LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

GOODYEAR

LIST - Luxembourg Institute of Science and Technology
&
GOODYEAR

Public-Private Partnership Program

Dr. Sylvie Fromentin - LIST
Dr. Benoit Duez – Goodyear

MAKING RESEARCH OUR STRENGTH

A leader in research and innovation,
the **Luxembourg Institute of Science and Technology (LIST)**
works in the fields of materials, environment and IT.

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How it started

LIST was created from the mutual desire of the Public Research Centres Gabriel Lippmann and Henri Tudor, both established in 1987, to join forces and to focus their efforts on targeted research topics with the aim to achieve a more **critical mass**, and consequently enhance the **international visibility** of research in Luxembourg, as well as to give a fresh momentum to the **research potential** in the country. The goal is also to develop the national RDI system in order to facilitate companies' access to public research.

This major decision, which was taken by the board of directors of the two centres in April 2012, was voted by the Chamber of Deputies on October 16th, 2014 therefore restructuring public research in Luxembourg. LIST started its activities on **January 1st, 2015.**

LIST's main figures

- A budget of approximately **EUR 64 million***
- Contract research: **EUR 10.5 million***
- Competitive research: **EUR 14.5 million***
- **630** employees, ¾ of whom are researchers
- About **70** PhD students
- Nearly **forty** different nationalities represented
- **350** scientific publications referenced
- A portfolio of **50** patent families

The expertise of LIST's researchers is deployed in close to **300** research projects, **30%** of which are conducted within European programmes.

* 2015 Objectives of the Performance Contract signed with the Luxembourg State for 2015-2017

WHO WE ARE

The Luxembourg Institute of Science and Technology (LIST) is an **RTO (Research and Technology Organisation)** active in the fields of materials, environment, and IT.

Our mission is twofold:

- contributing to Luxembourg's reputation through our participation in several targeted research areas among the best RTOs,
- significantly participating in the country's socio-economic development.

To this end, we participate in several national and European competitive research programmes. Our researchers disseminate their results through scientific publications in internationally renowned journals. They also capitalize their results by filing patents and transferring them to key players in the private or public sector. This enables Luxembourg to be **acknowledged as a centre of excellence in research and innovation** and thus attract foreign investors and high-level researchers.

Thanks to our activities in applied research and technology transfer, we support all companies, whether large groups or SMEs, in their innovation projects. The objective is to enable them to **enhance their competitiveness** in regional, national, and international markets. Our work has different degrees of innovation: "incremental" when a product or service is improved in a continuous way; or "disruptive" when innovation enables a company to make a significant leap in its development after investing a few years earlier.

Furthermore, we also contribute to the **setting up of new companies in Luxembourg** through the development of innovative technology and expertise.

Lastly, we offer our scientific support to **national policy** making in our research areas in order to forecast and support societal changes.

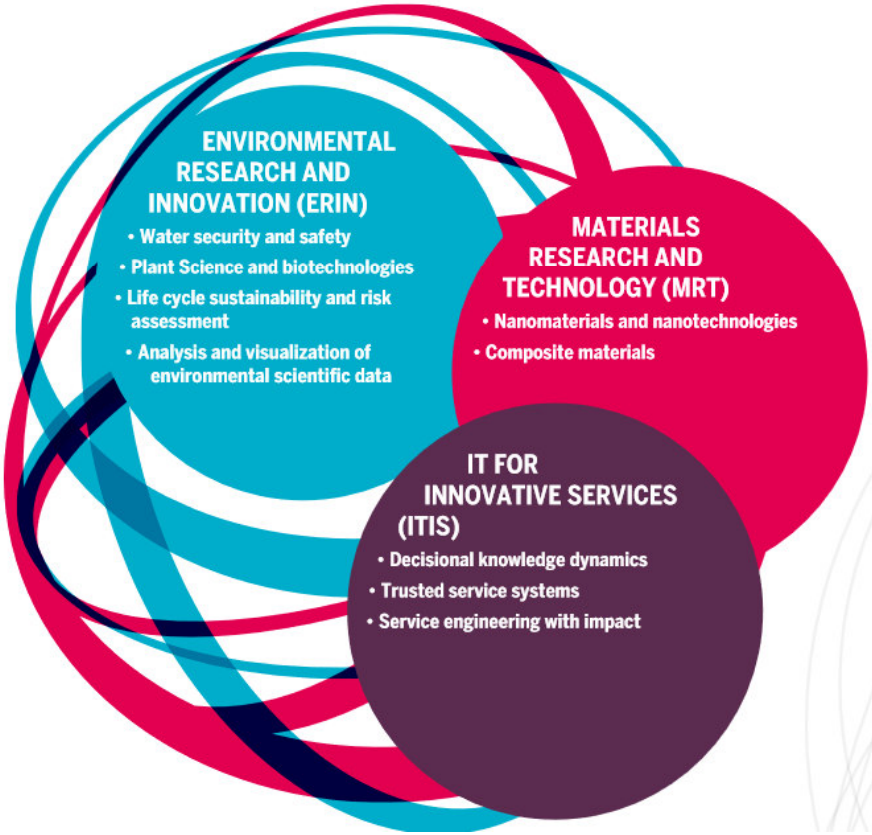
WHAT WE DO

We conduct **interdisciplinary research** in **targeted research areas**, which have a sustainable impact on Luxembourg's economy and society.

This involves us working **across the entire innovation chain:**

- Fundamental and applied scientific research, knowledge and competences development;
- Experimental development, incubation and transfer of new technologies, competences, products, and services;
- Scientific policy support to the Luxembourg government, businesses and society in general.
- Doctoral and post-doctoral training, in partnership with universities.

OUR RDI DEPARTMENTS AND THEIR FIELDS OF EXPERTISE



OUR PARTNERS

We specifically target those **sectors which significantly contribute to Luxembourg's economic diversification** and, in particular, the manufacturing industry, construction, logistics and mobility, ecotechnology, valorisation of agro-resources, space, IT services as well as the public and healthcare sectors.

We work in collaboration with **different partners:** RTOs, universities, large industrial groups, SMEs, public bodies, etc, **who are in line with our research focus.**

We also participate in selected national, European, and international **networks**, both **professional and academic**. Sharing know-how and experience, acquiring new knowledge, as well as pooling and sharing the resources which we gain from these networks, directly benefit the companies with which we collaborate.

WORKING TOGETHER

Several levels of partnership are possible, including:

- **Collaborative research** through national and European research programmes, which we engage in with various partners (SMEs, major corporate groups, research centres, universities, professional associations, groups of companies, administrative bodies, etc.), therefore with complementary know-how and expertise, to tackle mutual research and innovation issues together. There is a joint financial and risk-taking involvement and the results are shared.
- **Contract research** which enables a customised solution to be found for a company's RDI needs. This type of partnership is aimed at both SMEs which do not have the resources required to conduct research and large corporate groups which wish to outsource a part of their RDI, while retaining ownership of the results.
- **The hosting of researchers** within the framework of public-private partnerships (PPPs) which can be of two kinds: making highly qualified staff available to a company (PhD students, post-doctoral researchers, or research engineers) and hosting at LIST employees from a company who want long-term training on a new technology and within a scientific environment.
- **The provision of services** enabling our customers to access our technology platforms for their own research and innovation projects.

Services also include high-level professional training through which we pass on our expertise and know-how to companies and public organisations.

OUR TECHNOLOGY PLATFORMS

- Analysis and advanced characterisation of materials
- Mechanical and material-ageing tests
- Genomics, proteomics, and metabolomics analysis
- High Performance Computing (HPC)
- Creative Studio

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY

Our addresses

1 **Headquarters, Belval Innovation Campus**
Maison de l'Innovation
5, avenue des Hauts-Fourneaux
L-4362 Esch-sur-Alzette

2 **Belvaux site**
41, rue du Brill
L-4422 Belvaux

3 **Hautcharage Laboratory Annex**
5, rue Bommel, Z.A.E. Robert Steichen
(former Z.I. Bommelscheuer)
L-4940 Hautcharage

Access maps can be found on www.list.lu/contact

To contact us

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GOODYEAR

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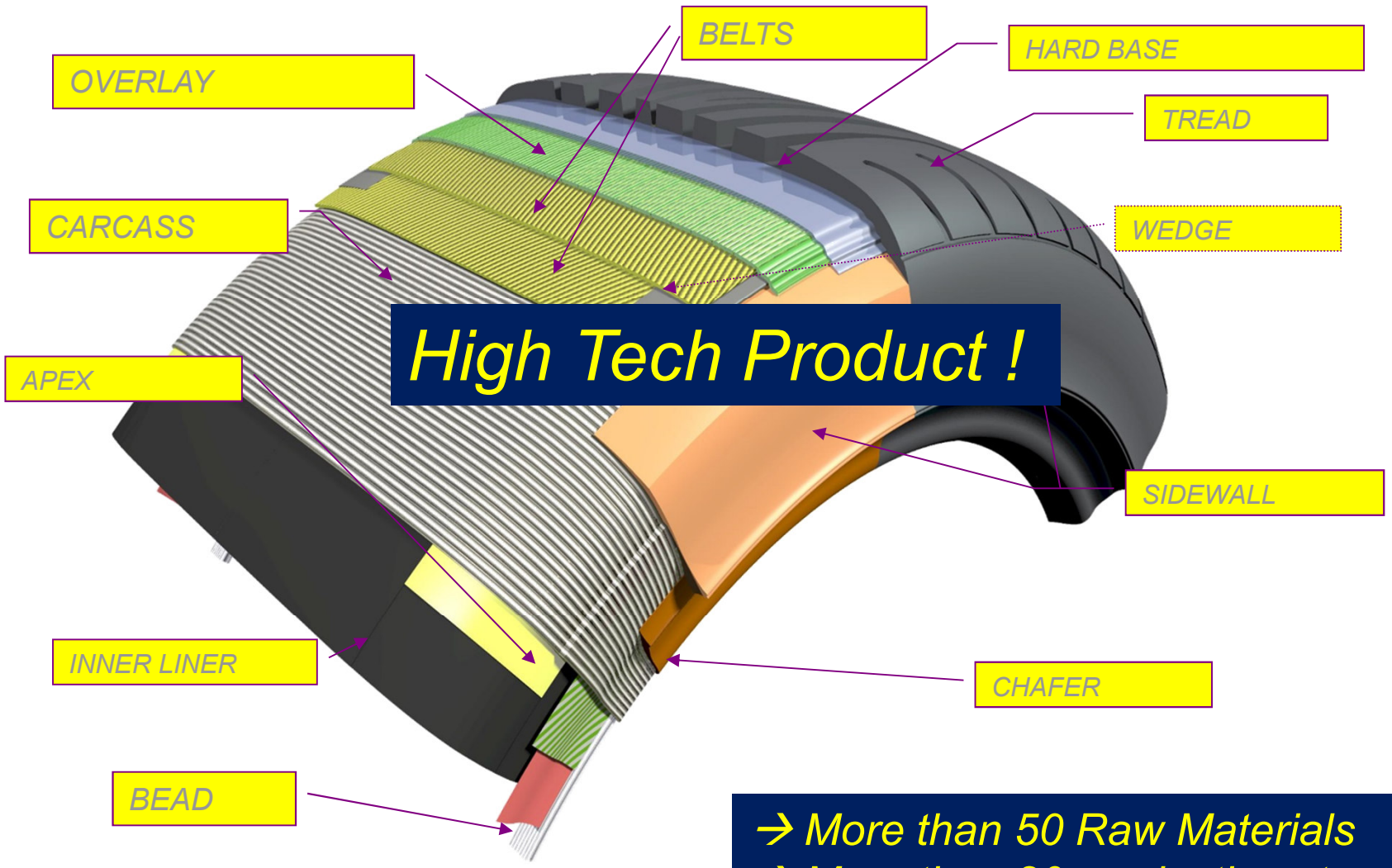
MADE TO FEEL GOOD.

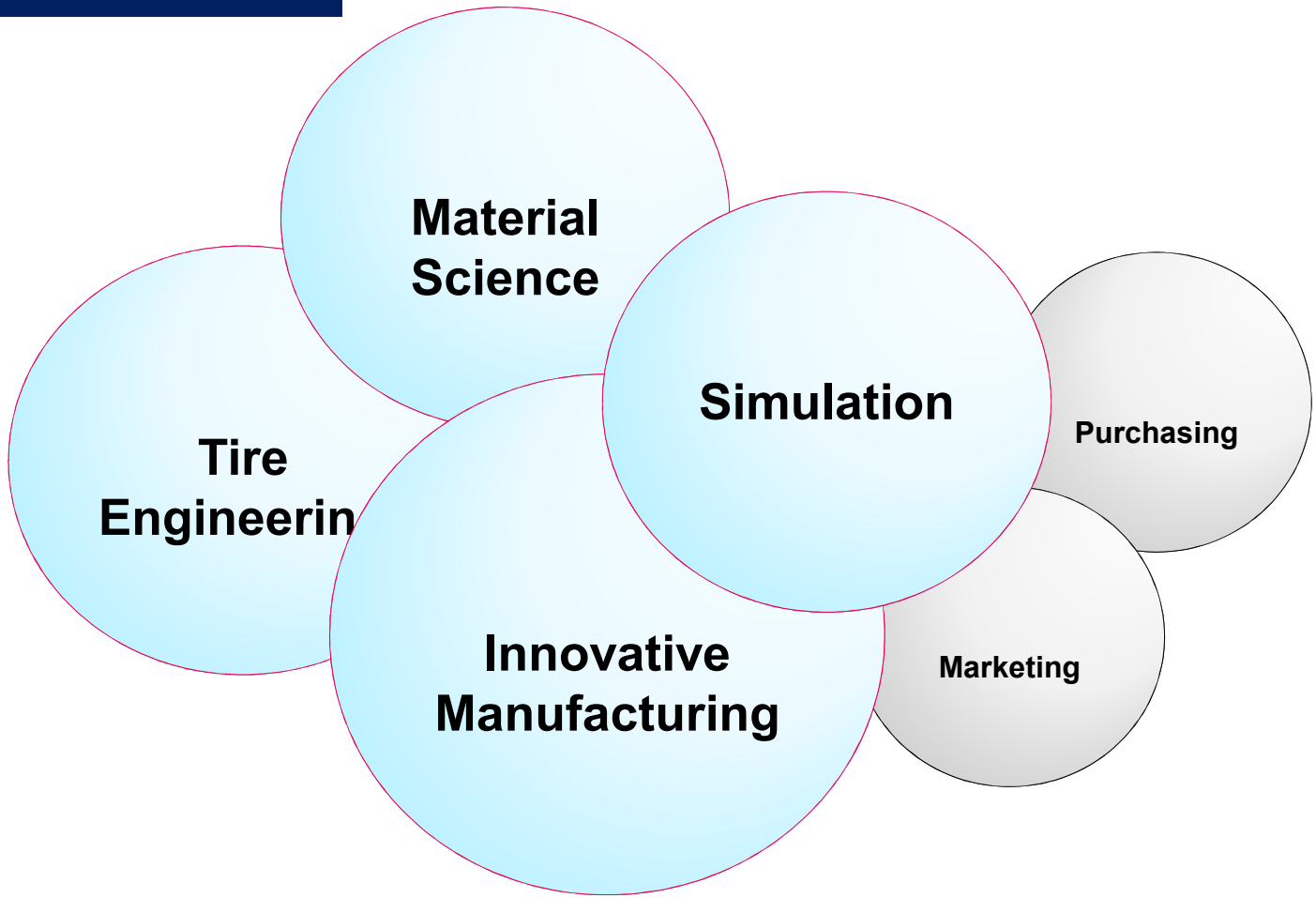
YOUR VISION of what we are doing!

→ OUR REALITY !

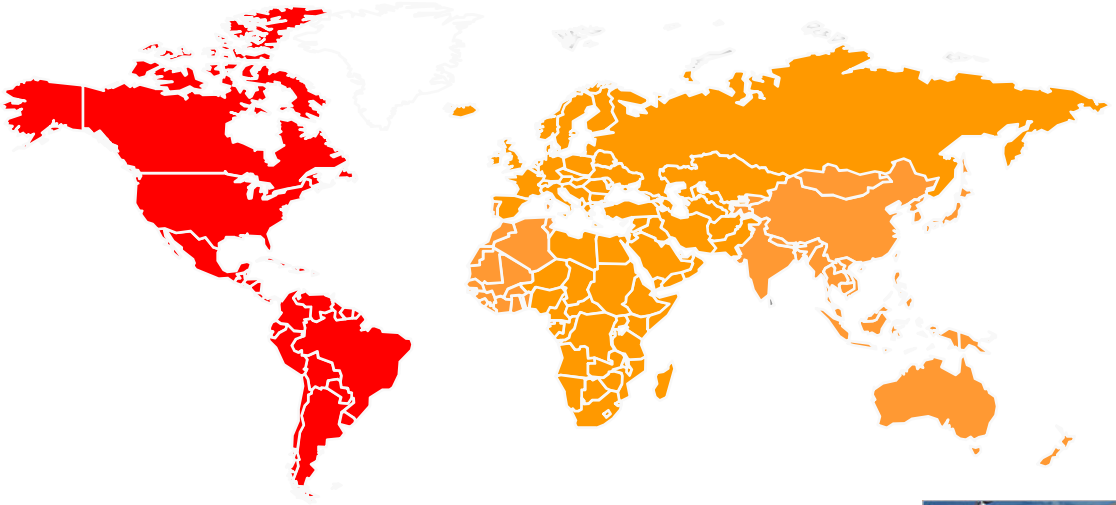


→ More than 50 Raw Materials
→ More than 20 production steps

→ *Expertise needed !*



Goodyear Innovation Centers



GIC*A in Akron, Ohio, USA

GIC*L in Colmar-Berg, Luxembourg

DDC*H in Hanau Germany

Goodyear External Research Network

- ☞ Dense and multipurpose external technology network in EMEA region

- ☞ Broad scope of topics: *material science, rubber morphology, contact mechanics, tribology, compounding, design, simulations, data mining, material processing, adv. equipment, process capability and risk management.*

- ☞ In 2016, 35 active collaborations with 25 public research *and academia partners and with 10 companies.*

- ☞ Engaged both in public / international programs (H2020, Life, ITNs) and in bilateral collaborations

- ☞ Actively supporting the education of new talents: many masters students, PhD candidates, Post-Doc fellows and summer student trainees are involved.

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GOODYEAR-LIST partnership

Basis of the GY – LIST partnership in materials

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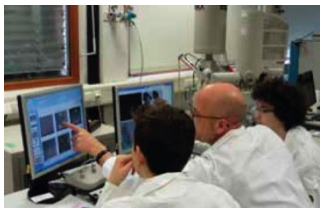
Past collaborations

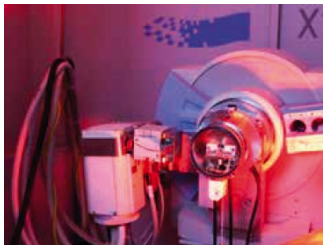
Trust building

2017 GoodYear-LIST Program

Materials Characterization

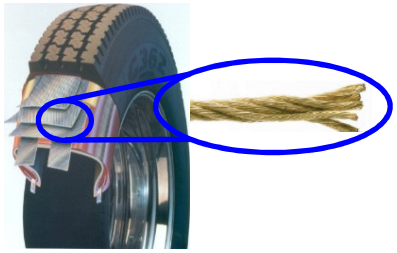
Short-term interactions





Steel-Polymer Adhesion

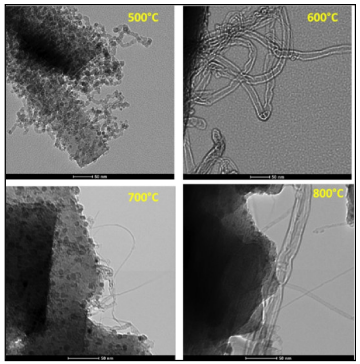
2010 - 2015



Plasma-coated reinforcing materials for tire built

Bi-phased SiO_2-CNT fillers

2012 - 2016



Filler engineering

GOODYEAR

LIST

Towards new capabilities and foundational knowledge

> 30 Technical Assessment Meetings

3 Feasibility studies

Fit of GY roadmap & LIST capabilities

TODAY - 5 YEAR JOINT R&D PROGRAM FRAMEWORK

COLLABORATION SCHEME

TWO to FOUR YEAR RESEARCH PROGRAMS

(PhDs, PostDocs) funded
by Fond National de la Recherche (FNR)
co-financed
by Goodyear & LIST

PUBLIC PRIVATE RESEARCH PROGRAM

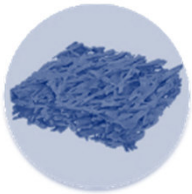
funded
by Ministry of Economy (MECO)
co-financed
by Goodyear & LIST

R&D PROGRAMS

Alternative Filler Technologies

Alternative Polymer Technologies

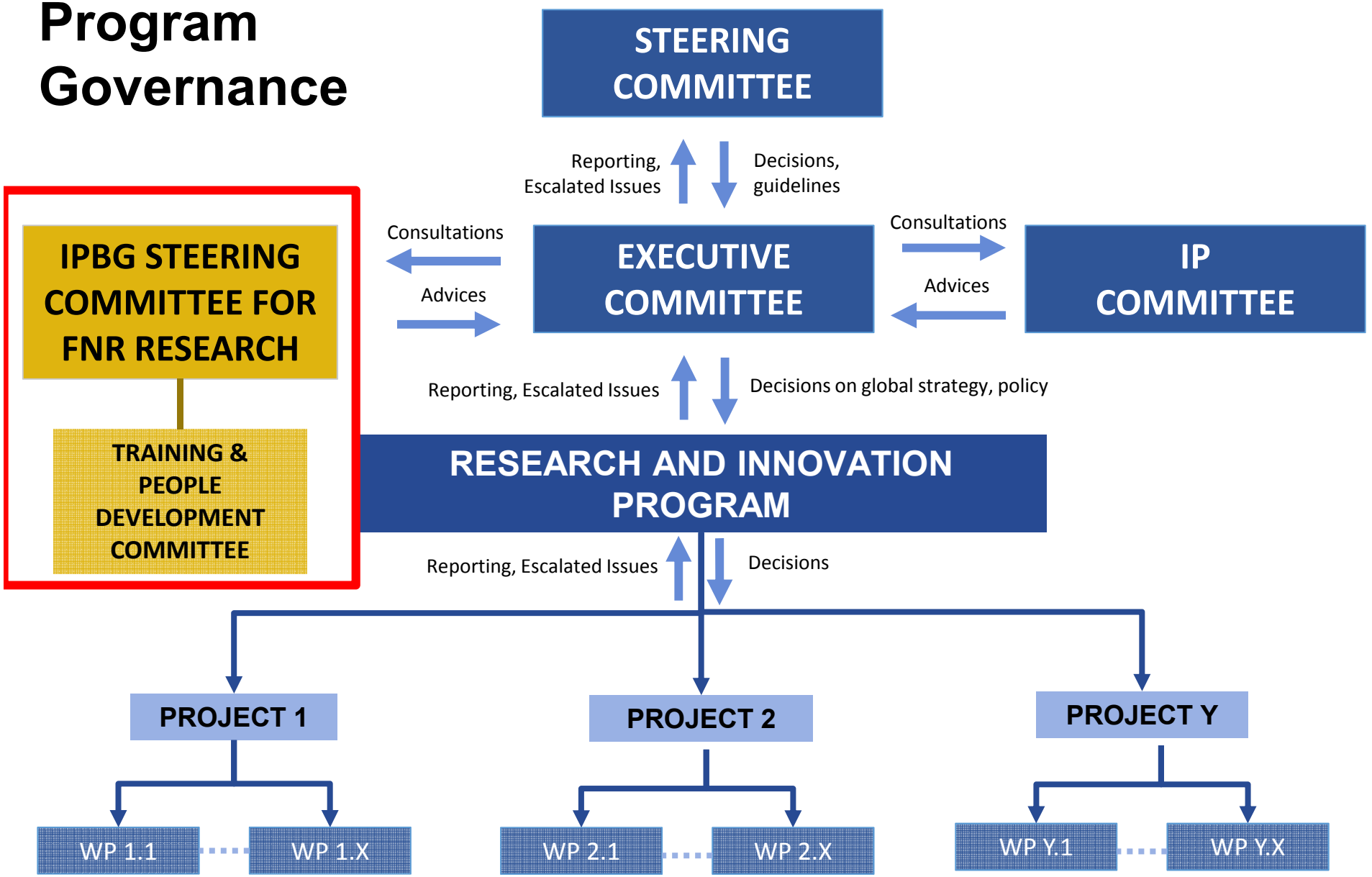
Robust Performance Processing Additives



Structural Materials Analysis

Data Science

Program Governance



Overall Resources 2017-2021

Human resources (cumulative)

GICL : 83 associates (88 FTE)

LIST : 88 associates (64 FTE)

PhD : 13

PostDoc : 17

} (77 FTE)

Nationalities: 11, EU 10, Non EU 9

PARTNERSHIP

GOODYEAR LIST

Technical Resources

GICL : 2200 Tires, Building and Testing

LIST: Lab Test Hours

Other Third Party Laboratories

IPBG

Luxembourg National Research Fund

IPBG

INDUSTRIAL PARTNERSHIP BLOCK GRANT

OVERVIEW

CAREER STAGE(S): PhD Candidate (with Masters), Postdoc & Junior Researcher,
FUNDING TYPE(S): Staff funding only, Business Collaboration,
DEADLINE: Open, please contact us.

The aim of the "Industrial Partnership Block Grant" (IPBG) programme is to foster the **cooperation between Luxembourg based companies active in R&D and public research institutions in Luxembourg.**

The specific objectives of the programme are to:

1. Support knowledge transfer between higher education institutions and Luxembourg based companies active in R&D;
2. Prepare young scientists not only for an academic career, but also help in acquiring the necessary skills and competences for the private job market;
3. Provide PhD and Postdoc students with an excellent, stimulating research training experience within the context of mutually beneficial research collaboration, between public research institutions and Luxembourg-based industrial partner organisations.
4. Promote the development of industrial research capacity in Luxembourg through the recruitment of early stage researchers and the concomitant implementation of partnerships between companies and public research organisations.

IPBG Expected Outcomes

- **Scientific/technological outcomes**
  - 62 publications in international journals
  - at least 20 patents
  - 14 well-prepared and 10 confirmed researchers for the materials industry or public research in Luxembourg

- **Socio-economic impact**

  (including possible applications and technology transfer activities)

- ***At national level***

  The LIST – Goodyear PPP initiative supported through subject IPBG will also pave the road towards further industry collaborations and national consortia formation

- ***International***

  Acting as “ambassadors” for Luxembourg Research Community. It is essential for Luxembourg’s reputation that these doctors excel in their future position

4 Programs in Materials - Overview

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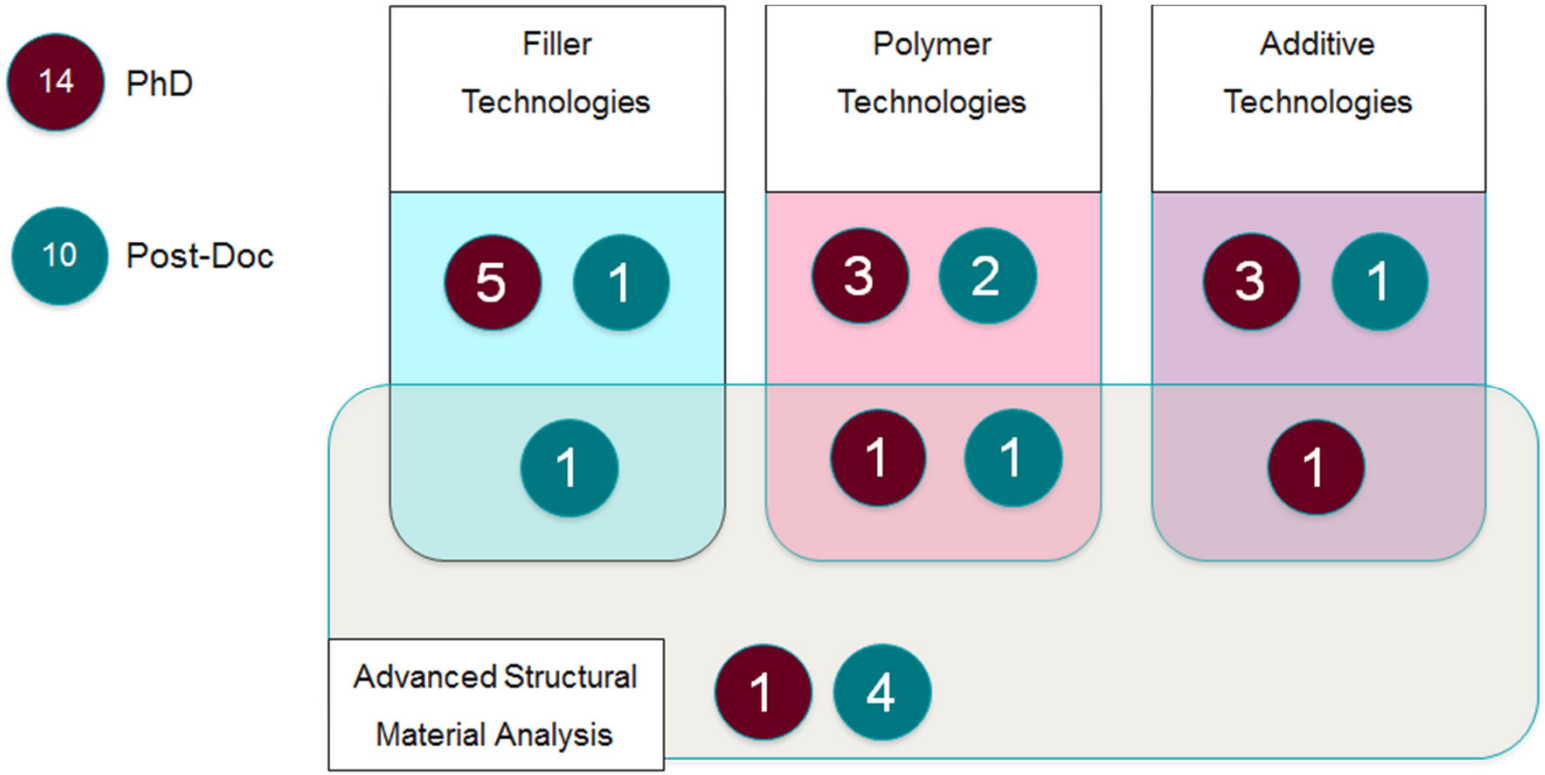

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Recruitment Process

Recruitment process

- **Recruitment and admission**
- Supervision
- Skills training
- Dissemination
- Good practice in research
- Thesis assessment
- Research environment

- **Specific LIST-GY recruitment process**
- **International sourcing**
- **Merit-based selection**
- **Selection Committee (ad hoc)**

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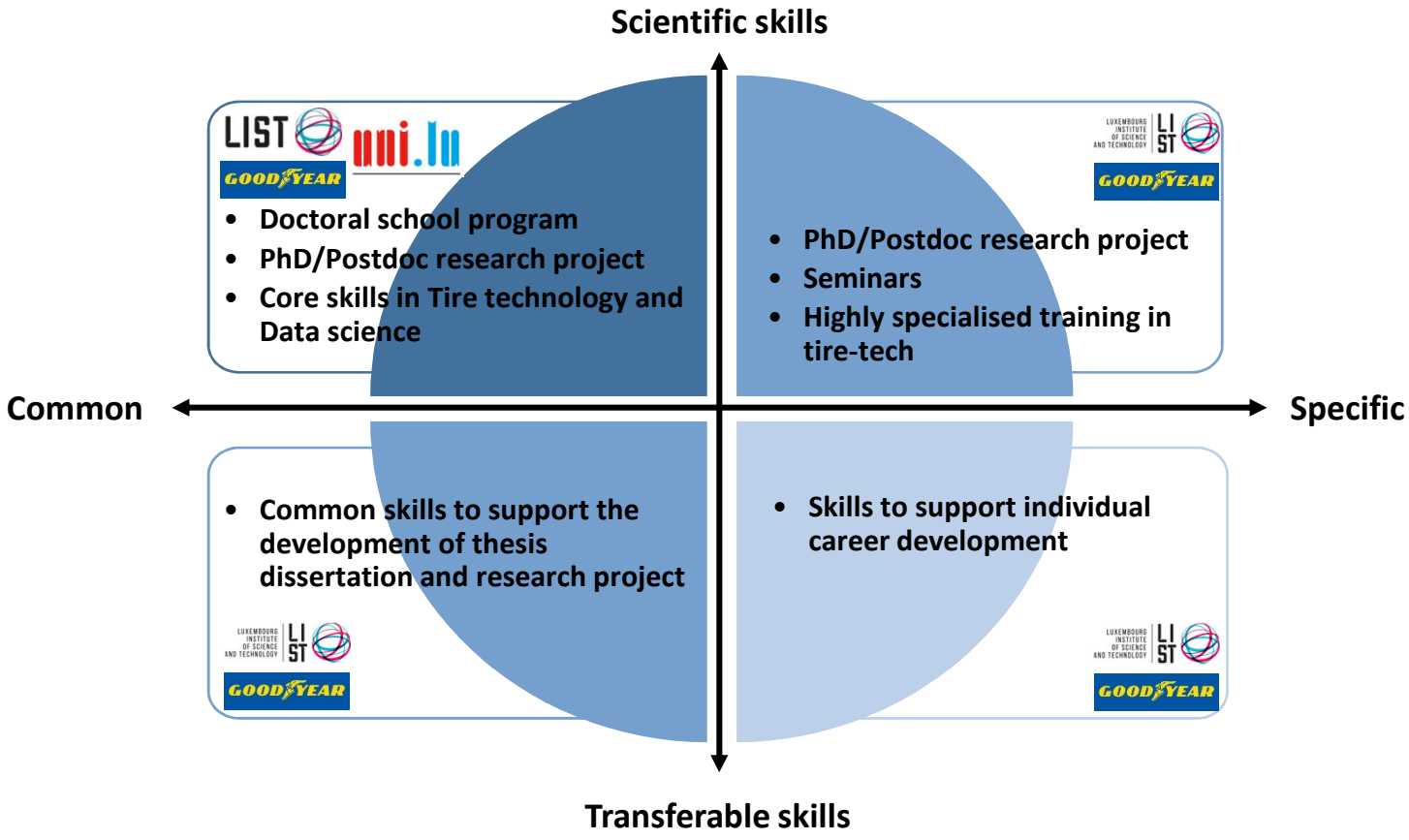
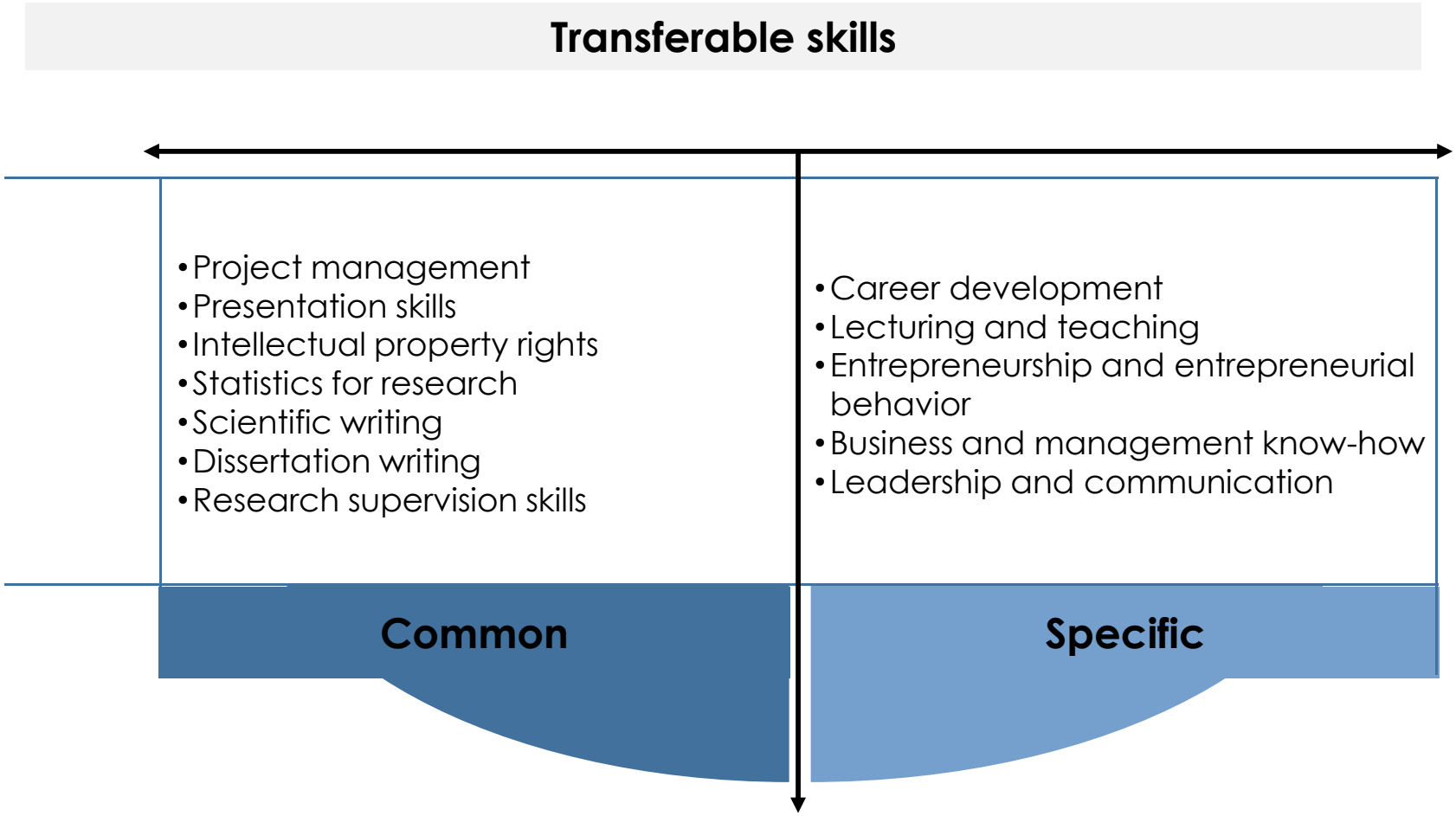
TRAINING

Training and cohort building statement

PhD/Postdoc training & cohort building strategy



Training and cohort building statement



Training and cohort building statement

Cohort building and networking

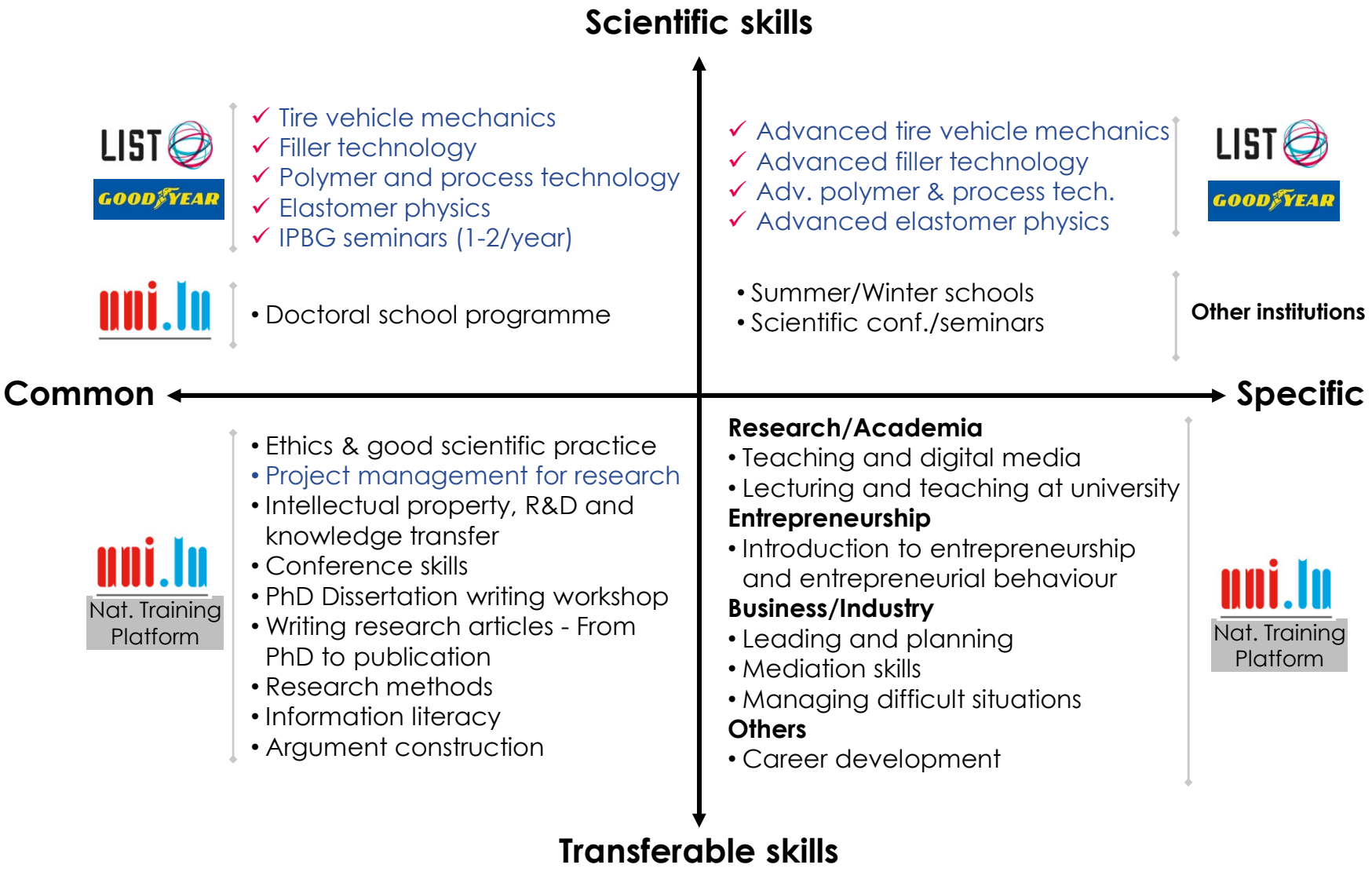
Cohort building

- One cohort composed of all PhD students and postdoctoral fellows, when necessary specific cohorts will be defined at program level.
- General induction program.
- Cohort-building activities: icebreakers, team-building, sports, culture, etc.

Networking

- LIST annual PhD day
- PhD welcome day – Luxembourg
- FNR Researchers' day, Science festival
- Euraxess events
- Membership at the highly specialized societies as the Rubber Division ACS, DKG (Germany) – Recommended not mandatory
- Non-EU researcher network for PhDs & Postdocs (Goodyear)

Content and training offer



Take Away

- Creation of a pool of high skilled student to become future permanent associates,
- Long term project to work on very fundamental research to be applied in concrete product,
- Strong support in training during the program to prepare for research or industrial environment,
- High impact program with an international industrial relationship.