

AI in Chemistry – An Industry Perspective

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Seek Together™

This Is Dow

VALUE GROWTH
& BEST-IN-CLASS
PERFORMANCE
PERFORMANCE
VISTAINABLE

Every answer starts with asking the right question.

At Dow, these questions and the pursuit of solutions for the world's toughest challenges inspire us to collaborate and use our materials science expertise to create innovative solutions that transform our world and deliver a sustainable future.



\$45B

net sales in 2023



~35,900

employees



98

manufacturing sites



31

countries in which Dow manufactures products





DIGITAL TRANSFORMATION - ESSENTIAL TO ACHIEVING OUR GOALS

Business process transformation

Automating processes, data capture

Productivity, speed to market

Business model transformation

Innovation, new products and markets

Margin expansion

Domain transformation

Additional offerings outside historical core

New revenue streams

Cultural transformation

Education and upskilling

More productive and innovative organizations

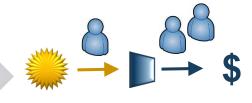


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Automating processes, data capture

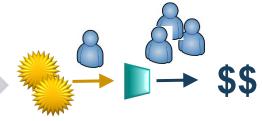
Productivity, speed to market



Business model transformation

Innovation, new products and markets

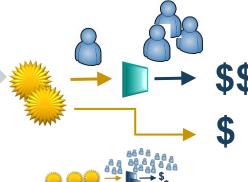
Margin expansion



Domain transformation

Additional offerings outside historical core

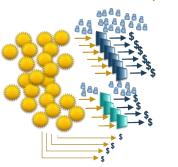
New revenue streams



Cultural transformation

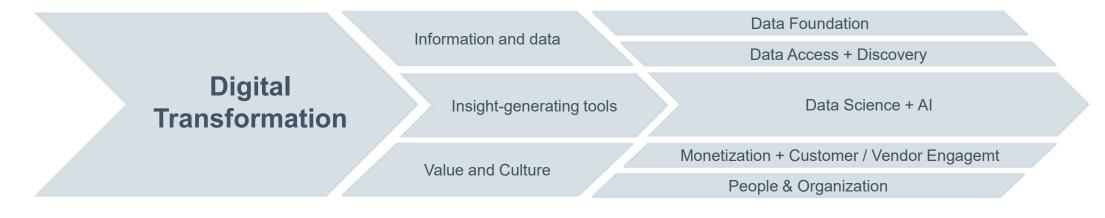
Education and upskilling

More productive and innovative organizations



Digital transformation: **Spot solutions** ð new way

INGREDIENTS FOR SUCCESS



- Information and data >> data capture and infrastructure
 - >> data access and discovery
 - >> external data
- Insight-generation >> data science & Al

>> strong internal expertise in scientific AI/ML

>> internal and our competitive advantage

>> data catalogs and security

>> collaboration with universities*, collaborators, tech companies

- Value and culture
- >> value generation beyond Dow >> current and new customers
- >> work process updates, training, upskilling (Citizen Data Science**)

^{**} Andrews, K., Arturo, S., Benedict, M., Braun, B., Clark, B., Cook, S., Curtis-Fisk, J., D'Ottaviano, F., Licquia, T., Margl, P. and Moore, J., 2025. The Citizen Data Science program at Dow. Digital Discovery, 4(5), pp.1124-1133.

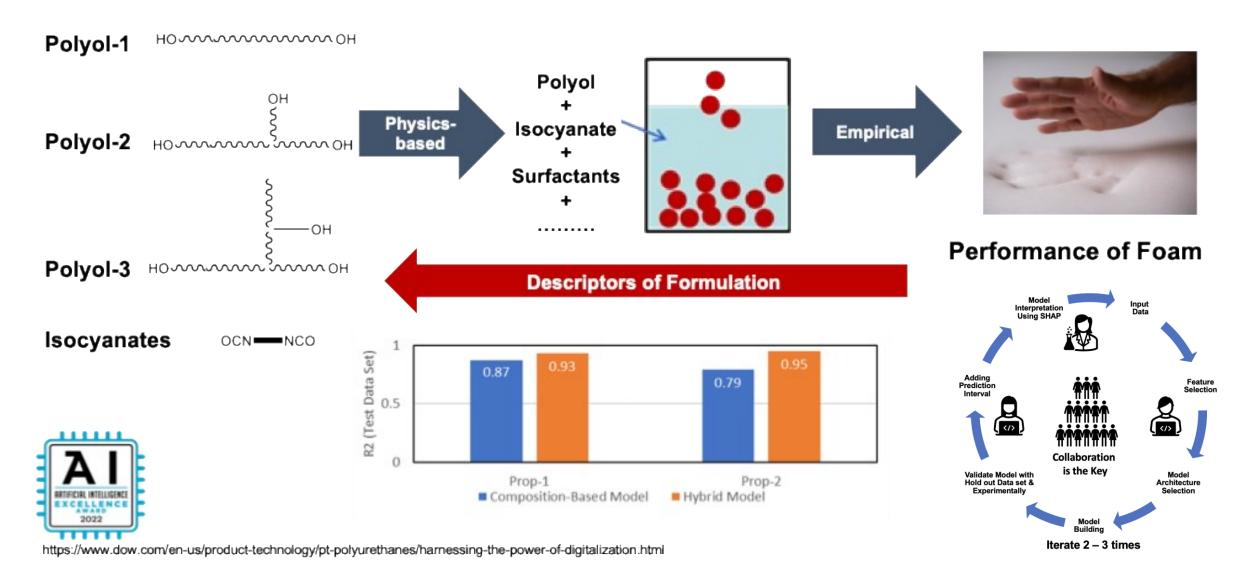


^{*} Toothman, M., Braun, B., Bury, S.J., Moyne, J., Tilbury, D.M., Ye, Y. and Barton, K., 2023. A digital twin framework for prognostics and health management. Computers in Industry, 150, p.103948.

^{*} Bilodeau, C., Kazakov, A., Mukhopadhyay, S., Emerson, J., Kalantar, T., Muzny, C. and Jensen, K., 2023. Machine learning for predicting the viscosity of binary liquid mixtures. Chemical Engineering Journal, 464, p.142454.

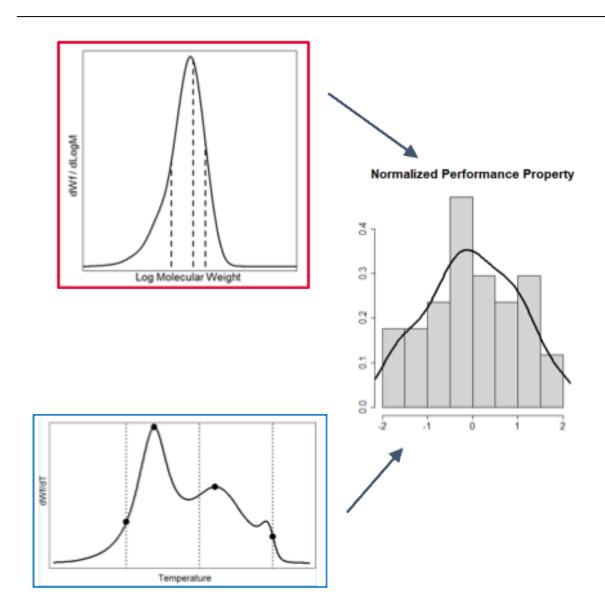
^{*} Strelet, E., Peng, Y., Castillo, I., Rendall, R., Wang, Z., Joswiak, M., Braun, B., Chiang, L. and Reis, M.S., 2023. Multi-source and multimodal data fusion for improved management of a wastewater treatment plant. *Journal of Environmental Chemical Engineering*, 11(6), p.111530.

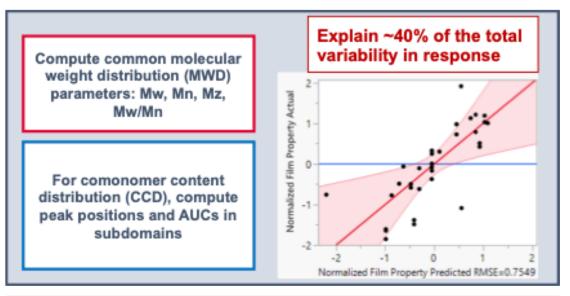
POLYURETHANES PREDICTIVE INTELLIGENCE

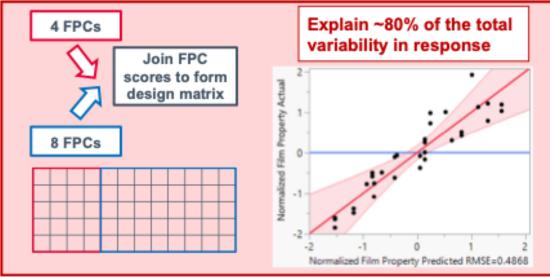




MODELING FUNCTIONAL DATA









OPPORTUNITIES FOR LARGE LANGUAGE MODELS

EH&S

- Root Cause Identification & Summarization
- Hypothesis Generation for Unplanned Events
- · Smart Search of Safety Standards and Training

Operations

- Leak/Spill Detection (LLVM)
- Equipment/Asset Reliability Estimation from Logs
- Troubleshooting Support

Business

- Smart Customer Compliant Analysis
- Market Intelligence
- New Application Exploration

R&D

- Patent and Literature Insight
- Innovation Optimization
- Chatbot for customer intelligence



Image generated by Copilot, March 2025



RESPONSIBLE AI PRINCIPLES

Dow Code of Conduct Respect for People Integrity Citizenship Responsible Al Principles **Human Oversight** Transparent & **Data Security** Fair & Inclusive Safe & Reliable & Control Accountable & Privacy System to perform as Al will be controlled by the Al must be unbiased and Clearly link design and Safeguard autonomy, originally designed and to balanced for all groups to identity and dignity by expertise of humans to outcome to increase respond safely to new augment innovation, enhance inclusivity and protecting data privacy transparency and situations preventing harm decision making & throughout AI system well-being. accountability. or endangerment of human productivity to achieve design, development, and life, health, property, or the trusted outcomes. deployment. environment. Al Policies, Processes GenAl - Acceptable Use **RAI Advanced Analytics RAI** Governance and Procedures Drive innovation & value through responsible and ethical Al use rooted in strong core values





Thank you