

An aerial photograph of a city, likely San Francisco, with a network of white lines and dots overlaid on the image. The lines connect various points, creating a web-like structure. The background is a mix of blue and green, with the city's buildings and streets visible. The text is in a bold, black, sans-serif font.

FROM OPERATION TO ORCHESTRATION

**A human-centered approach to
creating future mobility ecosystems**



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END OF THE LINE FOR “MORE OF THE SAME”

Mobility ecosystems are on the brink of a revolution. The way we move people and things around our cities, towns, rural spaces, and transport networks is set to be transformed by pervasive digital connectivity, autonomous technologies, and a growing awareness of the urgent need to reduce carbon emissions.

Recent years have seen a significant shift in people’s expectations of mobility services. “Liquid expectations” means the best consumer experiences in one industry now set the standard that all others are expected to meet. The result for transportation is a generation of passengers who increasingly want and expect it all: personalized, on-demand mobility delivered seamlessly door-to-door across transport modes in the most eco-friendly and safest way—and at the lowest cost.

FJORD'S PERSPECTIVE ON HOW MOBILITY WILL CHANGE OVER THE NEXT 20 YEARS IN ITS MOBILITY 2039 REPORT.

[SEE MOBILITY REPORT](#)

Clearly, measures to combat COVID-19 are also having a drastic impact on transport systems. Before the pandemic, the number of passenger transport journeys had been expected to increase nearly threefold between 2015 and 2050 (growing from 44 trillion to 122 trillion passenger kilometers).¹ However, ridership volumes and revenues plummeted during the pandemic, in some cases by as much as 90%. And it's uncertain when these numbers will recover, especially if the world experiences future waves of COVID-19 infection.

What's more, as passengers return, operators will need to run their services much more efficiently in order to prevent costs spiraling out of control.

The same is true of city stations and other mobility hubs. Before the pandemic, they were often overflowing with uncoordinated traffic and struggling to properly orchestrate either traffic flow or the complex interplay of different passenger and operator needs.

Without decisive action, already fragmented passenger experiences will become even more disjointed. And this in turn will create a gap between what passengers expect and what transport systems can actually deliver. Before COVID-19, passengers often had to use a whole range of different services to plan a single journey, purchase tickets, get additional services, or change plans when something went wrong. To solve this fragmentation, radical change is needed.

THE INTEGRATION CHALLENGE

Can the mobility ecosystem raise its game? Can seamless door-to-door services become a reality, while managing uncertain passenger demand? To do so, significant integration is needed between public, private, collective, and individual transport providers.

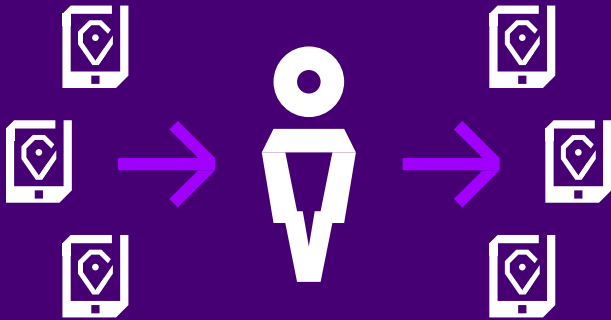
That's not where the mobility ecosystem is today. Most operators appear set on optimizing their own operations and fighting off disruptive market entrants. They're looking to consolidate vertically within their industries with a view to "owning" their siloed ecosystems. But this comes at the expense of wider collaboration and integration.

Public investment will be needed to integrate the ecosystem. But history is not encouraging here. Public infrastructure financing has always been a highly political issue, subject to the ups and downs of electoral cycles. Just look at the ongoing controversy over the UK's proposed high speed HS2 railway for an example of the inherent challenges. However, COVID-19 may well lead to a renewed willingness for governments to step in.

Transport infrastructure investments must also navigate a complex network of local, state, federal, and international agendas and regulatory environments. Projects have to balance the sometimes misaligned or competing interests of central and local government, transport operators, local communities, and individual passengers.

But while these integration, financing, and complexity issues remain unaddressed, the backlog in necessary infrastructure projects gets ever bigger. Performance suffers. Asset availability is reduced. Maintenance needs increase. Timetables are disrupted. Schedules are under-optimized. Safety and environmental risks grow. And, ultimately, public trust in the mobility ecosystem is eroded.

What does it mean for the mobility ecosystem?



Many different applications are needed to plan, perform and pay for a journey from its starting point to the end.

Seamless and personalized door-to-door mobility is still not a reality.

Capacity problems and cost pressures are forcing players in the ecosystem to **digitize and optimize vertically**.

Silo mentality leads to little or no horizontal integration, players are **ringfencing their market position and revenue streams**.



Different initiatives focus on local, state or federal topics, each with their own agenda.

Regulations are defined on different governmental levels (municipal, state federation, union) and often hinder collaboration between different actors.

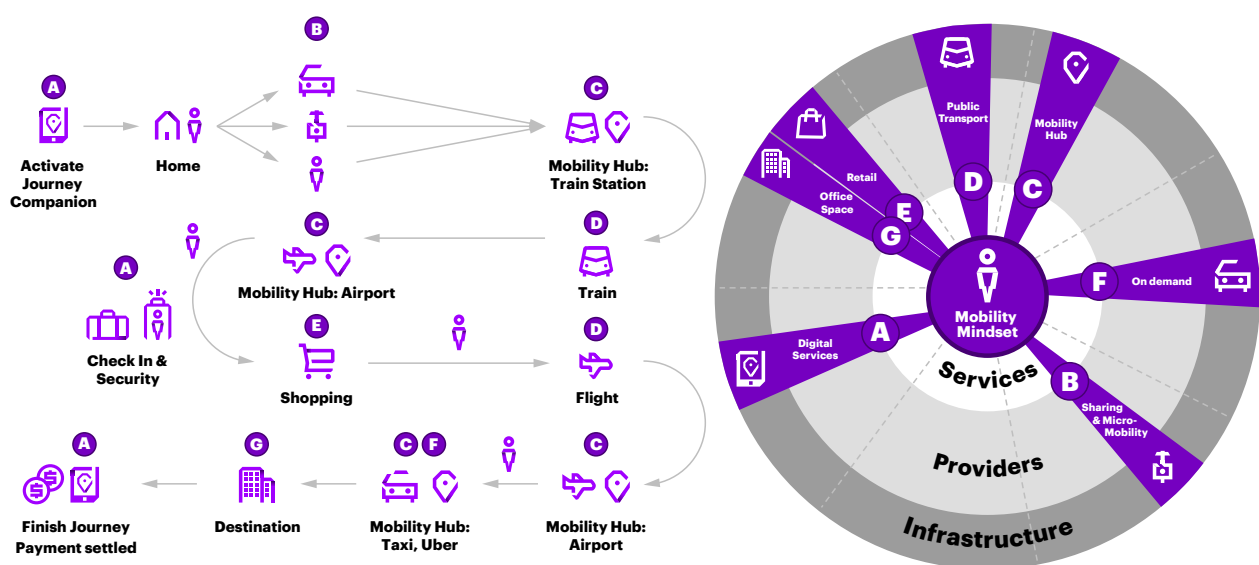
PUT PEOPLE AT THE CENTER OF AN INTEGRATED SYSTEM

Customers' end-to-end needs need to be placed at the center of the mobility ecosystem. The primary goal of all players should be to look at mobility from the perspective of people (and goods) moving within the constraints of a particular geographical space and to deliver services that meet their needs in a truly human-centered way.

To make this happen, siloed thinking must end. It's no longer enough for providers to focus on their industry verticals, effectively ignoring what happens to passengers before and after they use their services.

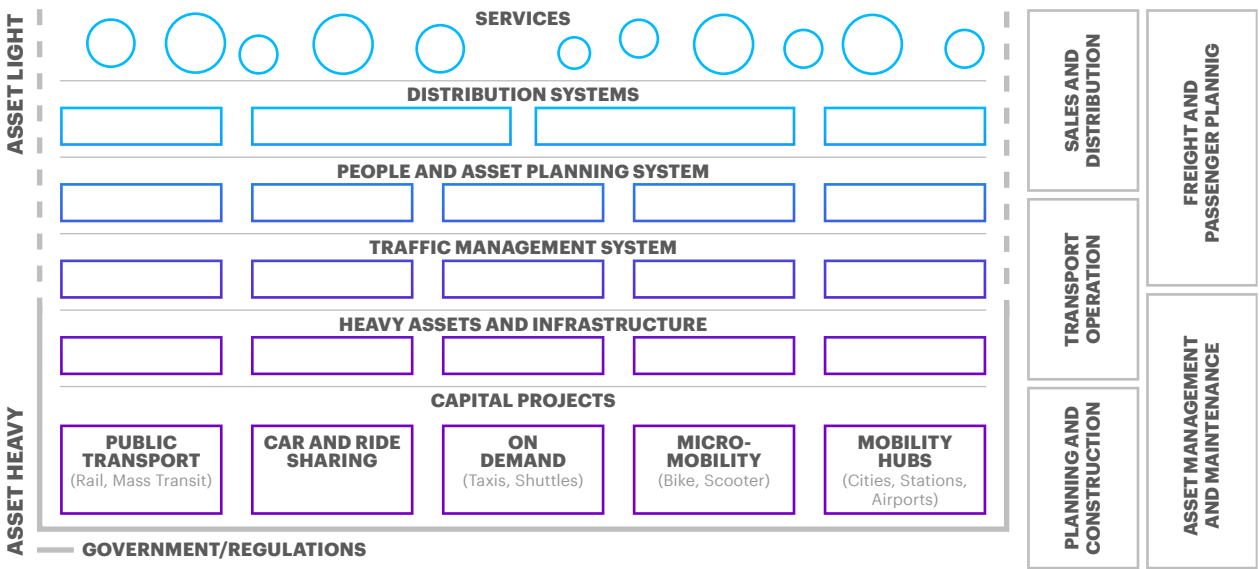
Intermodal mobility centers the business model around the digital client

A future customer journey example

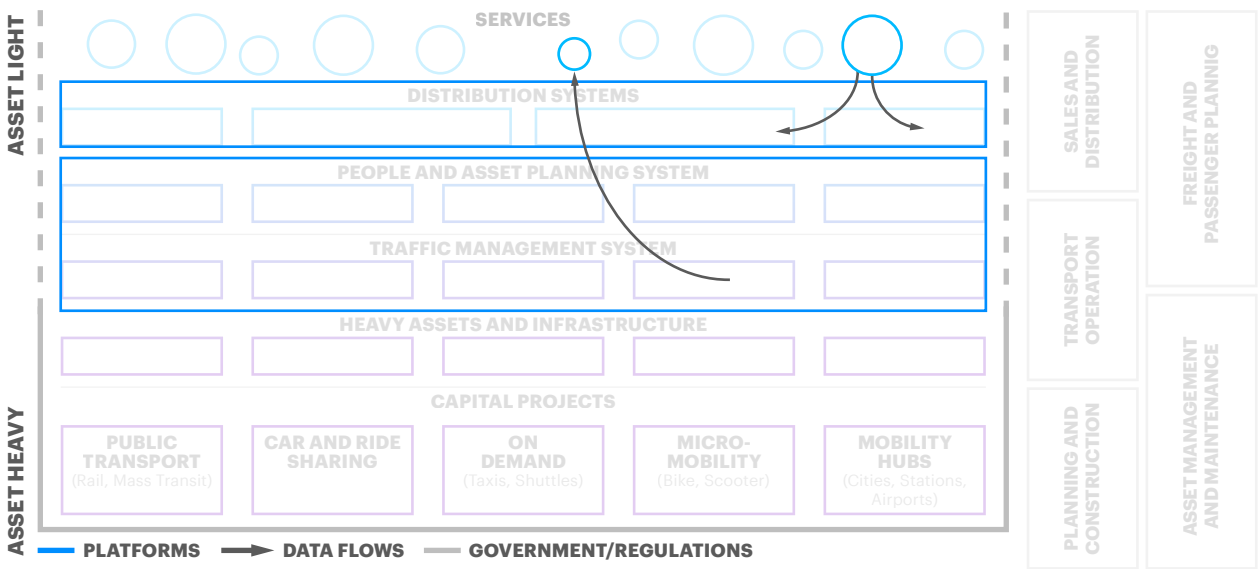


Seamless mobility experiences will only be possible through horizontal integration at an operational level.

Today, horizontal integration is limited to the digital service level (such as door-to-door personal navigation services) or the distribution level (such as mass-transit booking platforms)



Integration across distribution systems, people/asset planning systems, traffic management systems, heavy assets and infrastructure, and capital projects is required.



The whole ecosystem will need to become more fluid. Its constituent parts will need to be connected both in the physical world (parking, mobility hubs, rail and mass-transit networks, etc.) and in the digital world (data, platforms, APIs). Big investments in infrastructure will likely be needed to enable these kinds of adaptive “living” services.

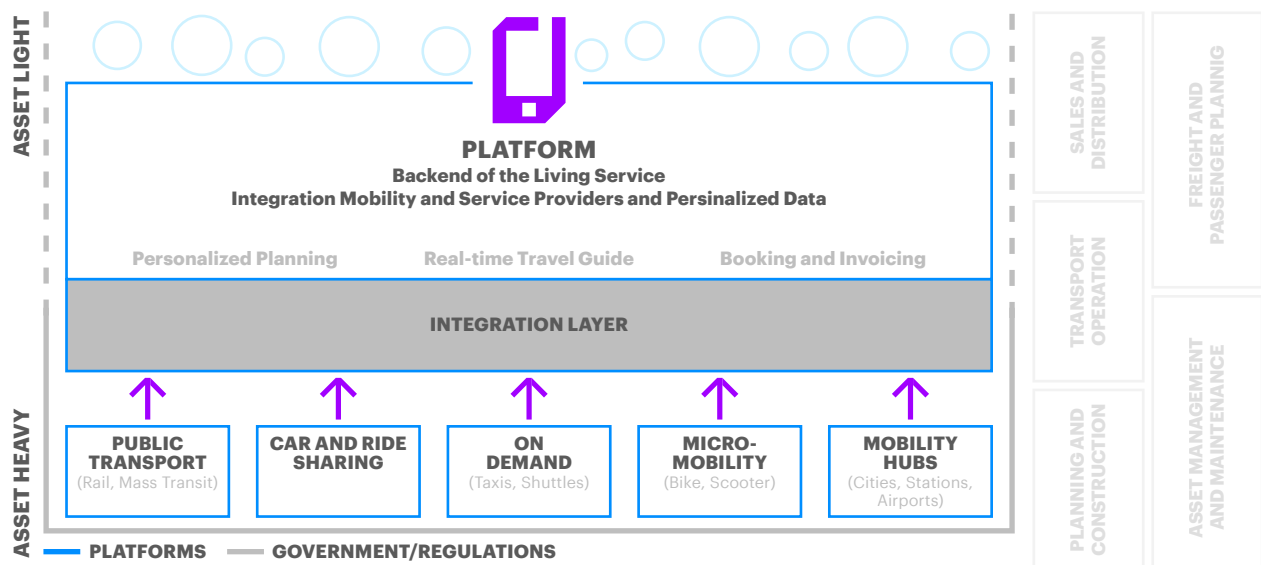
Government’s role is crucial. The profitability of services can vary hugely (especially outside densely populated areas and point-to-point connections between cities). Governments and regulatory bodies will have to set the frameworks, deciding how they want mobility services to evolve in each region and defining where long-term investments will be made.

Players will need to open up their systems to let others participate in and contribute to core service offerings. Historically integrated (and often state-owned) bodies like national railways will have to define where their core competencies lie, where they should partner with others, and how their businesses and services need to change to secure a place in the future ecosystem. Some have already started this process.

ORCHESTRATION: THE BACKBONE OF FUTURE MOBILITY INFRASTRUCTURE

New roles will open up for those willing and able to orchestrate all these horizontals, acting as the “backbone” of the mobility ecosystem. These orchestrators will be critical, likely owning the data that fuels future mobility services as well as the end relationship with the customer.

Orchestrators will have to provide the digital backbone of the mobility ecosystem



Orchestration needn't be left to a single organization. Where, for example, one potential orchestrator lacks a direct connection to the end customer, it could collaborate with transport service providers to share the role—one orchestrating the network and traffic flow, while the other orchestrates customer-related services like personalized planning, real-time travel guidance, booking and invoicing.

Many existing rail operators, infrastructure providers, and public transport authorities are uniquely well placed to be orchestrators, for the following reasons:



These bodies are usually dominant within their local geographies.



They own and operate much of the infrastructure and passenger and cargo services, as well as key mobility hubs like train stations.



They have access to data on actual traffic flows and are involved in long-term regional planning.



They're under intense pressure to digitize and automate operations to accommodate unpredictable passenger numbers.

BRINGING HARMONY TO FRAGMENTED MOBILITY SYSTEMS

Ecosystem orchestration will be a fundamental (and profitable) position in future mobility systems. Orchestrators' core value propositions will also be much more robust against disruption, shifting away from a narrow focus on A-to-B transport and toward a far more holistic view of mobility across both public and private infrastructure.

But not every current mobility player can – or should – adopt an orchestration role. Instead, each should be asking where they can best contribute to and profit from a future ecosystem given their unique capabilities and constraints.

Every mobility player should ask themselves three key questions:

1.

Where are we best placed to be the sole service provider within the mobility ecosystem, and where should we be sharing capabilities or letting others take the lead?

2.

How will we provide seamless integration across the ecosystem? How will profits and returns be attributed – as well as responsibility for fixing travel disruptions and disputes?

3.

Do we have the right corporate mindset for opening up our proprietary systems to the ecosystem? Are we willing to invest in the necessary connecting physical and digital infrastructure?

An effective mobility ecosystem isn't just a public service. It's also an integral pillar of a well-functioning society. This will be even more important in a post-pandemic world. But today's ecosystem must adapt to changing needs and priorities. It should provide fast and seamless passenger journeys, on demand, at low cost, with minimal environmental impact, while keeping passengers safe. That's the ultimate goal. It's now up to all of us in the mobility ecosystem to define our role in making it happen.

References

- 1 ITF (2019), ITF Transport Outlook 2019, OECD Publishing, Paris, https://doi.org/10.1787/transp_outlook-en-2019-en

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