Platforms and Ecosystems
Enabling the Digital Economy

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He teaches strategy, innovation, transformation and turnarounds, and works on thought leadership with several corporates like Airbus, Nokia, Lufthansa, PWC, McKinsey, and Deloitte. He served on three Global Agenda Councils of the World Economic Forum, where he has helped shape the current Digital Ecosystems project and has presented in the Davos Annual meetings.

Arun Sundararajan is Professor of Business and the Robert L. and Dale Atkins Rosen Faculty Fellow at New York University’s (NYU) Stern School of Business, and an affiliated faculty member at NYU’s Center for Data Science and Center for Urban Science and Progress.

His award-winning research studies how digital technologies transform business, government, and society, with a recent focus on platform and AI-driven business models, digital governance, the fourth industrial revolution, and the future of work. His best-selling book, *The Sharing Economy* is available in several languages.

He is a member of the World Economic Forum’s Global Future Council on the New Economic Agenda, and a board level advisor to several government and private organizations. He has provided expert input to USA Congress, White House, European Parliament, United Nations, and other public agencies globally.

Marshall Van Alstyne is the Questrom Chair Professor of Management at Boston University, with expertise in network and information economics. His work explores how ICT affects firms, products, innovation, and society. Work or commentary have appeared in several journals such as American Journal of Sociology, Strategic Management Journal, The Economist, New York Times, and Wall Street Journal. He is coauthor of the international bestseller *Platform Revolution*, translated into eight languages, and co-creator of the concept of two-sided network effects taught worldwide.

His joint article on the subject is a top 50 of all-time for Harvard Business Review. His work has received over 10,000 citations and several awards including the National Science Foundation IOC, SGER, iCORPS, SBIR and Career Awards. He is a frequent keynote speaker and board level advisor.
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Case studies
Read them at digital.weforum.org

Read the collection of case studies from companies across a spectrum of industries who shared stories about the evolution of their digital platform and ecosystems.
The opportunity and challenge of platforms

Marshall Van Alstyne, Boston University
Platform firms do not merely create value themselves, they orchestrate value creation by outsiders.

Introducing the “inverted” firm concept

Network effects cause firms to “invert”, shifting production from inside the firm to outside it. They cannot scale inside as easily as outside. There are simply more customers than employees. If users are to create value for other users, then they must be aided and rewarded for doing so. This means firms shift from vertical integration to open orchestration.
The “inverted firm” hypothesis simultaneously explains several puzzles

**Why platform firms scale so fast:** By shifting production outside, they don’t incur production costs, and can scale as fast as they can add partners.

**Why platforms beat products:** Network effects imply that platform value appreciates through use whereas product value depreciates through use. An increasing value proposition, based on positive feedback overtakes any static or declining value proposition.

**Why platform firms have high market capitalization but so few employees:** They harness users as producers, representing an external labor force, not counted among the traditional workforce.

**Why the shift in executive mindset is so hard:** Executives familiar with managing vertical integration must transition to managing open orchestration, from resources they control to resources their partners must volunteer.
Four factors to predict the move to “invert” the firm, shifting production from inside to outside

- **Community and information intensity**
  A higher proportion of value added by information means that a community of users can more easily share value with one another.

- **Modularity**
  Precise modular output – a ride, a tweet, a search, a stay, an app – simplifies third party supply. In the case of Facebook and Twitter, the modular output is so simple that users can shift rapidly from consumer to producer and back.

- **Fault tolerance**
  Lightly regulated, fault tolerant industries transform to platforms more readily because they also facilitate third party production. It is both safe and permissible for third parties to serve demand for apps, videos, and e-commerce.

- **Capacity utilization**
  The greater an industry's spare capacity, the more compelling are the efficiency gains from creating an external market in that capacity. It makes enormous economic sense to use spare capacity and create a market for third party use, rather than let it sit idle.
Building and opening platforms

• **Interaction**: A “transaction”, which involves economic exchange, or a simpler interaction that involves only time and attention as reward. Simple interactions with lower friction to participate can scale easily.

• **Architecture**: Platform design involves careful trade-offs in a narrow versus broad focus and an open versus closed architecture. Building a broad architecture offers ecosystem partners more platform real estate with greater chances of success. Yet, focusing resources narrowly increases the chances that a critical interaction will succeed. Most successful platforms start in a niche market, where they can gain traction before opening more broadly.

• **Governance**: If open architecture allows third parties to participate, governance provides the rules of engagement - who may participate, how they create and divide value, and how to resolve conflict among ecosystem partners. Yet, deciding who may participate requires a bigger shift in mindset than most leaders realize.
[Executives] understood that it makes sense to sell complementary products from third parties through our ... platform. But, even if they rationally understood ..., emotionally, they could not support a platform where our fiercest competitors would also sell their products.

Gisbert Ruhl,
Chief Executive Officer,
Klöckner, Germany
Monetizing the platform

• Only after determining how to help others to collectively create value is it possible to monetize by asking, “How do we share in that value?”

• Use monetization to drive network effects. Then, after achieving critical mass, use network effects to drive monetization.
Alibaba’s mission is to make it easy to do business anywhere. With our platform model, we are bringing buyers and sellers from all over the world together, and are best placed to partner with them to meet the needs of the nearly 700 million users on our platforms.

Terry von Bibra, General Manager, Europe, Alibaba Group, Germany
Revenue is just one measure of success for digital platform companies

Measures of digital platform success

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<tr>
<th>Metric</th>
<th>Companies that use the metric</th>
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<td>Revenue</td>
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<tr>
<td>Funnel of transaction/transaction volume I number of people travelling</td>
<td>Booking.com, BlaBlaCar</td>
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<td>Profit and market share</td>
<td>Uber</td>
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<td>Number of participants (consumers, suppliers) I &quot;gravity of the platform&quot;, e.g. how many complementors I number of active users</td>
<td>Booking.com, SAP, Deutsche Bank</td>
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<td>Quality (customer satisfaction ratings., surveys)</td>
<td>Booking.com, Door2Door, SAP</td>
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<td>Supply - number of rooms and number of properties</td>
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<td>Customer adoption rate I customer engagement I customer experiences and outcomes I customer health score I customer acquisition costs</td>
<td>SAP, Deutsche Bank, GE Digital, BlaBlaCar</td>
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<td>Prevalence of multi-homing</td>
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<td>Killer application</td>
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<td>Culture and talent - talent adoption - &quot;integrated talent management score&quot;</td>
<td>GE Digital</td>
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<td>Share of revenues from digital sales</td>
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<td>Membership</td>
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<td>Utilization rate</td>
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<td>Share of ecosystem revenue captured by partners, share captured by platform</td>
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<td>Share of organic new users to paid new users</td>
<td>Uber, Lyft</td>
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<td>Match rate</td>
<td>Alibaba, Uber, Lyft</td>
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Designing digital ecosystems

Michael G. Jacobides, London Business School
From designing products, services or organizations, to designing digital ecosystems

Digital technology allows going beyond designing products, services, customer experiences or organizations. It allows redesigning industries, and leveraging digital technologies to create “business ecosystems”.
Our approach has always been to work with partners. It probably helped set the company’s DNA to say ‘the partner is who you enable’ as opposed to ‘I need a partner, I need a brand, I need a supplier so I can serve the end consumer’. We are true believers that a conscious partnering model is the best way for us to pursue our mission.

Terry von Bibra,
General Manager, Europe,
Alibaba Group, Germany
[As you drive innovation] you can decide you want to do it in parallel to other players or you [realize that] most likely those players will remain crucial in the market, so how about partnering with them? How about looking at how one can leverage what they do to enable them to make even more use of their position?

Tom Kirschbaum, Co-Chief Executive Officer and Founder, Door2Door, Germany
What are digital ecosystems and how can they be leveraged?

“Ecosystem” is a term used inconsistently. Ecosystems typically encompass any set of interacting producers, suppliers, innovators, customers and regulators that shape a collective outcome – sometimes geographically bound, while at other times focusing on a sector.

Digital ecosystems consist of interacting organizations that are digitally connected and enabled by modularity, and are not managed by hierarchical authority (like in a supply chain). In designed ecosystems, organizations come together by co-specializing with each other, creating bonds that engender collaboration, without excluding competition.

Ecosystems emerge because, as a result of digitization, it is now possible to connect a broad set of firms to deliver a customer solution. Rather than focusing on one segment at a time, firms increasingly want to offer a solution for a broad set of needs.

As firms move from the historically narrow to ever broader provision of products, services or experiences, the need to find complementors who can offer their services where the focal firm is not active becomes apparent.
We have multiple participants in the ecosystem – close to 1000 targeted and managed participants. They are typically technology partners, system integrators, independent software vendors, channel partners. We also see a lot of our customers themselves innovating on top of our capabilities by writing extensions at the application layer or new capabilities at the platform layer to fill out their own solutions. People tend to play multiple roles within this ecosystem.

Karthik Suri,
Senior Vice-President and Chief Operations Officer, GE Digital, USA
Ecosystems become new ways of organizing complementary goods and services that involve many companies collaborating and competing to offer a complex good or service.
Building new ecosystems: The business challenge

Starting with the “business” level, firms need to decide what their engagement in ecosystems may be. A very few may build their own, but it takes special skills, a strong position and a compelling reason that appeals both to the final customer and complementors.

Others will be well advised to participate, whether as strategic partners or as complementors, in a variety of platforms and ecosystems, and have a strategy that allows them to improve their fate – adjusting their offerings and strengthening their connections to complementary actors, and possibly look into gradually moving closer to the center of an ecosystem.
A guide for navigating a world of digital ecosystems

Six strategic questions that executives need to consider:

1. How is my sector being transformed as a result of the new opportunities available through current or developing digital ecosystems?

2. What pain point am I resolving for the final customer from this ecosystem? How does my offering compare to others', seen from the vantage point of my complementors?

3. How can I make sure that I am forming a true ecosystem rather than constructing an ego-system, which places myself in the center?

4. What role should I play in each of the ecosystems being considered?

5. What is the ultimate goal of my overall ecosystem participation? What do I seek to achieve in terms of the overall corporate objective?

6. What data and analytics capabilities must develop to better serve the customers of my ecosystem? How will they inform the question of who the right ecosystem members are, and what bundles to offer?
Designing digital ecosystems

Six strategic questions that executives need to consider:

1. How should the additional benefits for consumers be balanced against the risk of strong orchestrators who exercise control over their complementors?

2. Are there any downsides to ecosystems that provide a web of services to the final end customer, given the propensity for customers to stay inside an ecosystem? Is there de facto “ecosystem entrapment” that reduces choice and competition? If so, what can be done to restore balance?

3. How can the relative power of orchestrators be assessed? What practices in the way ecosystems are governed offer examples to replicate?

4. How do the strengths of the traditional intermediaries (e.g. retailers) compare against the strengths of multisided platform resellers, since they engage in similar activities?

5. What key metrics should be considered in ecosystem power distribution, and what are the most effective ways of formulating policy?

6. Since many of the key digital platforms and ecosystems are global, how should the regulatory apparatus, which still focuses on these dynamics one country at a time, be adapted?
Blurring boundaries: Managing platform trust, responsibility and governance

Arun Sundararajan, New York University
The building block of society – interpersonal trust – has been transformed from a scarce to an abundant one. Our potential to create value is also transformed.

Frederic Mazzella, Chief Executive Officer, BlaBlaCar, France

Building platform trust

• Establishing authenticity: is the counterparty real and who they say they are?

• Evaluating intentions: are they aligned with making the exchange productive, or is there criminal or other pernicious intent?

• Assessing expertise or quality: for instance, what do the certifications from intermediaries that set standards and assess expertise reveal?

• Lowering risk: what insurance contracts, or other means, are available?
A new basis for commercial trust has evolved – a digital community and code that reflects a heightened reliance on digitally-encoded community signals of trust and the encapsulation of different forms of standardization and contracting into computer code.

The five phases of commercial trust that have emerged over time:
Peer review systems have become synonymous with many people's notion of “online reputation.” A critical differentiating factor of peer feedback on today's commerce-focused platforms is that, unlike on open review platform, every review is typically from an authentic user and a verified transaction.

Social platforms contain digitized representations of our physical-world, real-world social capital - a powerful cue of authenticity, reliability and intent. The potential of digitized social capital as a trust enabler is especially significant in the business-to-business rather than consumer context, and will expand over time as platform models permeate industrial and professional exchange.

Many consumer platforms rely on making a range of real-world authentication systems digitally available.
It is very important for us to be very transparent with our customers and our partners in terms of what we are doing [with the Predix platform], how we are doing things, and the right level of auditability for each of these things.

Karthik Suri,
Senior Vice-President and Chief Operating Officer,
GE Digital, USA
We have invested in a huge amount of technology and resources [into our customer review system] because we believe our estimated 180 million customer reviews are an absolutely essential part of the business. If we were to switch off our reviews on the website, bookings would probably go down dramatically because people count on having this essential factor.

Rob Ransom, Vice-President, Strategy and Corporate Development, Booking.com, Netherlands
When Lyft first launched, we knew that we were literally asking people to do what their mother always told them not to do: to get into a stranger’s car. Sure, people had been doing this for decades every time they got into a taxi, but there was a social norm with taxis that we had to quickly establish with ride-sharing. We realized that the best way to do this was to eliminate the anonymity that was always part of the typical ‘vehicle for hire’ ride, and to enhance the accountability that had previously been absent in the for-hire industry.

Joseph Okpaku,
Vice-President,
Public Policy, Lyft, USA
Real, lasting trust must be earned, and while it's not easy, it is essential. We have powerful technology that helps facilitate trust, but technology alone isn't enough. The fact that there are real people and an entire company standing behind what we offer makes all the difference in our ability to earn, keep and, if necessary, rebuild our community's trust.

Nick Shapiro,
Global Head,
Trust and Risk Management, Airbnb, USA
Six governance choices that can make or break a platform

**Define the neutrality and independence:** Platform owners must decide whether their platform will be neutral and open, or whether they require exclusivity and exert control over access.

**Assess the scope of compliance oversight:** How much should a platform ensure compliance among its participants with non-platform rules, including those dictated by the laws of the countries in which its participants operate?

**Choose the level of transparency:** A platform is often called on to make its “rules of the game” transparent.

**Minimize the algorithmic bias:** Platforms rely on an array of algorithms for their effective functioning, and these are susceptible to bias.

**Set data property rights:** Although consumers who create data on a platform frequently have no default claim of ownership over these data, and little or no authority to determine how they are used by the platform, it is anticipated that a confluence of forces will return some of this authority to platform participants.

**Create due process:** After setting the “rules of the game,” it is equally important for a platform to provide its participants with a system to seek recourse when things go wrong, with aspects like advance notice, a fair hearing, and some sort of peer review or arbitrated resolution.
From the beginning we have been an open platform, so if you comply with our guidelines then you can be in our marketplace. Booking.com has never believed in the business model to have exclusive relationships with listing providers, saying you can work with us but only if you don't work with somebody else, or you don't work with them in a certain way.

Rob Ransom,
Vice-President, Strategy and Corporate Development,
Booking.com, Netherlands
Only the responsible handling of customer data opens the door to digital business models in the long term.

Markus Pertlwieser,
Chief Digital Officer,
Deutsche Bank, Germany
We must acknowledge and understand that platforms are predominantly here as marketplaces in the digital economy and, like an exchange, they should follow certain rules; a very important one would be that they should, in principle, not give preference to their own product – that is, adhere to the idea of neutrality.

Henning Schult, Senior Manager, Strategy and Regulatory Affairs, Allianz, Germany
How digital platforms and ecosystems can reinvigorate public-private collaboration?

Michael G. Jacobides
London Business School

Arun Sundararajan
New York University

Marshall Van Alstyne
Boston University
Reinvigorating public-private collaboration

Platforms and ecosystems represent a new way of organizing that can yield significant benefits for society. New products and services create citizen value, while new operating models achieve public objectives.

Digital ecosystems have the ability to help redefine the boundaries between the public and private spheres, creating new models of “invisible infrastructure” while allowing entrepreneurs to provide the “scaffolding” for new products and services.

Platforms must not be viewed as the target of regulation, but as regulatory partners.

The true potential of such collaboration will be realized if the technological, operating and regulatory innovations proceed in lockstep, rather than in isolation.
Some of the most interesting problems our societies face – like transport and mobility – cut across different policy areas, and link the private and public sectors in new and exciting ways. Our purpose is to create an open ecosystem that rewards the positive behavior of urban commuters, who respond to the inducements that both public- and private-sector organizations can offer. Our job is to provide a platform that connects the players, incentivizes collaboration and improves urban mobility.

Hamid Akbari,
Chief Executive Officer, Blanc Labs, and
Chairman, Velocia, Canada
Our goal is to build new ecosystems that help reinvigorate local economies and downtown districts, bridging a sense of mission with the ability to create a genuine sense of excitement to a diverse set of ecosystem participants in the public and private sectors. Ecosystem design, such as the one both Traipse and MyLocalToken offer, helps to blur the distinctions between the private and the public and infuse entrepreneurial spirit in the pursuit of public goals.

Darren Smith, Founder and Chief Executive Officer, Traipse, USA
Key lessons in building a digital platform and ecosystem

Summary observations from Deloitte
Key lessons in building a digital platform and ecosystem

**Clearly define the platform:** Determine the exact value proposition of the platform and ecosystem in addressing a current void in the market.

**Build supply to follow demand:** Stay laser focused on the needs of customers and build relationships with suppliers in the ecosystem.

**Take a staged approach:** Focus on reducing the onboarding time for complementors/partners in the ecosystem.

**Accelerate success with the right talent:** Adopt a different talent model – one that builds on existing core competencies. Identify a targeted set of skills and either buy them into the company or engage experts from outside to supplement internal capabilities.

**Shift the mindset and be agile:** Shift your mindset, try new things, and be ready for several ideas to fail before succeeding. Facilitate ongoing communications with key stakeholders and create a culture of experimentation.

**Value word of mouth:** Don’t underestimate the power of feedback from existing customers.

**Recognize that the scalability of the technology is key:** Offer personalized experiences to customers and enable them to adopt new technologies and scale globally.

**Collaborate to increase the gravity of the platform:** Prepare for teething problems in advancing an idea, work collectively to create game-changing solutions. Be ready to invite others to build complements on top of the platform to elevate its gravity.
Read the full paper

Platforms and Ecosystems: Enabling the Digital Economy

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