Rethinking Agile Scaling with Robotics Subsumption Architecture

Agile scaling frameworks often introduce coordination overhead, slowing teams down. How can we scale without sacrificing autonomy and speed? How can we create an organizational ecosystem where teams remain cohesive while growing?

The Robotics Subsumption Architecture revolutionized robotics by enabling decentralized, adaptive behavior. What if we applied the same principles to Agile scaling? By embedding agility at every level of the organization, we can **enhance responsiveness and resilience** while eliminating unnecessary complexity.

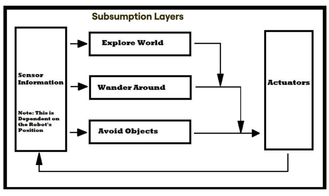
This poster explores an innovative approach inspired by Robotics Architecture—simplifying decision-making and fostering decentralized autonomy. Building on **the late Mike Beedle's pioneering work** in applying robotics principles to organizational design, we reimagine **Agile scaling through the lens of self-managing, layered autonomy, and real-time organizational adaptability.**

	Established Agile Scaling Frameworks	Robotics Subsumption Agile Scaling
Hierarchy & Structure	Typically top-down, with structured layers for alignment and governance.	Subsumption-based & emergent, higher layers decide when to use or override lower layers.
Decision-Making	Often centralized at higher levels (e.g., Program or Portfolio level in SAFe).	Decentralized, lower layers act autonomously unless overridden by higher layers.
Adaptability	Change is managed through scheduled planning cycles (e.g., PI Planning, Sprint Reviews).	Real-time adaptation, as lower layers adjust continuously based on signals from the environment.
Coordination & Dependencies	Dependencies managed via structured synchronization (e.g., SAFe ART Sync, LeSS Overall Planning).	Dependencies self-resolve through adaptive behavior—"surfers" (domain experts) move across teams to align work.

Applying Robotics Subsumption Architecture to Agile Scaling

Robotics Subsumption Architecture

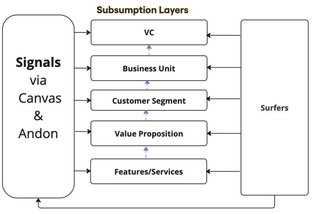
How does a Robot Explore the world?



🔹 **Subsumption Layers** – The behavior of **exploring the world** is divided into three hierarchical layers:
1. **Avoid Objects** (lowest layer)
2. **Wander Around**
3. **Explore World** (highest layer)

Higher layers **subsume** lower layers, meaning they can override their functions when necessary to achieve more complex behavior.
🔹 **Sensors** – Continuously collect and send data to all layers as the robot moves, enabling real-time perception and adaptation.
🔹 **Actuators** – Execute actions based on which layers have been activated, ensuring appropriate responses to the environment.
🔹 **No Central Control** – Instead of relying on a central authority, **sensors, layers, and actuators work together dynamically, enabling real-time decision-making and adaptability.**

Agile Scaling with Subsumption



🔹 **Subsumption Layers** – Organizational structure follows subsumption layers, with Venture Capital (VC), Business Units, Customer Segments, Value Propositions, and Features. Higher layers subsume lower layers, ensuring strategic alignment while preserving autonomy at its own layer.
🔹 **Signals via Canvas & Andon** – Just as sensors provide real time data in robotics, **business canvases and Andon-style signaling systems** facilitate real-time information sharing and decision-making across layers.
🔹 **Surfers Across Layers** – Surfers move fluidly across layers, guiding decisions and optimizing workflows.
🔹 **No Central Control** – Instead of relying on top-down control, **Signals, Layers, and Surfers work together maintaining alignment and responsiveness at scale.
By embracing this model, organizations can **embed agility throughout the entire system, ensuring speed, autonomy, and resilience in scaling.**

eAuction Case Study – Applying Subsumption to Agile Scaling

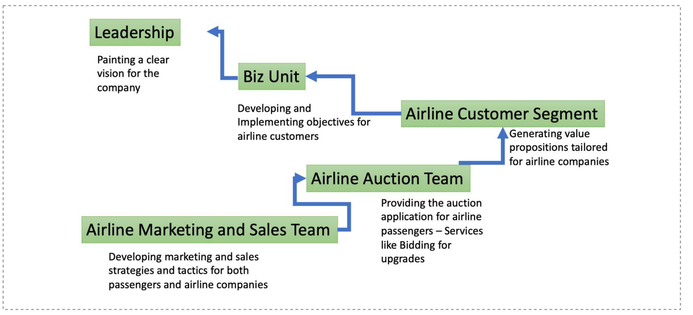
Mission

Our mission is to revolutionize the auction experience with a dynamic online platform offering innovative bidding solutions.

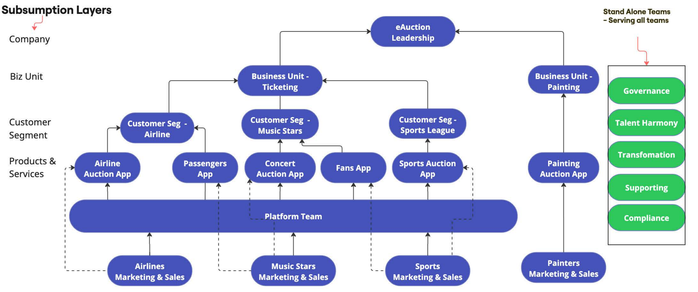
Business Strategy

We build a customer-centric model, tailoring solutions to each segment. By prioritizing cost-efficiency, we foster user loyalty while driving business growth. Starting with airline companies, we expanded to music stars and major sports leagues like the NFL and now serve artists selling their work.

Designing for Airline Companies Using a Bottom-Up Approach



A Snapshot of Current eAuction's Organization EcoSystem



eAuction has evolved from an airline-focused auction platform into a dynamic, multi-segment marketplace. By structuring operations around customer segments, eAuction **expands seamlessly while maintaining autonomy and adaptability**.
Leveraging **subsumption layers** within customer segments, it enables **autonomous decision-making** at each level. Today, it serves **four key customer segments**: **Airline Companies, Music Stars, Sports Leagues, and Painters**. It first started by serving **airline companies**, then expanded to **music stars** and **sports leagues**. It later **spun off** a completely new **business unit** to serve **painters**, as they auction **paintings rather than tickets**.
eAuction operates through **four main subsumption layers**:
1. **Company**
2. **Business Unit**
3. **Customer Segment**
4. **Products and Services** *(the lowest layer in the subsumption model)*

Higher layers **subsume** lower layers, meaning they **decide whether to use or override** lower layers' work based on the organization's **current conditions**. At the highest layer, the **eAuction Leadership** oversees a **portfolio of Biz Units**, while **Governance, Compliance, Support, and Talent Harmony (HR)** operate across all units.

This entire structure **works in coordination with Surfers and Signals**, enabling **autonomous behavior at each layer** while ensuring adaptability in a **dynamic environment**.

This structure is a **snapshot of eAuction's current growth**, and it will continue to evolve as the company expands or adapts to market changes.

Outcomes

🔷 **Autonomy at the Core** – Just as location is key in real estate, autonomy is the foundation of agility. Teams operate independently, making decisions without waiting for approvals, while higher layers can override when necessary to maintain alignment.

🔷 **Decentralized Decision-Making** – Subsumption layers facilitate decentralized decision-making, reducing delays caused by traditional command-and-control hierarchies.

🔷 **"All at Once" Management** – As layers, signals, and collaborators work together, the organization achieves simultaneous coordination and execution, eliminating silos.

🔷 **Faster Time to Market** – This enables the organization to adapt quickly and accelerate delivery.

🔷 **Organizational Synergy and Alignment** – Layers, Signals, and Surfers work together to create alignment and synergy across the organization.

🔷 **Happier Teams, Customers, and Stakeholders** – Fosters self-management, leading to engaged teams, satisfied customers, and ultimately, happier stakeholders.

🔷 **Survival and Profitability** – Subsumption architecture creates an environment where organizations can adapt and respond quickly in dynamic environments, ensuring long-term success.

Agile Scaling with Subsumption Architecture

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