Future of Applications: Delivering the Composable Enterprise

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Initiatives: Applications and Software Engineering Leaders

> As business needs change, organizations must be able to deliver innovation quickly and adapt applications dynamically — reassembling capabilities from inside and outside the enterprise. To do this, organizations must understand and implement the "composable enterprise."

More on This Topic
This is part of an in-depth collection of research. See the collection:

- Top 10 Strategic Technology Trends for 2020: A Gartner Trend Insight Report

Overview

Opportunities and Challenges

- Organizations need to deliver innovation and adapt more quickly to respond to the accelerating pace of business change.

- Customers and employees increasingly expect more contextualized and personalized application experiences.

- Current application portfolios were designed to address the challenges of the past. They are an obstacle to innovation. However, they cannot be replaced wholesale due to the cost and risks associated with major change.

- Business leadership is taking a more strategic role in purchasing, implementing and maintaining applications. This requires a new approach to vision and strategy.

- Application vendors are adapting their offerings — making them more modular and consumable through different delivery channels, touchpoints and modalities. This will require a new architectural approach.

What You Need to Know

- A composable enterprise is an organization that can innovate and adapt to changing business needs through the assembly and combination of packaged business capabilities.

- Packaged business capabilities will be sourced from third parties or composed internally. They will deliver more unique and customized application experiences to application users.

- Delivering the composable enterprise will require much deeper collaboration between stakeholders. This will blur the boundaries between business and IT.

- To enable the composable enterprise, organizations will need to adapt the way they source and deliver applications as vendors deliver more modular capabilities.

Insight From the Analyst

Delivering Business Agility Through a Composable Enterprise

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Organizations are undergoing digital transformation for many reasons. They may be looking to exploit new market opportunities or deliver better experiences. They may be reacting to the increasing pace of innovation or responding to competitive disruption. All of these reasons share a common thread — there is an accelerated pace of business change. To better deliver on new business opportunities, organizations need to be agile. They need to adapt and respond faster than ever — but how?

Most organizations today are limited in their ability to adapt. This is primarily due to the state of their application portfolio, which is often bloated, difficult to change and aligned to the strategy of the past. To deliver on the future strategy of the organization, application leaders need to modernize the application portfolio. The application portfolio must operate at the pace of business change.

To deliver on digital transformation, your organization needs applications that can be assembled, reassembled and extended. This will allow you to innovate and adapt to the changing needs of your business. You need to begin to enable the composable enterprise, and you need to start now.

Application leaders can use Gartner's research on this topic to begin their journey to the composable enterprise. Gartner research will help you to develop and deliver the vision, architecture and technology platforms that will ensure that your organization succeeds. Your organization must not be content to just keep pace — it must set the pace.

This document provides an overview of the composable enterprise and a guide to Gartner research containing important concepts, insights and best practices.

Kind Regards,

Dennis Gaughan, Yefim Natis, Gene Alvarez and Mark O'Neill

Executive Overview

Definition

> **A composable enterprise is an organization that delivers business outcomes and adapts to the pace of business change. It does this through the assembly and combination of packaged business capabilities (PBCs). PBCs are application building blocks that have been purchased or developed.**

The composable enterprise is an organizational-level construct. It has implications for business strategy, vendor sourcing, technology/architecture decisions and organizational models that redefine the relationship between the business and IT.

Central to delivering on the composable enterprise is the ability to adapt and change applications in the portfolio. To do this, organizations need to evolve from their current state of inflexible, monolithic applications toward a portfolio that is more modular and adaptable to business change. Organizations curate and govern a collection of components that Gartner calls "packaged business capabilities." PBCs are assembled using their APIs and event streams to create application experiences that are intuitive and can be tailored to individual needs or preferences. This new portfolio is grounded in a mesh app and service architecture (MASA). It defines a new set of application capabilities which can be combined and recombined as business needs shift.

The transition to the composable enterprise is gradual. Even a limited number of PBCs will notably improve the organization's agility. Over time, more PBC-centric applications will be available from software vendors and marketplaces. Many legacy applications will be modernized toward the PBC model. The dynamic experience of the composable enterprise will become the prevailing architecture, integration and delivery model for software innovation (see Figure 1).

Figure 1. The Composable Enterprise

Figure 1. The Composable Enterprise
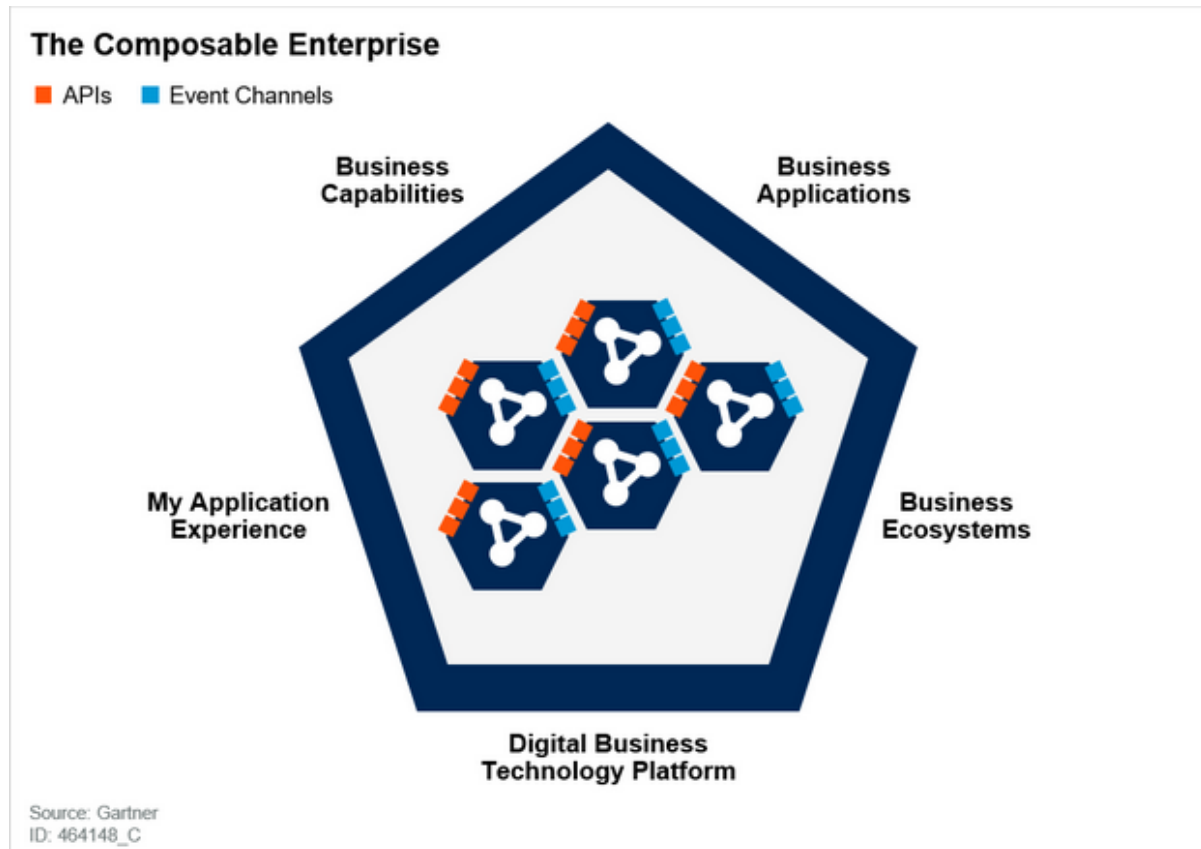
Research Highlights

Define the Longer-Term Vision for Your Composable Enterprise

The composable enterprise will manifest in different ways for different organizations, based on the dynamics of their business strategy and the competitive nature of the markets in which they operate. A critical first step is to define the longer-term vision for what the composable enterprise will be for your organization. Begin by asking a set of key questions:

- How will the markets I operate in evolve over the next three to five years, and how will that change the competitive landscape?

- How does our business strategy and operational structure need to change to reflect the changing market dynamics?

- What new business models are we pursuing? What new markets do we plan to penetrate?

- In which areas can we gain competitive advantage by developing capabilities in-house, rather than buying standard capabilities from vendors?

- How are the needs of our customers/constituents changing?

- What product, service and process innovation can we inject into our strategy in order to outpace competition?

- How does our partner ecosystem need to become more flexible to changing needs and evolve to reflect our changing strategy?

- How are user experience expectations changing in the multiexperience landscape of digital touchpoints and interaction modalities?

- How will the changing landscape of technology providers impact our strategy?

- What is our current technology starting point and how will this affect the journey to a composable enterprise?

- How will we need to change our approach to governing changes to the application portfolio?

- How do we redefine the relationship between business and IT, given the increased influence of technology on business outcomes?

These questions will help your organization to understand the broader market and technology impacts that will inform and influence your vision for the composable enterprise. The following Gartner research will help you to answer some of these questions and begin crafting your vision and strategy.

Related Research

"The Future of Apps Must Include Citizen Development": Business units increasingly control their own application development efforts, of which citizen development will play a crucial role in the future of apps. Application leaders need to help define, guide and optimize citizen development to maximize mutual benefits for business and IT.

"Gartner's Top Strategic Predictions for 2020 and Beyond: Technology Changes the Human Condition": Technology is changing the notion of what it means to be human. As workers and citizens see technology as an enhancement of their abilities, the human condition changes as well. CIOs in end-user organizations must understand the effects of the change and reset expectations for what technology means.

"ERP's Emerging Fourth Era — Moving Beyond Postmodern ERP": ERP is not what it used to be. A fourth era is emerging as postmodern ERP evolves into a necessary foundation that supports changing methods of delivering enterprise business capabilities. CIOs must learn how ERP is evolving, or miss opportunities to optimize value and business outcomes.

"Predicts 2020: Digital Workplace Applications Led by the New Work Nucleus": Digital workplace applications play a crucial role in enabling digital dexterity and shaping employee experiences. Our 2020 predictions highlight new trends and technologies that application leaders responsible for the digital workplace should analyze as they optimize new work nucleus applications.

"The Future of Data and Analytics: Tales and Trends From the Center to the Edge": The story of data and analytics keeps evolving, from supporting internal decision making to continuous intelligence, information products and appointing CDOs. D&A leaders should address these trends in their strategy, as portfolios of experiments, options, choices and best practices.

"Predicts 2020: The Future of Application Architecture, Development, Integration and Platforms": The shifting continuum of technology leadership, sometimes dominated by the business, sometimes by IT, is reaching an equilibrium of business-IT collaboration. Application leaders must examine these predictions to learn how this equilibrium will take shape in their organization.

"Hybrid Headless Content as a Service Is the Future of Digital Experiences": Modern businesses must provide optimal digital experiences across a growing variety of channels. This multiexperience strategy requires hybrid headless "content as a service" to provide more flexibility and versatility to digital workplace application leaders responsible for customer experience.

"Predicts 2020: Application Leaders": Business application experiences and architectures — as well as the entire business software landscape — will change drastically in the next five years. The ability of application leaders to realize their application visions for the future depends on the plans they put in place today.

"The Applications of the Future Will Be Founded on Democratized, Self-Service Integration": In the "composable enterprise," development and integration will be combined to enable ubiquitous assembly of customized application experiences. Application leaders must invest in enterprise-grade, multifunction and multipersona integration to benefit from this vision for the future of applications.

Establish Your Roadmap to the Composable Enterprise

Once you have established a set of longer-term goals and assessed the current technology landscape and architecture, you can begin to define your organization's roadmap to the composable enterprise. There are several required elements for your roadmap that will help you to get buy-in for the journey, and help you to sustain momentum along the way. Essential elements of your roadmap include:

- A clearly defined set of business outcomes that directly relate to the strategic goals and mission of the organization.

- A plan for modernizing the existing application state from a set of monolithic applications to a set of applications that are much more adaptable to business change.

- A vendor strategy that reflects the roadmaps of your strategic vendors, and their impact on your own business strategy.

- A target architecture that will provide the foundational elements for the composable enterprise.

- A plan for adapting the application delivery model to ensure that the organization can meet the pace of business change.

- A powerful integration platform strategy to enable democratized, self-service integration and composition by IT and non-IT personas

- A mechanism for measuring the realization of business outcomes — this will to help sustain momentum and rally continued support for the effort.

- A risk analysis and mitigation strategy to deal with anticipated and unanticipated challenges that arise as the organization delivers on the roadmap.

The following Gartner research provides further information on how to build out your roadmap for the composable enterprise, and how it will impact the way you select, purchase and deliver PBCs.

Related Research

"Strategic Roadmap for Future of Applications": Future application experiences will be built from composable business capabilities that can quickly enable new business scenarios. Application leaders should use this roadmap to navigate from static application experiences to this new dynamic paradigm.

"Gartner's API Strategy Maturity Model": IT organizations struggle to evolve their processes for developing, delivering and managing APIs for integration and digital business transformation. Application leaders must assess and improve their API strategy using five key dimensions explained in this research.

"Use Continuous Modernization to Build Digital Platforms From Legacy Applications": Legacy application portfolios are often viewed as a problem and subjected to large-scale rip-and-replace efforts. Application leaders should instead manage their portfolio as an asset, removing impediments and executing continuous business-driven modernization to provide optimum value.

"2019 Strategic Roadmap for Becoming a Digital Product Delivery Organization": Scaling a digital business requires continuous delivery of value. Achieving this requires application leaders to apply new and emerging approaches to designing, developing and governing software — to turn application development organizations into digital product delivery organizations.

"2019 Strategic Roadmap for Digital Commerce": Digital commerce is influenced by higher customer expectations and proliferation of customer engagement channels. Application leaders responsible for digital commerce technologies must understand the current and future states of the market to prioritize investments and develop successful strategy.

"3 Steps to Designing a Future-Proof Business Application Integration Strategy": No business application is implemented in isolation. To effectively and efficiently integrate applications with each other without compromising future business agility, application leaders should articulate a multilayer integration strategy that supports five key dimensions.

"How to Justify Strategic Investments in Integration Technology": Integration is key to enabling API-enabled digital ambitions and new business application deployments. To justify strategic investments in integration technologies and skills, application leaders must articulate how these capabilities support business innovation, agility, efficiency and insights.

"The Role of the Application Leader Must Change for Successful Digital Product Delivery": As product line management becomes mainstream, the role of the application leader must change. To be successful, application leaders must account for new product management and product engineering skills in their new roles.

Begin the Architecture Evolution Toward PBCs

One the most important aspects of the composable enterprise is an application architecture that enables the assembly and dynamic reassembly of PBCs. The architecture provides the foundation for PBCs that are:

- Sourced from various third parties — including traditional packaged software vendors, but also PBC marketplaces and nontraditional parties (such as financial services companies and global service integrators).

- Developed internally — either by central IT or within business units — providing net new capabilities.

- Delivered through the modernization of monolithic applications into more modular components.

- Created or assembled by the organization's employees, who increasingly have the technical skills to deliver business value.

This architecture is designed for change and enables the creation, curation and dynamic reassembly of PBCs. It is not a "new architecture." Rather, it is an ongoing evolution of architecture practices. These practices should be grounded in the fundamentals of service-oriented architecture. They must also reflect the state of the art by using cloud native technologies and providing more continuous delivery.

However, there are important differences. Packaged business capabilities are software components that represent a well-defined business capability. They should be functionally recognizable as such by a business user. For instance, a shopping cart or an expense approval mechanism would meet the definition of a PBC. PBCs are meant to be used as building blocks for application product suites and custom-assembled application experiences. The following Gartner Research provides further information to help you to define your architecture for the composable enterprise.

Related Research

"Innovation Insight for Packaged Business Capabilities": Fixed application experiences no longer meet business and customer requirements. Application leaders managing their organization's digital transformation must prioritize the architecture of the composable enterprise and packaged business capabilities to succeed.

"Address Digital Business Demands With an API-Oriented (Headless) Architecture for Enterprise Applications": Digital business accelerates demand for innovative UIs and custom integrations for enterprise applications such as ERP, CRM and commerce. An API-oriented approach gives technical professionals responsible for enterprise apps flexibility to create optimal customer experiences and custom integrations.

"Use MASA to Deliver an Agile Multiexperience Enterprise Application Architecture": Continuous customer experiences across multiple channels and changing business needs require an agile architecture for enterprise applications. Application technical professionals responsible for enterprise applications apply MASA to deliver a seamless user experience and enable integration agility.

"MASA: How to Create an Agile Application Architecture With Apps, APIs and Services":
Evolving business needs require application architecture that enables agility, flexibility,
integration and innovation. MASA — a mesh architecture of apps, APIs and services —
provides application technical professionals delivering applications with the optimal
architecture to meet those needs.

"Assessing Service Mesh for Use in Microservices Architectures": Service mesh patterns
address common cross-cutting concerns in microservices architectures (MSAs). Technical
professionals defining MSAs must understand the benefits and complexities of service
mesh patterns and apply them to highly dynamic MSA instances in their organizations.

"CIOs Must Enable Enterprise Business Capabilities by Adopting a Copernican Shift in ERP
Strategy": Enterprise business capabilities (EBC) demand a major shift in strategic
thinking to deliver agility, flexibility and efficiency. CIOs must break the mold regarding
predominant thinking around ERP as it plays an important role in supporting EBC, but
must no longer be the primary focus of resources.

"What's Trending With Application Leaders? Digital Dexterity and the New Work Nucleus":
Application leaders have a great opportunity to boost the digital dexterity of the workforce
by focusing enablement efforts on the SaaS-based new work nucleus stack of personal
and team productivity applications.

"Hype Cycle for Advanced Future of Applications": This new Hype Cycle will help
application leaders gain an understanding of the future of applications, to assess the
maturity and potential impact of emerging innovations, to plan for their adoption, and to
separate the hype from reality.

"Apply the Principles Behind the Future of Applications to Digital Commerce": Future
digital commerce experiences will be constructed by collaborative business-IT "fusion"
teams using packaged business capabilities. Application leaders should find the right
balance for their organization and form teams focused on business outcomes.

"How to Deliver a Truly Hybrid Integration Platform in Steps": To address the pervasive
integration challenges stemming from digitalization, application leaders should
incrementally implement a hybrid integration platform that not only supports hybrid
deployment models, but also proliferating endpoints, multiplying integration domains and
diversifying personas.

Key Initiatives for Continuous Insight

All your initiatives are important, but some are mission-critical. Key initiatives organize the vast Gartner resources around the projects and programs that are most important to you. These resources can help you achieve demonstrable business results efficiently and cost-effectively. Key initiatives define the way in which we deliver ongoing insights throughout the year, helping you to tackle your top priorities. Be sure to track all initiatives related to your top priorities.

Related Research

"Application Leaders Primer for 2020": Application leaders play a vital role in every organization, sourcing the right applications to realize business ambitions. Delivering technology at a new pace of business change requires application leaders to reimagine their vision for leadership and how the application teams deliver outcomes.

"Application Architecture, Development, Integration and Platforms Primer for 2020": Application leaders face forces of digital business change opposed by those of stability. You must align people and processes despite these conflicting pressures. Our research helps you build the right strategy for architecture, development, platforms, design, process automation and integration.

"Digital Workplace Applications Primer for 2020": Digital workplace initiatives rely on applications and technologies, such as the new work nucleus, that enable workforce digital dexterity. Application leaders responsible for digital workplace initiatives need to adopt, scale and drive them toward maximum business impact.

"Digital Workplace Program Primer for 2020": Every organization already has a digital workplace, and most have a program that aims to improve it. Application leaders in charge of such programs must now focus on scaling them, on aligning them closely with their organization's digital business ambitions, and on demonstrating their impact.

"ERP Primer for 2020": Sparked by cloud adoption and emerging technologies, the new era of ERP has arrived: enterprise business capabilities. This new era requires CIOs to develop a proactive ERP strategy that fuels growth and improves profitability, while managing risk and cost.

"Application and Product Portfolio Governance Primer for 2020": Application leaders face competing — and urgent — priorities that demand their focus and resources. The application and product portfolio governance initiative provides the tools and insight you need to balance these modernization, transformation and innovation goals.

"CRM Sales Technology Primer for 2020": Sales technology automates the full scope of the sales value chain, including planning, enablement, execution and optimization. Our 2020 sales technology research will help application leaders to identify the most relevant new technologies for automating and optimizing their sales processes.

"CRM Strategy and Customer Experience Primer for 2020": Disruption seems to generate new business models as fast as it terminates others. With competition intensifying and increased global uncertainty, treating customers well is more important than ever. In 2020, Gartner's research will continue to help application leaders succeed with CRM and customer experience.

"Digital Commerce Technologies Primer for 2020": The future of digital commerce is "commerce to you." Application leaders must prepare by developing strategies and making technology investments that look beyond commoditized commerce functionality, focusing instead on delivering superior customer experiences.

"Customer Service and Support Technology Primer for 2020": Customer service organizations must better balance operational goals with customer experience ambitions. Our research will guide organizations strategic thinking and help them select, implement and operate customer service and support technologies that will drive more intelligent and proactive effortless interactions.

"Corporate Legal and Compliance Technologies Primer for 2020": Application leaders responsible for legal and compliance technologies must support digital transformation efforts. New business models and partnerships, regulatory volatility and faster change demand aggressive, but judicious, use of technologies like AI, analytics and robotic process automation.

"HCM Technology Transformation Primer for 2020": Digital business transformation and changing worker expectations are disrupting existing methods to acquire, motivate, develop, reward, service and manage talent. Our 2020 research will help application leaders align their human capital management solutions to digital workplace initiatives and emerging workforce needs.

"Finance Applications Primer for 2020": Finance applications offer organizations new functionality, deployment options and access to emerging technologies. Finance leaders can capitalize on these developments to successfully enable finance transformation, process optimization and data-driven decision making.

"Procurement and Strategic Sourcing Applications Primer for 2020": Procurement and strategic sourcing applications help to optimize all aspects of a company's strategic and tactical purchases. Our 2020 research will enable application leaders to identify and implement the best technology for automating and transforming their procurement and sourcing processes.

Related Priorities

Table 1: Related Priorities

Priority ↓	Focus ↓
Software Engineering Technologies	We help organizations build and improve technologies to create and scale differentiated, innovative digital products that support digital business demand.
Digital Workplace Applications	We help privacy programs build effective and ethical processes capable of operating at the scale and speed required by innovative, growing businesses.
Software Engineering Strategies	Gartner's software engineering strategies research helps organizations to optimize delivery of effective digital products, equipped with the best tools, a motivated talent pool and proven techniques.
CRM Strategy and Customer Experience	Customer experience (CX) and CRM must adapt to rapidly changing organizations, customers and environments. Gartner's research explains how to align internal resources with external customer needs.

Source: Gartner

Gartner Analysts Supporting This Trend

Mike Guay — Senior Director Analyst

Jason Wong — VP Analyst

Massimo Pezzini — Distinguished VP Analyst

Related Resources

Webinars

Get actionable advice in 60 minutes from the world's most respected experts. Keep pace with the latest issues that impact businesses, with both live and on-demand webinars for application leaders.

- "Gartner Strategic Roadmap to the Future of Applications"

- "Future of Applications"

- "Revitalize Your IT Cost Optimization Initiative With Application Rationalization"

Articles

Smarter With Gartner articles provide application leaders with useful insight into areas that directly impact them.

- "5 Approaches to Cloud Applications Integration"

- "4 Trends Impacting Cloud Adoption in 2020"

Conferences 2020

From application architecture, development and integration, to CRM and the digital workplace, application leaders can join us at one of our many conferences around the globe in 2020.

View the Gartner Conference Calendar.

Peer Insights

Gartner Peer Insights is a free peer review and ratings platform designed for enterprise software and services decision makers. Reviews go through a strict validation and moderation process. Choose enterprise IT software and services with confidence. Read verified reviews from the IT community.

- Browse Vendors

- Browse Markets

- Write a Review

Peer Connect

Peer Connect is a private community in which Gartner clients can exchange insight and advice on their mission-critical priorities.

Join the Gartner Research Circle — An exclusive online community where business leaders participate in a two-way dialogue with our Research & Advisory analysts and experts across numerous disciplines. Gartner analysts can help business leaders to address mission-critical topics, key initiatives and industry developments.

Acronym Key and Glossary Terms

MASA	mesh app and service architecture
PBC	packaged business capability

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Top 3 Trends in Application Architecture That Enable Digital Business

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