IBM Sustainability Software

Sustainable Product Design: The Time Is Now

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Own your impact

Practical pathways to transformational sustainability

Link to ibm.com

This report represents the 25th edition of the IBM Global C-suite Series

Data collected Q4 2021

Our research draws on input from

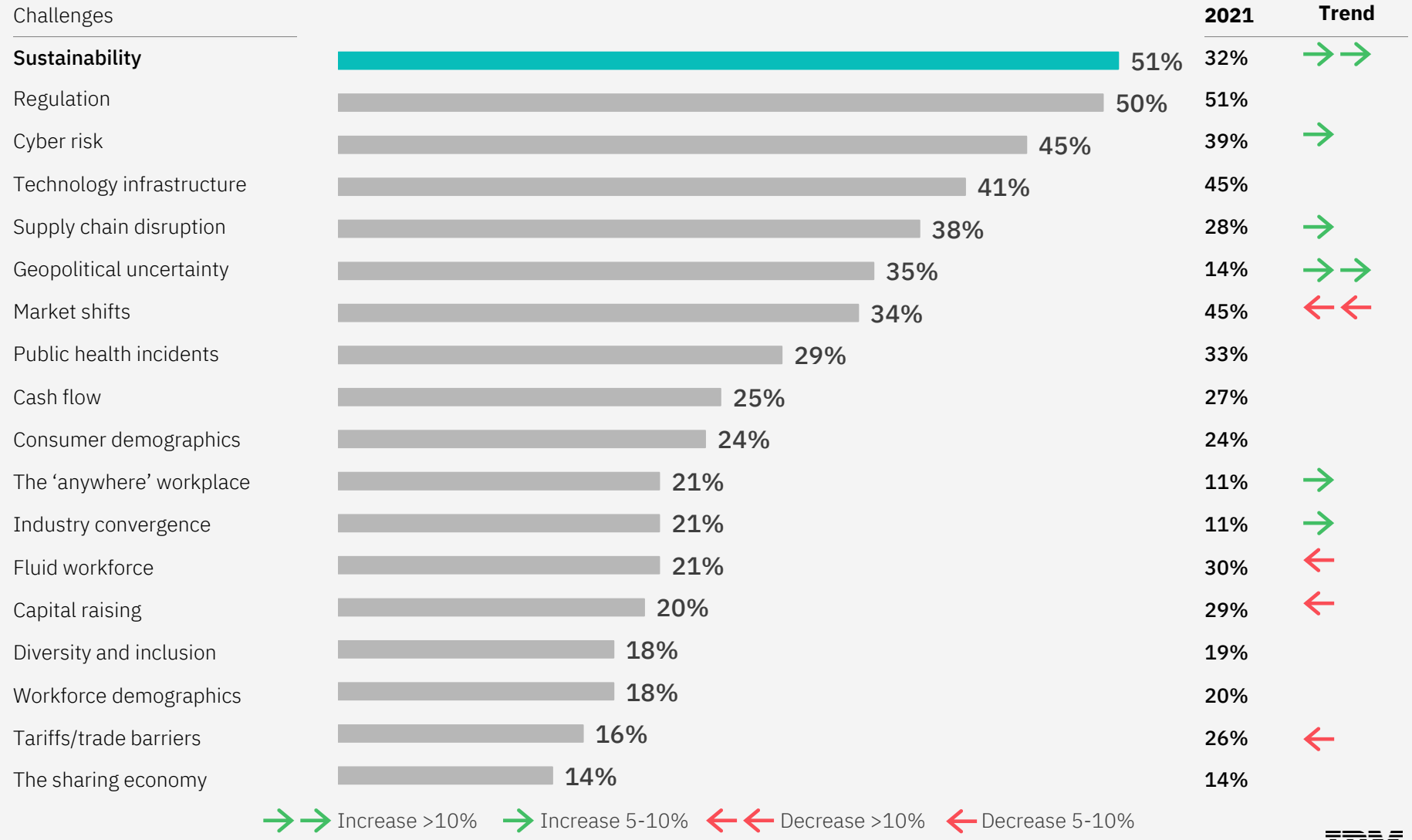
3,000
Chief Executive Officers

28
industries

40+
countries

CEOs most frequently identify sustainability as their greatest challenge

Expected greatest challenges for your organization over the next 2–3 years



Q2. What do you expect will be the greatest challenges for your organization over the next 2–3 years?

Over 80%

of CEOs expect sustainability investments to produce improved business results in the next 5 years

When will investments in sustainability produce improved business results

They already do	Within 1 year	Within 3 years	Within 5 years	More than 5 years from now
9%	10%	32%	32%	17%

Q9. When do you expect your investments in sustainability to produce improved business results?

Make sustainability matter

The **World Economic Forum** reported that **the top five business risks are related to the environment**. In addition:

- 62% of CXOs say sustainability is essential to remain competitive.
- 54% of consumers are willing to pay a premium for brands that are sustainable.
- 68% of employees prefer companies that have sustainable business practices.
- 59% of investors will choose companies that are environmentally sustainable.

Innovative design is key to sustainability

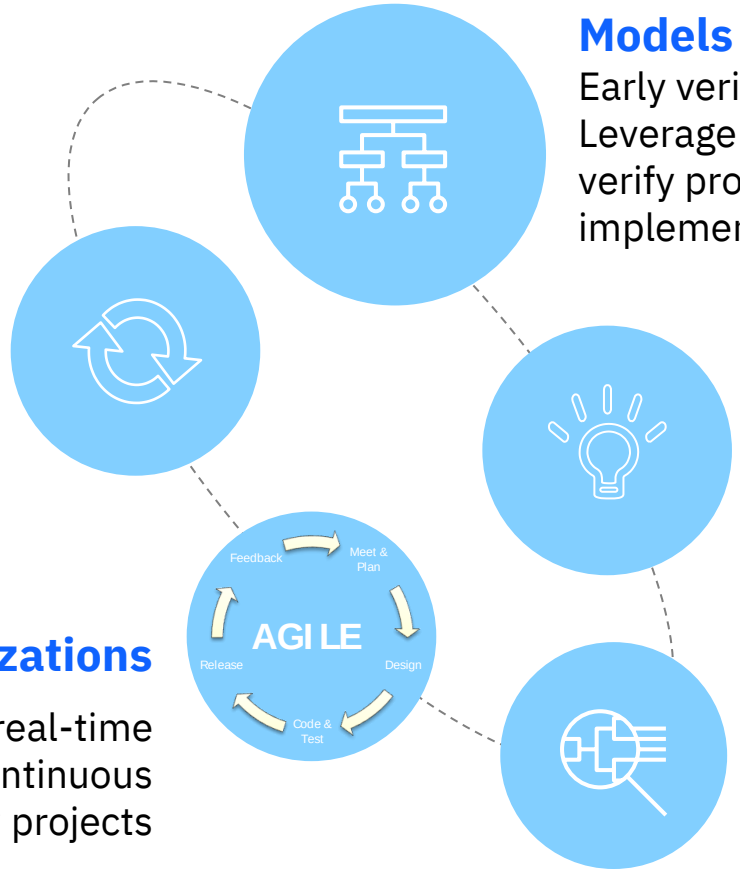
80%

“Up to four-fifths of a product’s lifetime emissions are determined by decisions made at the design stage.”

McKinsey, 2022

“Product sustainability: Back to the drawing board”

These five strategic themes are underpinning the engineering transformation



Models for functional & domain engineering

Early verification with model-based design: Leverage design model to virtually optimize and verify product architecture before committing to implementation

Strategic reuse

Support configurations of engineering data for strategic reuse across projects and products for efficient parallel development and variant management

Digital threads for quality & efficiency

Enable cross-discipline digital threads to streamline impact of change analysis, standards compliance, and visibility

Scaled agile across organizations

Enable effective agile engineering with real-time feedback, team collaboration, and continuous delivery for multi-disciplinary projects

Streamlined compliance

Create your work products with a system that foresees design control for every aspect and integrates compliance into the development process

IBM Sustainability

Turn sustainability ambition into action with IBM and an ecosystem of partners

Sustainability Services

Aligned Business Strategy

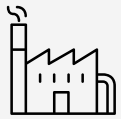
Garage for Sustainability Materiality, Data and Technology

Sustainability by design

Engineering Lifecycle Management

ESG Data, Reporting, and Climate Risk Management

Envizi
Environmental Intelligence Suite



Intelligent Facilities and Assets

Maximo
TRIRIGA

Resilient IT Infrastructure

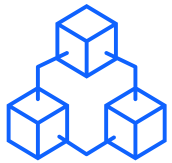
Turbonomic
z16
LinuxONE

Circular Supply Chains

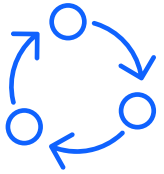
Sterling Order Management
Supply Chain Intelligence Suite

IBM Engineering Lifecycle Management (ELM)

Foundational Requirements & System Design



Compliance & traceability



Seamless Product Development lifecyle

Model Based validation & optimization

Product Design & Development

System & software engineering tools to transform engineering processes to create sustainable products, working across your supply chain.

Engineering Lifecycle Management enables various industry manufacturers and suppliers to define, implement, optimize, and validate products and systems that achieve breakthrough sustainability objectives.

A Concrete Example: EU Taxonomy

*"The EU Taxonomy is a **green classification system** that translates the EU's climate and environmental objectives into criteria for specific economic activities for investment purposes"*

*"It is a **transparency tool** that will introduce mandatory disclosure obligations on some companies and investors, **requiring them to disclose their share of Taxonomy-aligned activities."***

*"In addition, it can **guide market participants** in their investment decisions."*

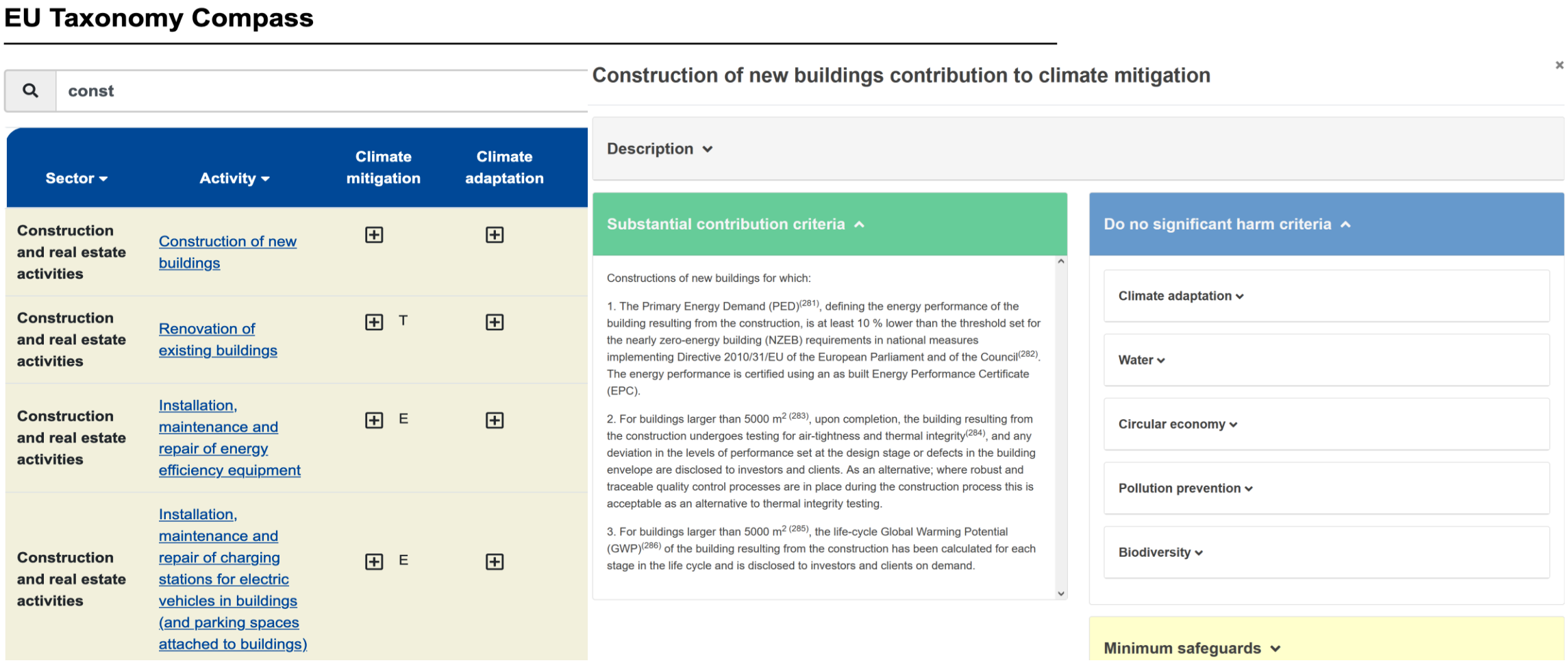
*"(...) it is expected that over time, the EU Taxonomy will be **an enabler of change** and encourage a **transition towards sustainability."***

Regulations are prepared to avoid "green washing"!

More info on EU Taxonomy

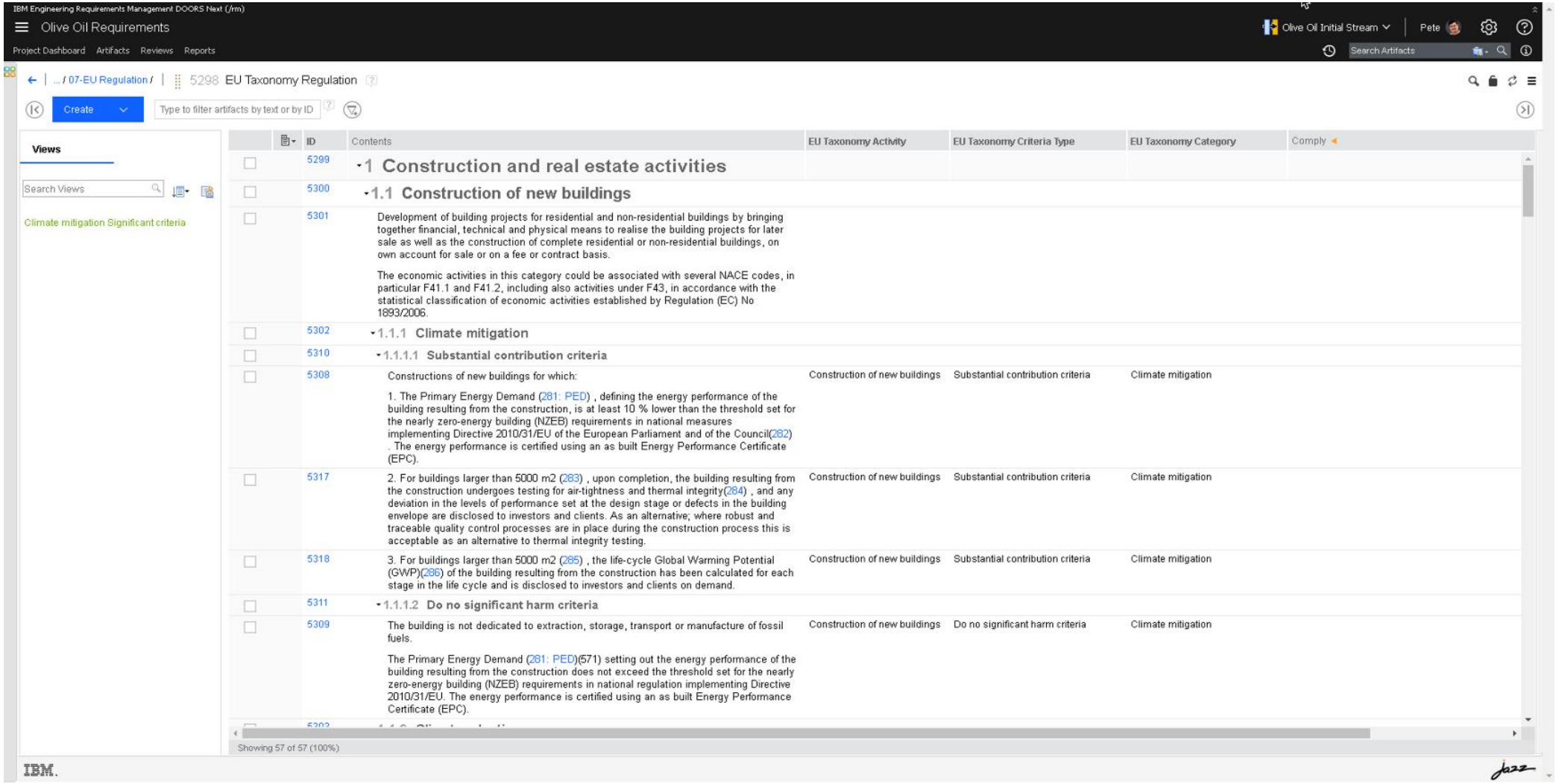
EU Taxonomy Compass

Nice presentation but not easy to work in



EU Taxonomy imported into ELM

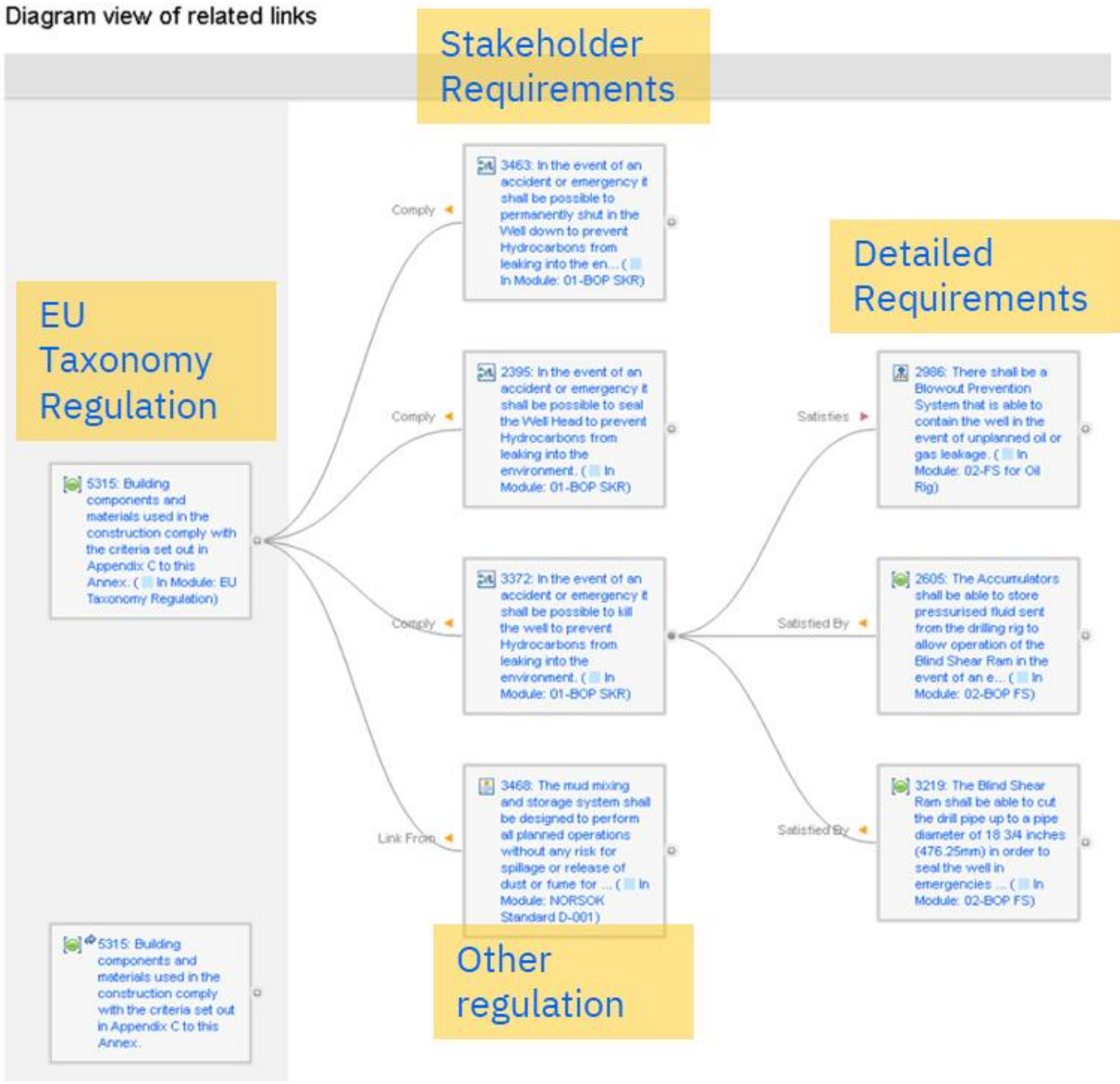
Structured document view with links and metadata



EU Taxonomy Regulations with ELM

Graphical view of linked data to do impact assessments and get an overview of compliance links

ELM is a powerful evidence system!



Honeywell MicroVCS Program using IBM ELM + pure::variants

Nominated for an Aviation Week 2022 Program Excellence Award

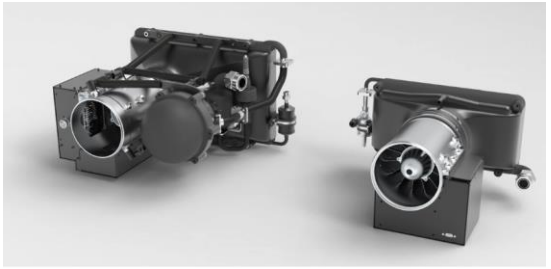
Program Excellence Award submission by Christine Shea et al. Christine is Sr Systems Engineering Technical Manager in Environmental Control Systems, Honeywell

Honeywell's Micro Vapor Cycle System is the ideal cooling solution for urban air mobility aircraft and military & civil helicopters where reduced size and weight are priorities.

- 35 percent lighter and 20 percent more efficient than conventional vapor cycle systems with comparable cooling capacity
- highly reliable and virtually maintenance free
- lower Global Warming Potential (GWP)

The MicroVCS program team

- reduced product development cycle time from 48-months to 24-months while simultaneously
- reducing R&D investment by 30 percent



Micro VCS Condenser and Evaporator Fan Assembly

Turn sustainability ambition into action