Links to other legislation + relevance for businesses & research

Green Chemistry Change Manager – Module II

19- 20/09/2024

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Relevant questions for today & tomorrow

- What‘s the wider political and legal framework where chemical legislation is embedded?
- Which tools are used to roll out ”sustainability“ over the entire economy?
- How is this relevant for businesses, research, teaching … ?
- What does this have to do with green chemistry?
- …

Table of Content

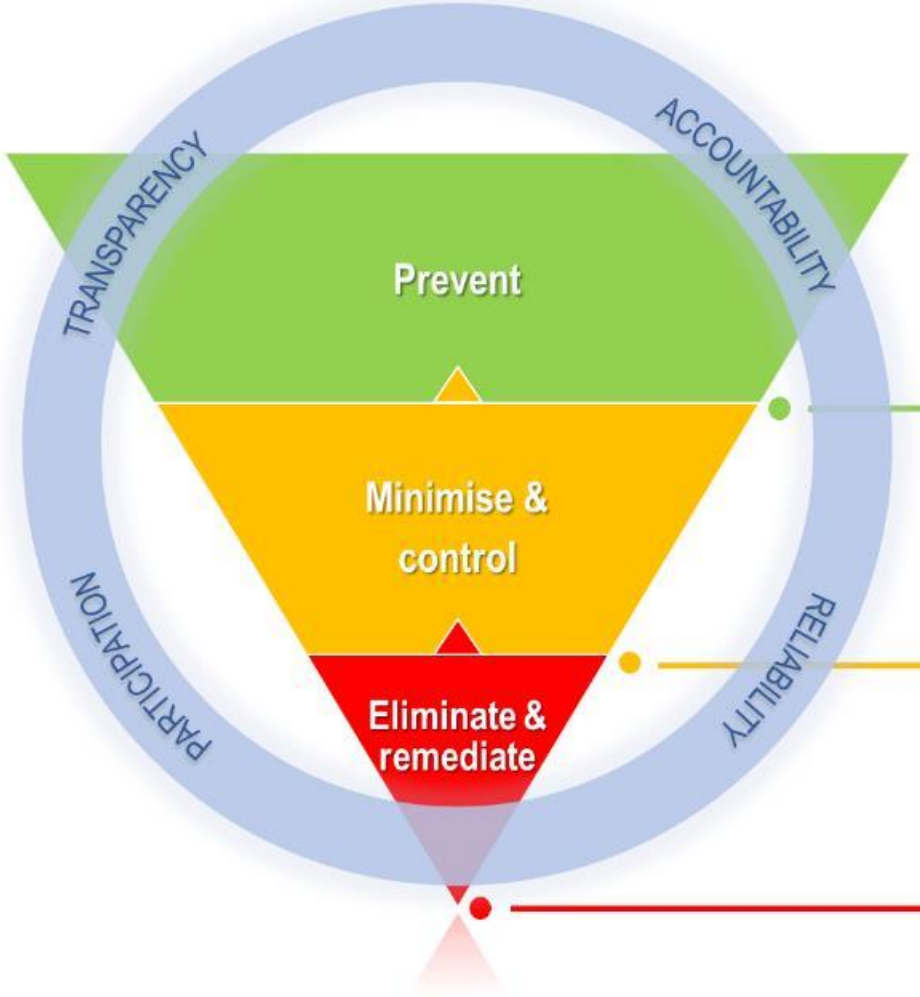
EU Green Deal

Zero Pollution Vision of the European Commission

- Objectives for 2030:
  - improving air quality to reduce the number of premature deaths caused by air pollution by 55%;
  - improving water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (by 30%);
  - improving soil quality by reducing nutrient losses and chemical pesticides' use by 50%;
  - reducing by 25% the EU ecosystems where air pollution threatens biodiversity;
  - reducing the share of people chronically disturbed by transport noise by 30%, and
  - significantly reducing waste generation and by 50% residual municipal waste

Zero Pollution hierarchy

Union policy on the environment shall be based on the **precautionary principle** and on the principles that **preventive action** should be taken, that environmental damage should as a priority be **rectified at source** and on the **polluter pays principle.**



	PROTECT HEALTH AND THE ENVIRONMENT	ENCOURAGE INNOVATION
Prevent	Prevent pollution in all stages of a clean and circular economy from extraction of natural resources, to production, service provision and consumption as at end-of-life.	Promote clean, 'zero pollution' production processes, safe and sustainable products and services by design as well as innovative tools, technologies, and behavioral change.
Minimise & control	Minimise releases and exposure of humans and the environment to pollution through management, technological measures and information about releases.	Promote modern and smart production processes, safe and sustainable product uses, services and business models, and digital solutions for tracking and reducing pollution.
Eliminate & remediate	Eliminate and remediate, as far as possible, existing pollution of water and soils and apply measures to return to a 'good status'.	Promote zero pollution recycling, waste management, decontamination and remediation.

Zero Pollution Vision: Headline actions

- **Chemicals Strategy for Sustainability**, including e.g.
  - Allowing for use of most harmful substances only where it‘s essential
  - Restriction of PFAS
  - One substance one assessment
  - Analysing „cocktail“-effects of several substances
  - …
- **Zero Pollution Action for water, air and soil**
- **Address pollution from large industrial installations**
- Including the following policy areas:
  - Circular economy
  - Industrial emissions
  - Chemicals
  - …

Levels covered by EU legislation

Company level

- general company law
- reporting provisions
- due diligence
- …

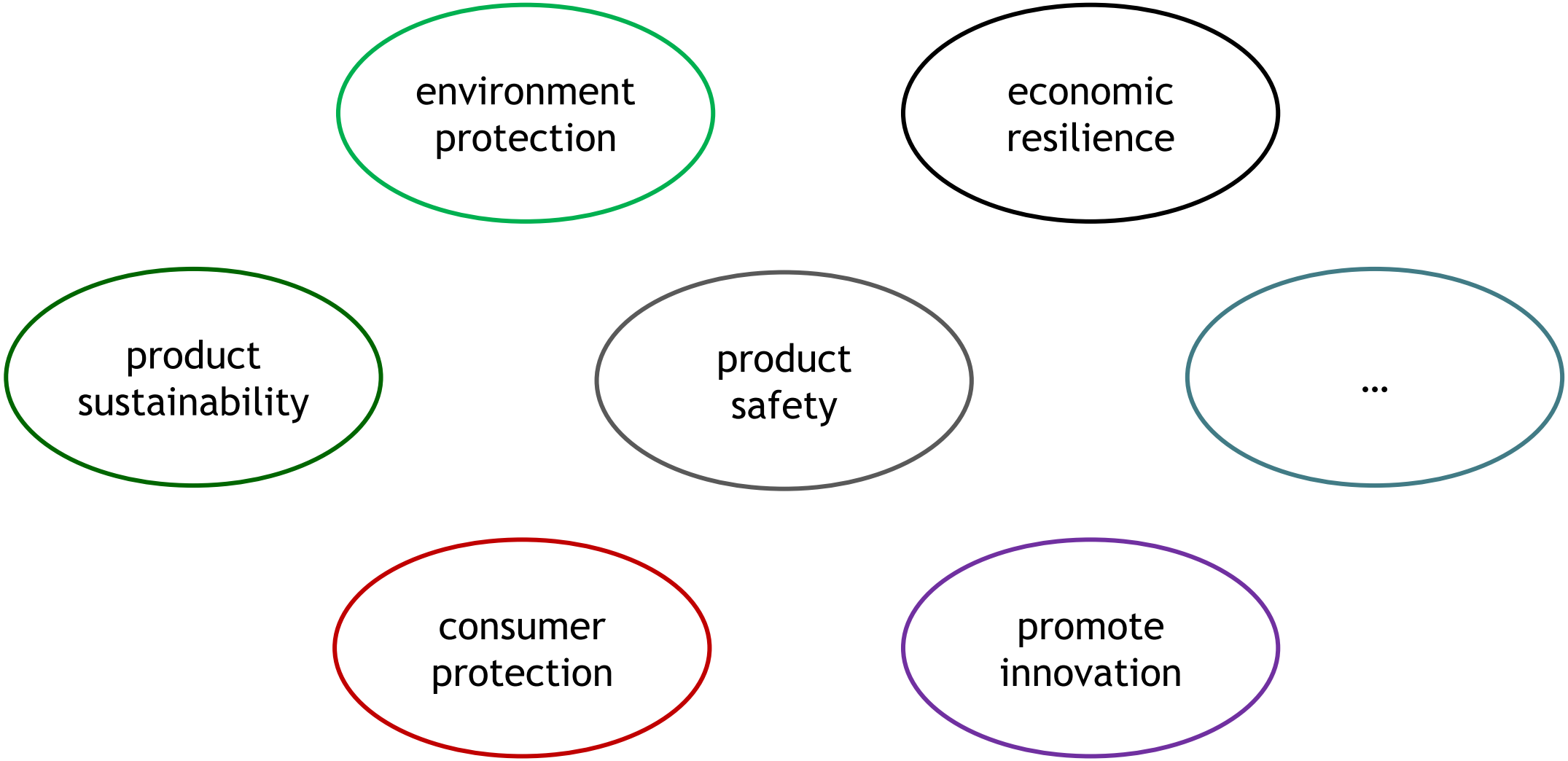
Installation level

- production processes
- emissions on site
- …

Product level

- product design
- packaging design
- labelling
- …

Different policy goals – all related to chemicals



European Green Deal

Circular Economy Action Plan

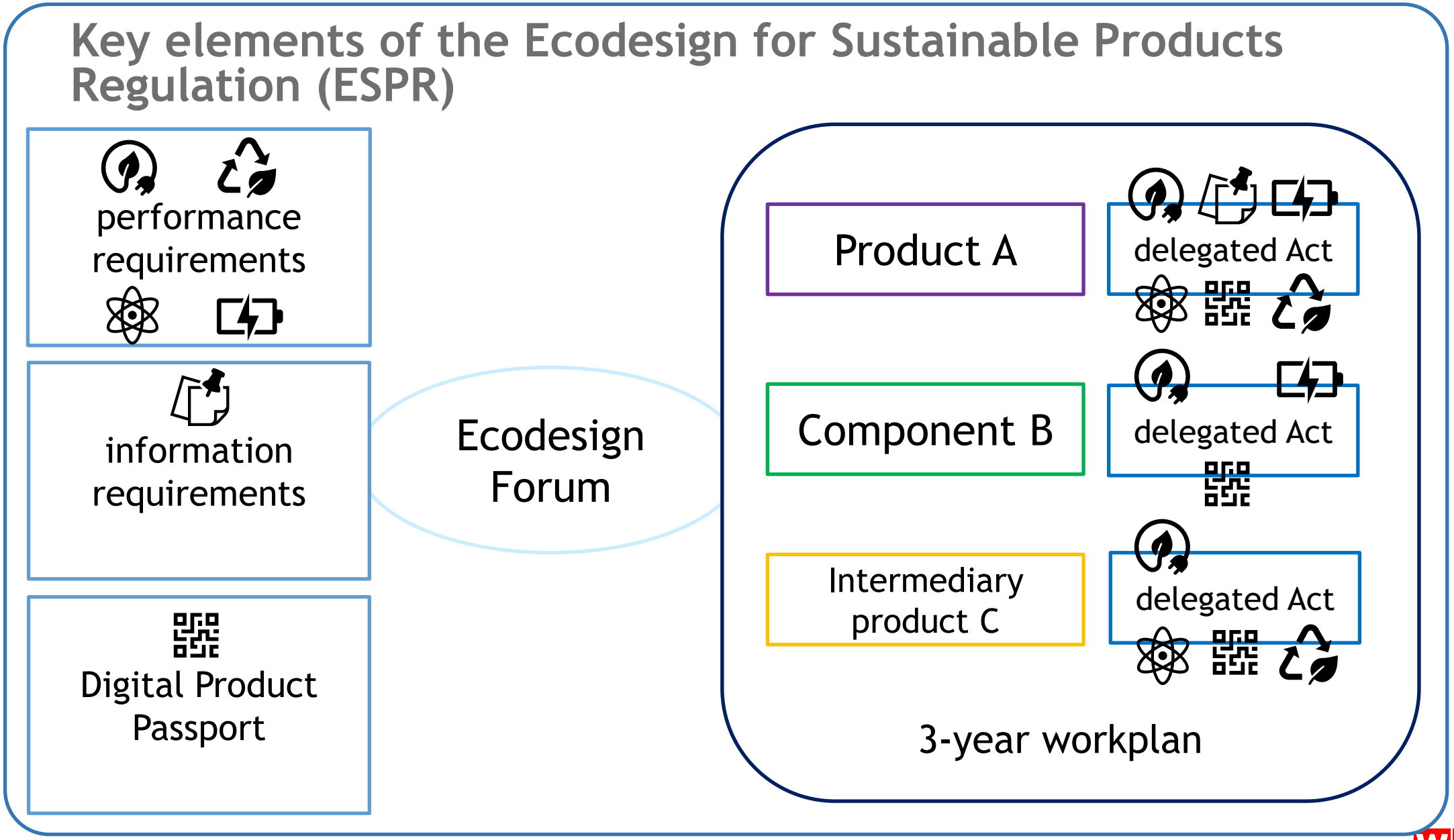
Ecodesign Regulation for Sustainable Products

Battery Regulation

Construction Products Regulation

Strategy for sustainable & circular Textiles

Key elements of the Ecodesign for Sustainable Products Regulation (ESPR)



ESPR: prioritised product groups

iron & steel	tyres	chemicals
aluminium	detergents	energy-related products
textiles	paints	info & comm technologc
furniture	lubricants	other electronics

(Potential) performance requirements

trade-offs?

European Commission

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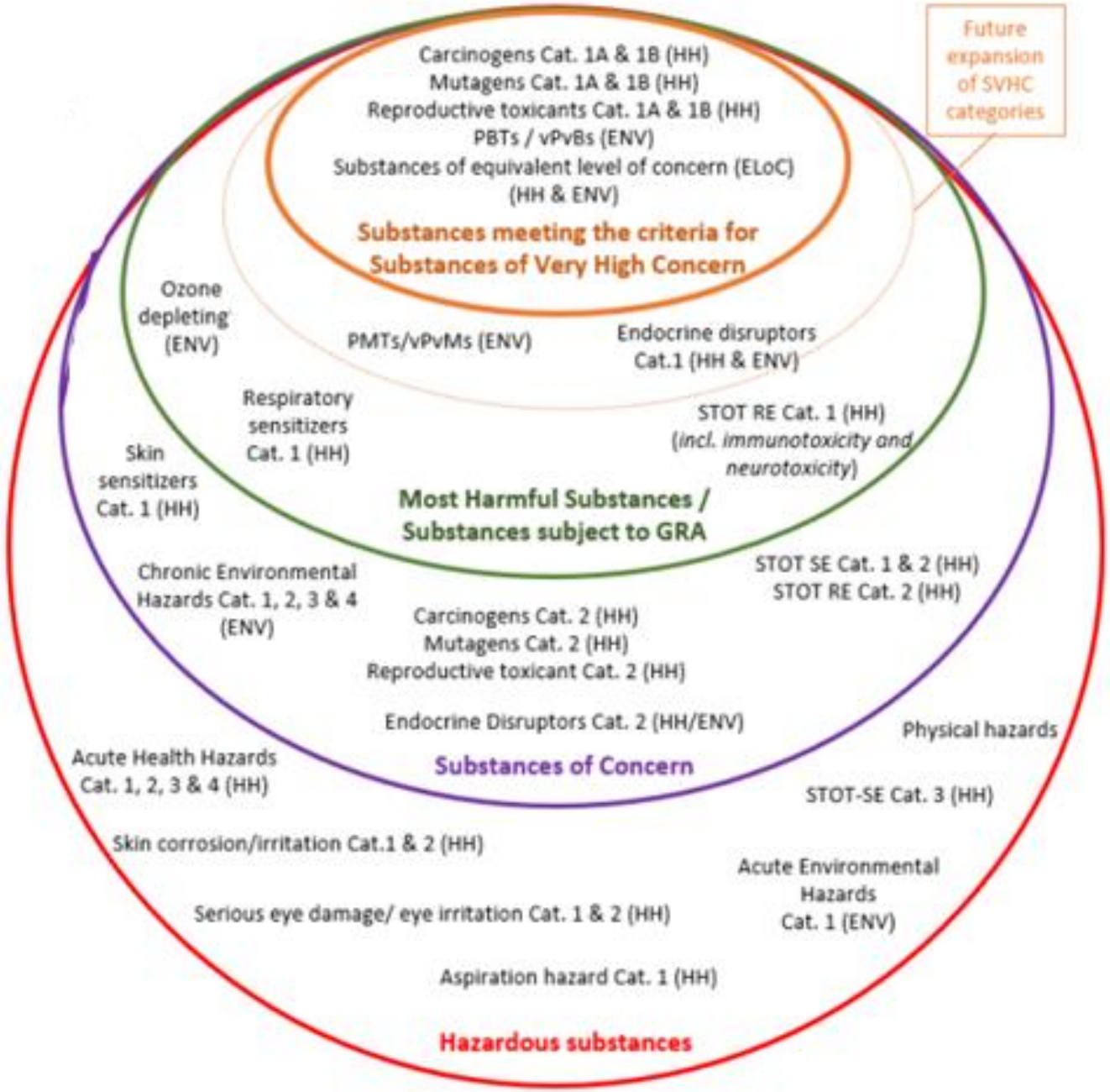
Ecodesign Regulation (ESPR)

- **Article 2, (28): ‘substance of concern’ means a substance that:**
- (a) meets the criteria laid down in Article 57 and is identified in accordance with Article 59(1) of Regulation (EC) No 1907/2006; or
- (b) is classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 in one of the following hazard classes or hazard categories:
  - carcinogenicity categories 1 and 2,
  - germ cell mutagenicity categories 1 and 2,
  - reproductive toxicity categories 1 and 2, [to be added in the course of the legislative procedure once Regulation (EC) No 1272/2008 contains these hazard classes: Persistent, Bioacumulative, Toxic (PBTs), very Persistent very Bioaccumulative (vPvBs); Persistent, Mobile and Toxic (PMT), very Persistent very Mobile (vPvM); Endocrine disruption],
  - respiratory sensitisation category 1,
  - skin sensitisation category 1,
  - chronic hazard to the aquatic environment categories 1 to 4,
  - hazardous to the ozone layer,
  - specific target organ toxicity – repeated exposure categories 1 and 2,
  - specific target organ toxicity – single exposure categories 1 and 2; or
- (c) negatively affects the re-use and recycling of materials in the product in which it is present;



Ecodesign Regulation (ESPR) – performance requirements

- Annex I (product parameters for performance requirements) d) & f):

  d) ease and quality of recycling as expressed through: use of easily recyclable materials, safe, easy and non-destructive access to recyclable components and materials or components and materials containing hazardous substances, material composition and homogeneity, possibility for high-purity sorting, number of materials and components used, use of standard components, use of component and material coding standards for the identification of components and materials, number and complexity of processes and tools needed, ease of non-destructive disassembly and re-assembly, conditions for access to product data, conditions for access to or use of hardware and software needed;

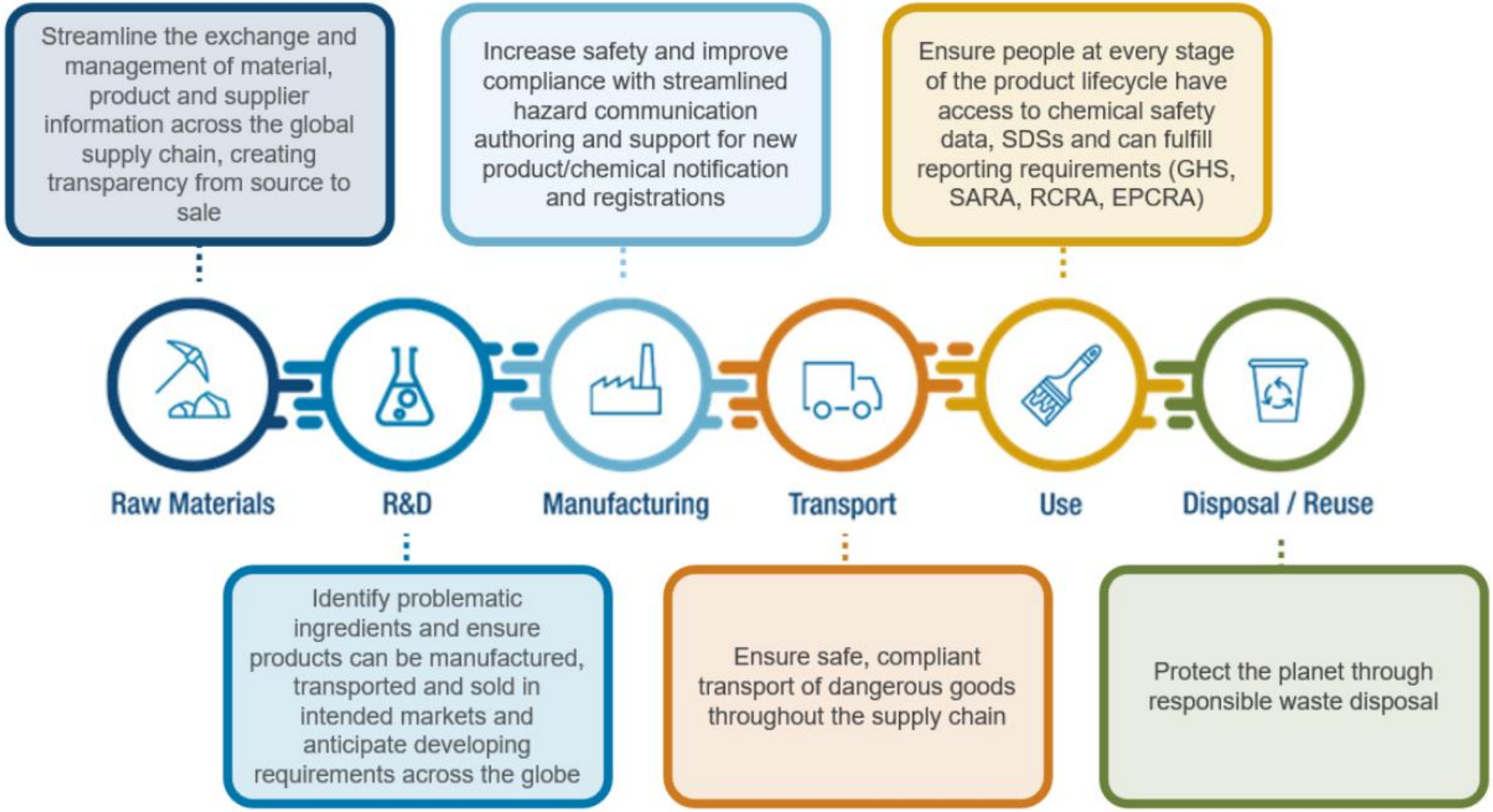
  f) use of substances, on their own, as constituents of substances or in mixtures, during the production process of products, or leading to their presence in products, including once these products become waste;

- Performance requirements (Art. 6) can include minimum or maximum levels in relation to a specific product parameter
  - as long as: Performance requirements based on the product parameter set out in Annex I, point (f), shall not restrict the presence of substances in products for reasons relating primarily to chemical safety (Art. 6 (3)):

Ecodesign Regulation (ESPR) – information requirements

- Information requirements (Art. 7) shall at least include requirements for the digital product passport & related to substances of concern
- Art. 7 (5): The information requirements referred to in paragraph 1 shall enable the tracking of all substances of concern throughout the life cycle of products, unless such tracking is already enabled by another delegated act adopted pursuant to Article 4 covering the products concerned, and shall include at least the following:
  - (a) the name of the substances of concern present in the product;
  - (b) the location of the substances of concern within the product;
  - (c) the concentration, maximum concentration or concentration range of the substances of concern, at the level of the product, its main components, or spare parts;
  - (d) relevant instructions for the safe use of the product;
  - (e) information relevant for disassembly.
- furthermore, Commission shall establish which substances fall under Art. 2(28) c), i.e. negatively affect recycling
- **NO exemptions possible for products containing SVHCs** in concentration > 0,1 % weight by weight

Digital Product Passport



Source: 3E

Digital Product Passport

- Idea behind DPP:
  - Tracking of raw materials to support due diligence efforts
  - Tracking the life story of a product, enabling services related to its remanufacturing, reparability, re-use/re-sale/second-life, recyclability, new business models
  - Benefit market surveillance authorities and customs authorities, by making available information
  - Make available to public authorities and policy makers reliable information
  - Allow citizens to have access to relevant and verified information related to the characteristics of the products
- Still to be determined:
  - System: how it will work (data carrier, data storage, how to enter data …)
  - Data: who will do what (who will enter data, who will have access …)
- Information will be product-specific and may include:
  - Technical performance
  - Environmental sustainability performance
  - Circularity aspects (durability, repairability, etc)
  - Legal compliance
  - Product-related information (e.g., manuals, other labels)

Framework will be the same BUT requirements will be different per product group

Conclusions

- ESPR is a new regulation covering (almost) all products in the single market
- Focus on resource efficiency along the entire product life cycle
- Definition of ‚substance of concern' highly relevant for subsequent and related legislation
- Performance requirements regarding chemicals, especially on the use of substances directly as well as in recycling
- Information requirements should increase transparency along supply chain
- The whole ESPR pushes for more ecologically friendly design including the chemical constituents of a product and production processes
- Digital Product Passport as tool may also become relevant for developing (green) chemical alternatives

Industrial Emissions Directive (IED)

- Objective: To reduce or avoid environmental pollution from industrial plants through integrated permit, including
  - contribution to emissions to air, water and soil
  - prevention of waste
  - energy efficiency
  - accident prevention
- For this, installations must use the "Best Available Techniques" (BAT)

BEST	**AVAILABLE**	**TECHNIQUES**
Most effective in achieving high level of protection of environment	Developed on scale under econmically and technically viable conditions	Technology used and the way the installation is designed, built, run and maintained

- BAT are developed by experts in the so-called Seville process
  - Identification of the most important environmental problems in each sector
  - Normally, covers both naturally occurring and synthetic pollutants
- Permit gives acceptable range of emissions taking into account various factors

Industrial Emissions Directive (IED)

Obligations based on properties of concerns

- Annex II - list of polluting substances, in air and water contains entry substances and mixtures which have been proved to possess carcinogenic or mutagenic properties or properties which may affect reproduction in or via the aquatic environment.

- Art. 58 states: "Substances or mixtures which, because of their content of volatile organic compounds classified as carcinogens, mutagens, or toxic to reproduction under Regulation (EC) No 1272/2008, are assigned or need to carry the hazard statements H340, H350, H350i, H360D or H360F, shall be replaced, as far as possible by less harmful substances or mixtures within the shortest possible time."

Industrial Emissions Directive (IED)

- Examples for BAT to reduce chemicals pollution:
  - Techniques such as selective catalytic reduction (SCR) for abating NOx emissions
  - Leak Detection and Repair (LDAR) programmes for identifying fugitive emissions
- In addition, the Emissions Reduction Portal Directive requires annual reporting of emissions of 91 pollutants to air, water and land (as long as it is emitted above certain thresholds), as well as waste and pollutant transfers
- Various relevant new legal provisions came into force in August 2024:
  - Art. 14a: Environmental management system for each plant
  - Art. 15 (4): Determination of environmental performance (limit) values
- Among other objectives, the aim is to simplify the handling and reporting of chemicals in industrial installations
- Limited exemptions possible for testing new technologies

Environment Management System (EMS), Article 14a

- BAT conclusions provide aspects
- EMS for each installation must include, in addition to continuous improvement objectives, performance indicators and risk prevention measures, the following:
  - (a) environmental policy objectives for the continuous improvement of the environmental performance and safety of the installation, which shall include measures to:
    - (i) prevent the generation of waste;
    - (ii) optimise resource and energy use and water reuse;
    - **(iii) prevent or reduce the use or emissions of hazardous substances**;
  - **(d) a chemicals inventory** of the hazardous substances present in or emitted from the installation as such, as constituents of other substances or as part of mixtures, with special regard given to the substances fulfilling the criteria referred to in Article 57 of Regulation (EC) No 1907/2006 and substances addressed in restrictions referred to in Annex XVII to Regulation (EC) No 1907/2006, and a risk assessment of the impact of such substances on human health and the environment, as well as an analysis of the possibilities for substituting them with safer alternatives or reducing their use or emissions;

Environmental Performance (Limit) Values, Article 15 (4)

- In order to support decarbonisation, resource efficiency and a circular economy, the BAT process should elaborate binding environmental performance levels
- The environmental performance levels […] include consumption levels, resource efficiency levels and reuse levels covering materials, water and energy resources, and waste and other levels obtained under specified reference conditions.
- Authority sets binding environmental performance ranges for normal operating conditions
- Additionally:
  - Limits related to water
  - Indicative values for the environmental performance of waste & resources other than water

Conclusions

- Since its beginning, IED deals with chemicals used in industrial installations
- Reports show that it effectively contributed to reducing releases into the environment
- New elements included recently to simplify the handling and reporting of chemicals
- Additional reporting requirements will provide better data on use of certain chemicals
- Potential additional limit values in permits may put more constraints on the use of certain chemicals
- Integrated approach of IED relevant in context of green chemistry principles (e.g. prevention, safer chemicals design, efficiency of processes…)
- Can be seen as driver for substitution and innovation in the direction of green chemistry

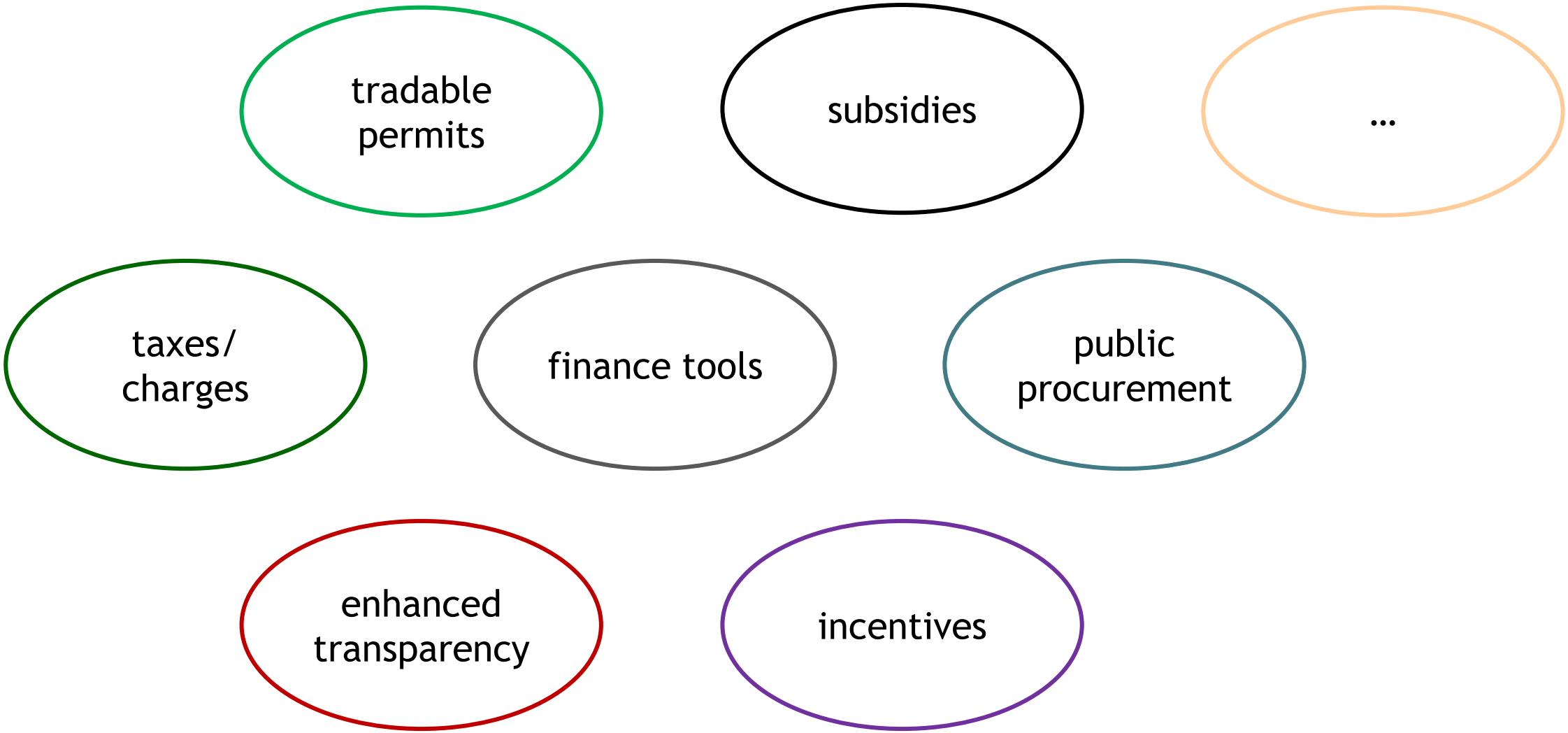
Other relevant legislation: NZIA & CRMA

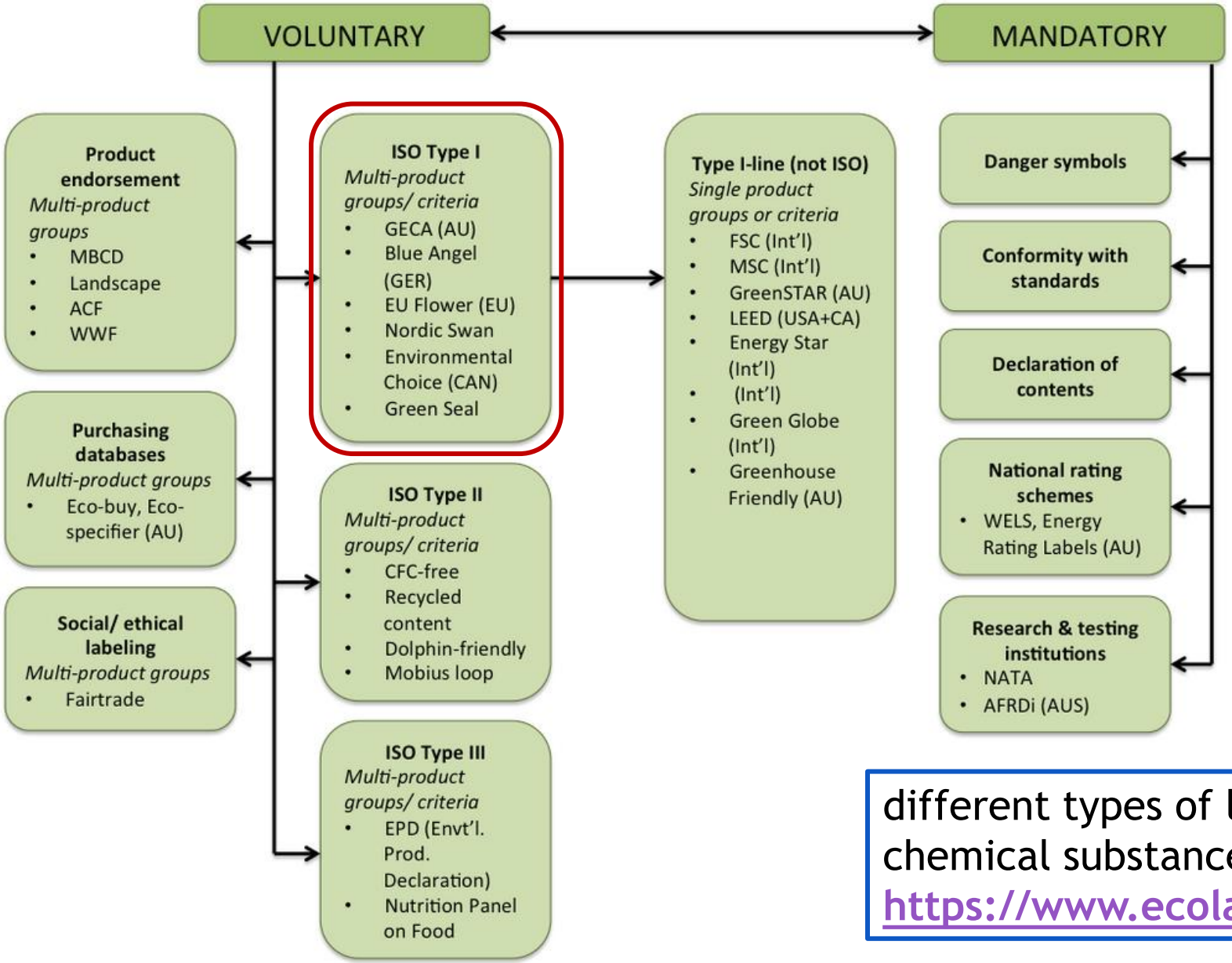
- The Net-Zero Industry Act (NZIA) and the Critical Raw Materials Act (CRMA) are intended to promote/enable critical technologies in Europe by simplifying and accelerating permitting procedures
  - CRMA: mining, recycling, further processing of critical/strategic raw materials, including lithium, copper, cobalt, bismuth...
  - NZIA: production of battery storage, wind turbines, PV systems, CCUS technologies, etc.
- additional goal of CRMA: increase circularity of materials and promote substitution of critical raw materials to decrease dependency on other countries/ regions
- Potential trade-offs with chemicals legislation through classifications (e.g. proposal to classify certain lithium salts as reprotox. 1A)
- Current procedures, especially PFAS restrictions, also show conflicting objectives with the political agenda of competitiveness and supply chain diversification
- Green chemistry innovation could be one element of European economic security and resilience

Group discussion

- Imagine a product that you would like to develop
- Discuss the following questions:
  - In terms of its chemical components, which Ecodesign performance requirements would you focus on and why?
  - What are potential trade-offs (between chosing one criterion over the other) you would need to consider? Are there any knock-on effects on other products or services down the value chain?
  - Which elements should be known to whom along the supply chain?
- In a second step, let‘s assume your product is produced in an industrial installation covered by the Industrial Emissions Directive. Which elements do you need to consider when it comes to chemicals?

Market instruments for sustainability





different types of labels incl. on chemical substances (not) used: https://www.ecolabelindex.com/

Source: https://en.wikipedia.org/wiki/Ecolabel

EU Ecolabel

- Based on the EU Ecolabel Regulation, the EU Ecolabel was established in 1992
- European Commission: “Voluntary scheme promoting goods and services that clearly demonstrate environmental excellence, based on standardised processes and scientific evidence”
- EU Ecolabel is awarded according to ecological criteria agreed on by experts, industry, consumer organisations and NGOs and verified by independent 3rd parties
- Currently products from 10 categories and 22 product groups, incl. absorbent hygiene products, bed mattresses, cosmetic products, footwear, furniture, lubricants…

EU Ecolabel

- Companies that offer a covered product or service on the single market can apply to the competent national body
- Corresponding verifications for the relevant criteria for the group of products and services must also be submitted with the application
- Competent body will conclude a contract with the company on the use of the Ecolabel including term of validity
- Criteria include strict requirements on chemicals
- E.g. for Ecolabel for graphic & tissue paper products:
  - "shall not contain substances that have been identified according to the procedure described in Article 59(1) of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (3) and included in the Candidate List for Substances of Very High Concern in concentrations greater than 0,10 % (weight by weight)"
  - "All process and functional chemicals used in the paper mill must be screened"
  - for more criteria, see: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D0070&from=IT

Green marketing: Green Claims Directive proposal

Art. 25 (4) of CLP:
Statements such as ‘non-toxic’, ‘non-harmful’, ‘non-polluting’, ‘ecological’ or any other statements indicating that the substance or mixture is not hazardous or any other statements that are inconsistent with the classification of that substance or mixture shall not appear on the label or packaging of any substance or mixture

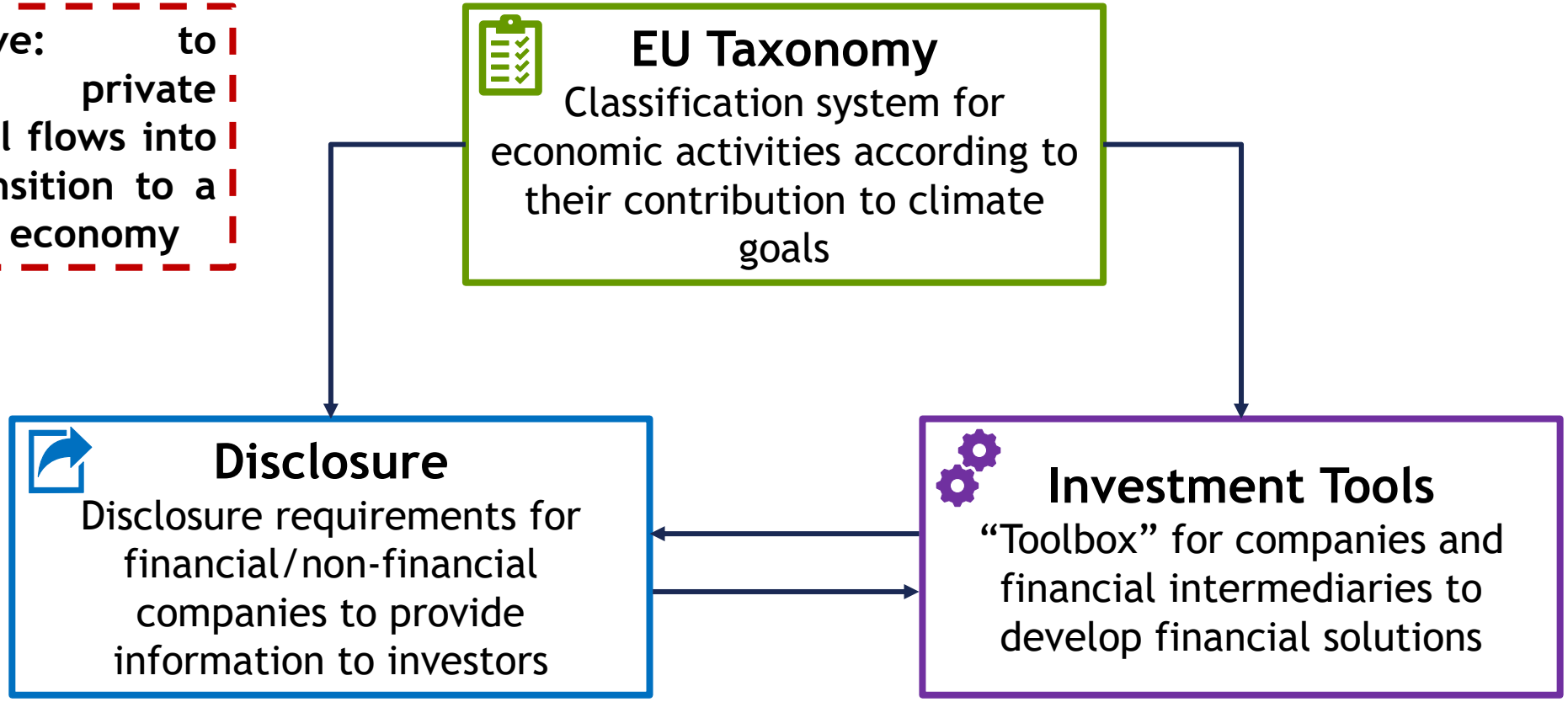
- Green Claims proposal is currently being negotiated by the European Parliament and the Council (expected to be finalised in Q2 2024)
- Idea: prevent greenwashing in B2C marketing by regulating how environmental claims should be substantiated, certified and verified
- Green Claims proposal obliges a company to prove (by LCA?) any environment-related claim
- According to the proposal this proof needs to be certified by 3rd party and verified by the authority before product can enter the market
- Thereby also trying to stop proliferation of green labels on the market
- Evaluate if presence of certain substances should automatically impede any claim

Conclusions

- There are a number of initiatives to enable consumers to make ecological choices
- This has led to many green and ecolabel schemes on the market
- Some of them, including EU Ecolabel have strict rules on the use and presence of chemicals
- Green Claims Directive proposals seeks to standardise the process of substantiation, certification and verification of environmental claims in B2C marketing
- This may in the future also include constraints on the presence and use of substances of concern and/ or other categories
- May either prove to be an incentive for green chemistry or fatal for any kind of marketing related to environmental benefits of a product

Sustainable Finance

Objective: to channel private financial flows into the transition to a greener economy



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Sustainable Finance: Taxonomy

- Sustainability of economic activities assessed based on 6 criteria: climate protection, climate change adaptation, water, environmental pollution, biodiversity, circular economy
- Additionally: "Do No Significant Harm" principle (DNSH) (none of the other environmental criteria are affected)
- Relevant DNSH criteria e.g. for climate protection & climate change adaptation:
  - Classification according to POP regulation
  - Restricted according to REACH
  - SVHCs listed in candidate list
  - Substances that meet SVHC criteria
  - Classified in EU Electronics Directive RoHs
  - Mercury & ozone-depleting substances
- High relevance for financing & investment decisions or options

Corporate Governance: Disclosure

Corporate Sustainability Reporting Directive (CSRD)

- Framework for disclosing all types of ESG issues in the annual report (ecological e.g. environmental pollution, social e.g. impacts on employees, governance e.g. corruption)
- Applies to large companies and listed SMEs
- European Financial Reporting Advisory Group (EFRAG) develops standards (ESRS) that must then be followed
- Sustainability statements should provide a comprehensive understanding of various ESG aspects of the company
- The so-called ESRS E2 "Environmental Pollution" also deals with disclosure of risks from SVHC, Most Harmful Chemicals & Substances of Concern (emissions themselves, risks, handling)

Corporate Governance: Disclosure

Corporate Sustainability & Due Diligence Directive (CS3D)

- Goal: Careful handling of social and environmental impacts along the entire value chain
- Full scope from 2032, then companies with 1,000 employees and 450 million in annual sales
- Identification of actual or possible negative impacts on human rights/environment in order to take appropriate measures
  - can include risks in relation to the use, release etc of chemicals
  - if risks in relation to chemicals are identified, appropriate measures need to be taken, incl. potentially substitution of the chemical in question
- Due diligence obligations must be integrated into company policy and management systems
- Transparent and public report on compliance with due diligence obligations

Sustainable Finance: Investment tools

EU Green Bond Standard

- Idea: a Europe-wide EU Green Bond Standard creates clarity and comparability for sustainable bonds
- Aim: to provide consumers, but also companies and other institutional investors, with guidance on green investment opportunities
- Providers of such products must meet various requirements from 21 December 2024
- A bond marketed as EUGB must meet special conditions linked to environmental sustainability criteria
- The proceeds from the bond issue will be used for environmentally sustainable purposes (detailed in the EU Taxonomy)
- It also entails certain extended reporting obligations for the issuer

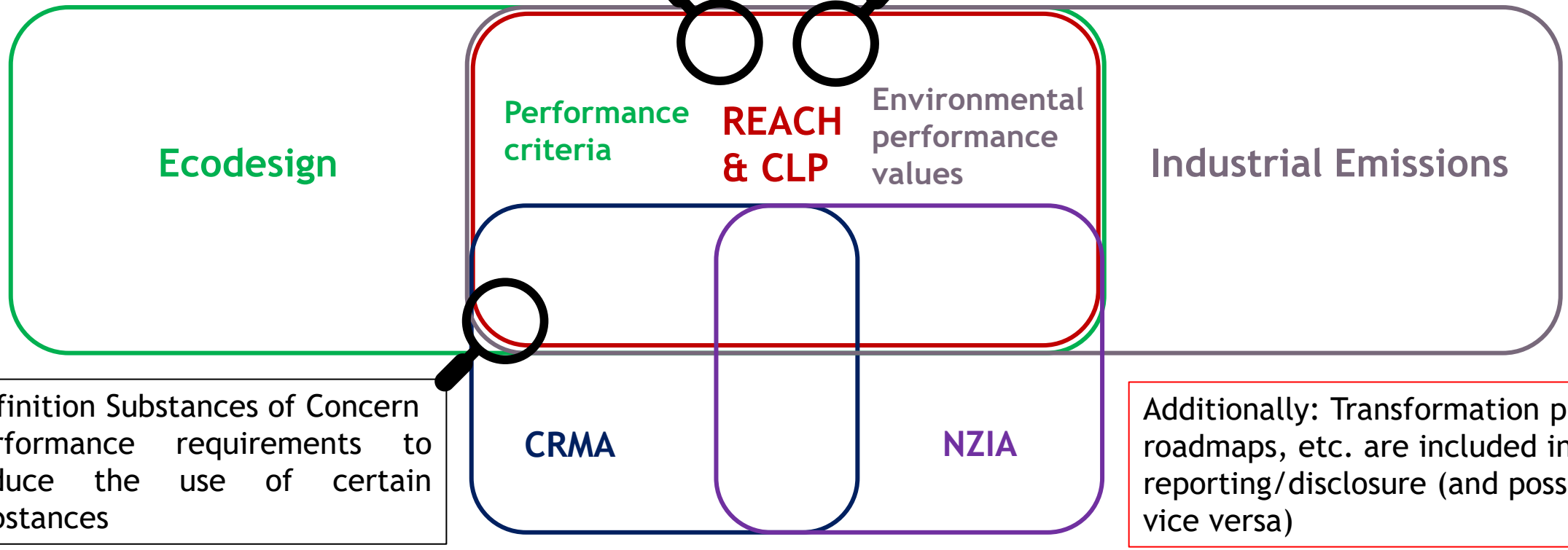
Conclusions

- Several new reporting instruments, including for certain SMEs, were introduced recently
- Although they cover many aspects of sustainability, there is also some relevance in relation to the use of chemicals
- In particular, these rules are relevant when it comes to financing and funding decisions and options
- Investors, banks etc will increasingly try to green their portfolios and will thus demand more data from the businesses
- Will also have relevance when it comes to public funding, as they may be introduced into public funding and subsidy schemes
- This may also be relevant for publicly funded research institutes
- The development of green chemicals may benefit from this

Overview

Information requirements for tracking substances & communication along the value chain (Digital Product Passport, DPP)

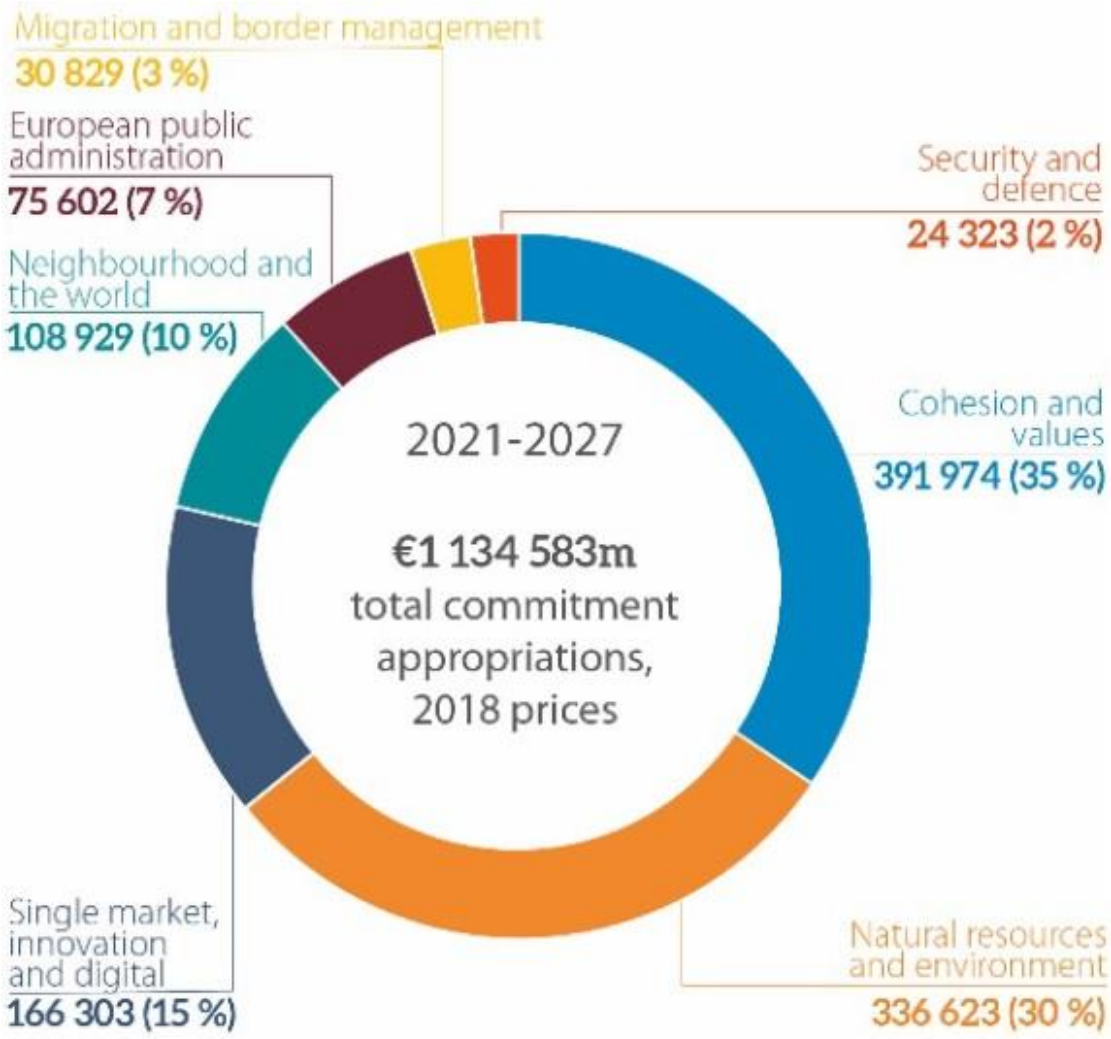
possible dependencies/overlaps between the Seville process (BAT in IED) and committee procedure (ecodesign); plant vs. product



Definition Substances of Concern Performance requirements to reduce the use of certain substances

Additionally: Transformation plans, roadmaps, etc. are included in reporting/disclosure (and possibly vice versa)

EU budget



€806.9 billion

NextGenerationEU
COVID-19 recovery package

Recovery and Resilience Facility
€723.8 billion
€338.0 billion grants
€385.8 billion loans

NextGenerationEU contribution to other programmes
EUR 83.1 billion

sources: European Parliamentary Research Service; European Commission

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Where funding for research in green chemistry might come from

Very complex governance structure

Heading 1: Single Market, Innovation and Digital

Horizon Europe

InvestEU

Heading 3: Natural Resources & Environment

Programme for the Environment and Climate Action (LIFE)

Heading 2: Cohesion and Values

European Regional Development Fund (ERDF)

EU-funded projects & initiatives relevant for green chemistry (other than the CSS!)

Horizon Europe Partnership for the Assessment of Risks from Chemicals (PARC)

Supports the innovation in chemical risk assessment

Total budget of €400 million for 7 years from May 2022

Aims to:

- Establish an EU-wide research and innovation programme
- To support chemical risk assessment and risk management bodies with new data, methods, tools
- To address current, emerging and new chemical safety challenges

Open Innovation Test Beds (OITBs)

- Provide support to the scale-up and diffusion of technologies
- Develop, test and upscale technology to advance from validation in a laboratory to higher Technology Readiness Levels (TRLs) prior to competitive market entry
- potential users are mainly industrial players which seek support to develop and integrate innovative technologies towards commercialisation
- EU Commission invested €319 million in supporting OITBs

Communication on Advanced Materials

Advanced materials were identified by EU Commission as key elements of competitive industry incl. a number of actions, in particular to:

- promote R, D & I in advanced materials
- 'fast track' from lab to production
- increase investment & access to finance

"Transition Pathways" for various industrial ecosystems

Green Public Procurement in the EU

- Public procurement expenditure covers around 14% of European GDP
- European Commission (2008): "[…] a process, whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function […]."
- Since 2008, Commission has developed > 20 common GPP criteria for various product and service groups; national authorities also often rely on criteria of Ecolabels (e.g. Austria)
- Voluntary instrument that Member States can use and adapt, but some of latest adopted regulation include (or enable) obligation, including:
  - Ecodesign for Sustainable Product Regulation
    - For the public purchase of products covered by a delegated act; Commission is empowered to adapt minimum requirements based on the 2 highest performance classes or similar; weigthing of 15-30% in the tendering process
  - Battery Regulation
  - Construction Products Regulation
  - Packaging and Packaging Waste Regulation
  - Energy Efficiency Directive
  - Energy Performance of Buildings Directive

Green Public Procurement in the EU

Key environmental impacts during product lifecycle	EU GPP approach
• Cleaning product formulation and raw material use, manufacturing and end-of-life of cleaning products and disposable cleaning accessories • Energy and water consumption in the use phase of cleaning products and power equipment • Wastewater discharge related to the use of cleaning products • Waste generation (solid and liquid)	• Require key competences and the application of key environmental management measures and practices from the service provider • Require adequate and frequent training for the staff of the service provider • Require the use of cleaning products with reduced environmental impact • Encourage cleaning product concentration at purchase • Require the use of cleaning accessories with reduced environmental impact (including microfiber products) • Require the use of energy efficient cleaning power equipment (including vacuum cleaners) • Require the supply of consumable goods with reduced environmental impact

source: GPP Criteria for indoor cleaning services

Green Public Procurement in the EU

Key environmental aspects	GPP approach
• Hazardous effects on the aquatic environment due to the use of hazardous fertilisers and pesticides during the cultivation of natural fibres. • Hazardous effects on the aquatic environment due to substances used during the processing of intermediate and final textile products. • The use of biotic and abiotic resources from forestry, petroleum and natural gas to manufacture fertilisers and fibres. • Greenhouse gas emissions, acidification and smog resulting from the production and use of electricity and natural gas used to manufacture synthetic fibres and to wash, dry and iron textiles. • Early product failure which can result in the consequent waste of biotic and abiotic resources, and their landfilling or burning with potential for hazardous emissions to air and water.	• Purchase textiles made from fibres which are produced using fewer fertilisers, hazardous pesticides and production chemicals. • Purchase textiles that contain recycled materials and fibres. • Purchase textiles with a reduced use of environmentally harmful and hazardous substances in their production. • Purchase textiles that require less energy for drying and ironing. • Purchase colour-fast fabrics that do not shrink during use, that are constructed to be more durable in use and which have longer-lasting functional coatings. • Contract services that minimise the energy used to wash, dry and iron textiles. • Contract services that maintain textiles in order to extend their lifetime. • Contract services that reuse maximise the potential for reuse and recycling of textiles at the end of their service life.

source: GPP Criteria for textil products and services

Conclusions (or rather additional questions)

- Additional research funding in next MFF (as of 2027) and focus areas?
- What to support? basic research vs. support for scale-up and commercialisation
- Taxonomy-compliance in public funding criteria? Impact?
- SSbD-criteria in public funding criteria? Impact?
- Green chemistry criteria in Green Public Procurement? Impact?

Skills gap/mismatch: ChemSkills Project

ChemSkills

- 33 partners from 13 countries, September 2023 to September 2027
  - Including WKÖ, TU Vienna + other universities, industry associations
  - EU and non-EU countries
- Objectives:
  - Identify and develop green & digital skills
  - Improve the quality of curricula and training programs
  - Build sustainable cooperation between sectors
- Industry representatives and research institutions are working together in 6 sectors:
  - Plastics, consumer chemicals, fertilisers, rubber, pharmaceuticals, petrochemicals
- More information: www.chemskills.eu; X/Twitter: @ChemSkills; YouTube: @ChemSkills; Instagram: @ChemSkills Project

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ChemSkills

WORK PACKAGE 1
Project Management, QA and Coordination
- Project Coordinator: ECEG
- Project Technical Coordinator: CIFF

WORK PACKAGE 2
Impact and Dissemination
- Dissemination Leader: NEWTON UNIVERSITY

Advisory Board
- Work Package Leader: BAVC

WORK PACKAGE 3 Sectoral Skills intelligence and education provision
- Work Package Leader: VSB-TUO

- WP5 Plastics — WP Leader: EuPC
- WP6 Consumer Chemicals — WP Leader: RHDHV
- WP7 Fertilizers — WP Leader: ELO
- WP8 Rubber — WP Leader: CSIC
- WP9 Pharmaceuticals — WP Leader: IKEM
- WP10 Petrochemicals — WP Leader: CEFIC/PE

WORK PACKAGE 4
Trainings delivered
- UTWENTE

- Compilation of essential general, basic, digital, and green skills pertinent to the chemical sector.
- Development of a clear roadmap addressing skills, re-skilling, up-skilling, and an overall skills agenda. Incl. a defined strategy and future scenarios based on the outcomes of WPs 5 – 10
- Def. of new and emerging occupational profiles

- Gathering current and future needs of the sector
- Compilation of current and future offerings in the sector, incl. training, courses, education programs, and curriculums
- Definition of new and emerging specific occupational profiles

- first screening phase of already existing trainings, the definition of requirements for the training materials
- development of modular trainings covering the different sectoral needs

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Additional conclusions

- Concepts such as Essential Use, Substances of Concern and others are incorporated into different areas of legislation and non-legislative action
- Relevant for businesses
  - product design
  - investment decisions
  - access to public & private funding
  - …
- Relevant for research
  - focus areas of (public) research
  - access to public & private funding
  - …
- Relevant for teaching
  - potential changes in curricula
  - skills of future employees
  - …

Final discussion

- Which of the elements that you heard yesterday and today (legal obligations, incentives, subsidies…) do you think work best for the development of green chemistry in the EU?
- Which ones should be streamlined/ simplified and which ones expanded?

Thank you for your attention!

Contact

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