Leveraging technology for supply chain and procurement insights

March 2026

Meeting Agenda

1. Why technology driven supply chains are becoming critical
2. Technology trends in the supply chain
3. How trends should shape digital strategy
4. The future; Technology, Risk, and Resilience (CBS)
5. Using digital tools to strengthen performance (Norlys)
6. Q&A

Your speakers today

Christian Nilsson
- Management consultant specialising in procurement and supply chain transformation
- 15 years of experience from Schlumberger, Rolls-Royce, Deloitte, and Strategy&/PwC

Andreas Wieland
- Associate Professor of Supply Chain Management at Copenhagen Business School
- supply chain resilience, global supply chains & geopolitics, and Scope 3 emissions / decarbonisation pathways
- Co-Editor-in-Chief of the Journal of Supply Chain Management (2022–2027)

Karen Frost Sørensen
- Director of Procurement at Norlys
- 20+ years of procurement industry experience from Lego, Energinet, and Norlys

1

Why technology driven supply chains are becoming critical

Volatility in supply chains over the last decade is not an isolated incident but a series of sometimes interconnected events affecting global supply stability and predictability

Cyberattacks (e.g. , Maersk 2017 , Colonial Pipeline 2021)
Ransomware and IT breaches caused major operational shutdowns and logistics delays.

Semiconductor Shortage (2020-2023)
Triggered by pandemic shutdowns and surging demand, this bottleneck hit automotive, electronics, and defence sectors hard.

Suez Canal Blockage (2021)
The Ever Given container ship blocked the canal for six days, halting around 12% of global trade.

Global Inventory Misalignment (2022-2023)
Over-ordering during the pandemic led to massive inventory gluts and warehousing issues.

Russia Ukraine War (2022-ongoing)
Severely impacted energy, grain, and raw material supply chains across Europe and beyond.

US-China Trade Tensions (2018-2020)
Tariffs and export restrictions disrupted electronics, agriculture, and manufacturing supply chains.

COVID-19 Pandemic (2020-2022)
Global lockdowns, port closures, labour shortages, and demand shocks disrupted nearly every industry.

Natural Disasters (e.g. European Floods 2021, Hurricane Ida 2021)
Regional disruptions to automotive, energy, and food supply chains.

China's Zero-COVID Lockdowns (2022)
Factory and port closures in key manufacturing hubs like Shanghai and Shenzhen caused ripple effects worldwide.

Red Sea Shipping Attacks (2023-2024)
Missile strikes and piracy disrupted major shipping routes, increasing insurance costs and delays.

Tech-driven supply chains are becoming even more vital as they enable fast, resilient, and data-driven responses to disruption and complexity

91%

of leaders are rethinking their end-to-end supply strategies because of US trade policy changes

90%

of respondents expect that supplier and material costs will increase significantly in coming years

87%

say geopolitical risks are driving them to more flexible operations

Technology gives companies the agility they need to react quickly when demand shifts, costs spike, or risks emerge

*PwC's 2025 Digital Trends in Operations Survey

2

Technology trends in the supply chain

Within the Supply Chain area, we see several technological trends, that leading companies venture into

Agentic AI
AI agents can be coordinated across demand forecasting, procurement and logistics tracking to address potential supply chain bottlenecks and reduce delays.

Automation (RPA, workflow orchestration)
RPA uses software bots to automate rule-based, repetitive tasks like order processing and invoice checks, delivering faster, more accurate results and reducing human error.

Digital twins
Real-time visibility is table stakes, but the leaders are layering in digital twins of the network to simulate constraints and play out scenarios before committing. Digital twins enable teams to see risk early and test trade-offs, not just view status.

Control towers & real-time decision-making
Control Towers collect data from internal systems and external sources to give supply chain teams real-time alerts, enabling them to track goods, materials, and information end-to-end.

Polyfunctional robots
Robots that switch between tasks, so warehouses run with fewer manual steps.

Ambient invisible intelligence
Tiny, cheap sensors that give constant, wide-scale tracking of goods.

Modular, Resilient & Cyber-Secure Architectures
Supply chains are shifting from large, rigid systems to flexible, modular setups that make it easier to add specific tools quickly and keep everything updated over time.

Predictive analytics
Analytics that uses historical data to forecast future events, shifting from reactive to proactive management by anticipating demand, optimising inventory, mitigating risks, and improving logistics efficiency, leading to cost reduction and better service.

*PwC's 2025 Digital Trends in Operations Survey, 2025; Gartner, 2025; Supply Chain Digital, 2025

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*PwC's 2025 Digital Trends in Operations Survey, 2025; Gartner, 2025

3

How trends should shape digital strategy

Companies keep adopting new tech, yet most still struggle to get the results they hoped for

57%

have integrated AI into selected functions or throughout their organisation

(20% 2024)

21%

say their companies use digital twins, 97% of those respondents say that capability is either somewhat or very effective in creating value.

92%

say tech investments haven't fully delivered the expected results

*PwC's 2025 Digital Trends in Operations Survey

When asked why tech investments fail, supply chain leaders mention integration complexity and data issues as the main reasons why

47%
Integration complexity

44%
Data issues

35%
Technology didn't meet expectations

35%
Vendor capabilities

32%
People capabilities

31%
Business case

*PwC's 2025 Digital Trends in Operations Survey

Reinventing your operations can provide a competitive advantage, and it’s not too late to be proactive with your digital strategy for supply chain

Follow through on your digital operations priorities
Match your time, resources and staffing to the priorities you claim to have

Anticipate versus react to disruption
Use predictive tools and flexible models so you’re ahead of risks, not chasing them

Invest in data as a strategic asset
Break silos, improve quality and enable shared access so new capabilities actually work

Double down on making digital ROI clear
Tie tech investments directly to cost visibility, risk reduction and performance gains

Integrate, don’t just implement
Simplify architecture and design for integration from the start to unlock real value

Make AI everyone’s business
Move beyond pilots and focus on AI use cases that produce measurable impact

Strengthen ecosystem and partner collaboration
Build a coordinated partner strategy, using AI and shared data to reduce friction

Embed learning into your operating model
Use mentorship and skill-building to raise digital fluency across operations

*PwC’s 2025 Digital Trends in Operations Survey

4

The future; Technology, Risk, and Resilience (CBS)

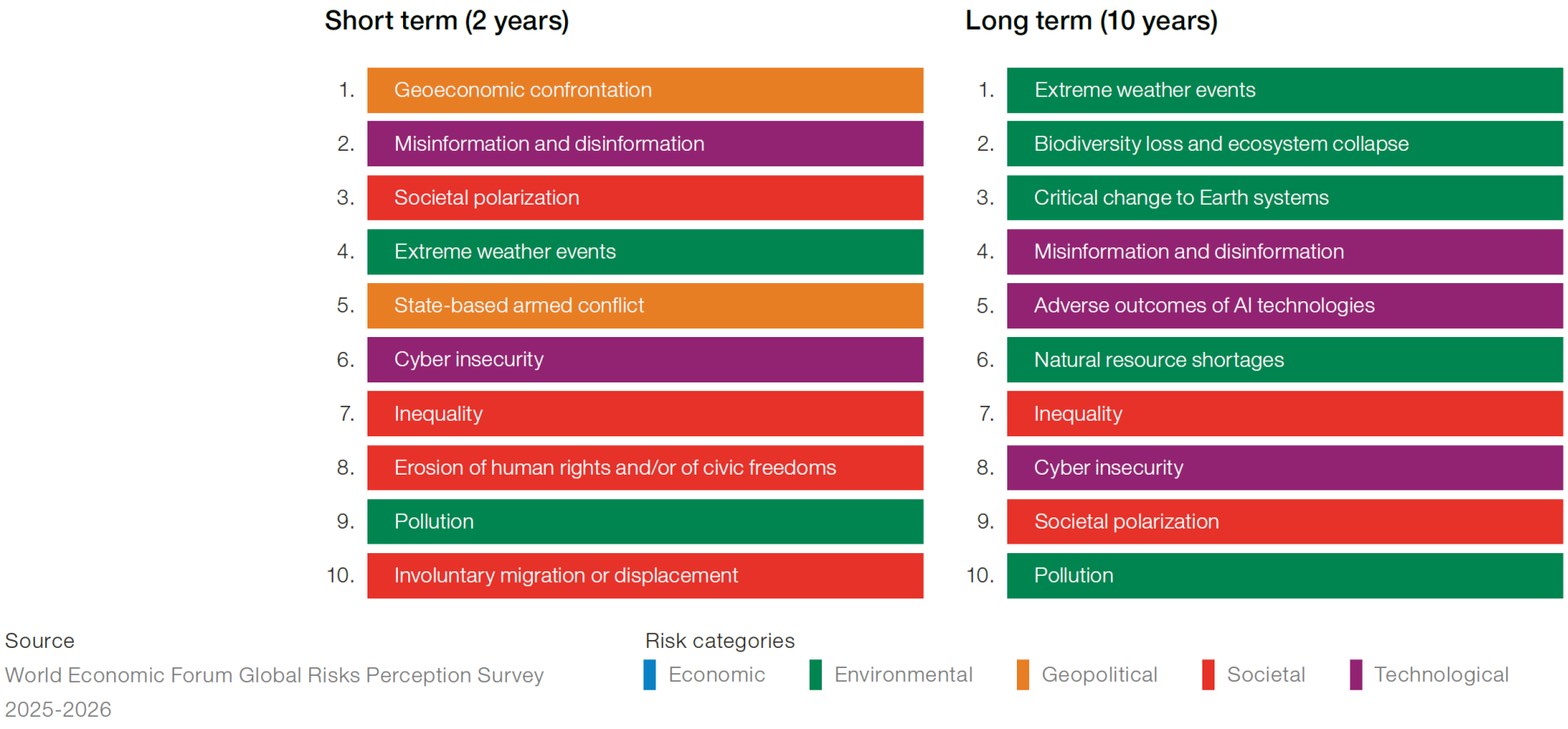
CBS COPENHAGEN BUSINESS SCHOOL
HANDELSHØJSKOLEN

TRANSFORMATIVE SUPPLY CHAIN RESILIENCE

Andreas Wieland
Associate Professor, Department of Operations Management

EQUIS ACCREDITED AACSB ACCREDITED ASSOCIATION AMBA ACCREDITED CEMS PIM

Global Risks Ranked by Severity Over the Short and Long Term



"Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period."

Source: World Economic Forum (2026). Global Risks Report 2026, https://www.weforum.org/publications/global-risks-report-2026/

Risk of Introducing U.S. Tariffs on Products From Denmark

Year-to-Date 2024 Imports (Through November) by the USA for Denmark & the World Total

Commodity	Denmark	World Total	% of U.S. Imports
3004909291 Meds(mix/umix)meas Doses For Retail Sale, Nesoi (kg)	$ 798,921,652	$ 9,846,973,070	8.1%
9021400000 Hearing Aids, Excluding Parts And Accessories (no)	$ 706,927,388	$ 2,429,421,203	29.1%
3002150011 Diagnostic Reagents Based On An Antibody Test (kg)	$ 666,525,412	$ 51,200,107,226	1.3%
3004390050 Medicaments W/ Hormones Or Products Of 2937, Nesoi (kg)	$ 451,905,043	$ 6,385,593,273	7.1%
3507907000 Enzymes And Prepared Enzymes, Nesoi (kg)	$ 243,666,074	$ 921,183,044	26.5%
3002140010 Immun Prod W Monoclonal Antibodies, Not For Retail (kg)	$ 171,593,367	$ 15,112,289,258	1.1%
3006100100 Sterile Surgical Catgut, Similar Sterile Mater Etc (kg)	$ 163,803,667	$ 562,640,461	29.1%
8412909081 Wind Turbine Blades And Hubs (kg)	$ 141,322,371	$ 1,188,919,112	11.9%
7308909590 Structures And Parts Etc Nesoi Iron Or Steel (kg)	$ 115,285,406	$ 4,092,630,653	2.8%
3004909239 Antidepressants, Tranquilizers,other Psych Agt,nes (kg)	$ 113,504,853	$ 8,604,613,085	1.3%
0203294000 Meat Of Swine, Frozen, Nesoi (kg)	$ 108,783,271	$ 571,161,855	19.0%
9021904040 Parts And Accessories For Hearing Aids (no)	$ 98,306,480	$ 400,532,379	24.5%
7308200020 Towers And Lattice Masts Of Iron Or Steel, Tubular (kg)	$ 93,546,702	$ 772,169,100	12.1%
2937190000 Polypeptide, Protein & Glycoprotein Hormones,nesoi (gm)	$ 90,922,542	$ 15,533,660,473	0.6%
9999950000 Estimated Imports Of Low Valued Transactions (x)	$ 86,092,029	$ 22,393,928,764	0.4%
3003395000 Other Medicaments Containing Hormones Etc (kg)	$ 83,315,750	$ 155,658,177	53.5%
9021390000 Oth Artifical Pts Of The Body & Pts & Accessories (no)	$ 81,507,987	$ 4,650,599,859	1.8%
8705900080 Special Purpose Motor Vehicles, Nesoi (no)	$ 81,113,622	$ 591,102,159	13.7%
9027905695 Pts Of Elec Inst Of 9027.20,.30,.40,.50,.80 Nesoi (kg)	$ 80,210,173	$ 447,510,899	17.9%
3501906000 Caseinates And Other Casein Derivatives, Nesoi (kg)	$ 76,806,490	$ 204,728,064	37.5%
2404910000 Nicotine Products For Oral Intake Into Human Body (kg)	$ 72,555,588	$ 193,022,914	37.6%
8479500000 Industrial Robots, Nesoi (no)	$ 71,093,303	$ 554,370,754	12.8%
8526100040 Radar Apparatus,exc For Boat Or Ship Installation (no)	$ 70,084,931	$ 1,221,349,544	5.7%
9801001028 Us Goods Of Chptr 30 Returned After Being Exported (kg)	$ 67,962,595	$ 16,988,232,031	0.4%
2937120000 Insulin And Its Salts (gm)	$ 67,302,881	$ 88,666,054	75.9%
8807300060 Other Parts,nesoi,of Military Airplanes/helicoptrs (kg)	$ 66,020,952	$ 2,768,827,221	2.4%

CBS

Fail-Safe Design vs. Safe-Fail Design

Supply Chain = Dancefloor → Management = Dancing

Wieland, A. (2021). Dancing the supply chain: Toward transformative supply chain management. *Journal of Supply Chain Management*, *57*(1), 58-73.

Defining Supply Chain Resilience

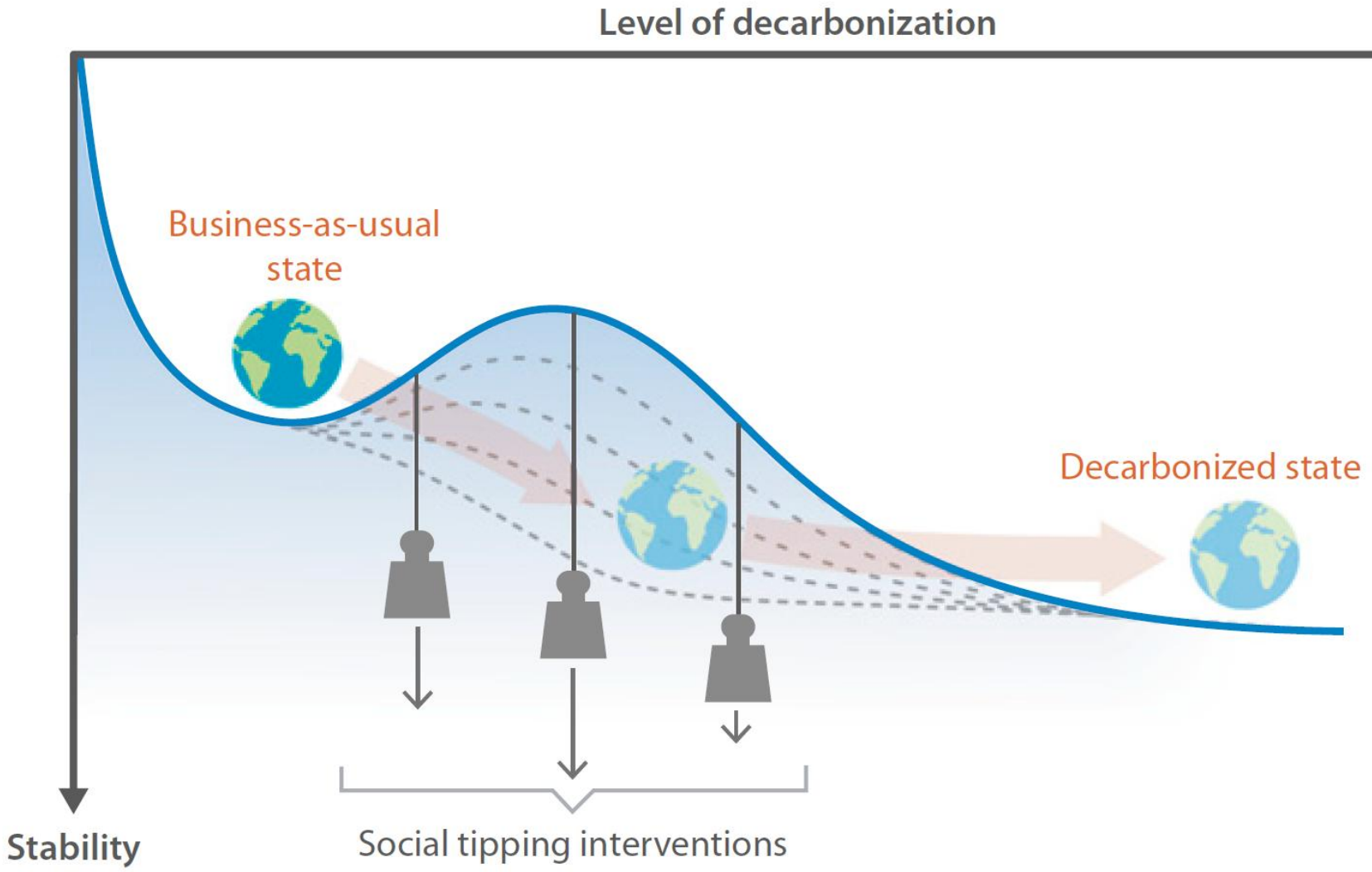
Supply Chain Resilience

"Supply chain resilience is the capacity of a supply chain to persist, adapt, or transform in the face of change." Wieland & Durach (2021)

Persist	Adapt	Transform
▪ Assumes that the supply chain is an engineered system ▪ Aims to conserve the status quo → Solve a deviation from normal quickly → engineering	▪ Assumes that the supply chain is an ecological system ▪ Acknowledges external change → Move the system to a new state → ecology	▪ Assumes that the supply chain is an social–ecol. System ▪ Guide external change on a desirable trajectory → Imagine how the future should look like → social science

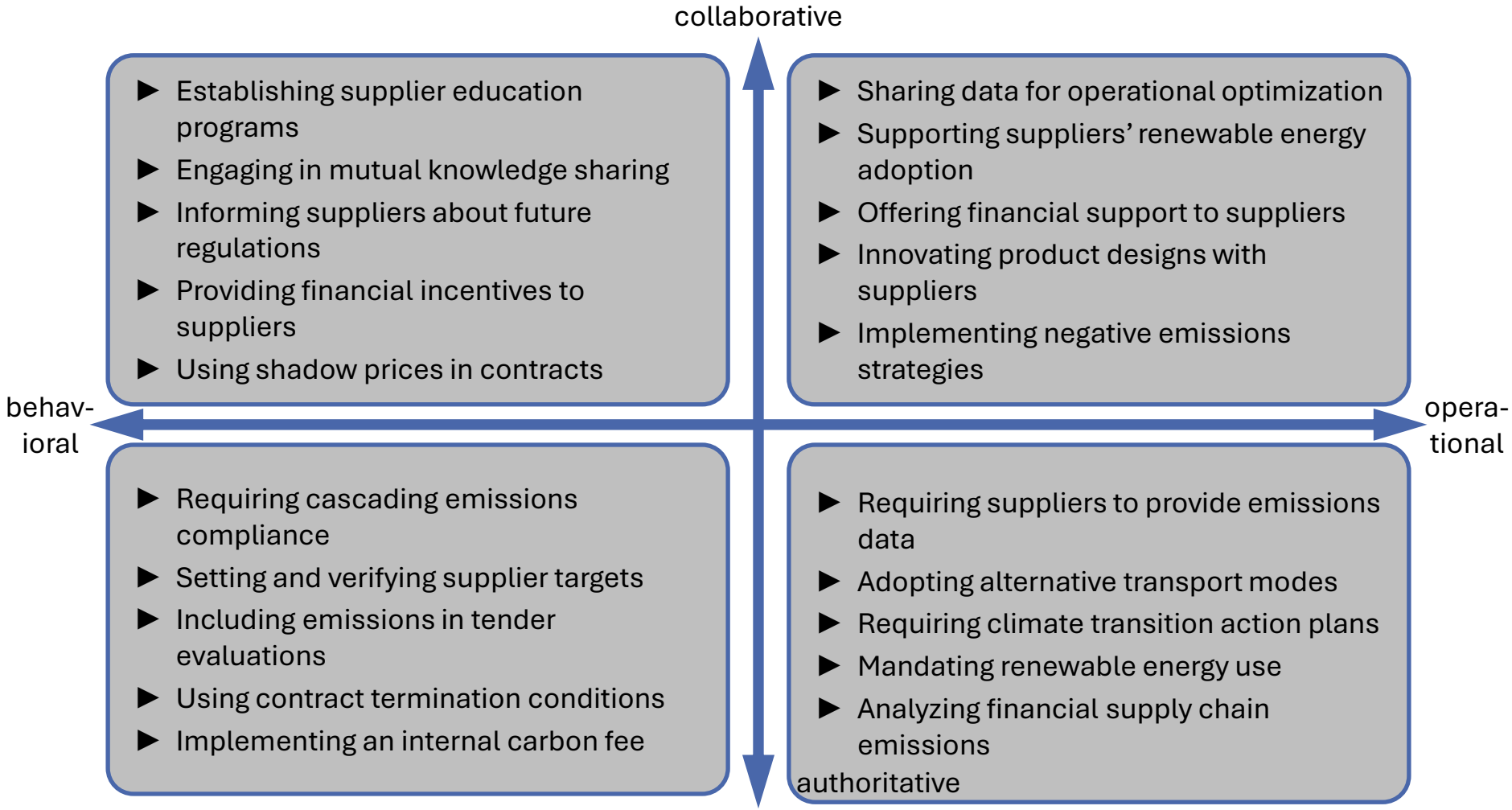
Wieland, A., & Durach, C. F. (2021). Two perspectives on supply chain resilience. *Journal of Business Logistics*, *42*(3), 315-322.

Interventions Can Lead to Rapid Transformative Change



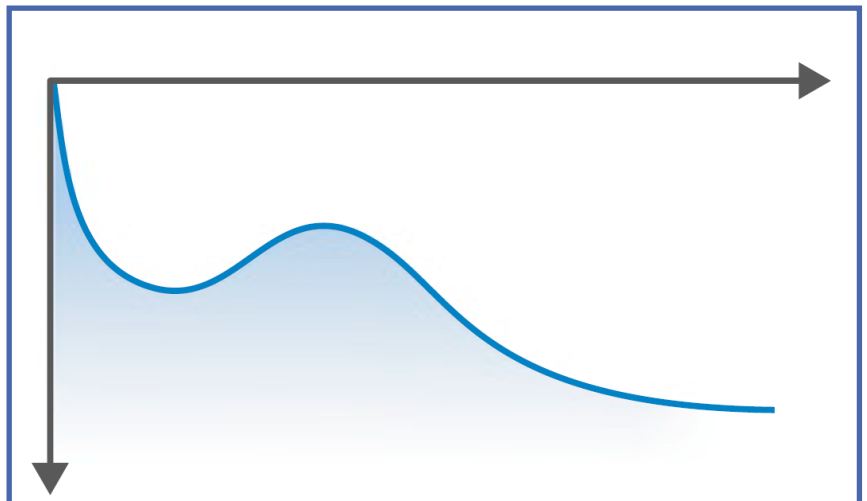
Source: Otto et al. (2020), https://doi.org/10.1073/pnas.1900577117

Examples of Social Innovations to Reduce Supply Chain Emissions

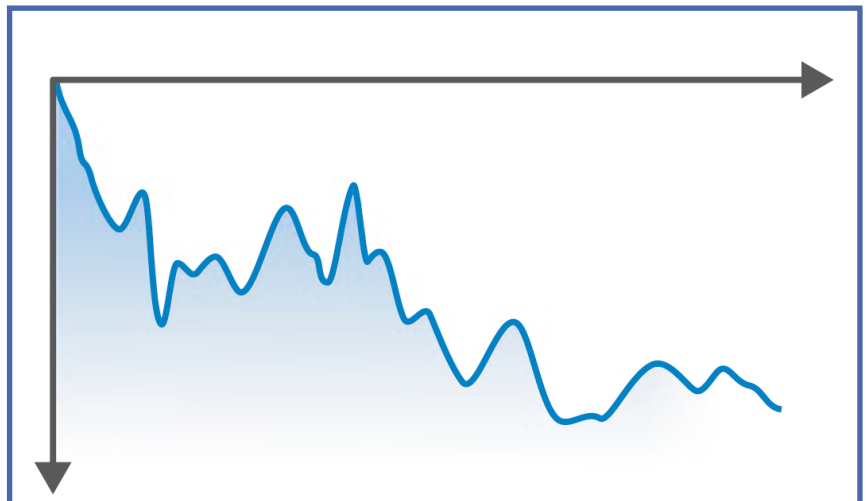


Wieland, A., & Creutzig, F. (2025). Taking academic ownership of the supply chain emissions discourse. *Journal of Supply Chain Management*, *61*(1), 3-13.

Low versus High Social Complexities



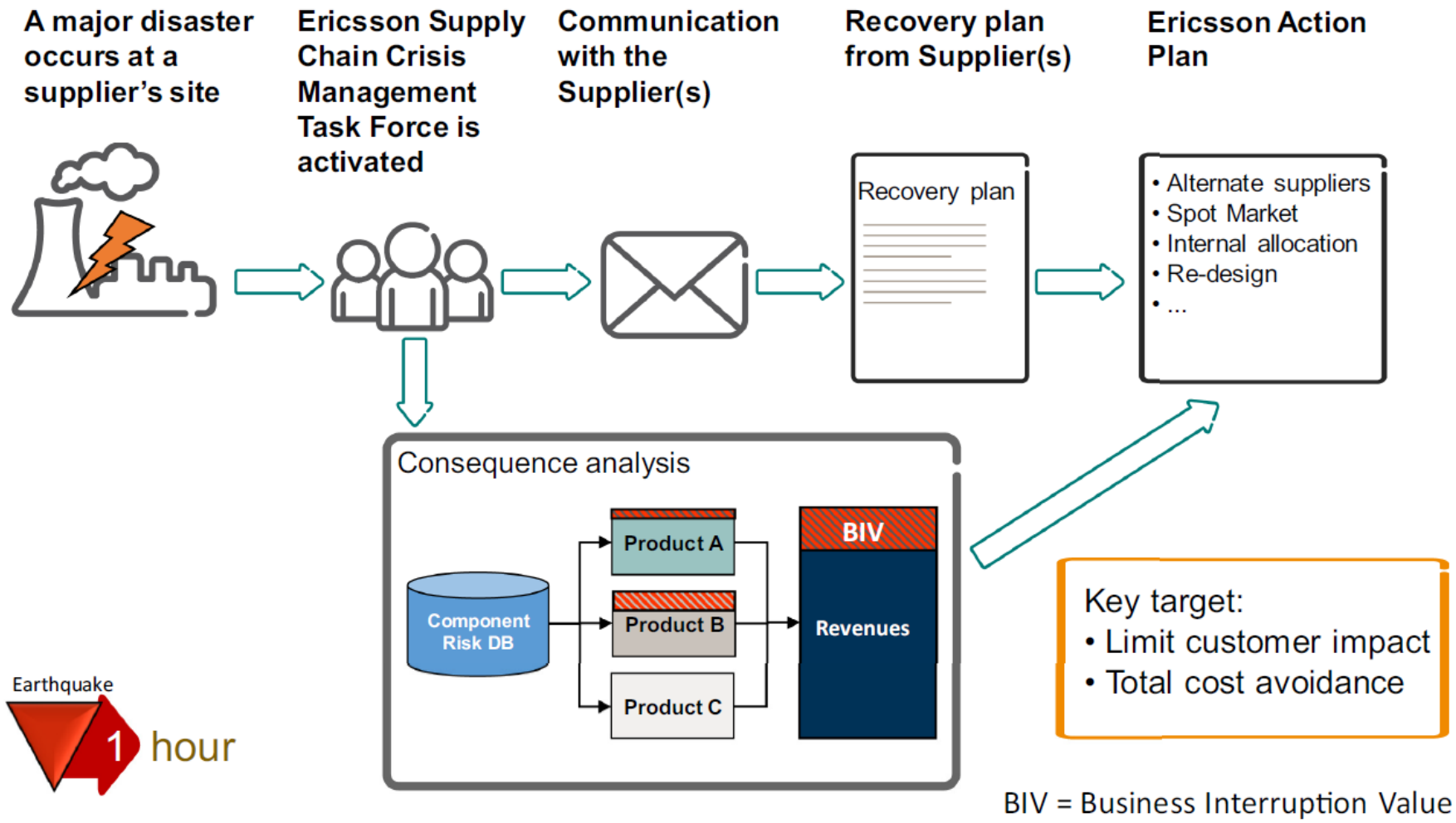
The lack of “social noise” may ease transformative change but such noise could also accelerate it by means of dynamical phenomena such as stochastic resonance.



Uncertainties and complexities form a rougher stability landscape featuring multiple attracting states and a larger number of barriers that need to be eroded or overcome.

Source: Otto et al. (2020), https://doi.org/10.1073/pnas.1900577117

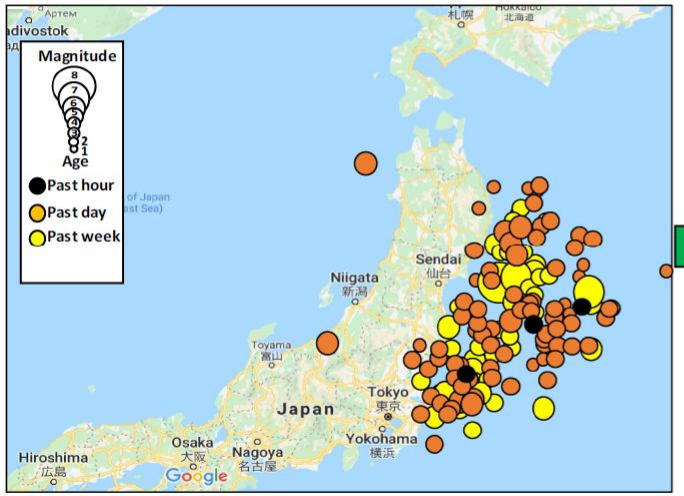
Ericsson's Overall Supply Chain Crisis Management Process



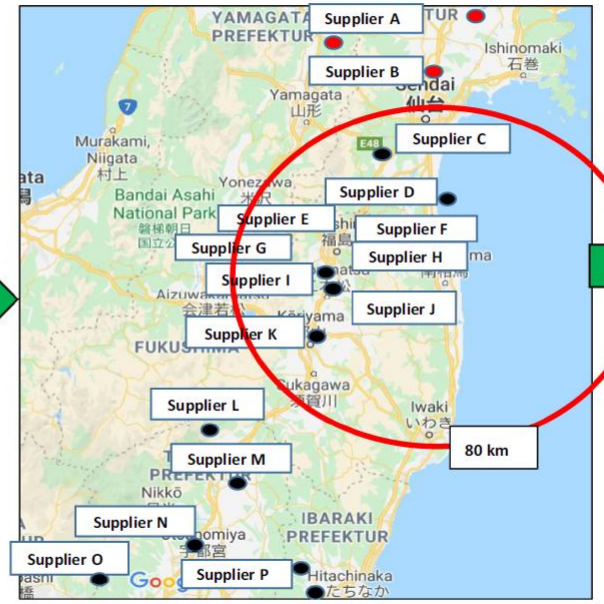
Source: Norrman & Wieland (2020), https://doi.org/10.1108/IJPDLM-07-2019-0219

Mapping Plants During the 2011 Earthquake in Japan

Information about the incident (earthquake)



Critical locations in the affected area



Related components

Supplier	# of parts
Supplier 1	2 803
Supplier 2	315
Supplier 3	272
Supplier 4	127
Supplier 5	82
Supplier 6	67
Supplier 7	54
Supplier 8	52
Supplier 9	46
Supplier 10	39
Supplier 11	36
Supplier 12	34
Supplier 13	32
Supplier 14	31
Supplier 15	31
Supplier 16	30
Supplier 17	27
Supplier 18	21
Supplier 19	17
Supplier 20	12
Supplier 21	11
Supplier 22	7
Supplier 23	6
Supplier 24	6
Supplier 25	5
Supplier 26	4
Supplier 27	3
Supplier 28	3
Supplier 29	3
Supplier 30	3
Supplier 31	2
Supplier 32	2
Supplier 33	1
Supplier 34	1
Supplier 35	1
Supplier 36	1
Supplier 37	1
Grand Total	4 188

Source: Norrman & Wieland (2020), https://doi.org/10.1108/IJPDLM-07-2019-0219

Contact

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5

Using digital tools to strengthen performance (Norlys)

Using Digital Tools to Strengthen Procurement Performance

How digitalisation enhances efficiency, transparency, and value creation in Procurement

NORLYS

Karen Frost Sørensen

Senior Director – Procurement

2003

2017

2019

This is Norlys

- The largest integrated energy and telecommunications group in Denmark.
- Supplies energy, charging, TV/streaming, internet, and mobile services.
- Owns and operates Denmark's largest electricity grid and Denmark's largest fiber network.
- Owned by 800,000 power customers within our “owner geography”.
- Controls a number of companies covering the green and digital value chains.
- 4,600 employees primarily in Silkeborg, Aarhus, Aalborg, Esbjerg, and Copenhagen.
- Norlys is the result of more than 40 mergers over the past decades.

The Customer Company

- We provide internet, mobile, TV/streaming, energy and charging solutions to consumers and businesses throughout Denmark.
- With more than 3.5 million customer relationships and an annual turnover of DKK 12.7 billion, we are No. 1 or 2 in most submarkets.
- We own 50% of the TT Network, which has been named the best mobile network in Denmark and one of the best in the world.
- We are building a nationwide charging network for electric cars as a new critical infrastructure for the green transition.

Strategic Background and the Digital Landscape

Why digitalization of Procurement is critical in 2026

Increased complexity and transparency

Complex supplier landscapes require better insights into spend, contracts, risk, and sustainability for effective management.

Regulatory requirements and compliance

Automated contract processes ensure compliance and governance with documentation and risk management across the full contract lifecycle.

Efficiency through platform integration

Source-to-Pay platforms integrate sourcing, purchasing, and invoicing, minimizing errors and improving collaboration.

AI and advanced decision support

AI monitors supplier behavior, identifies risks, and automates tasks for more data-driven and efficient procurement.

NORLYS

Contract Lifecycle and Value Creation

How CLM platform transforms contract management

Automation and standardization

Our CLM platform automates contract drafts with pre-approved templates and workflows, reducing lead-time and minimizing legal risks.

Integration and collaboration

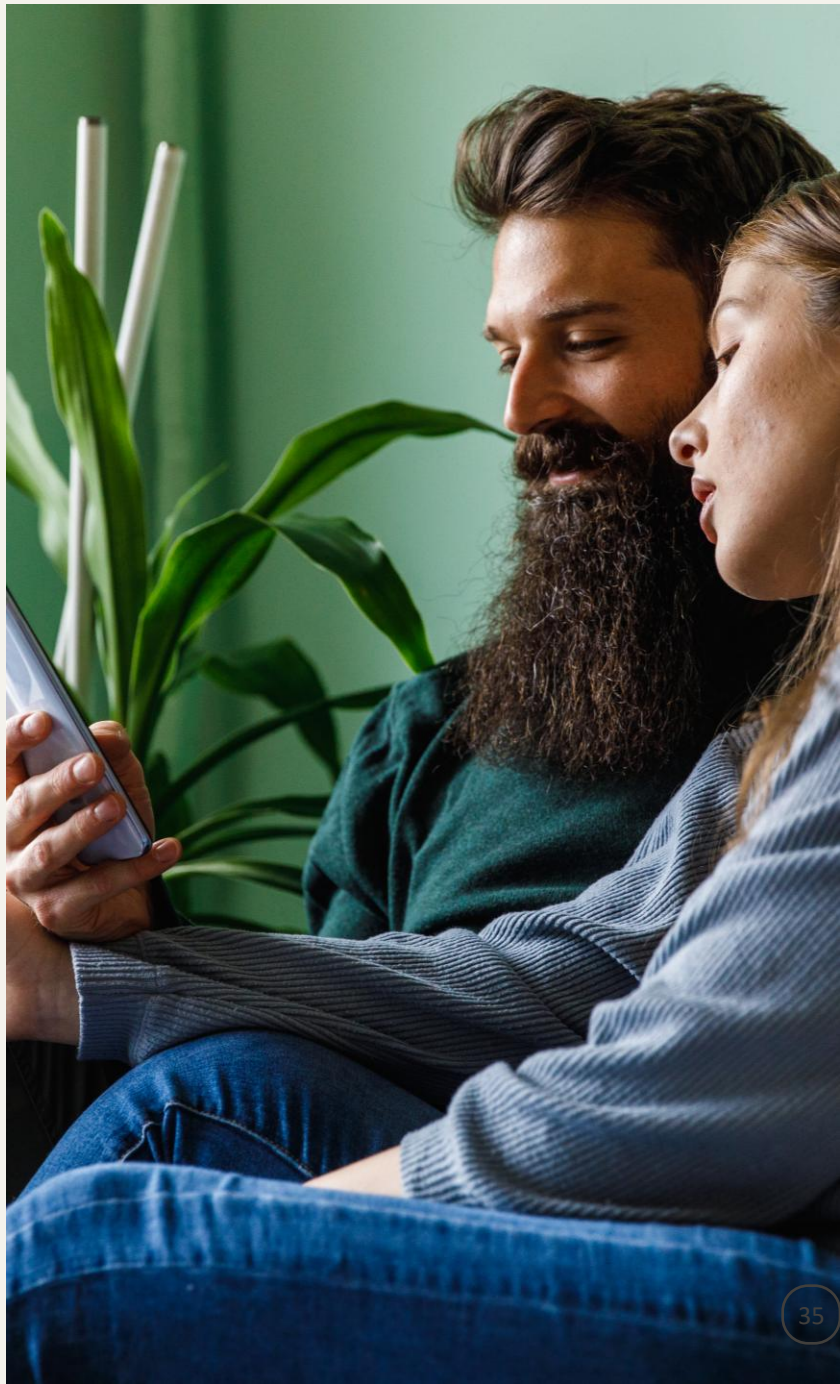
Microsoft Word integration enables editing and collaboration with full traceability and automatic synchronization in our CLM platform.

AI-based risk management

AI analyzes contracts for risks, missing clauses, and deviations, improving quality and reducing manual reviews.

Centralized contract management

A searchable repository organizes all contracts and metadata, easing monitoring and governance.



Governance, control, and processes

How Coupa supports our Procure-to-Pay

Guided purchasing workflows

Coupa ensures intuitive, governance-driven workflows that guide users efficiently from need to payment.

Integration and compliance

Integration with D365FO ensures correct accounting and payment, while flexible rules strengthen compliance.

Real-time analytics

The analytics module provides real-time insight, for more transparency and easier data driven decisions - in closed corporation with our BI team.

NORLYS

AI in Procurement: opportunities and benefits

Automated market-trend briefs

AI gathers and condenses market data to better prepare for negotiations and strategic work.

Detection of early-invoice behavior

AI identifies suppliers who invoice ahead of payment terms so cash flow can be protected.

PO vs. Non-PO visibility

AI maps approval chains and patterns to reduce unauthorized spend and strengthen compliance.

Contract analysis and productivity tools

AI supports metadata extraction, risk markers, and efficient document handling in M365 with Copilot.

Value model, KPIs, and governance

How digital tools strengthen measurement and value realization

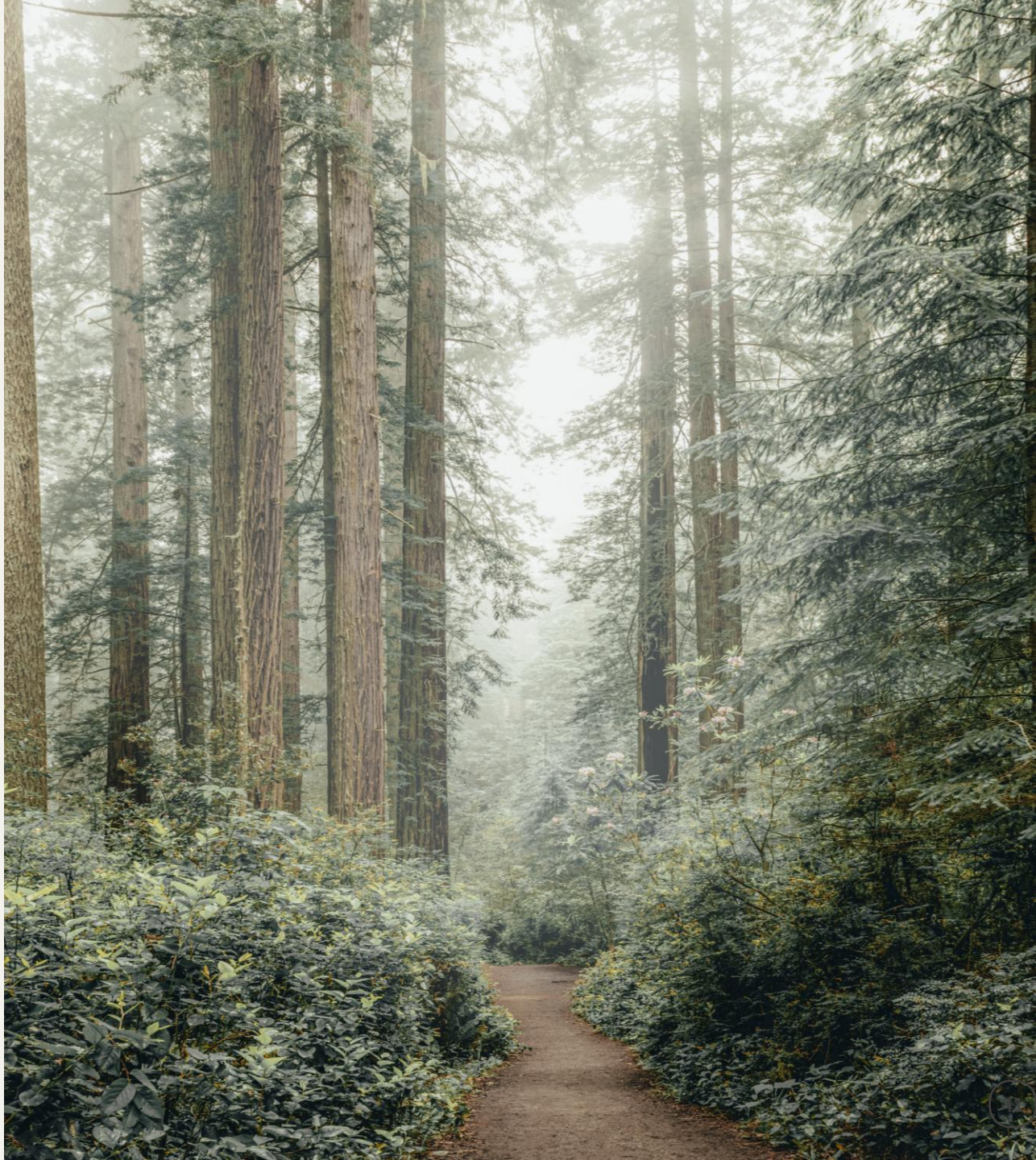
Precise KPI measurements
Digital systems enable accurate KPIs such as PO coverage and contract coverage, quickly surfacing progress and deviations.

Contract management with CLM platform
CLM platform tracks contract obligations, risks, and governance meetings to increase post-signature maturity and drive value realization.

Governance and automation with Coupa
Coupa enforces policies such as “No PO – No Pay” and automates approval processes for better data consistency and transparency.

AI in value realization
AI delivers anomaly detection, data inspection, and predictive models to prevent issues rather than react to them.

NORLYS



Implementation, change, and organizational adoption

How the organization succeeds with adoption of CLM, Coupa, and AI

It all depends om Change Management, commitment and Top Management empowerment

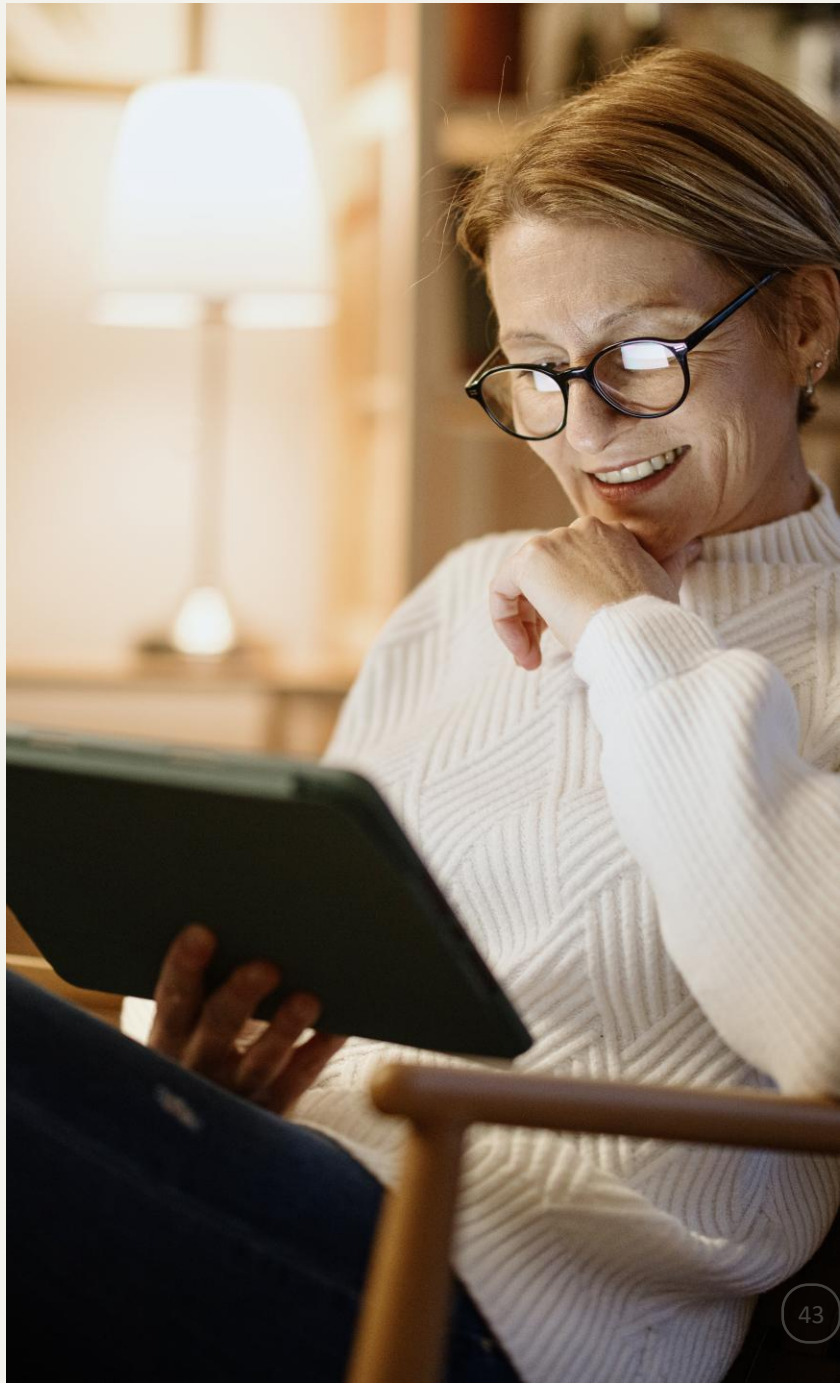
Role-based onboarding
Training tailored to different roles ensures effective use of digital tools across the organization.

Clear processes and governance
Establishing processes for invoice handling, PO approvals, and escalation creates structure and clarity.

Data quality and master data
Clean and valid data are the foundation for successful use of CLM and Coupa.

Variety in training formats
Live demos, hands-on sessions, and micro-tutorials increase user competence and adoption.

Leadership support
Active leadership support ensures time for training and anchoring new governance principles.



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Q&A