servicenow

Designing and Orchestrating the Future of Enterprise Systems

Widespread digital transformation, evolving hybrid workplaces and accelerating technology innovations are enabling growth for many businesses, but also driving complexity. These forces are creating the potential for visionary players in the enterprise software ecosystem to step into the critical role of “innovation orchestrator.” In this role they act as conductors of entire ecosystems, enabling innovative user and customer experiences that are accompanied by a whole new realm of lucrative digital solutions and services.

Harbor Research

Transforming the Future of Enterprise Application Solutions

The past decade has witnessed a significant shift in the digital landscape, marked by the mass migration of data, workloads, and processes from physical to virtual platforms. The emergence of cloud computing, artificial intelligence (AI), low-code development platforms and the advent of partner ecosystems have revolutionized the way businesses develop and manage their assets, ushering in a new era of automation and streamlined workflows.

The tools companies are working with today to develop complex application solutions were not designed to handle the scope of new capabilities, the diversity of usage and devices, and the massive volume of data-points and interactions between and among systems. These challenges are driven by both shifts in the business environment, as well as the impacts of emergent technology innovations, including:

Exponential innovation and building block technologies are leading to complex adaptive systems. As the number of technologies embedded in apps grows, so does complexity. The speed of innovation is now much faster than any organization's ability to deploy it and is accelerating exponentially.

Shared data architectures are now required to better harvest value from enterprise data, requiring enterprises to implement new data architectures.

Emergence of information automation technologies, which combine mathematical models, algorithms and computations, are enabling artificial intelligence (AI) and machine learning (ML) to streamline workflows, augment workforces, and even power an automated economy.

Enterprises are becoming more distributed, moving from self-reliant silos to value delivery ecosystems.

Every business is becoming a developer, but utilizing core skills, expertise and subject matter experts to develop new systems is costly and difficult.

Expansive partner networks and ecosystems are needed to wrangle the complexity of developing, marketing, and delivering products. There is a need for innovation orchestrators to manage these growing partner networks.

These key trends are having a significant impact on the way that forward-thinking enterprises are re-designing and re-engineering their work, processes, relationships, and value creation. Innovation Orchestrators and open platform ecosystems will support a new generation of digital enterprise solutions.

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Exponential Innovation & Complex Adaptive Systems Are Creating New Value

As the physical world continues to dovetail with the digital world, new technology innovations will enable previously unimagined capabilities. This will blur the boundaries of today's business and social systems and radically change the way we learn, work and innovate. The father of the term "exponential technologies," Ray Kurzweil, understood how difficult it is for a normal human to imagine exponential growth. An analysis of the history of technology shows that technological change is exponential, contrary to the common-sense "intuitive linear" view. So, we won't experience 100 years of progress in the 21st century — it will be more like 20,000 years of progress at today's rate.

Today, exponential technologies underpin most of modern society. Robotics, AI, IoT, nanotechnology, renewable energy and gene sequencing are just a small list of examples. The value of a new technology lies not just in what it does, but also in what future technologies it leads to. Every new technology becomes a building block to be combined in unique ways to create new innovations.

As these technologies converge and combine, they start to become complex adaptive systems where intelligent and autonomous systems interact to create new value for businesses and society. For example, the development of autonomous vehicles not only depends on advancements in robotics and artificial intelligence to operate vehicles, but also on the maturation of the Internet of Things so an array of sensors can analyze driving conditions and interact with other cars, not to mention improvements in lithium and battery technology for cars to be able to efficiently refuel themselves. In this way, even simple applications have become more complex, relying on AI, machine learning, edge connectivity, collaboration tools and more.

The number of lines of code required to develop software applications is growing, with some variability across industry segments. The rapid growth in smart devices and digital capabilities is now far outpacing the design-develop-deploy cycle of current tools, creating a challenging landscape for software development. The successful implementation and value realization from intelligent automation and complex adaptive systems can be hindered by siloed processes, legacy systems, and fragmented talent within enterprises.

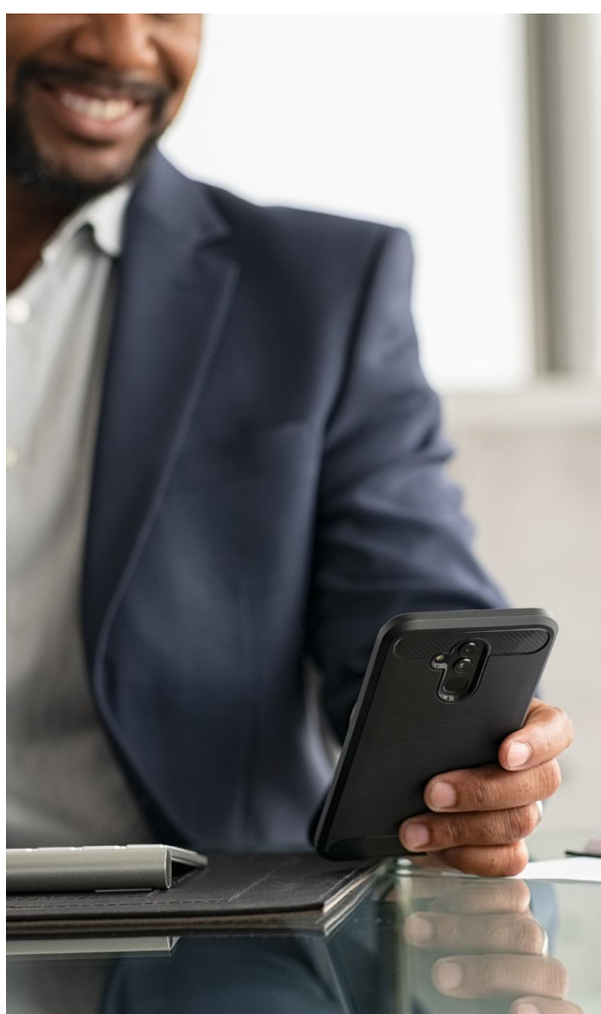
In this landscape of ever-accelerating innovation, it has become impossible for any single player to future proof their products and technology. Businesses must rely on innovation orchestrators to provide the tools to rapidly build solutions that incorporate cutting-edge technologies, as well as the partner ecosystems to help develop, deploy, and market these solutions.

Complex Adaptive Systems & Innovation

CASE STUDY
SAMSUNG

Rolling out a full fleet of mobile devices across an organization is time-consuming and full of manual IT tasks. To streamline, drive efficiency, and remove costs, Samsung SDS launched Zero Touch Mobility (ZTM). An industry-leading Built on ServiceNow solution designed to implement true "zero-touch" mobile device lifecycle management, including device enrollment/unenrollment, as well as forward and reverse logistics.

The solution natively integrates the mobile ecosystem into the ServiceNow Platform to simplify and automate mobile lifecycle management through a single pane of glass. ZTM enables customers to better manage their mobile fleets utilizing their ServiceNow instance, functioning as an enterprise mobility cockpit, by reducing operating cost, increasing workforce productivity and providing greater manageability of customer's mobile fleets.



02

Shared Data Architectures Are Required for True Enterprise Transformation

For the last ten years, the evolution of digital systems has been largely comprised of moving data and workloads from physical hardware to virtual platforms. Developers have moved the data center to the cloud and businesses have transitioned from managing their own computing and network assets to "everything as a service." This shift has largely reduced costs and increased flexibility, but it has also created a tangled web of data access, with some data stuck in silos.

We are now creating data at a faster rate than we are building and deploying bandwidth. Consider that there is more processing power in smart phones and devices than in all the servers and storage devices in data centers on the earth today. As organizations produce and utilize more data—from web apps, mobile apps, IoT devices, customers, vendors, and partners—managing that data becomes more challenging. This compounds when we consider the billions or more of networked devices that are currently being deployed.

Creating, using, and managing enterprise data and systems is complex. Innovation orchestrators create master blueprints that can help companies organize all those pieces seamlessly.

55-65% investment
goes to cleaning and organizing data[1]

New and efficient management tools enable the extraction and creation of value from that data through robust enterprise data architectures. Shared enterprise data architectures are built for the complexity of data today. They help to store, manage, analyze, and share data across partner ecosystems. Implementing these data architectures requires significant resources, but distributed, open data solutions enable organizations to leverage their data for more productive insights, better decision-making, and intelligent workflow automation.

1 Harbor Research Analysis

Collaborative Data Architectures

CASE STUDY

EmissionBox

At EmissionBox, we have a single mission - to accelerate and automate carbon reduction for resources, energy, and manufacturing industries. The companies face the pressure to deliver emissions reduction results, public and regulatory scrutiny and must act to gain new investments, protect the bottom line and stay competitive.

In our recent conversation and survey, we did with over 100 companies, we learned that 86% of them considered data availability and integrating various emission sources the biggest obstacle. The reality of emissions reduction is that we have to pull data from multiple systems like drones, satellite or aerial monitoring, and IoT sensors and combine it all with asset data, inspection, and fieldwork management systems across thousands of facilities. Without this data working together, it is impossible to do any meaningful analysis and action.

"This is why with the EmissionBox application, we chose ServiceNow as the underlying backbone, with its data consolidation principles, common data model, integration, and workflow capabilities. Together we have the unmatched set of capabilities that help industries create needed transparency on emissions, use the data to drive decarbonization, achieving net-zero goals faster while reducing costs and implementation risks."

Alexey Klimenko,
Co-Founder and CEO
EmissionBox

03

Information Automation Technologies Are Leading to an AI-Powered Future

Technologies like artificial intelligence (AI), machine learning (ML), and automation-driven algorithms are some of the primary drivers of changes in the labor market, impacting job availability, roles, and company organization, and thus, significantly transforming the structure of work and workplaces. There are two contradictory trends worth noting: one where AI allows jobs to become more specialized; and another where technology enables task diversification, allowing employees to carry out a range of tasks that used to require specialist skills.

In the enterprise, automation and hyper-automation are mainly focused on simplifying repetitive and manual tasks. This allows employees to focus on more strategic and creative work that requires human expertise, improving productivity and job satisfaction. This is even more critical in our modern world of distributed enterprises and remote work.

The true power of AI comes from machine-to-machine communication and automated decision making. AI is working behind the scenes, pulling in data from a vast network of business functions, transactions, partners, sensors and "awareness" applications. These new capabilities revolve around real-time situational awareness and automated analysis of very large volumes of data.

As a result, technology has moved beyond just proposing task solutions—such as executing a work order or a sales order—to sensing what is happening in the world around it, analyzing that new information for patterns, risks and possibilities, assessing alternatives, and automatically taking actions.

This cycle of technology development's most profound impact lies in the integration of smart sensors, machines, information systems and smart algorithms to create a "digital nervous system" that smoothly interacts and makes decisions about a very wide range of situations autonomously. Inside such systems, reliable and blindingly fast microprocessors do what they are very good at doing (and what people are very bad at doing): digesting billions of data-points, talking to each other about the data, and controlling each other based upon the state of the data—all in a matter of nanoseconds.

Information Automation Tech

CASE STUDY

Aniline

At Aniline, we believe that culture drives performance and risk. Our mission is to unlock the power of employee perception to enable companies to create healthier, higher-performing workplaces. We do that by converting employee perception into business intelligence enabling better, faster, and more informed decisions so companies and people can thrive in a rapidly changing landscape.

According to McKinsey's People and Organizational Performance group, organizations with a high-performing culture create a 3X return to shareholders over their peers, as well as retain and attract the best talent.

The key to success is having the right technology to collect and extract key data points from millions of employee reviews and feedback, and AI is the key solution. Starting with Natural Language Understanding, Sentiment Analysis, custom ML model, and using a Large Language Model similar to ChatGPT, these tools allow Aniline to provide insights and recommendations for over 70,000 companies.

"Having ServiceNow not only as a technology and platform partner but deeply integrating these capabilities with Employee Workflows, ESG management, and Vendor Risk Management applications, together we help businesses make organizational improvements to attract the best talent, delight existing employees, and improve governance, risk management, and compliance."

Kevin Gregson, CEO
Aniline

04

Distributed Organizations and Ecosystems Require Tools to Enable New Modes of Work

Today, no one thinks of a company as bound by the four walls of a building. Companies are now distributed ecosystems; value-delivery networks consisting of a disassembled set of business functions and entities—some owned directly, many sub-contracted, but all requiring orchestrated data and information. Because enterprises have diverse users, functions, and entities—all with an overabundance of data flows and interactions—they need optimized tools to orchestrate the value presenting itself.

The world of businesses has evolved towards focusing on core competencies and skills and outsourcing everything else. This has divided players into three distinct models:

1) Platform Players
2) Outsourced Services Providers
3) Product and Service Companies

Consider this: ten or more years ago, the typical manufacturing business might have been generating $350,000 per employee. Today, we have technology-based platform companies such as Google, Apple and Meta earning huge revenues from very small employee bases. Compare the $2.1 million per employee at Apple and $1.4 million at Meta versus $700,000 per employee at the more traditional manufacturing business Procter & Gamble[1].

This new distributed enterprise has added complexity to operational technology (OT) and IT systems. As the number and diversity of stakeholders expands (users, architects, developers, supporters, etc.), and the volume and nature of their interactions grows, the discrete technologies that comprise digital infrastructure will need to become more and more tightly coupled. Software applications today need to work across multiple clouds, at the edge, and in different devices supporting multi-modal interfaces, while bringing together the latest intelligent automation technologies. Many enterprises are looking to cloud-based platforms to help ease development complexity.

1 Harbor Research Analysis

Distributed Organizations & Ecosystems

CASE STUDY

Tenon

Tenon, a cutting-edge marketing work management solution, recently built their solution on the ServiceNow platform and is revolutionizing the way enterprise marketing teams plan and execute their initiatives at scale. Tenon offers swift and efficient automation of manual tasks involved in campaign planning, execution, and measurement. This streamlined approach allows marketers to save valuable time and effort, enabling them to concentrate on strategic activities.

To maximize business outcomes, Tenon facilitates collaboration across departments within the ServiceNow ecosystem, fostering company-wide alignment and support. By integrating seamlessly with essential marketing tools like customer relationship management (CRM) and marketing automation systems, Tenon equips marketing leaders with the insights and data necessary to optimize their strategies and drive superior results. With Tenon, enterprise marketing teams gain a powerful ally in achieving their marketing objectives, enabling them to work smarter, more efficiently, and with greater impact.

05

Every Business is Becoming a Developer

Software is truly infiltrating everything while becoming more and more complex. Back in 1969, Apollo 11 was built on 145,000 lines of code[1], while today's luxury car has more than 90 million[2]. Yet, while software development gets more complex, there is a growing shortage of computer science graduates and related skillsets in the market. In fact, according to the U.S. Labor Department, there will be 1.2 million unfulfilled software engineering jobs by 2026, growing to 85.2 million globally by 2030.

Enterprises must rely on tools that make developing complex applications more accessible. Low-code software and intelligent development platforms for cloud infrastructure management, workflow automation, and data application development have fundamentally changed software development and realization by enabling engineers to launch applications faster and with fewer specialists.

Accelerated development and delivery of new applications is perhaps the most widely recognized advantage of low-code development.

Low-code solutions can make development time

90% faster[3]

Low-code development platforms utilize graphical interfaces and configuration to hide the underlying programming language, reducing the need for extensive hand coding. In this way, low code platforms democratize web development, giving everyone – from IT to business managers – the tools to analyze data and even build complex apps with generative AI, ML and IoT capabilities built in.

These capabilities empower users at various skill levels to contribute to the innovation and growth of their business, without compromising IT control and governance. In a nutshell, low-code solutions allow fewer developers to accomplish more and empower non-developers to build apps. This translates into reduced costs and a greater return on investment.

1 Wall Street Journal. (July 2019). *Apollo 11 had a hidden hero: software.* Link.
2 Harbor Research. *Open Source is Taking Over the World.* Link.
3 Harbor Research Analysis

06

Expansive Partner Networks

While low-code tools may be turning every business into a developer, no enterprise can deal with the complexity of the modern distributed workplace, accelerating technology innovations, and the development, deployment, and marketing of apps alone. Companies must evolve from solo operations or hub-and-spoke partner arrangements to being part of symbiotic partner ecosystems.

Given all the aspects that must be addressed from the end customer's standpoint, alliances between users, manufacturers, value-added service providers, software developers and related channel partners represents the only sane approach to address the challenges of leveraging data across differing brands of equipment, while also creating maximum value for all parties involved.

Most B2B players do not have access to even half the data they need to inform new application values and fulfill on machine learning and AI opportunities.

50%+ of data

needed for optimization will come from outside an organization[1]

The healthcare sector illustrates the need for B2B partner ecosystems well. Today, the average 200+ bed hospital has over 250 brands of equipment and devices which causes the typical hospital patient to interact with over 75 devices per day.[2] A hospital could not operate if every device and machine has its own embedded intelligence and monitoring scheme, but there is enormous value in shared systems and data.

Of course, choosing which partners to interact with, and on what level, poses a significant challenge. These vast ecosystems require orchestrators to vet technologies and solutions and facilitate new alliances and relationships based upon information-sharing and co-creation of new solutions.

1, 2 Harbor Research Analysis

Expansive Partner Networks

Innovation Orchestrators Enable the Future Enterprise

Digital transformation and infrastructure innovations have created a new critical role of innovation orchestrator. This crucial role acts as a conductor of entire ecosystems, orchestrating the technologies, tools, and partnerships that will drive success.

Platform-driven innovation orchestrators take on the task of thinking through how these collaborative systems get designed, procured, and deployed. ServiceNow is a compelling innovation orchestrator, offering a suite of development tools through its ServiceNow Now Platform, as well as a white glove collaboration opportunity with its ServiceNow Partner Program.

> **We have gone from a workflow company, a company that focuses on workflow as a single competency within the enterprise stack, to being the company that makes the world work. We're really putting this concept of work front and center … because we are a true platform company that drives end to end digital transformation.**
>
> **Erica Volini**, Sr. Vice President of Partnerships | ServiceNow

ServiceNow is powering the complex adaptive enterprise applications of the future and connecting an ecosystem of the world's leading technology innovators.

Find out more about ServiceNow's Now platform and Partner Program at ServiceNow.com/now-platform.

ServiceNow (NYSE: NOW) is the fastest-growing enterprise cloud software company in the world above $1 billion. Founded in 2004, its goal is to make work easier for people. ServiceNow's cloud-based Now Platform and solutions deliver digital workflows that create great experiences and unlock productivity for more than 7,400 enterprise customers worldwide, including approximately 80% of the Fortune 500. ServiceNow can help you develop go-to-market solutions as a co-investor through its Partner Program.

Find out more about ServiceNow's
Now platform and Partner Program at
ServiceNow.com/now-platform

Harbor Research

Harbor Research has over thirty years of experience working with clients on growth strategy and new business creation. At the core of Harbor's approach is a deep understanding of the core technologies, markets and business characteristics as well as the management and organizational challenges companies face adopting and developing digital and smart systems technologies. Harbor strives to generate deep insight into how emergent technologies drive value creation and competitive advantage in their clients' businesses and the economy as a whole.

For more information visit HarborResearch.com