

Pavlova O.
Liashenko O.
Pavlov K.
Nagara M.
Bashynska I.
Harapko D.
Vlasenko T.
Dukhnevych A.

Pavlova O. Beyond One-Size-Fits-All: A Flow-Based Typology of Circular Industrial Symbiosis Ecosystems and Equifinal Pathways to Environmental Performance / O. Pavlova, O. Liashenko, K. Pavlov et al. // Sustainability. – 2026. – Vol. 18, Iss. 8. – Art. 3820.

Abstract. Industrial symbiosis (IS) research has documented many successful ecosystems but still lacks an empirically grounded typology linking resource flow configurations to environmental outcomes across diverse contexts. This study develops such a typology and tests whether distinct configurations achieve comparable environmental performance through different pathways - the configurational principle of equifinality. Economic performance does not differ significantly across configurations, and the multinomial model of contextual predictors is jointly insignificant. This study contributes an empirically grounded framework for circular economy practice that moves beyond one-size-fits-all prescriptions and offers a configurational lens for the design of sustainable industrial ecosystems.

Keywords: industrial symbiosis; configurational theory; cluster analysis; circular economy; resource flows; environmental performance; contextual fit; ecosystem resilience