Living Systems Principles Applied to Technology

LIVING SYSTEMS PRINCIPLE Patterns	AS APPLIED TO TECHNOLOGY… Sample Manifestations
Interdependent, In Relationship All life is interconnected with its environment and other systems	• Design tech with a systems thinking approach, considering how components, users, society, environment interact • Incorporate holistic metrics in technology governance • Go beyond human-centered design, life-centered designs that balance diverse stakeholder needs and abilities.
Adaptive to Changing Conditions Life adjusts and evolves in response to environmental changes	• Ensure tech itself is adaptive and process-focused, through continuous design feedback, governance • Observe patterns over snapshots (monitoring rather than metrics optimization) • Deploy technology with response-ability and capacity for restraint, consequentiality, and an orientation towards social equity and justice
Circulatory Flows & Metabolism Life relies on continuous exchange of energy, materials, and information	• Facilitate distributive information and value flows, promote information symmetry and value-sharing across network • Design tech for circular economy (e.g. modularity, right to repair) • Consider materials, energy, information flows, waste, and upcycling
Resilience Through Diversity Variety in components and strategies enhances system stability and survival	• Prioritize representation in design, decision-making, data sets, algorithms, founders, investors, and projects invested • Employ diverse metrics, forms of value delivered • Design for interoperability and open standards to encourage broader innovation and collaboration • Configure systems for redundancy and multiple pathways to maintain functionality.
Place-Based Life happens in place, and is influenced by specific local conditions, contexts.	• Localize to community, cultural, bioregional contexts, avoiding top-down, globally imposed models that lack local context • Source / share resources based on what's around • Consider how the tech impacts local communities/economy
Self-Organizing, In Balance Life maintains stability through constant adjustments and feedback loops.	• Develop solutions that scale outwards (adapt to context; allow users to create their own workflows, autonomously coordinate) rather than scale-up (enforce replicate structures on users) • Help users maintain a healthy balance between digital engagement and real-world interactions, rather than optimizing for digital attention • Develop systems that can maintain equilibrium, adapt resources, balance risks in complex environments (e.g. smart grids, data centers, security)
Collaborative, Participatory Elements work together, often in mutually beneficial relationships	• Design for user agency, control over their data, digital identities • Facilitate participatory (multi-stakeholder, multigenerational) design and decision-making • Incorporate more holistic and transdisciplinary ways of knowing and asking, rather than ignoring uncertainties or the non-empirical. • Shift towards ecosystem-based business models to facilitate innovation, localization, less risk, and greater abundance