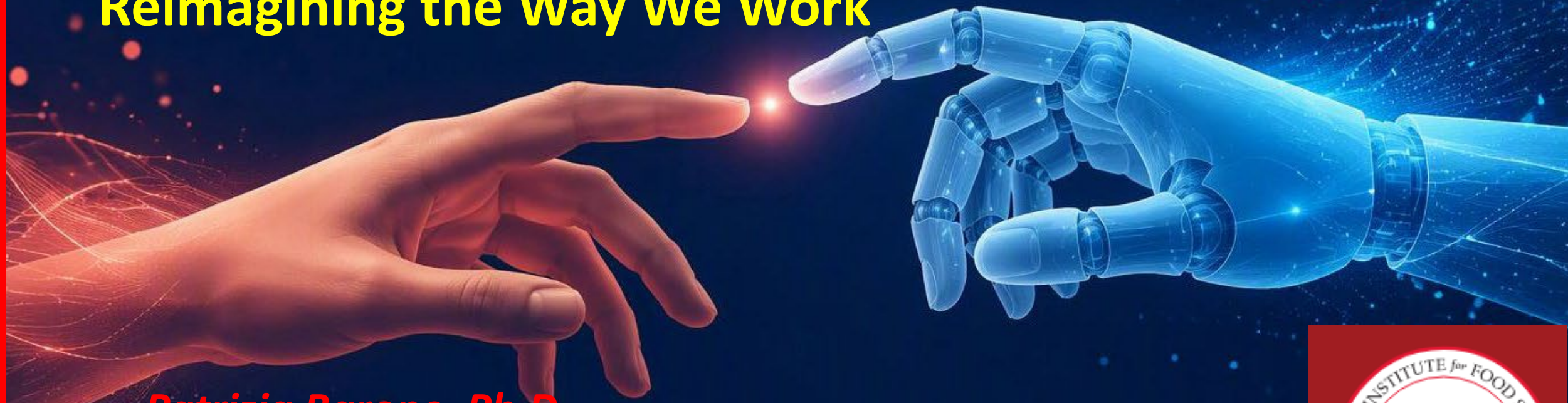
The Human Advantage in the Age of A/SI

Reimagining the Way We Work



Patrizia Barone, Ph.D.

Unilever - Head of Regulatory Science – North America

patrizia.barone@unilever.com

21-October-2026

A/SI = Artificial/Super Intelligence

Unilever

Joint Institute for Food Safety and Applied Nutrition — University of Maryland — U.S. Food & Drug Administration

My journey – learning and adapting to new technology over time to stay relevant





First experience with computers at University of Maryland





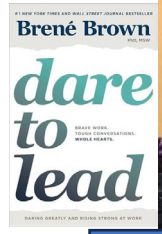


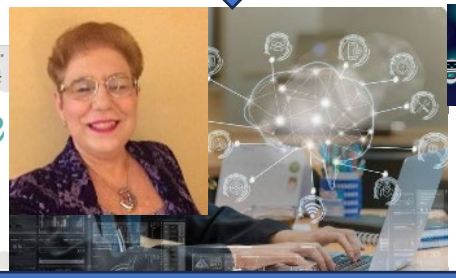


My PhD thesis written in one of the first portable computer













Now, augmented with A/SI

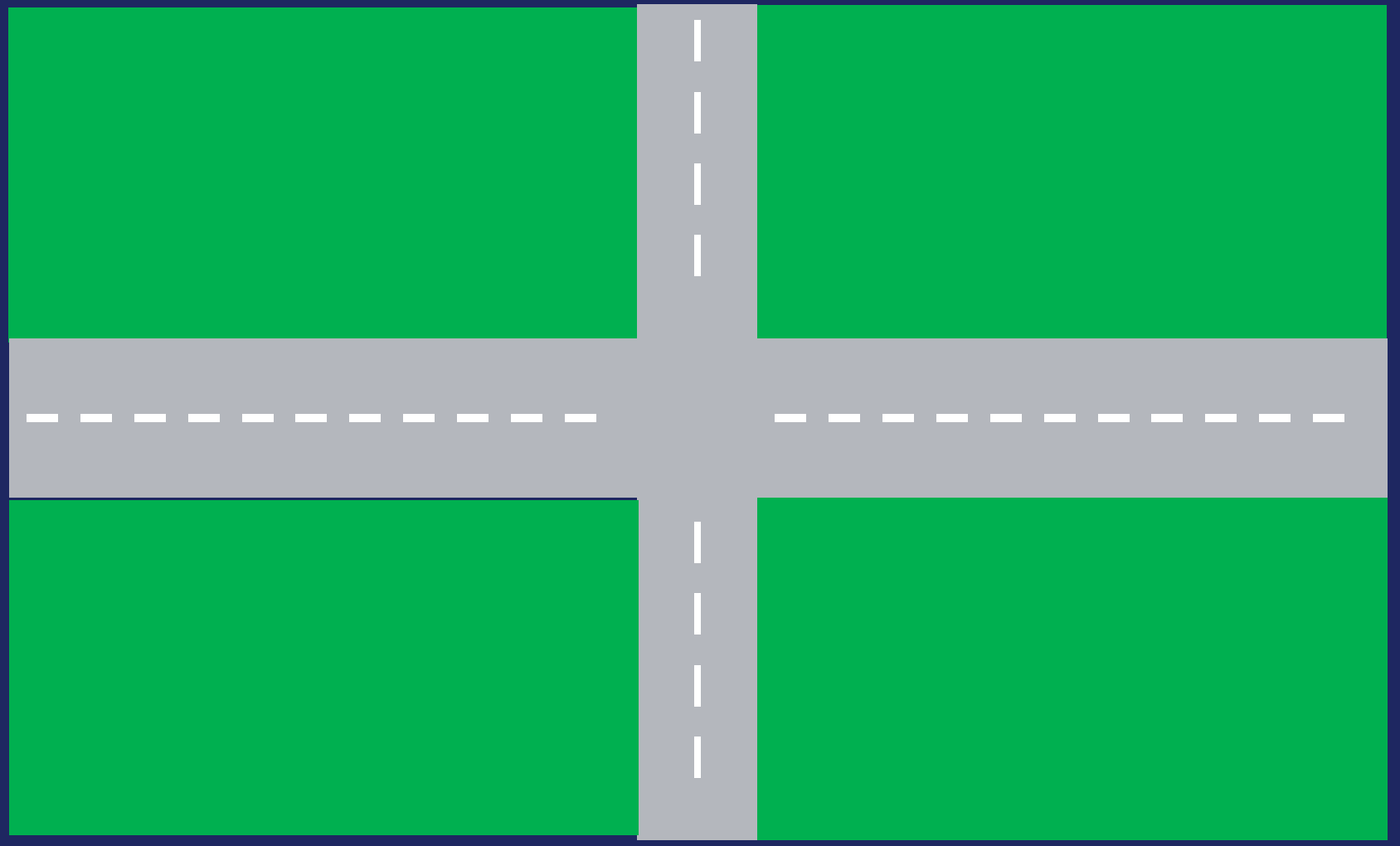


Today's Reality

- **Fast-moving, uncertain, and constantly changing environment.**
- **Organizations realize they need to deal with:**
  - Collecting and processing large amounts of data and turning them into insights and actions fast.
- **Artificial/Super Intelligence:**
  - Is not just automation; it is reshaping ways of working, how organizations make decisions, and compete.
- **Organizations need to be agile, creative and fast learners.**
  - Need to reimagine the way we work!
  - Key question: How do we organize ourselves to succeed in this environment?

We are at a crossroad – what path will we take?

Four possible relationships between humans and A/SI



Source: How to Think About AI – A Guide for the Perplexed by Richard Susskind

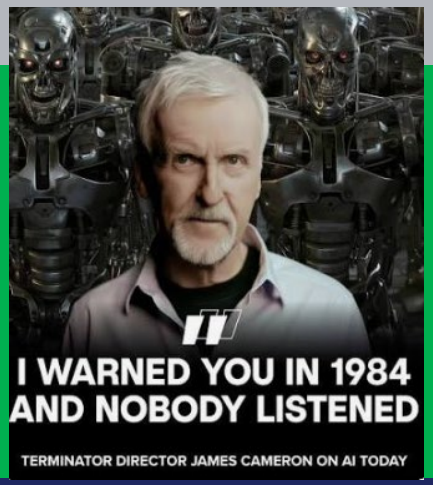
The “Terminator” Option

Four possible relationships between humans and A/SI

1. Takeover

Machines largely displace us — human contribution becomes residual.







Source: How to Think About AI – A Guide for the Perplexed by Richard Susskind

Recent Headlines




16 Sun Monday, April 2

A.I. 'a risk to our IQ'

HUMAN intelligence has decreased since the internet began – and IQs will drop further thanks to AI, an expert claims.

Studies show brain power scores have dropped for the past 30 years, since the dawn of the World Wide Web.

And human development psychologist Robert Sternberg, of Cornell






AI pioneers fear extinction

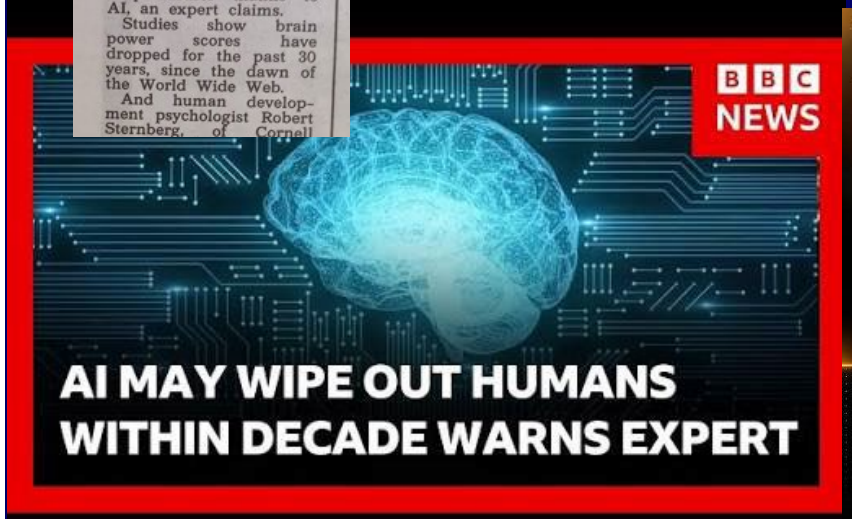
Our creations are as great a threat to humanity as nuclear war or pandemics, say hundreds of experts in call to regulate tech

SEE PAGES 18-19

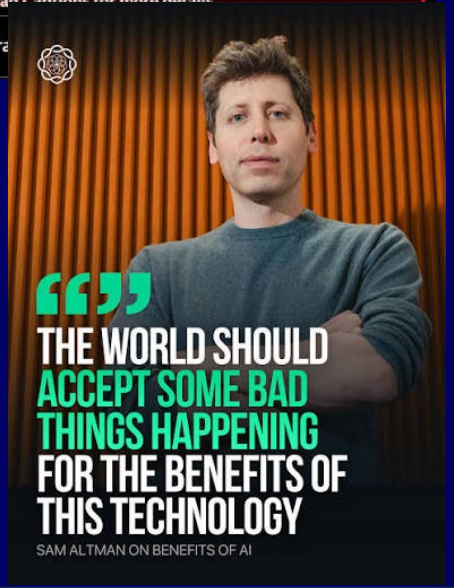
A.I. 'COULD WIPE OUT HUMANITY'

Threat 'as bad as nuclear war' MUST be tackled, say tech bosses

AI creators fear the extinction of humanity







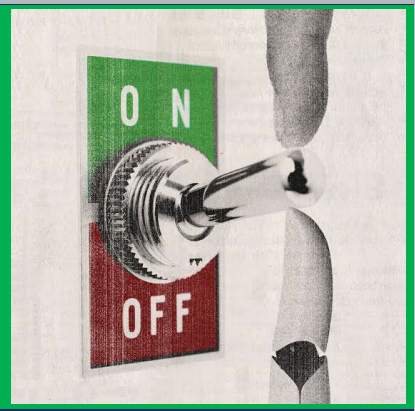
The “Pull the Plug” Option

Four possible relationships between humans and A/SI









4. Shut it down

Prohibition of the technology — easy to state, near impossible to enforce.

Source: How to Think About AI – A Guide for the Perplexed by Richard Susskind

The “Cyborg” Option

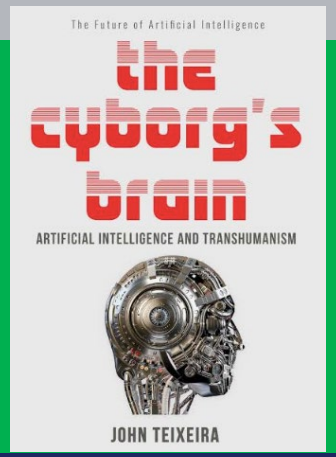
Four possible relationships between humans and A/SI



2. Merger

Humans unite with digital systems — one hybrid intelligence.





Source: How to Think About AI – A Guide for the Perplexed by Richard Susskind

The “Collaboration” Option

Four possible relationships between humans and A/SI





3. Joint Venture

Humans and AI work side by side on objectives human set and stay separate.



Source: How to Think About AI – A Guide for the Perplexed by Richard Susskind

What do you think?

Option 1 …. Option 2 …. Option 3 …. Option 4 …. All of the these …. Some of these?

1. Takeover



Machines largely displace us — human contribution becomes residual.

2. Merger



Biological humans unite with digital systems — one hybrid intelligence.

3. Joint Venture

Humans and AI work side by side on objectives human set and stay separate.



4. Shut it down

Prohibition of the technology — easy to state, near impossible to enforce.



Source: How to Think About AI – A Guide for the Perplexed by Richard Susskind

A/SI Productivity Gains Outpace Organizational Change

Key data reported by McKinsey, October 2026

80%

Say AI improved their individual productivity

37%

Report a positive impact on earnings before interest and tax

6%

Qualify as AI high performers

Workflow redesign

Nearly 75% of AI high performers substantially redesign workflows, compared with about 25% of other organizations.

Readiness gap

70% say they are personally ready for AI, but only 27% of leaders say their organizations are ready for an agentic future.

Organizational reinvention

Only 11% of organizations have reached the stage of rethinking how work gets done and how value is created.

Source: McKinsey, “AI is changing work. Now it has to change the organization,” October 2026, pp. 2, 7.



Four Shifts for an AI-enabled Organization

McKinsey's recommendations for turning AI use into organizational value

Operating model	Organize people and AI agents around **outcomes.** Reduce handoffs and make human judgment and accountability explicit.
Talent and expertise	**Redesign roles and career paths** as AI changes tasks. Preserve deliberate practice so people continue to build expertise.
Sustained change	**Embed new behaviors** in daily work and incentives. Build trust through clear workforce decisions and opportunities to adapt.
Leadership and delivery	Give a senior leader authority to move resources. Bring business, technology and control functions together from the start.

Source: McKinsey, "AI is changing work. Now it has to change the organization," October 2026, pp. 2–10.

A/SI Scale, speed, synthesis

HI Judgement, intent, accountability



HI × A/SI — Humans augmented by A/SI

The New Work Equation

Stop optimizing tasks. Start designing outcomes.



HUMAN

The human still owns intent, truth, commitments, and judgment.

A/SI TOOLS



HUMAN

KEEP HUMAN

- Judgment
- Relationships
- Sensitive decisions
- Creative direction
- Leadership
- Final approval

- "**Addition thinking**" asks: **what can AI take off my plate?**
- "**Multiplication thinking**" asks: **what could we now attempt that was previously impossible?**
- Humans stay accountable for the decision, **ALWAYS.**
- **Delegate the work, never the responsibility.**

Work Redesign with A/SI

Rethink how work gets done, with people and AI each doing what they do best.

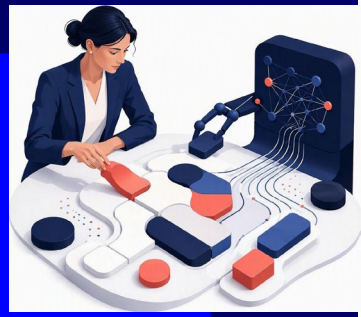
Bolt-on AI

- Faster tasks, unchanged bottlenecks
- Success measured as time saved
- Pilots without a route to scale
- Tools introduced without skills



Adding AI to a broken process, just gives a faster broken process

Redesigned work



- Work shared by human and AI strengths
- Success measured as better outcomes
- Clear handoffs and accountable decisions
- Skills developed as roles evolve

Different Kinds of Smart

Two distinct intelligences with different positives and failure modes

Artificial/Super Intelligence

- Search, summarize, synthesize large volumes of information, and generate alternatives
- Pattern-finding across vast, messy data
- Consistency — no fatigue
- Monitor workflows, detect patterns and trigger actions
- **Can struggle with unfamiliar situations**
- **No stake in the outcome, no accountability**

Human Intelligence

- Intent – what are we actually trying to achieve
- Context – framing the right question in the first place
- Judgement – what is right, not merely what is possible
- Courage – what decisions should be made when the answer is uncertain
- Trust - cares about the outcome — and takes responsibility
- **Slow, biased, inconsistent under pressure**

The Human Side of A/SI Adoption

Workforce outcomes depend on how organizations introduce A/SI

A/SI changes the experience of work as well as how tasks get done.

POTENTIAL BENEFITS

Stronger capability

AI can support productivity, learning and innovation when it augments human expertise.

PRESSURES TO MANAGE

Uncertainty about professional value

Poorly managed adoption can weaken autonomy, increase stress and widen inequalities.

Access to tools alone is insufficient. Confidence and social support shape adaptation.

Atte Oksanen & Lina Savolainen (2026), AI Disruption at Work: Employee Identity, Emotion, and Adaptation.

A/SI Adoption is a Workforce Change Agenda

People need confidence, AI can challenge how people understand their value at work.

Worth	Competence	Authenticity
Concern that AI makes one's contribution less valuable or respected.	Concern that A/SI calls one's expertise or ability into question.	Concern that A/SI changes what feels distinctive or true to oneself.

Confidence and professional identify matter

In the Finnish WorkAI study, daily AI use was unrelated to identity threat.
Supervisors reported higher. Support should include leaders.

Atte Oksanen & Lina Savolainen (2026), AI Disruption at Work: Employee Identity, Emotion, and Adaptation.

Reimagine

Individual



Team



Leadership



Reimagine Individual, Team and Leadership

The shifts at three levels — expertise, workflow and intent

Individual: Be the expert

Frames problems, evaluates outputs and orchestrates workflows. Becomes an AI-augmented expert, not an operator.

Individual: Your toolkit

Tools, prompts, agents, standards and learning loops. Shift time toward insights and influence.



Reimagine Individual, Team and Leadership

The shifts at three levels — expertise, workflow and intent

Team: Design outcomes

Builds workflows around outcomes, not functional boundaries, with human handoffs made explicit.

Team: Set standards

Shared rules for quality, data, ethics and escalation. Measures impact, not AI usage.



Reimagine Individual, Team and Leadership

The shifts at three levels — expertise, workflow and intent

Leadership: Set intent

Sets the intent and the quality bar — and redesigns the work before adding the technology.

Leadership: Hold the line

Permission to experiment, discipline to learn, and named accountability for big calls.



A/SI-Augmented Workforce

A future-fit organisation should treat AI as a **digital teammate,** not a productivity tool.

AI AGENT	HUMAN PARTNER
Regulatory Intelligence Agent	Regulatory Affairs
Toxicology Research Agent	Toxicologist
Ingredient Risk Agent	Safety Scientist
Label Compliance Agent	Regulatory Affairs
Global Legislation Agent	Environmental Scientist, Regulatory Affairs
Clinical Evidence Agent	Medical Safety
Packaging Compliance Agent	Packaging Scientist
Competitive Intelligence Agent	Strategy Team
Scientific Writing Agent	Regulatory Science
Meeting Preparation Agent	Every employee
…. Others?	

Examples of Skills Needed ~~by 2030~~ NOW

TODAY	2030
Regulatory expert	Regulatory strategist
Toxicologist	AI-enabled systems toxicologist
Environmental scientist	Sustainability intelligence leader
Regulatory manager	Digital regulatory architect
Safety scientist	Predictive safety scientist
Project manager	AI-enabled portfolio orchestrator

New competencies should include:

- A/SI literacy and prompt engineering
- Data interpretation and analytics
- Systems thinking
- Scientific storytelling and influence
- Scenario planning
- Human-AI collaboration
- Cross-disciplinary leadership

Build Better People

The skills machines cannot copy — and we need more of

Creativity

Generating options and framing problems no dataset contains

Adaptive Learning

Learning how to learn — the half-life of any specific skill is shrinking

Empathy

Reading people, building trust, leading through change

Judgement

Choosing well when the evidence is incomplete and contested

Ownership

Choosing to act on the analysis — and standing behind the outcome

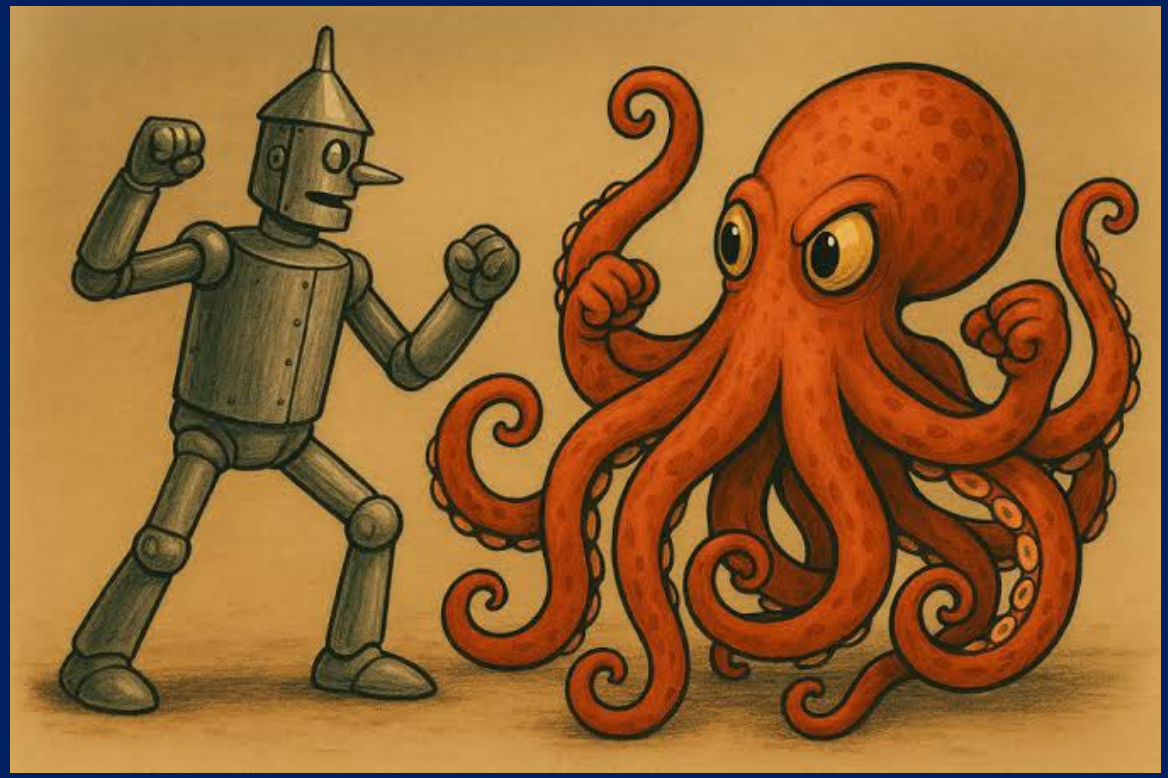
Curiosity

Asking the better question, not just accepting the first answer

These are not 'soft skills'. They are the hard ones — and the only ones with rising economic value.

Source: Robot-Proof — When Machines Have All the Answers, Build Better People by Vivienne Ming

A/SI-Enabled Transformation is a Business Model Change Agenda, too



Tin Man Business Model

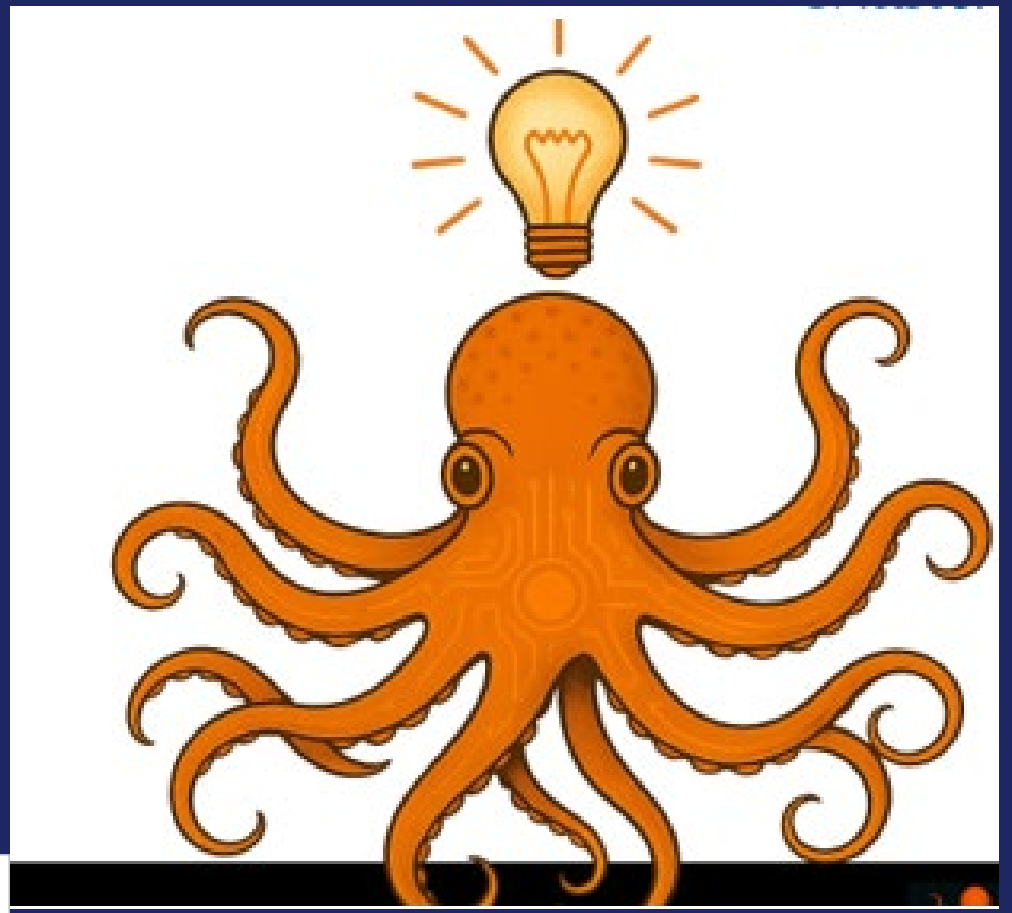
- Built for stable, predictable environments
- Works well when things change slowly
- Relies on control, structured, and top-down decisions

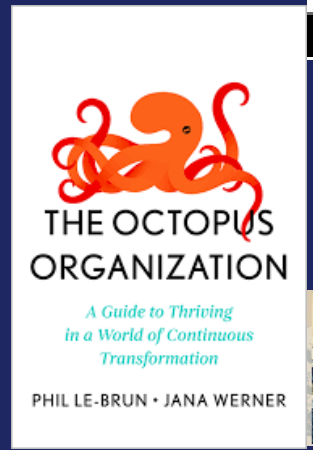
Dimension	Tin Man
Decision-making	Top-down
Speed	Sequential
Risk Mindset	Avoid mistakes
Innovation	Centralized
Structure	Rigid
Talent	Task executors



Centralised organisations are often too slow for A/SI-driven markets that demand speed, agility, and continuous learning

The Octopus has found the solution for a better business model





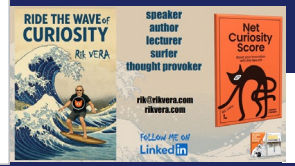
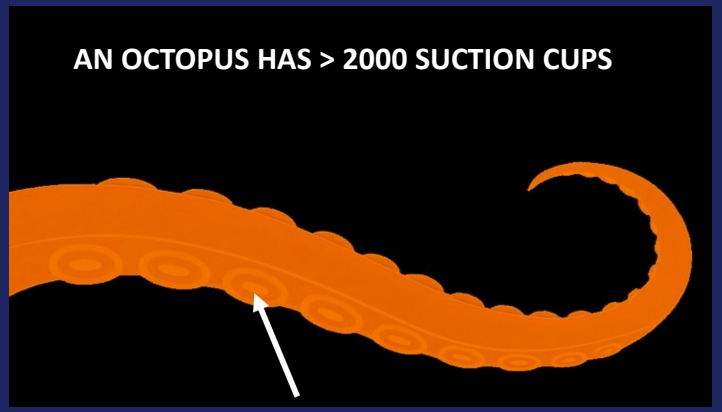


Illustration from Rik Vera

About the Octopus









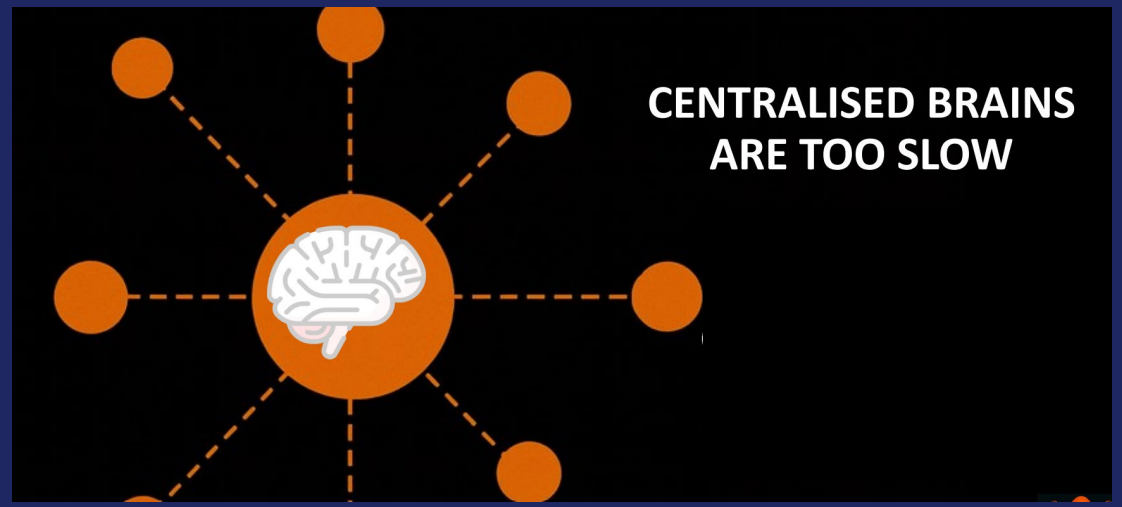
The Octopus has 9 brains –
a central brain
and one brain in each of its
tentacles

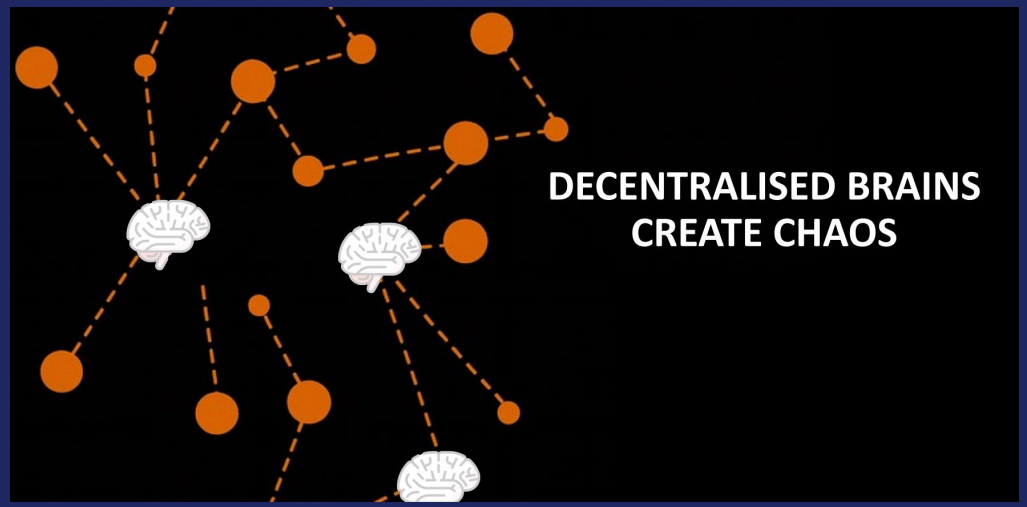
Octopus intelligence is distributed throughout its body rather than concentrated solely in a central brain.

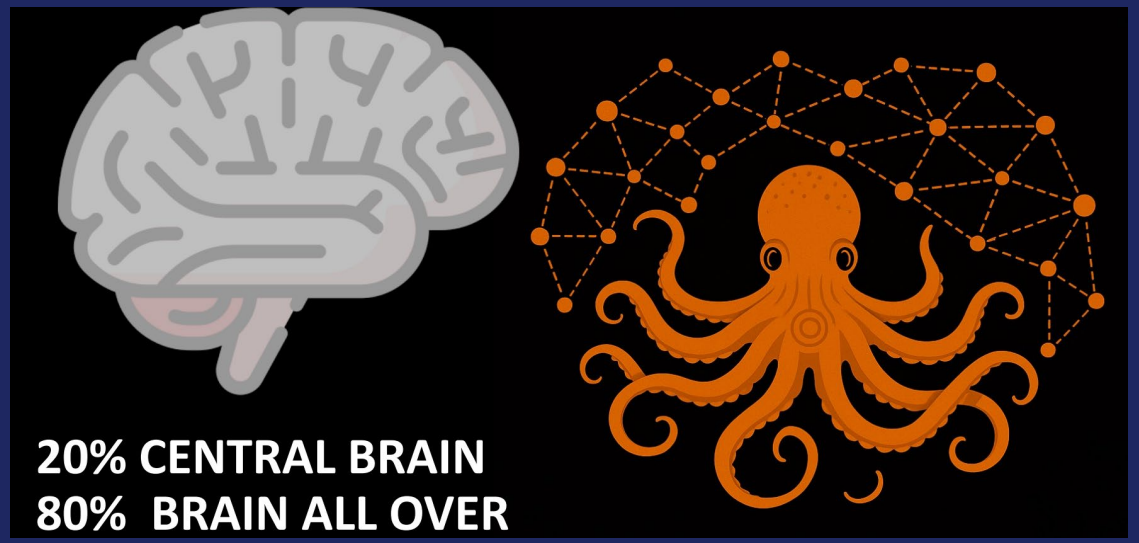


Illustrations from Rik Vera

Different Business Models







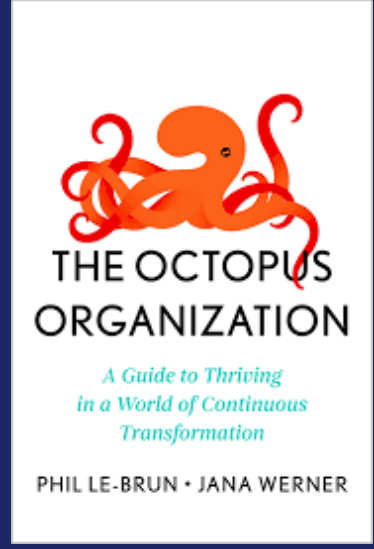
Distributed intelligence, decentralised decision-making, adaptability, and rapid response to change



Illustrations from Rik Vera

Octopus Business Model

- Designed for complex, unpredictable environments
- Distributes decision-making to people closest to the work
- Learns quickly, adapts fast, and stays resilient



Dimension	Octopus
Decision-making	Made by those closest to the work
Speed	Parallel
Risk Mindset	Learn fast from small tests
Innovation	Everywhere
Structure	Adaptive
Talent	Value creators
Growth Engine	Impact & opportunity

Efficiency protects today --- Adaptability creates tomorrow.

Becoming an Octopus



Keep	Add	The Shift
• Clear strategy	• Empowered teams	Control → Trust
• Strong governance	• Faster decision rights	Hierarchy → Networks
• Operational discipline	• Real-time feedback	Permission → Ownership
	• Ai-enabled insights	Process-first → Impact-first
	• Cross-functional accountability	

It is not about abandoning structure. It is about upgrading "our operating system". We retain alignment and discipline while unlocking speed and intelligence at the edges

It is a mindset shift to unleash our most scalable advantage – our human energy!

Source: Harvard Business School - Become an Octopus Organization

Food Safety Humans – augmented with AI

Food Safety Growing Demands

Talent and turnover

Experienced food safety judgement is scarce, and institutional knowledge walks out of the door.

Supplier complexity

More suppliers, more countries, more documents to verify than any team can read line by line.

FSMA 204 traceability

Food Traceability Rule record-keeping obligations for listed foods — key data elements captured at every critical tracking event.

Recall exposure

Undeclared allergens and pathogen contamination remain leading recall causes — and speed of response defines the damage.

Workload is outpacing team capacity. This is an augmentation problem.

Food Safety - Where AI Earns Its Keep

High-volume, pattern-heavy work that no team can fully cover manually

Supplier document review

Screen CoAs, audit reports and specs for gaps before approval.

Label and claims checks

Compare artwork with approved specifications and allergen statements before going to print.

Environmental monitoring

Surface trends and clustering across zones and shifts.

Complaint triage

Cluster consumer complaints by symptom, lot and site to flag emerging signals.

Batch record review

Flag anomalies and deviations for expert review.

Regulatory horizon scan

Track relevant regulations, guidances and emerging requirements

AI supports screening and detection. People DECIDE.

Human Responsibility in Food Safety

Qualified people own safety decisions and the reasoning behind them

Hazard analysis

Identifying hazards requiring preventive controls is a judgement call about your process and your consumers.

PCQI sign-off

A Preventive Controls Qualified Individual (PCQI) signs the food safety plan, validations and reanalysis. A model cannot hold that role.

Release and recall

Hold, release, market withdrawal or recall — human decision, human name, human consequence.

Regulatory statements

What you tell FDA, a customer or a certification body must be verified by someone who can defend it.

Delegate the work. NEVER delegate the responsibility.

A/SI Risks and the Human Response

Verification, expertise, and active oversight protect decision quality

Confident errors

Check original evidence and regulatory text. Document the reasoning.

Silent drift

Monitor changes in the process and data. Investigate week signals.

Skill atrophy

Keep experts engage in review. Practice judgement and ongoing learning

Data blind spots

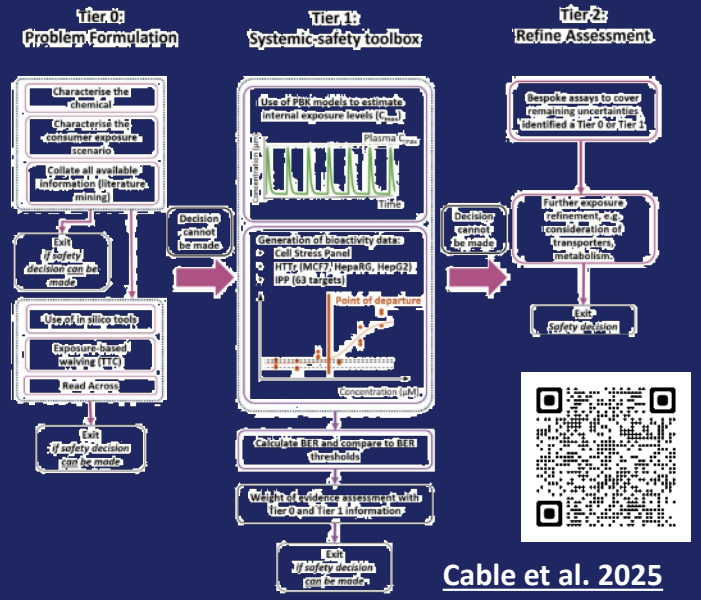
Ask what the model never saw. Bring factory knowledge into the decision

Speak up when the evidence and the system disagree

Next Generation Risk Assessment
Where AI can Add Value

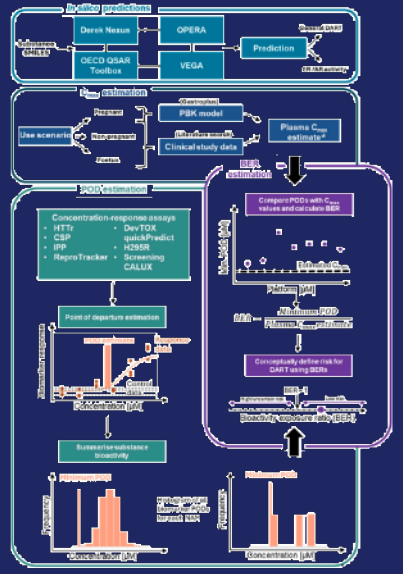
Unilever Next Generation Risk Assessment (NGRA) Frameworks

Systemic



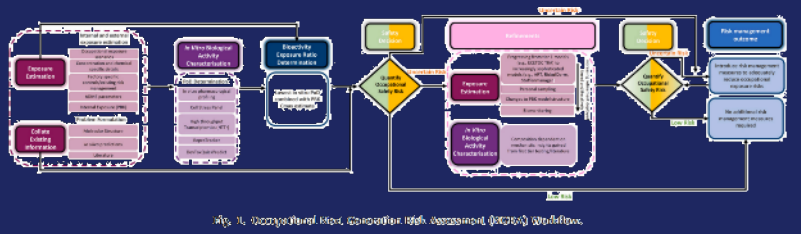
Cable et al. 2025

Developmental & Reproductive



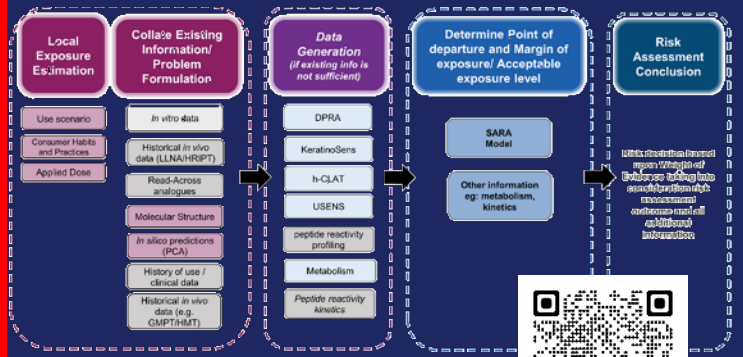
Muller et al. 2025

Occupational Safety



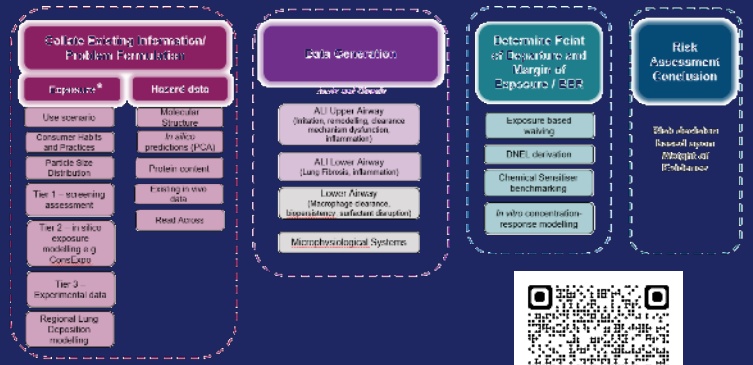
Wood et al 2024

Skin Sensitisation



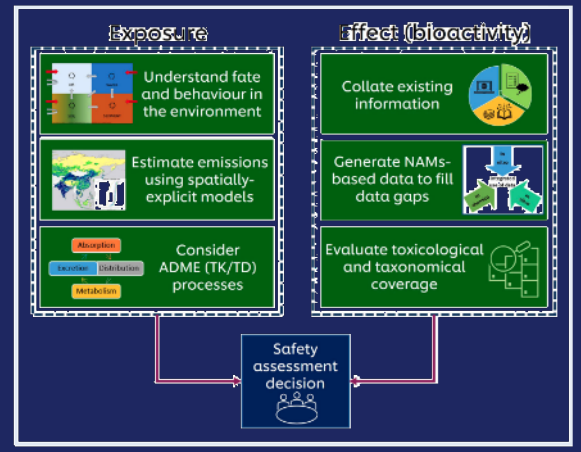
Reynolds et al. 2021

Inhalation



de Ávila et al. 2025

Environmental Safety



.Rivetti et al. 2025

Unilever SERS Safety, Environmental & Regulatory Science

Moving towards AI-augmented Safety Frameworks

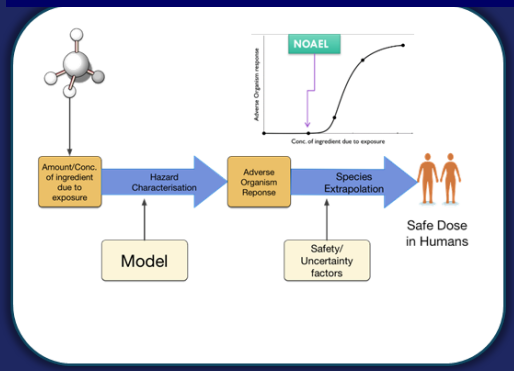
Traditional Toxicology = Empirical science focused on observations from animal studies

Increased focus on the use of exposure science and understanding of human biology (NAMs, PBK, DAs, IATAs, protection of human health, AOPs…)

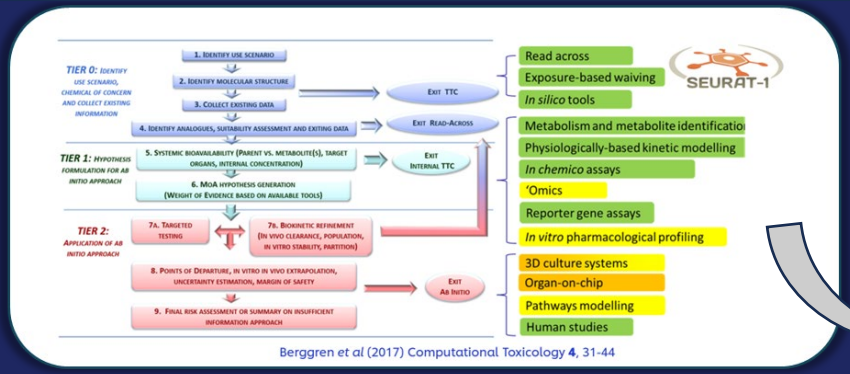
Augmentation of Next Generation Risk Assessment using AI-based technologies and approaches

Time

Traditional Risk Assessment

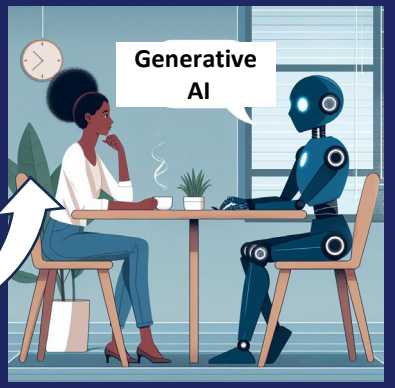


Next Generation Risk Assessment (NGRA)



Berggren *et al* (2017) Computational Toxicology **4**, 31-44

AI-augmented NGRA



Unilever | SERS Safety, Environmental & Regulatory Science

Where can AI add value to NGRA?

Standardisation and automation

- Automation of **existing processes and workflows**
- Focus: saving time performing routine tasks associated with a risk assessment.
- Example: agentic aids for e.g., REACH submission in Europe.



Knowledge and insights

- Extracting **new insights** from multiple data sources
- Focus: supporting risk assessors to **generate structured hypothesis** or **mechanistic interpretations** of the available data.



Predictive Modelling

- **Generating predictions** based on available information.
- Focus: Modelling and simulation of **hazard** and **exposure** data.
- Examples: **quantifying risk,** estimating uncertainty, generating **synthetic data** (*filling data gaps*).



Unilever | SERS Safety, Environmental & Regulatory Science

AI-augmented NGRA Opportunities for Collaboration between Regulators, Industry & Academia



Increased access to toxicological data that are FAIR

- Clear strategy on **shared infrastructure**
- Harmonize **data standards**
- Coordinate efforts in high-quality **NAM data generation** for large numbers of chemicals



Collaborative validation, shared understanding and joint-confidence building

- Adopt next generation validation frameworks that go beyond performance metrics & include important governance principles
- Bridge the research-to-regulatory-use gaps for AI-augmented workflows
- Utilise safe spaces/trusted environments where industry can test AI tools against clearly defined regulatory expectations



Facilitate training and capacity building on AI literacy for safety scientist, data scientists and regulators

Unilever | SERS Safety, Environmental & Regulatory Science

Building Confidence in AI-augmented NGRA Workflows



Proportionate Governance

Adoption of AI requires proportional validation and governance based on clearly defined use case and potential scientific and regulatory impact.



Transparency and Traceability

AI-supported outputs should remain traceable to underlying evidence.



Reproducibility and Change control

AI outputs should remain governable over time and variability should be monitored and controlled.



Human Accountability

AI should assist decisions with human oversight, clear responsibilities, and communication of uncertainty.



Data Governance and IP

AI use must comply with expectations relating to confidential information, data governance, secure handling of data, IP, licensing and liability.

Unilever | SERS Safety, Environmental & Regulatory Science

The Human Advantage



- A/SI is powerful, but it is still a tool.
- Human judgement sets direction and owns decisions
- Redesigned work combines human expertise with A/SI.
- People need investment to thrive.

Gary Burnison, CEO Forn Ferry reminds leaders:
It is people, not technology, that will determine how an organization performs



Patrizia Barone, Ph.D.
patrizia.barone@unilever.com