

The Future of the Firm

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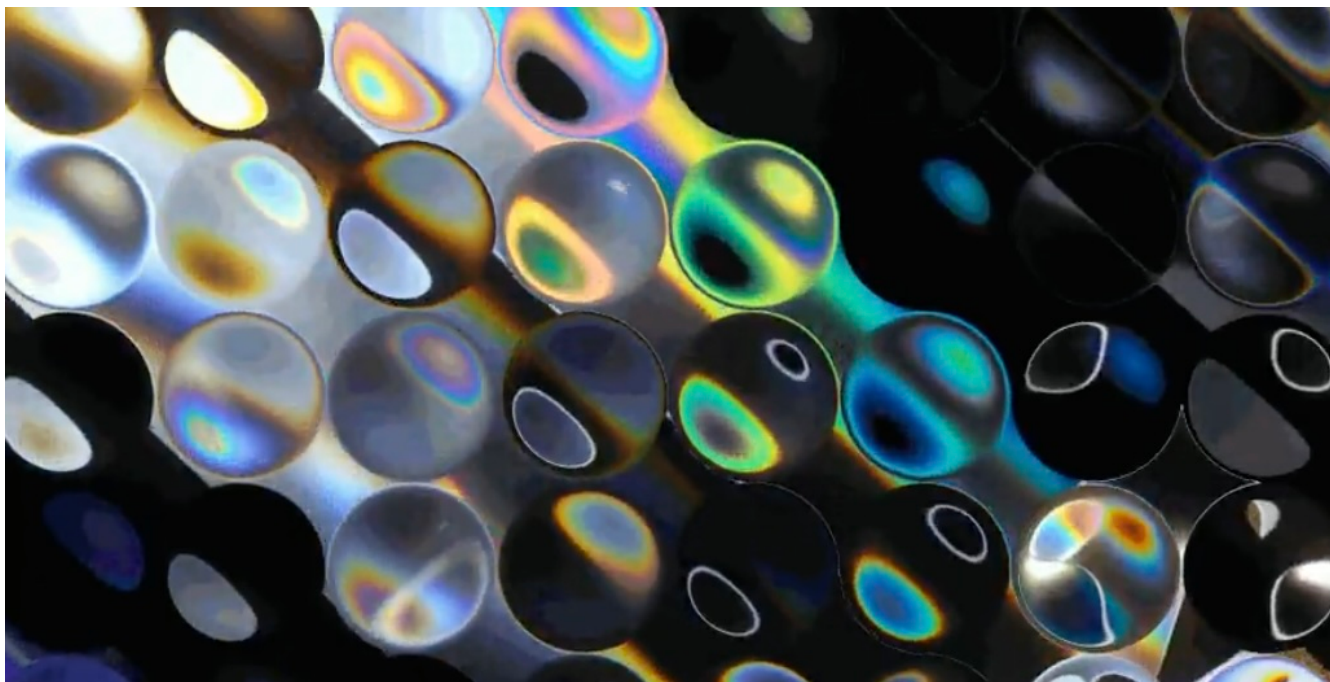


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As we enter the age of advanced artificial intelligence (AI) – and approach the era of artificial general intelligence (AGI) – business leaders are wondering how these technologies might reshape companies. One big question is how AI will change firm boundaries – which tasks companies do in-house versus outsource. New research is starting to suggest that as AI becomes more capable, companies may bring more tasks in-house, potentially creating larger, more vertically integrated organisations that manage entire supply chains under one roof.

In-House vs. Outsourcing: The Classic Trade-Off

Why do firms exist, and how do they decide what to do internally vs. externally? One answer goes back to economist Ronald Coase's classic theory. Coase observed that a company will expand internally until the cost of organising one more task inside equals the cost of paying an outside supplier. Simply put, if handling something in-house is cheaper, you do it; if an outside specialist can do it for less (after accounting for contracting costs), you outsource it. This balance between internal coordination costs and external transaction costs defines a firm's boundary.

How Advanced AI Shifts the Balance

AI can tilt this balance by automating many management and coordination tasks inside a company, greatly reducing internal coordination costs. With lower internal costs, firms can handle more work themselves instead of outsourcing. Simple economic models now predicts that as AI becomes more advanced, firms

will internalize more stages of production. In other words, AI could spur a wave of vertical integration – one company handling what used to require a whole chain of specialised suppliers. For example, a powerful AI might enable a single firm to manage everything from raw materials to final product delivery.

The “Boundary Jump”: A Sudden Leap

Notably, this shift might not happen gradually, but as a sudden leap. Once AI crosses a certain capability threshold, the number of firms in a supply chain can plummet – a “boundary jump” . In other words, when AI becomes good enough at managing a broad range of tasks, it suddenly makes sense for one company to do far more itself; what used to be a network of many companies might collapse into a single integrated firm. You can test this hypothesis in simple models of production chains with computer simulations. The result was clear: as AI drives internal coordination costs down, firms optimally integrate more stages of production.

Looking Ahead

The prospect of entire supply chains inside one company raises big questions for business strategy and policy. We’ll explore those implications further in the full paper, but for now, it’s an eye-opening scenario to consider. As AI grows more powerful, the traditional boundaries of firms might expand in leaps rather than smaller steps.