LUMSA UNIVERSITÀ

LICAIM

LUMSA International Research Center for Artificial Intelligence Management

LICAIM Research Project Summary Sheet

1. Title of the Research Project

Distributed Agency and Resource Allocation for (Hyper)Scaling Digital Firms: Defining First-scaler Advantage

2. Synopsis

This research project investigates how "distributed agency"—the collaborative interaction between human and machine agents powered by GenAI—can enhance resource allocation and redeployment within digital firms to facilitate rapid scaling. Digital firms face unique challenges in achieving hypergrowth, including overcoming early-stage processes, product/market fit issues, and scalability limitations. By examining the synergies created through human-machine collaboration, this study explores how distributed agency enables more dynamic and efficient resource management, allowing firms to overcome growth barriers and leverage network effects. The research introduces and explores the concept of "first-scaler advantage," where competitive advantage accrues not to the first market entrant but to the firm that successfully scales operations first. Through analysis of adjustment costs, resource fungibility, and hyperscaling dynamics, this project aims to provide valuable insights for digital firms seeking temporary market dominance while also examining potential risks including first-scaler disadvantage and customer retention challenges during rapid scaling.

3. Objectives

Main Objective

To investigate how distributed agency (human-machine interaction) enhances resource allocation and redeployment in digital firms, enabling them to achieve first-scaler advantage through rapid and efficient scaling operations.

Specific Objectives

- To analyze how distributed agency impacts the efficient allocation and redeployment of resources in digital firms
- To examine the role of adjustment costs, resource fungibility, and hyperscaling in helping firms overcome early-stage processes and scale rapidly
- To explore how digital firms can leverage first-scaler advantage to outpace competitors by scaling operations before others establish product/market fit
- To identify patterns and strategies in successful digital firms that have achieved rapid scaling through distributed agency

- To assess potential risks including first-scaler disadvantage, lock-in effects, and customer retention challenges during rapid scaling
- To contribute to the resource-based view of the digital firm by elucidating factors that enable effective resource deployment and scalability

4. Theory and Methods

Theoretical Framework

This research is grounded in several interconnected theoretical streams:

Distributed Agency Theory: Building on Mariani & Dwivedi (2024) and Murray et al. (2021), the research conceptualizes GenAI as a complement to, rather than substitute for, human agents in innovation and decision-making processes. This perspective emphasizes how human-machine interactions create synergies that enhance operational efficiency and innovation.

Resource-Based View (RBV): Drawing on the digital firm perspective (Giustiziero et al., 2023), the research examines how resource fungibility, adjustment costs, and dynamic resource allocation contribute to competitive advantage in digital contexts.

First-scaler Advantage: Extending beyond traditional first-mover advantage theory (Lieberman & Montgomery, 1988), this framework posits that competitive advantage accrues to firms that successfully scale operations first, rather than merely entering the market early.

Organizational Scalability Literature: Incorporating insights on network effects (Shankar & Bayus, 2003), platform economics (Choudary, 2015), and hyperscaling dynamics to understand rapid growth mechanisms.

Temporary Competitive Advantage: Building on D'Aveni et al. (2010) and Dagnino et al. (2021) to frame competitive advantage in dynamic, time-limited contexts.

Methodology

Research Design: Mixed-methods approach combining qualitative case studies with experiments and simulations

Data Collection:

- Qualitative case studies of selected digital firms that have successfully navigated growth challenges through distributed agency
- Analysis of resource allocation strategies, focusing on patterns related to adjustment costs, resource fungibility, and hyperscaling
- Document analysis of organizational processes, strategic decisions, and scaling trajectories
- Potentially interviews with key decision-makers and stakeholders in selected firms

Data Analysis:

- Theoretical sampling for case selection based on relevance to research questions and analytical framework replication capability
- Pattern analysis across cases to identify common strategies and success factors

- Thematic analysis of qualitative data from case studies
- Experimental and simulation analysis to measure the impact of distributed agency, adjustment costs, and resource fungibility on firm productivity, innovation, and first-scaler advantage achievement
- Comparative analysis between successful and less successful scaling attempts

Sample/Cases:

- Small set of digital firms selected through theoretical sampling methodology (Glaser & Strauss, 1967; Mason, 1996)
- Selection criteria: firms demonstrating successful rapid scaling through distributed agency implementation
- Data collection continues until theoretical saturation is achieved—when no new information emerges from additional data collection (Teeter & Sandberg, 2016)
- Sample will include firms at various stages of scaling to capture diverse patterns and dynamics

5. Current Status

Completed Activities

- Research project proposal development and theoretical framework establishment
- Initial literature review covering distributed agency, resource-based view, first-scaler advantage, and organizational scalability
- Identification of key constructs: distributed agency, adjustment costs, resource fungibility, hyperscaling, and first-scaler advantage
- Development of research questions and methodological approach
- Conceptualization of first-scaler advantage versus first-mover advantage distinction

Ongoing Activities

- Comprehensive literature review expansion
- Development of theoretical sampling criteria for case selection
- Preliminary identification of potential digital firm cases for study
- Refinement of data collection instruments and protocols
- Development of analytical frameworks for case study analysis

Timeline Progress

Approximately 20% complete; project is in early development phase and on schedule

Preliminary Findings

At this early stage, preliminary conceptual insights suggest:

- Distributed agency represents a paradigm shift from viewing AI as human replacement to recognizing human-machine complementarity
- The distinction between first-mover and first-scaler advantage offers a novel lens for understanding competitive dynamics in digital markets

- Potential tension exists between rapid scaling imperatives and customer retention/satisfaction, requiring careful balance

6. Next Steps

Short-term (next 3 months)

- Complete comprehensive literature review on distributed agency, digital firm scaling, and first-scaler advantage
- Develop detailed case selection criteria and identify 4-6 target digital firms for study
- Design data collection protocols including interview guides and document analysis frameworks
- Establish contacts with potential case study firms
- Develop preliminary analytical framework for pattern recognition across cases

Medium-term (3-6 months)

- Conduct first round of case studies with 2-3 digital firms
- Collect and analyze initial qualitative data
- Begin development of experimental/simulation design to test key relationships
- Present preliminary findings at internal research seminar for feedback
- Refine theoretical framework based on initial empirical insights
- Initiate additional case studies as needed to approach theoretical saturation

Long-term (6-12 months)

- Complete all planned case studies
- Conduct experiments and simulations to validate patterns identified in qualitative analysis
- Synthesize findings across qualitative and quantitative components
- Develop comprehensive framework for understanding first-scaler advantage achievement through distributed agency
- Draft academic papers for submission to top-tier journals
- Prepare conference presentations and working papers
- Explore potential for practitioner-oriented outputs (reports, frameworks, guidelines)

Expected Outputs

- 2-3 journal articles for submission to Strategic Management Journal, Organization Science, Journal of Business Research, or similar top-tier outlets
- Working papers for presentation at Academy of Management, Strategic Management Society conferences
- LICAIM research report summarizing key findings and managerial implications
- Potential book chapter or practitioner-oriented guide on achieving first-scaler advantage through distributed agency
- Conference presentations at 2-3 major academic conferences

Resource Needs (if any)

- Access to digital firms for case study research (may require partnership development)
- Research assistant support for data collection and analysis (approximately 20 hours/week)

- Funding for transcription services for qualitative interviews
- Software licenses for qualitative data analysis (e.g., NVivo, Atlas.ti) and simulation tools
- Travel budget for site visits to case study firms and conference presentations
- Potential funding for experimental research participants or simulation development

Project Lead(s): Giovanni Battista Dagnino
Research Team: Deepak Somaya, U. of Illinois at Urbana Champaign – an advanced PhD student or postdoc is welcome for the empirical part
Start Date: February 2025
Expected Completion: Sept./Oct. 2026
Last Updated: October 2025