Research Insights

Data sharing across transport ecosystems

Simplify the supply chain for competitive advantage

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By Dee Waddell and
Steve Peterson

Key takeaways

Reduce complexity

To satisfy customers who are fed up with complexity, transportation providers must collaborate with partners and competitors to simplify service delivery across the entire supply chain. Ecosystems cannot easily vanquish the complexity that is inherent in modern supply chains, but they can strive to simplify the customer experience.

Real value for customers

Transportation ecosystems that are based on principles of deep collaboration, operational data sharing, and innovation create real value for customers. The transportation ecosystem participants that thrive are motivated by a desire to improve the customer experience. Practically, this often means focusing on improvements to the customer hand-offs and the interfaces that happen between members of the transportation value chain, instead of merely improving the efficiency of an individual company's own operation.

Innovative business models

While transportation ecosystems are adding value, innovative business models are needed to extract and deliver value to virtually all stakeholders. Ecosystems deliver value for customers by smoothing over operational choke points among industry participants, but the transportation providers that flourish in the years to come can also find ways to extract and share a portion of that value with ecosystem participants.

From competitive contention to cooperative collaboration

For decades, transportation executives viewed the industry as a cut-throat competition to win the business of global shippers. In this view of the market, the ongoing battle for freight volumes defined most interactions in the supply chain. Prevailing incentives justified the frequent addition of complex and costly services to win contracts, the near-constant undercutting of freight rates, and almost any sacrifice that would increase market share.

Fortunately, at the insistence of ever more powerful global shippers, the industry has been shaken out of this destructive paradigm and forced to consider ecosystems as an alternative to counterproductive rivalries. The transportation industry is quickly recognizing that working together in ecosystems has set the industry on a course toward happier customers, more profitable providers, and a more sustainable future for the entire industry.

Global supply chains have typically been highly complex systems of interdependence and mutual exchange. Visionary leaders, the very leaders that forged the earliest examples of transportation ecosystems, know that thriving in the transportation market demands cooperation among partners, competitors, and even rivals (see sidebar, "Perspective: What are ecosystems?"). Isolated operational efficiency gains that do not translate into noticeable improvements for shippers fail to win new business or generate price premiums.

94%

of ecosystem experts indicate their companies are benefiting significantly or slightly more than other ecosystem participants

88%

of transportation ecosystem respondents expect ecosystems to grow in the next 5 to 10 years

52%

of ecosystem experts expect ecosystems to improve cross-partner collaboration and interoperability

Because so much of what global shipping buyers depend on is driven by interactions and hand-offs among transportation service providers, improvements made by individual transport companies rarely translate into significant efficiency gains to the overall supply chain. Transportation leaders have come to understand that ecosystems offer the potential to deliver the types of improvements customers require.

The IBM Institute for Business Value (IBV), in collaboration with Oxford Economics, conducted a comprehensive survey of providers who participate in transportation ecosystems. Data was collected from executives from 500 transportation providers across 14 countries between November 2019 and January 2020 (see “Study approach and methodology” on page 12). In this report, we share the insights, strategies, and future plans of study participants, as well as our recommendations on how other transportation providers can optimize the benefits of transportation ecosystems in the years ahead.

Ecosystems are growing in popularity, and not only because of the potential they offer to transportation customers like global shippers; they are also thriving because they are delivering positive results to participating companies. Ecosystem participants enjoy higher revenue, lower costs, better profitability, and increased customer satisfaction. Ecosystems are gaining traction rapidly because they are good for the industry, good for the companies that participate in them, and most importantly, good for the customer.

But not all transportation providers benefit from ecosystems in the same way or to the same degree. In addition to seeking to learn about the motives, actions, and investments that have given rise to modern transport ecosystems, we wanted to understand the strategies, decisions, and leadership mechanisms that are being used by the participants that are currently getting the most from transportation ecosystems.

80% of transportation companies currently involved in an ecosystem plan to maintain or increase ecosystem involvement in the next 3 years.

Ecosystems are thriving for good reason

In the recent past, the word "ecosystem" was rarely uttered in the halls of global transportation providers. The concept, according to prevailing wisdom, applied to cutting-edge technology companies, not to the companies that use heavy machines and diesel fuel to move cargo around the globe. It is stunning how quickly and how completely this paradigm has shifted.

Today, because ecosystems are so deeply embedded in the strategies and plans of the global transportation industry, not a single respondent to our ecosystem survey suggested that ecosystems would quickly fade from view or decline into irrelevance. In fact, while a small handful of respondents (1%) believe ecosystems will not gain much more traction in the next 5 to 10 years, the vast majority (88%) expect that ecosystems will either continue to gain traction or will quickly come to dominate market interactions in the industry (see Figure 1). Ecosystems, it seems, are here to stay.

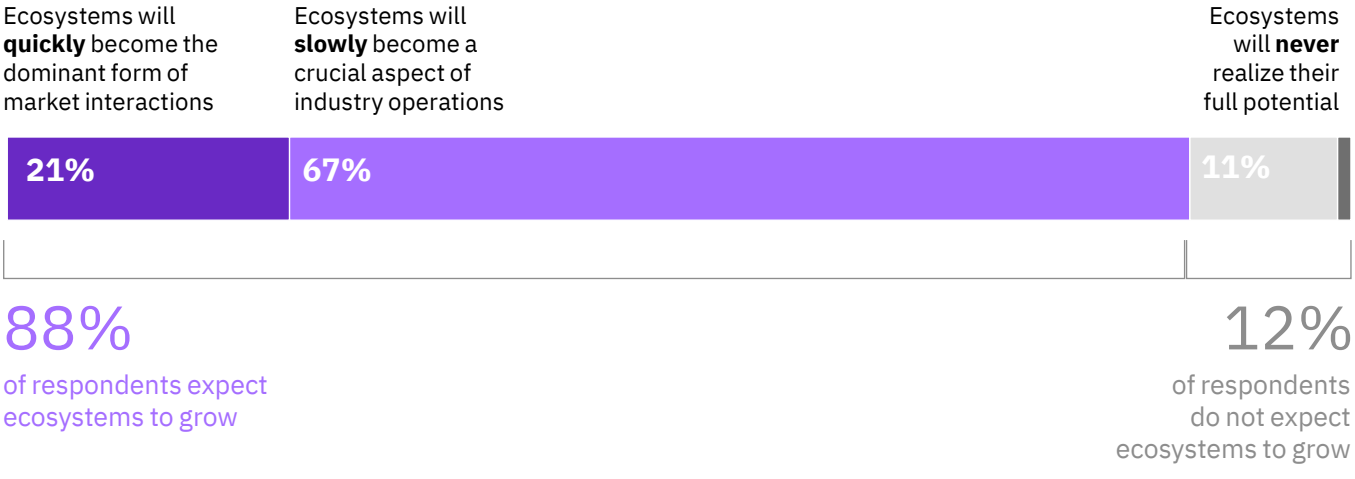
The growth of ecosystems in the transportation industry is partially explained by the fact that companies find them "addictive," and then often subsequently increase the depth and breadth of their ecosystem involvement. Indeed, 80% of transportation companies that are involved in an ecosystem today plan to maintain or increase ecosystem involvement in the next 3 years. Even more telling is the fact that fully 10% of companies plan to start a new ecosystem in the same period.

Investment plans also point to continued growth in transportation ecosystems. Transportation companies are currently directing about 9% of their investment capital toward ecosystems. Companies that start down the ecosystem path continue to increase their financial commitment to ecosystems each year, leading 11% of corporate investments toward ecosystems in the next 3 years.

Figure 1

Spreading like wildfire

67% of respondents expect ecosystems to gain traction slowly and steadily.



Perspective: What are ecosystems?

Ecosystems are collaborative arrangements that enable companies to coordinate efforts to satisfy customer needs. Ecosystems are often (but not always) open to many participant types and exist to coordinate actions around a unified purpose. Successful ecosystems depend on collaborative data sharing between parties.

MakerBot, a 3D printing manufacturer, for example, knew that to sell more printers it would need to build end user demand. To do this, MakerBot designed interactive online communities where designers, customers, and others could share plans and ideas about how to use and apply 3D printing byproducts in the real world. This simple approach drew in a variety of contributors, all of whom helped MakerBot expand the market, and all of whom benefited from its growth.[1]

Companies that invest in ecosystems are not placing speculative bets; transportation ecosystems are driving revenue growth for their participants. On average, our study finds that transportation ecosystem participants enjoy 7% more revenue inflow from ecosystems today and are expecting this to grow to 8% in the next 3 years. For the average-size transportation provider in our survey—who sees annual revenues of $5.7 billion—this translates into over $400 million in new revenue from ecosystems.

Even more importantly, ecosystem participants are confident that ecosystems are improving both profitability and customer satisfaction. Respondents to our survey report that ecosystems have improved profit margins at their companies by 3% and have improved customer satisfaction by a staggering 11%. What's more, respondents expect these improvements to continue in the next 3 years, with profit improvements reaching 5% and customer satisfaction improving by 17%.

In light of these overwhelming positive impacts, it's easy to see why ecosystems have grown so quickly in recent years and reasonable to expect continued growth in the future.

Ecosystem experts extend capabilities to benefit the customer

Lots of transportation companies participate in ecosystems, but only a small subset should be regarded as "ecosystem experts." In this study, 19% of companies are experts with extensive participation in ecosystems (as opposed to moderate, or minimal participation), along with at least 3 years of involvement in transportation ecosystems (all respondents to our survey are involved in ecosystems, but about half of them have only participated in ecosystems for a few years). So, it is worth our time to listen closely to these ecosystem experts.

The growing popularity of transportation ecosystems may be helping to spread new revenue with a broader base of industry participants.

At the other end of the spectrum are “ecosystem explorers” who have less extensive experience, and represent 15% of our survey respondent population. These less experienced ecosystem players offer a powerful contrast to our ecosystem experts. Ecosystem explorers can help highlight the ways in which ecosystem experts get more from the energy and resources they dedicate to transportation ecosystems.

Interestingly, but perhaps not surprisingly, transportation ecosystem experts bring a decidedly strategic orientation to transportation ecosystems: they tend to focus on improving the customer experience in ways they may not be able to without ecosystem partners.

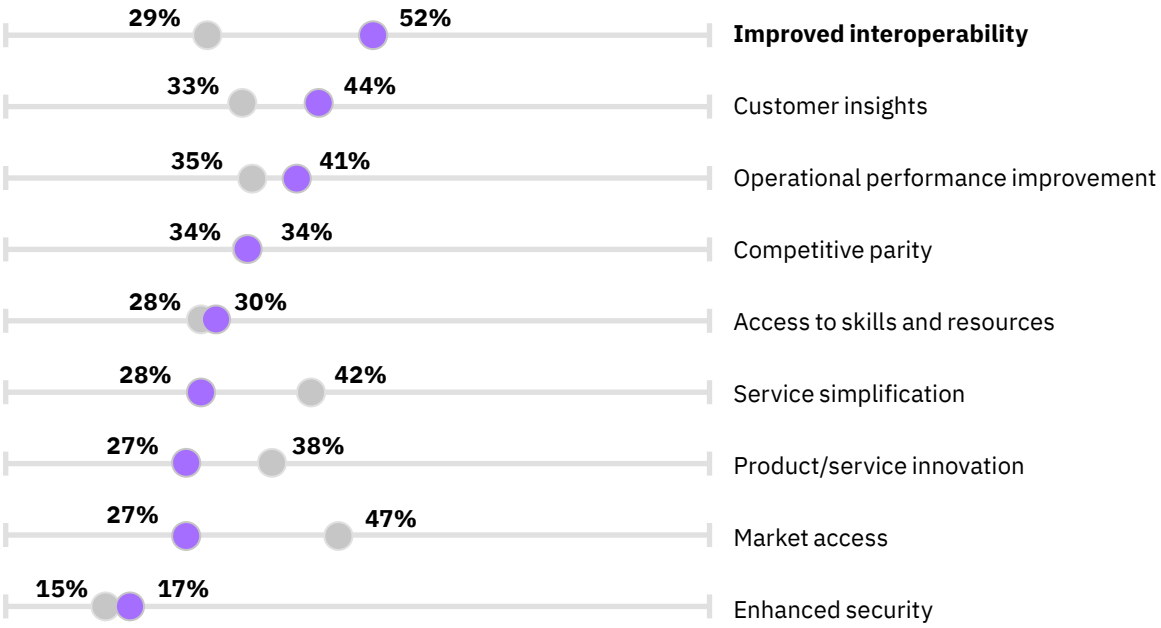
First and foremost, ecosystem experts participate in ecosystems to satisfy customer needs and preferences (see Figure 2). 52% of experts view ecosystems as a way they can improve cross-partner collaboration and interoperability. 44% of experts seek to improve the customer experience by deriving deeper insights from the customers they serve, and operational performance improvement, cited by 41%, rounded out the top three .

The experts’ motivations stand in contrast to those of ecosystem explorers, 38% of whom expect ecosystems will help them innovate on products and services and (42%) expect ecosystems to help simplify service delivery. But the top motivation of explorers (selected by 47% of them) is simply to use ecosystems to gain access to new markets.

Figure 2

Divergent motivations

52% of experts view ecosystems as a way to improve interoperability.



Source: 2020 IBM IBV Transportation ecosystem survey, Q16: Areas your company expects to increase reach of products / services by extending into new markets reaching customers company otherwise struggles. (n=500; multiple responses possible)

The difference between ecosystem experts and explorers extends well beyond the realm of objectives and intentions; meaningful differences are also evident in their financial performance and investment patterns. As expected, ecosystem experts invest more in ecosystems than explorers, especially in the recent past.

While experts dedicated 17% of corporate capital to ecosystems 3 years ago, explorers invested just 3% (see Figure 3). Explorers are ramping up their ecosystem investments quickly, however, and as experts continue to reduce overall investments in ecosystems, both groups seem to be converging at about 11% of corporate capital in the next 3 years (12% for experts and 10% for explorers).

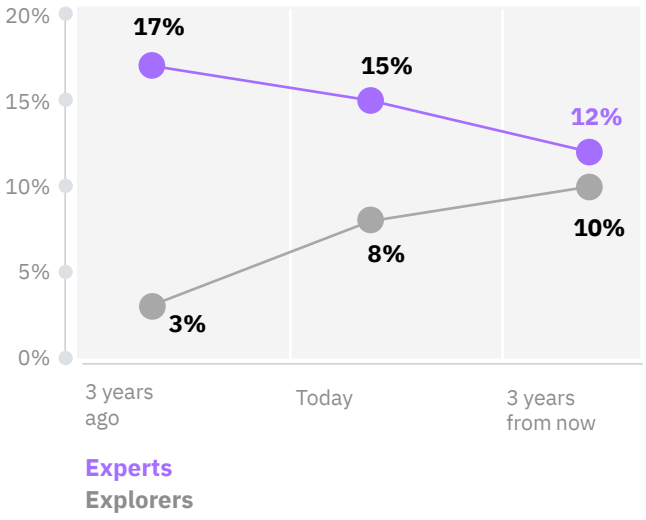
But even more significant differences between experts and explorers are evident in the revenue and profit improvements derived from ecosystems. Experts generate 13% of their revenue from ecosystems, compared to just 6% for explorers. This advantage is expected to narrow, however, as explorers ramp up their ecosystem involvement and experts anticipate a slight decline in ecosystem revenue in the next 3 years. The growing popularity of transportation ecosystems may be helping to spread new revenue with a broader base of industry participants. After all, even a growing pie yields a smaller slice when it is cut into many more pieces.

Interestingly, ecosystem experts generate 5% more profit from ecosystems today than they did just 3 years ago and expect that number to grow to 7% in the next 3 years (see Figure 4). Explorers lag experts in profitability by about 3 years.

Figure 3

No more free riders

Ecosystem investments are expected to stabilize at around 11% of total financial investments.

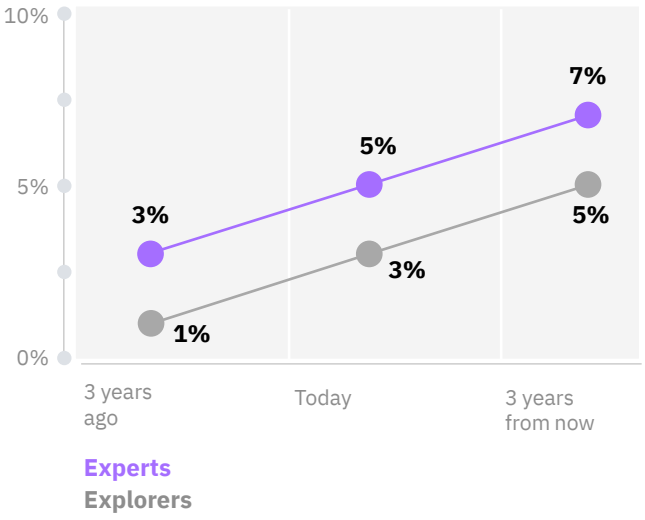


Source: 2020 IBM IBV Transportation ecosystem survey, Q17.1-3: Percent of annual revenue that will be derived from transportation ecosystems (3 years ago, today, 3 years from now). (n-500)

Figure 4

Reaping ongoing ecosystem rewards

Experts expect to generate 7% more profits from ecosystems 3 years from now.



Source: 2020 IBM IBV Transportation ecosystem survey, Q21.1-3: Estimate the impact of participation in transportation ecosystems on profit margins (3 years ago, today, 3 years from now). (n=500)

Companies should foster openness, flexibility, and trust in their own companies, as well as among members of the ecosystem.

The fact that profits are expected to improve—even as revenue from ecosystems is expected to contract for ecosystem experts—is not a surprise because ecosystems also improve operational efficiency and reduce the costs associated with shipment tracking and customer communication.

Perhaps most importantly of all, ecosystem experts are better at using ecosystems to retain customers. They tend to be better at using the ecosystem to reduce friction in the supply chain to improve the shipping experience for their customers.

Experts and explorers agree that being a part of a transportation ecosystem helps retain customers, but experts tell us ecosystem participation has a more significant and positive impact on customer retention. In fact, while experts and explorers both attribute significant improvements in customer retention rates to ecosystems (10% and 4% respectively, 3 years ago), both groups expect continued improvement in the future (18% and 16% respectively, in the next 3 years).

Transportation ecosystems must integrate with the enterprise

To get the most from transportation ecosystem participation, companies should strive to build cultures around customer innovation while designing business models that create, capture, and share value. Doing this well requires companies to dismantle the structural roadblocks that limit collaboration, focus innovation energies on resolving unmet market needs, lubricate ecosystem data flows, and redesign corporate business models to deliver new value to customers, as well as extract and share value with members of the transportation ecosystem.

Corporate culture is a significant barrier to effectively sharing shipment status. It can delay forecasts, and other operationally relevant insights with partners and customers. To bridge this gap, and to get the most out of their participation in transportation ecosystems, companies should foster openness, flexibility, and trust in their own companies, as well as among members of the ecosystem. Many ecosystem experts (52%) have catalyzed this cultural shift by placing ecosystem participation under the direct control of their chief operating officer (COO), but other training and change management programs can help employees embrace the true potential of ecosystems by sharing more willingly with ecosystem partners.

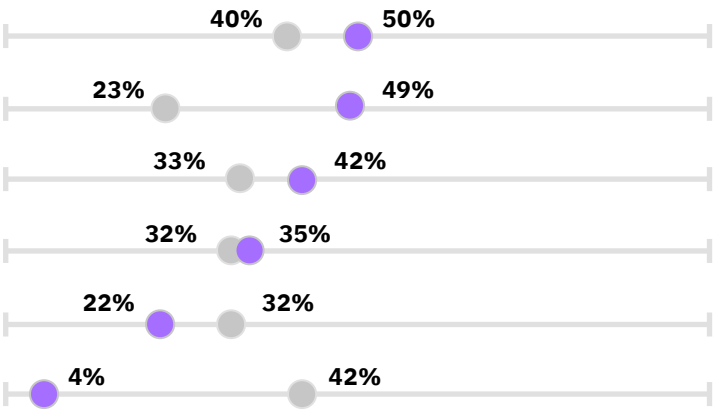
Of course, effective sharing across the transportation ecosystem requires both willingness and ability, so efforts must be made to help integrate internal IT systems seamlessly with ecosystem IT platforms. The operational and planning systems staff must facilitate timely and accurate data sharing among partners so operations experts can leverage the ecosystem to continually improve operational performance (see Figure 5).

Companies should negotiate with ecosystem partners to form shared innovation priorities and use ecosystems to drive targeted improvements.

Figure 5

Ecosystem experience sharpens focus

50% of experts cite the need to communicate and interact with customer more effectively.



Communicate and interact with customers more effectively regarding shipment status details

Share data and insights about shipments more thoroughly with transportation partners

Adjust to the operational need and constraints imposed by transportation ecosystems more swiftly

Generate insights based on harvested transportation ecosystem data faster and more efficiently

Collect and retain data from transportation ecosystems more strategically

Establish the necessary IT connections with transportation ecosystems fast and more efficiently

Source: 2020 IBM IBV Transportation ecosystem survey, Q29.1-6: Two improvements needed to become a more successful participant in transportation ecosystem. (n=500)

Optimally configured transportation ecosystems—paired with a supportive and open corporate culture—can help transportation companies do the normal work better, but ecosystems should also be used to do new things to improve the customer experience. To tackle unmet needs in the market, ecosystem participants should collaborate with partners to catalog persistent issues.

Incorporating new capabilities into the corporate operating model is challenging. But many companies have found the agile development approaches that were pioneered by IT organizations are often an effective way to plan and integrate new technologies—such as intelligent workflows and hybrid cloud-delivered applications—into existing processes without disrupting current operations. Bold leaders might invite members of the transportation ecosystem to contribute to these garage-style working sessions to improve the odds that planned improvements work well across the entire ecosystem, and, ultimately, for customers.

Companies should then negotiate with ecosystem partners to form shared innovation priorities and use ecosystems to drive targeted improvements. Finally, ecosystem partners must work together to transform perennial industry complaints into new solutions by collaborating to pioneer novel solutions (see sidebar, “Perspective: Advancing sustainability objectives”).

Even more tactically, transportation ecosystem participants must do all they can to lubricate ecosystem data flows by investing in solutions that facilitate automatic sharing of insights, whenever possible. With appropriate standards and protocols in place, companies can adhere to existing data guidelines that most ecosystems have established to unlock interesting and valuable possibilities.

All data sharing must comply with local rules and regulatory conditions, of course, and ecosystem participants must secure and protect ecosystem data. Sticking to the established rules and keeping data secure is an essential responsibility of all ecosystem members.

Another important priority for ecosystem participants is to update their business models to take advantage of the new possibilities that ecosystems enable. More durable business models can continually deliver value to customers. "Value-add" services—such as end-to-end tracking and integrated billing—should be delivered via ecosystems, for example. But it is equally important that such improvements benefit the ecosystem partners. In this example, reasonable per-use fees for value-add tracking should be considered.

Finally, transportation ecosystems that eradicate supply chains inefficiencies without passing a portion of those savings onto customers may struggle. And ecosystems that dole out a disproportionate share of improvement-related gains to just a few companies may eventually be overtaken by solutions that work better for a larger share of the market. Fortunately, today, a large portion of ecosystem explorers (46%) report that they are benefitting from ecosystems about as much as other participants.

Perspective: Advancing sustainability objectives

As the primary mechanism for moving intermediate and finished goods around the planet, the transportation industry has a large and growing carbon footprint. Visionary industry leaders, such as those that spoke at the World Bank Live "Transforming Transportation" event on February, 3, 2021, assert that the global transportation ecosystems can be leveraged to reduce CO_2 emissions in the industry by working to optimize supply chain movements in entire trade lanes, not just for individual transport providers.[2]

To accomplish such an ambitious objective, transportation leaders first need to listen with empathy to partners and customers who describe pain points related to long-term environmental impact and sustainability objectives in the sector. Leaders might then choose to draw attention to the most significant CO_2 contributors in a given supply chain, recognizing that we can only improve that which we measure. Though specific investment and strategies on how this may come to life are not yet clear, new technologies and innovations—such as alternative fuels, increased fleet automation and electrification, and optimized dock-to-door routing—offer the potential to reduce CO_2 emissions across the industry.

Action guide

Simplifying the supply chain for competitive advantage

Transport ecosystem experts are optimizing their investments in ecosystems. They leverage ecosystems to shield customers from supply chain complexities and are reaping substantial financial benefits from these endeavors. To get more from ecosystems, transportation providers should:

Enhance corporate culture to foster collaboration among partners

- Foster and reward a data-driven culture that encourages openness and promotes sharing within the company.
- Reduce silo-driven thinking by demonstrating the impacts that local decisions have on overall supply chain efficiencies and the end customer.
- Appoint leaders who understand and embrace ecosystem-driven innovation.
- Place COOs and other operational leaders in charge of transportation ecosystems.

Optimize transport platforms to derive and act on customer insights

- Promote liberal data sharing within and among members of the transport ecosystem by adopting and adhering to ecosystem and industry data standards.
- Invest in IT systems that make it easy and cost effective to share data flexibly and safely with ecosystem partners.
- Establish programs to extract insights derived from ecosystem data and empower teams to act on those insights to bring benefit to the customer and the company.
- Protect ecosystem advantages (higher revenue, profit, and lower costs) by continuing to “push the envelope” on ecosystem-driven innovation.

Avoid the temptation to hoard benefits or impose control. Use ecosystems to advance shared objectives

- Deliver value to customers while capturing and sharing benefits with partners. Ecosystems will likely continue to benefit participants financially, but unilateral efforts to dominate or control the ecosystem undermine this potential.
- Implement programs that leverage ecosystem insights to constantly innovate for the benefit of the end customer.
- Continually tweak the customer value equation and business model to extract price premiums and cost reductions from ecosystem-driven improvements.
- Reap reasonable financial rewards from participation in ecosystems while sharing a portion of extracted value with ecosystem partners.

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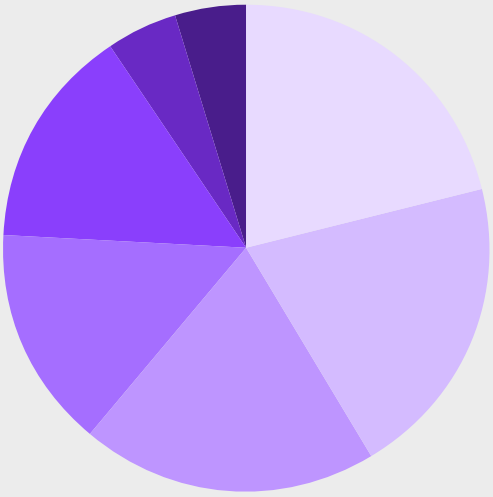
Study approach and methodology

From late 2019 to early 2020, the IBM Institute for Business Value (IBV) surveyed 500 transportation executives from Asia (125), Europe (125), North America (100), the Middle East and Africa (100), and Latin America (50). All respondents indicated that their transportation company had experience with transportation ecosystems and that they were well informed on the status, performance, and plans related to ecosystems at the companies.



Respondents by role

- **106** Freight logistics operators
- **102** Freight forwarders
- **99** Road freight services
- **74** Port/terminal operators
- **74** Rail freight services
- **24** Ocean container services
- **23** Air freight services

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Notes and sources

1 West, Joel and George Kuk. "The complementarity of Openness: How MakerBot Leveraged Thingiverse in 3D Printing. March 31, 2015. https://docplayer.net/55536317-The-complementarity-of-openness-how-makerbot-leveraged-thingiverse-in-3d-printing.html

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