2022 CIO and Technology Executive Agenda: A Transportation Perspective

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Initiatives: Manufacturing Digital Transformation and Innovation; CIO Role Evolution

The CIO and Technology Executive Survey, focused on the business composability concept, shows transportation companies perceive themselves as more composable than the combined-sector average. Transportation CIOs are also the most optimistic about 2022 in terms of revenue and IT budget growth.

Overview

Key Findings

- Companies displaying high business composability (composable thinking, composable business architecture and composable technologies) deliver superior business performance, even in times of volatility.

- Eight percent of transportation respondents are categorized as highly composable — ranking as one of the top industries in this respect — against 6% for the aggregate of all industries. Still, transportation companies show an important gap in terms of composable thinking.

- Transportation companies trail behind high-composability companies across industries in terms of penetration of digital business and percentage of internal digital processes.

- Transportation CIOs and technology executives are the most optimistic among all industries, expecting the highest average revenue and IT budget increases for 2022. Planned investment increases in AI, however, still fall behind the levels shown by high-composability companies.

Recommendations

CIOs advancing digital transformation and innovation in transportation:
Survey Objective

The 2022 Gartner CIO and Technology Executive Survey was conducted to inform CIOs and other technology executives on how composability can improve business performance during times of volatility.

Data Insights

The transportation sector comprises two different stories, both influenced by recovery from the pandemic. After a major drop in public transportation passengers last year and a mild recovery this year, CIOs and tech executives in public transportation look at 2022 with greater optimism. Transportation of goods didn’t really see a slowdown in 2021 and 2020, but has been hit by several disruptions, like issues with truck drivers at California ports and in the U.K. and Europe. This period served valuable lessons that can strengthen these companies’ resilience through a greater and better use of technology.

Composability Can Improve Business Performance

The 2022 Gartner CIO and Technology Executive Survey focused on how composability can improve business performance. A composable business is an organization that delivers business outcomes and adapts to the pace of business change by adopting:

- **Composable thinking** — This corporate culture and mindset aim the creation and usage of capabilities and resources toward continuous change.

- **Composable business architecture** — The company doesn’t link people or equipment to a particular organizational silo, but allows those to be fluidly allocated to different company areas as the need for digital disruption is identified.

- Focus on composable thinking. Shape the culture of the organization to further empower associates to independently make decisions. This enables a culture of trust rather than risk aversion, something that transportation companies must achieve.

- Continue to advance business operations by increasing the adoption of digital ticketing (for mass transit companies) and online ordering (for transportation of goods). This is the moment to break away from legacy thinking and deploy processes that are more modular.

- Take this IT budget growth as an opportunity to reformulate the IT strategy. Step up investment in AI, as this is an area where transportation companies lag behind high-composability organizations.
Composable technologies — Digital assets are packaged as discrete components and designed as building blocks for assembly and reassembly of business processes and application experiences.

A detailed explanation of the concept is available at Innovation Insight for Composable Business for Manufacturers. High business composability delivers superior business performance, even in times of volatility — a crucial aspect in a period of great disruptions in the world of transportation.

Figure 1 explains this perspective, where 63% of respondents from the group of high-composability companies see their organizations as ahead or far ahead of their competition in terms of overall business performance. High-composability enterprises are enterprises that utilize the principles of composable thinking, business architecture and technologies “widely” or “extensively throughout the enterprise.” Only 38% of transportation respondents rated their overall business performance as ahead or far ahead of peers and competitors.
Eight percent of transportation respondents were categorized as highly composable (see the downloadable slide deck for more information). This can be explained by the fact that transportation is essentially a service, something that allows greater operational flexibility than, for instance, manufacturing. In addition, transportation is not bound by major regulations in safety and security like several other sectors — namely, healthcare and finance.

However, the gap between transportation companies and their high-composability peers is the greatest for composable thinking and composable technologies (see Figure 2).
In terms of composable thinking, the gap is particularly wide in the ability of teams working together autonomously and with self-organizing capabilities (see Figure 3). There is also a clear lag compared with high-composability companies in shaping multidisciplinary teams to align on value, promote transparency, drive accountability and collaborate on demand. This finding confirms the fact that culture and organization are usually weak points in a transportation company's ability to transform itself and be resilient.
Figure 3: Key Thinking Practices to Improve Business Composability

Recommendations:

Transportation companies wanting to become truly composable:

- Develop all three domains of composability: composable thinking, business architecture and technologies.

- Build a culture of trust by empowering associates to independently make decisions. Improve business processes by embracing a more collaborative posture, allowing multidisciplinary teams to operate autonomously and as part of a self-organizing network. Ensure these teams promote transparency, drive accountability and are ready to collaborate on demand.
Prove the value of modular technology by identifying a small number of key technology assets (systems, applications and so on) where high cost or risk of change is a vulnerability. This will make it easier for you to convince decision makers into investing in composable technologies.

Transportation Companies Expect Progress on Digital Processes and Revenue

On average, transportation CIOs and technology executives expect strong progress in the percentage of internal processes to be digitally optimized between 2021 and 2023 (see Figure 4). These stakeholders also expect a solid increase in the average percentage of revenue generated via digital sales, which should be close to 25% by 2023. A slightly widening gap separates the transportation companies from the high-composability companies between 2019 and 2023, especially in terms of digital sales revenue. Digital ticketing (in the case of transportation of people) and online ordering (in the case of transportation of goods) are already widely known technologies in this space, and the pandemic should have worked as a boost for these. However, transportation companies seem to be lacking ambition to take digital sales revenue further.
Figure 4: Average (Mean) Percentage of Revenue From Digital Sales vs. Average (Mean)
Percentage of Digitized Processes

**Average (Mean) Percentage of Revenue From Digital Sales vs. Average (Mean)
Percentage of Digitized Processes**

<table>
<thead>
<tr>
<th>Digital Business (Externally Facing, Average %)</th>
<th>Digital Processes (Internally Facing, Average %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>100%</td>
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</tbody>
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**n = 126** (high composability), **n = 63** (transportation), CIOs and technology executives answering, excluding “don’t know”

X-axis: Q. What percentage of your enterprise’s processes have been optimized (made more efficient) through digital means?

Y-axis: Q. What percentage of your organization’s total revenue would you attribute (or expect) as digital sales revenue?

Source: 2022 Gartner CIO and Technology Executive Survey

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**Recommendations:**

- Increase the adoption of digital ticketing (for mass transit companies) and online ordering (for transportation of goods). Also, consider new business models that incentivize customers to use your digital revenue channels, like service bundles, loyalty points or weekend trips. Despite some resistance to change inside and outside of the organization, the pandemic has created a more digitally focused society that is more open to digital interactions. These capabilities can also increase the composability of your organization, since they can be deployed in a modular way.
Keep pushing to digitize a growing number of internal processes. Despite the opportunities created by technology, mass digitization of processes entails a reshaped company culture that can access this transformation. Always prioritize the highest-value use cases for digitization projects, meaning projects that most closely align with your organization's goals and ambitions.

Transportation Companies Expect Increased Revenue and IT Investment, Highest Among All

On average, transportation CIOs and technology executives are fairly optimistic about revenue and IT budget increases for 2022. These stakeholders foresee an average revenue increase of 10.8% in 2022, which is clearly above even that of high-composability companies. As 2021 showed a mild recovery, still hampered by some pandemic-related obstacles, transportation companies see 2022 as a period of stronger growth. This positive outlook explains why transportation CIOs and technology executives also see the highest IT budget increase for 2022 from all industries: 6%. On top of that, the ratio between IT budget increase and estimated revenue increase is 0.55, which ranks even higher than that of high-composability companies. This indicates a higher predisposition to invest in IT in relation to their revenue expectations.

As shown in Figure 5, transportation companies align closely with the vision of high-composability companies in terms of technology areas targeted for increased investment in 2022. In fact, more transportation companies expect to increase their spending on cybersecurity and modernization of legacy applications, given that these companies need to recover lost ground in these areas.

While artificial intelligence (AI) ranks first for increased investment among high-composability respondents, it ranks only seventh among transportation companies, with 2% even planning an investment decrease. This gap can become detrimental for transportation companies, going forward. As the number of AI use cases in transportation grows year over year and creates major optimization opportunities, curtailing investing in this technology clearly represents a lost opportunity.
**Recommendations:**

- Take this IT budget growth as an opportunity to reformulate your IT strategy. Rather than sustaining legacy systems, move toward building a comprehensive digital platform that is future-ready. Avoid focusing on technology just for the sake of technology — instead, choose technology areas according to the ROI that they will bring to your organization.

- Step up your AI strategy to fully leverage the innovation that is happening in this space. Prioritize high-ROI use cases. Don’t let perfect be the enemy of good: Partner with companies that can offer innovative AI technology to run small pilots on the most relevant AI use cases. Accept the possibility of failure, and use them as an opportunity to learn and evolve.
Additional research contribution and review

Melissa Rossi Wood

Evidence

The 2022 Gartner CIO and Technology Executive Survey was conducted online from 3 May 2021 through 19 July 2021 among Gartner Executive Programs members and other technology executives. The total sample is 2,387, with representation from all geographies and industry sectors (public and private), including 71 from transportation. The survey was developed collaboratively by a team of Gartner analysts, and was reviewed, tested and administered by Gartner’s Research Data and Analytics team.

Disclaimer: Results do not represent global findings or the market as a whole but reflect sentiment of the respondents and companies surveyed.

The 2022 CIO and Technology Executive Agenda report segments respondents based on self-reported extent of utilization of principles of composability. This segmentation allows a group of “high composability” enterprises to be identified as a best practices group to contrast the performance of others.

We define high-composability enterprises (n = 150) as those that utilize the principles of composable thinking, business architecture and technologies “widely” or “extensively throughout the enterprise.”

Low-composability enterprises (n = 316) utilize the principles of composable thinking, business architecture and technologies “not at all,” “rarely” or “somewhat.”

Moderate-composability enterprises (n = 1,921) encompass the rest of the sample.


2. After Causing Chaos in the UK, Truck Driver Shortages Could Soon Hit the Rest of Europe, CNBC.

Document Revision History

2021 CIO Agenda: Global Perspectives for Transportation - 25 November 2020
Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

Hype Cycle for Transportation and Smart Mobility, 2021

3 Ways Transportation CIOs Can Shape a Mobility-as-a-Service Ecosystem Effectively