
Corporate Philosophy — コーポレート スローガン Corporate Slogan

経営基本方針
Corporate Missions

企業行動指針
Corporate Guiding Principles

企業文化
Corporate Culture

経営プロセス President's Principles

| 東レ理念 |
Toray Philosophy

2.Global Presence of the Toray Group

300 subsidiaries and affiliates across the world

Employs ≈ 48,000 people globally

Headquarter, Tokyo, Japan

Toray Group began manufacturing outside **Japan** very early relative to other Japanese enterprises. Our overseas production activities began in 1963, with the establishment of Thai Toray Textile Mills PLC in **Thailand**. In the 1960s and 1970s, we expanded to **Southeast Asia**; in the 1980s, to **Europe and America**; and in the 1990s, to Republic of **Korea and China**, establishing production plants first for fibers and eventually for non-fiber films, carbon fiber, and other products. Today we are strengthening the organic coordination between these overseas production plants and our domestic plants; and the global operations that connect these plants can be considered one of Toray's strengths.

Business Field

Airbag segment is 3% in our entire business,
9% in our Fibers & Textiles Division.

40%	37%	11%	9%	2%

Fibers and Textiles

Fibers/Textiles/Apparel

Performance Chemicals

Resins/Chemicals/Films/
Electronics and Information Materials

Carbon Fiber Composite Materials

Carbon Fiber Composite Materials

Environment and Engineering

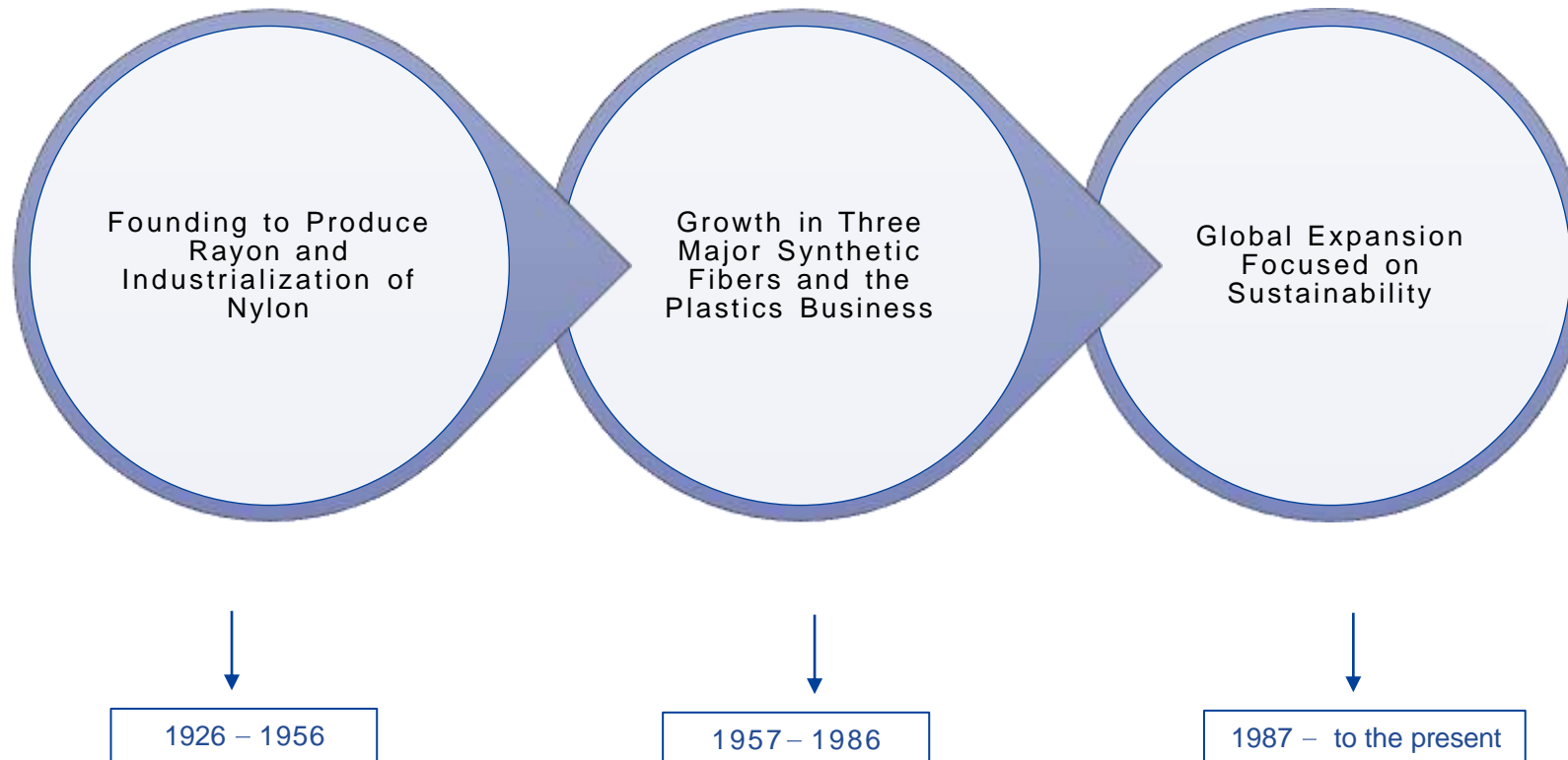Water Treatment and Environment/
Housing and Engineering

Life Science

Pharmaceuticals,
medical devices, etc.

*Assuming 145JPY/USD

4.Toray's History

Founding to Produce
Rayon and
Industrialization of
Nylon

Growth in Three
Major Synthetic
Fibers and the
Plastics Business

Global Expansion
Focused on
Sustainability

1926 – 1956
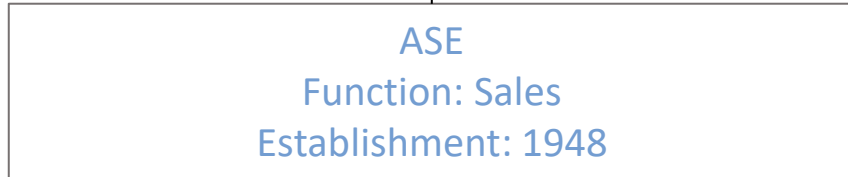
1957 – 1986

1987 – to the present

5.What's ALVA?

Alva Group (2025 Aug)

1. Main business: Produce Cushion for Airbag
2. Establishment: 1948 (Toray acquisition 2020)
3. Company name & location
   Alva Sweden AB   (ASE)   : Sweden
   Alva Confeccoes S.A. (APT)   : Portugal
   Alva Tunisia S.A.   (ATN)   : Tunisia
4. Capital related (kEUR)

Toray
ASE Function: Sales Establishment: 1948

APT
Function:
  Production & Sales
Establishment: 1965
	ATN
	Function:
	  Production & Sales
	Establishment: 1982

5. MD: Masahide Kuramoto
6. Employees: ASE 7, APT 108, ATN 2,153

ASE

APT

ATN (Alva-1)

"AIR BAG"

When you ride a car, you may see the word "SRS AIRBAG". This words stand for "Supplemental Restraint System Airbag", that means "Airbag is not a main restraint system". Airbag becomes most effective when the people wear SEATBELT correctly.

Frontal Airbags

Side Airbags

Driver Airbag (DAB)

Side Airbag(SAB)

Front Center Airbag(FCAB)

Passenger Airbag (PAB)

- ✓ Non immediate deploy
- ✓ Short deployment period

Use NON-COATED fabrics

- ✓ Immediate deploy
- ✓ Long (6sec.) deployment period

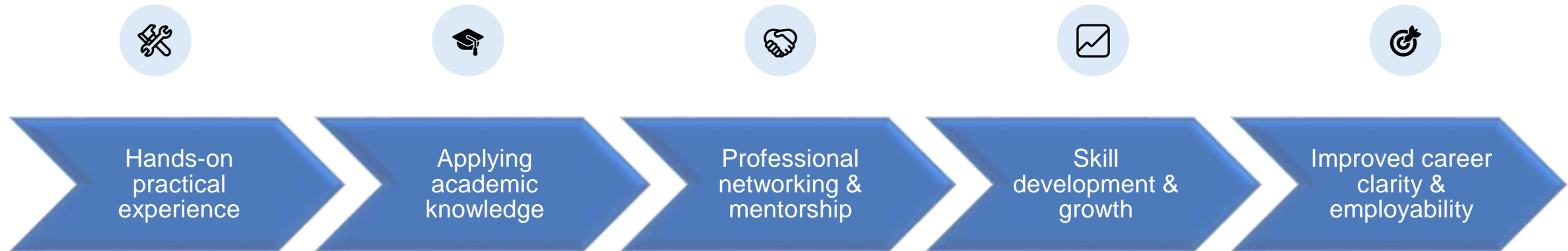Use COATED fabrics

Curtain Airbag(CAB)

Knee Airbag (PAB)

Pedestrian Protect Airbag(PPAB)

SAFER & SAFER : Endless development

PPAB test

- New requirement for ADAS ?
  (Advanced Driver-Assistance System)
- Sustainable requirement, carbon footprint

~2050
- Auto drive changes airbag?
- Closed loop recycle system ?

~2030

- PPAB developed (EU & JPN)
- **India, ASEAN** start equip

- SAB, CAB start standardized
- **China** start equip DAB
- US CAB standard change (roll over protection)

~2020

~2025

- Far side protection (EU)
- Oblique collision (US)

~2010

- DAB, PAB standardized in **US, EU and JPN.**

~2000

1980
- Mercedez start equipping (as optional)

1973
- The first airbag (Cadillac) -> Recalled

Far side test

ADAS compatible

New PPAB   **Oblique test**   **DAB shape**   **PAB shape**

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Internship Benefits

Hands-on practical experience

Applying academic knowledge

Professional networking & mentorship

Skill development & growth

Improved career clarity & employability

Selection Process

Project Selection **Online Application** **Preselection according to resume** **Prequalification** **Interview Day** **Integration Day**

PFE Projects

Project 01

Department: Quality

Title: Statistical Process Control Implementation in the Manufacturing Process

Overview:

This project aims for the implementation of SPC system in ALVA's sewing process.

Description:

Define SPC system, simulate in some production lines, validate the simulation then create implementation plan.

Profile:

Master/Engineering degree in industrial/quality/textile,… understands basic statistics and manufacturing processes and comfortable with data analysis.

Required Skills:

•Basic knowledge of Statistical Process Control (SPC)
•Understanding of quality tools (control charts, defect measurement)
•Good data analysis skills (Excel or similar)
•Problem-solving and analytical thinking

Number of Trainees:

1 Intern

Duration:

6 months

Project 02

Department: Supply Chain Management (SCM)

Title: Laser Cutting Airbags Planning & Orchestration Optimization

Overview:

Focus on improving efficiency and scheduling.

Description:

Focused on deep-dive analysis into the current laser cutting airbag planning and scheduling processes, aimed at identifying key bottlenecks and proposing a prioritized roadmap for future optimization efforts.

Profile:

Master/Engineering degree in Industrial/ Mechanical/Supply Chain & Logistics Engineering,… Data Science or Applied Mathematics (with interest in optimization and scheduling)…

Required Skills:

- Basic knowledge of production planning and scheduling
- Understanding of Manufacturing processes (preferably laser cutting)
- Strong data analysis skills (Excel or similar tools)
- Ability to identify bottlenecks and process inefficiences
- Analytical thinking and Problem-solving.

Number of Trainees:

2 Interns

Duration:

3 months

Project 03

Department: Technical

Title: Implement an optimal management system for spare parts

Overview:

Analyze the consumption of spare parts and define actions to optimize it.

Description:

Use 80/20 method to identify Pareto of spare parts consumption and critical items.
Define a dynamic rules to define the safety spare parts stocks, outputs and inputs procedures etc.

Profile:

Master/Engineering degree in Mechanical Engineering, Operations Management, Business Analytics or Data Science (with interest in inventory management)…

Required Skills:

•Basic knowledge of inventory management and Pareto analysis
•Strong data analysis skills (Excel or similar tools)
•Understanding of spare parts or maintenance processes
•Ability to identify high-impact items and optimization opportunities.
•Analytical thinking and Problem-solving.

Number of Trainees:

1 Intern

Duration:

4 months

Project 04

Department: Maintenance

Title: Development of solution for improving energy consumption

Overview:

Conduct an energy audit, identify energy-efficient machines, and propose solutions for optimizing energy consumption.

Description:

Conduct an energy audit, identify energy-efficient machines, and propose solutions for optimizing energy consumption.

Profile:

Master/Engineering degree in Mechanical/ Mechatronics/ Electromechanical/ Electrical/ Energy/ Industrial Engineering,… (with focus on maintenance or energy efficiency)

Required Skills:

•Basic knowledge of Mechanical and Electrical systems
•Understanding of Energy Efficiency and consomption analysis
•Skills in design, drafting, or CAD tools
•Ability to evaluate system performance, safety, and durability
•Analytical and Problem-solving abilities.

Number of Trainees:

1 Intern

Duration:

6 months

Project 05

Department: Industrial

Title: Design and optimize a tracing table with an innovative guiding and safety system

Overview:

Design and optimize a tracing table with an innovation guiding system and safety system ensuring performance stability and long-term mechanical resistance.

Description:

Study the current table and identify its weaknesses. Propose actions to eliminate these weaknesses and enhance its overall effectiveness. Based on this analysis, develop a new design to be used as a model for future tables.

Profile:

Master/Engineering degree in Mechanical/ Mechatronics/ Product Design/ Industrial Engineering,… (with focus on manufacturing or machine design)

Required Skills:

•Knowledge of Mechanical design and machine components
•Understanding of safety systems and performance optimization.
•Skills in CAD/design software.
•Ability to analyze Mechanical stability and durability.
•Analytical and Problem-solving abilities.

Number of Trainees:

1 Intern

Duration:

4 months

Project 06

Department: Industrial

Title: Study and design a Toyota SAB bending machine

Overview:

Study and design a Toyota SAB bending machines ensuring a higher performance and effectiveness

Description:

Analyze the current Toyota SAB bending process and design an improved and higher performance machine solution. The goal is to optimize bending accuracy, efficiency, and reliability by proposing and implementing enhancements to the existing system.

Profile:

Master/Engineering degree in Mechanical/ Industrial/ Mechatronics/ Electromechanical Engineering,… with knowledge of Siemens, SolidWorks…

Required Skills:

•Basic knowledge of Mechanical design and Manufacturing processes.
•Understanding of bending operations or machine systems.
•Skills in CAD/design software.
•Analytical and Problem-solving abilities
•Ability to evaluate performance, Efficiency, and reliability.

Number of Trainees:

2 Interns

Duration:

6 months

Project 07

Department: Method

Title: Launch a TPM project

Overview:

Implement a Total Productive Maintenance project

Description:

Deploy a TPM initiative within a production to improve maintenance efficiency and performance.
Succeed to implement two TPM pillars from the eight pillars which are "Autonomous maintenance" and "Planned maintenance"

Profile:

Master/Engineering degree in Mechanical or Electrical Engineering,… with knowledge of TPM principles and can analyze equipment performance.

Required Skills:

- Knowledge of Mechanical design and machine components
- Understanding of safety systems and performance optimization.
- Skills in CAD/design software.
- Ability to analyze Mechanical stability and durability.
- Analytical and Problem-solving abilities.

Number of Trainees:

2 Interns

Duration:

4 - 6 months

Project 08

Department: IT

Title: Sewing Machine Program Management

📋 Overview:

Program change flow management and procedure preparation.

📋 Description:

Programmable machine identification, identification of the different used software, preparation of procedures and follow-up rules and implementation of a backup method for the machine OS with code versions.

👔 Profile:

Master/Engineering degree in Computer Science / IT / Software / Industrial / Electromechanical or Mechatronics Engineering,… (with interest in programmable machines)

🖼️ Required Skills:

• Basic knowledge of programmable machines and Industrial software (AMS, PLK, KSL)
• Understanding of IT systems, backups, and version control.
• Ability to prepare procedures and manage change flows.
• Proficiency in Office 365 (Excel, Word, Teams, SharePoint).
• Strong analytical and Problem-solving skills.

👥 Number of Trainees:

2 Interns

🕐 Duration:

4 - 6 months

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Project 09

Department: HSE

Title: Occupational Risk Evaluation

Overview:

Identification, analysis, and evaluation of occupational risks to improve workplace safety, reduce accidents, and ensure compliance with health and safety standard.

Description:

Comprehensive workplace study: analysis of workstations, hazard identification, risk assessment, proposal of preventive and corrective measures, and preparation of reports, dashboards, and recommendations.

Profile:

Master/Engineering degree in Health, Safety, and Environment (HSE / EHS) / Industrial(with a focus on safety or ergonomics)Engineering / Quality, Health, Safety & Environment (QHSE)

Required Skills:

•Basic understanding of Occupational Health & Safety principles.
•Awareness of workplace hazards (physical, chemical, ergonomic, biological, psychosocial).
•Basic risk assessment methods (simple risk matrix, observation-based evaluation).
•ISO45001 is a plus.

Number of Trainees:

1 to 2 Interns

Duration:

2 - 4 months

Project 10

Department: HR

Title: Workforce Management Application

📋 Overview:

Have software to manage the HR database as well as mobility and assignments/reassignments (automated HR database).

📋 Description:

Developing a workforce management application to automate the HR database and streamline employee mobility, assignments, and reassignments. The goal is to create a centralized, efficient tool that improves data accuracy and supports HR decision-making.

👤 Profile:

Master/Engineering degree in Computer Science / IT / Software /Information Systems/ Business Intelligence / Data Engineering / Industrial Engineering (with an IT or digital systems focus).

🖼️ Required Skills:

• Knowledge of database management and data structures.
• Basic skills in software development or application design.
• Understanding of HR processes (Mobility, assignments, reassignments).
• Web Development skills.
• Analytical and Problem-solving skills.

👥 Number of Trainees:

1 to 2 Interns

🕐 Duration:

4 months

Project 11

Department: HR

Title: Development of an Automated HR Dashboard for Recruitment, Training, and Skills Evaluation

Overview:

The project aims to develop an automated and intelligent HR dashboard to monitor recruitment progress, training activities, and employee skills evaluation.

Description:

The system will allow HR to input competencies and assessments, then automatically generate employee ratings, identify skill gaps, and suggest needed training. The project includes dashboard design, data structuring, automation, and documentation.

Profile:

Master/Engineering degree in Computer Science / IT / Software /Information Systems/ Business Intelligence / Inf. Systems Management/ Industrial Engineering (specialization in digital systems / data).

Required Skills:

• Knowledge of Dashboard and data visualization tools (Power BI, Tableau, or similar).
• Skills in Excel / Office 365 (Power Query, Power Automate is a plus).
• Understanding of database management and data structuring
• Basic knowledge of HR processes (recruitment, training, skills matrices).
• Ability to automate workflows and create interactive reports.

Number of Trainees:

1 to 2 Interns

Duration:

2 - 4 months

How to apply?

Students who wish to apply for a Final Year Project within our organization are invited to submit their application (CV only) to the following address:
recrutement.alva@topnet.tn

Please make sure to include the **project number** and **project title** in the subject line of your email:
"PFE Application – Project [Number] – [Title] – [Your Name]"

For any additional information, you may contact us at the same email address.

All applications will be carefully reviewed, and selected candidates will be contacted accordingly.

GOOD LUCK ☺

'TORAY'

Innovation by Chemistry