



# Where We Are Finding Growth

## Transforming How We Work

ARTISAN PARTNERS  
**Insights**

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## Where We Are Finding Growth

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Artisan Partners Growth Team is committed to finding accelerating profit cycles globally and investing in reasonably valued companies that are positioned for long-term growth. The team's experience and broad knowledge of the global economy are key attributes helping them identify growth opportunities, wherever they occur, for the four portfolios it manages—Artisan Global Opportunities, Artisan Global Discovery, Artisan U.S. Mid-Cap Growth and Artisan U.S. Small-Cap Growth strategies.

Here, the team discusses compelling opportunities it is finding among companies finding ways to transform how we work, particularly against a backdrop of a global explosion in data and growing demand for workflow automation tools.

### A Data Explosion

The printing press, invented in Europe around 1440 CE, was for roughly the next 500 years the primary means of generating and storing data. However, since the advent of computers in the mid-1900s (depending on which model you consider the “first”), we've seen an attendant explosion of data.

That explosion is only accelerating. Google's Chief Economist, Hal Varian, noted, “Between the dawn of civilization and 2003, we only created five exabytes [of data]; now we're creating that amount every two days. By 2020, that figure is predicted to sit at 53 zettabytes (53 trillion gigabytes)—an increase of 50 times.” Some scale helps unpack the magnitude: A petabyte is 1 quadrillion bytes—enough storage for MP3-encoded music that would play for 2,000 years. There are 1 million petabytes in a single zettabyte. So predictions of over 53 zettabytes of data by 2020 is, quite literally, an amount of data beyond the human brain's ability to fully comprehend.

Moore's Law projected the number of transistors that can fit on an integrated circuit would double roughly every two years—which has proven particularly accurate. Remarkably, the rate at which data are being generated is even faster than Moore's Law. However, the combination of 3 billion people on the Internet with mobile apps and sensors in an increasing number of smart devices is a recipe for an exponential increase in data which computers will have a hard time keeping up with—not only from a storage standpoint, but also a processing standpoint. The need to find ways to harness, understand and use data ultimately will transform the way we work.

### Supply Creates Demand

As one would expect, this massive growth in data has created waves of downstream demand—for storage capacity as well as for analytical tools to make use of it. We will continue generating data (likely at an accelerating rate), but absent means of adequately storing it accessibly and in such a way that it can be called up more or less instantaneously and analyzed in whatever context is relevant, it is relatively less useful.

As computers have evolved, so have storage solutions. Among the relatively early shifts was to a cloud-computing model, which allowed

businesses (and individuals) to take advantage of computing services, including servers, storage, databases, networking, and so on, without necessarily hosting all of the accompanying infrastructure onsite. This proved a meaningful source of cost-savings for companies which now need less space (for servers) and can operate with a smaller and more focused IT staff. Further, they no longer need to own the hardware, software and other infrastructure necessary to run their businesses.

Nearing a decade into broad adoption, companies are increasingly transferring their data to the cloud—in turn introducing new possibilities and challenges alike. For example, how do individual users access company data? Who has access to which data? How should these data be managed, stored, archived, analyzed, etc.? And there are ancillary questions that arise, too: What software solutions best allow analysis of these data? How should the data be secured—particularly in highly regulated industries (such as finance, health care, defense and others) in which data security concerns are paramount?

### Improved Computing Power Generates Workflow Automation Demand

Another challenge is what to even do with all the data available to companies. Absent robust statistical analysis tools, there's a risk the volumes of data created over the last several decades (let alone the tsunami of data ahead) will largely languish without providing much benefit. Among the key questions for companies which have spent time and money collecting their stores of data are how best to analyze their data and—importantly—how to then translate their newfound knowledge into greater efficiencies. Often, these efficiencies are in the form of workflow automation, which allows companies to improve the speed and accuracy with which they fulfill client requests, while potentially cutting some labor costs as the need for humans to process similar transactions diminishes.

As data growth continues and technology companies develop increasingly efficient and cost-effective workflow automation tools, we believe this trend will drive meaningful opportunities for well-positioned, high-quality franchises that can offer useful solutions to companies facing this new world.

In the late 1990s—the early days of the Internet and cloud-computing era and the tail end of the tech bubble—many pioneers were the well-known tech titans: Microsoft, IBM, Oracle and others, with most of their products requiring customers to purchase and run their own copies of software via on-premise servers. Over time, server-based products have moved largely into the cloud. As the speed of this change has accelerated, new, nimbler (and often, smaller) competitors have entered the market to help companies solve industry-unique challenges. Many of these companies are focused on workflow automation tools—which are particularly well-suited to a cloud-based format as they can go through much faster iteration and improvement cycles and are open to seamless integration with other applications.

One example of a relatively early mover is Guidewire Software, a holding in the Artisan Global Discovery, U.S. Mid-Cap Growth and U.S. Small-Cap Growth strategies and a market leader in next-generation software for the property and casualty (P&C) insurance industry. When we first initiated our position in 2012 (in the U.S. Small-Cap Growth Strategy), our research indicated that until that point, the P&C insurance industry had been slower to adopt modern, customized technologies than other industries. Guidewire's management team took a thoughtful and focused approach to its growing customer base—which positioned it well within a significant market opportunity that was in its very early adoption days.

Since initiating our campaign, Guidewire Software has taken market share, adding as clients a number of the largest P&C insurers and expanding its margins. Its early 2016 acquisition of EagleEye Analytics, a predictive analytics vendor, has helped further differentiate Guidewire's core platform, allowing it to support a complete predictive analytics process for its customers and opening a market with the potential to extend Guidewire's long-term growth potential.

A common feature of high-quality franchises like Guidewire Software is their business model: Many software-as-a-service (SaaS) companies generate consistent, subscription-based recurring revenues, which makes them attractive from an investing standpoint. Further, to the extent Guidewire and similar companies are able to migrate their clients to the cloud, they should also expand their margins over time.

## Transforming Work in Action

Over time, the trend toward cloud-based software tools has proliferated into a number of industries. The opportunities are myriad—and there are many obvious areas ripe for transition to cloud-based software tools that help with data analysis and tracking.

Veeva Systems, a holding in all four of our portfolios, is another example. Veeva is a leading provider of cloud-based SaaS solution for the pharmaceutical and life sciences industries. Its highly specialized software allows its customers to address and oversee complex government-regulation compliance. Its initial growth was tied largely to its customer relationship management software. However, its second service, Vault, helps pharmaceutical customers manage highly regulated marketing and clinical trial data and content. Attractively from an investing standpoint, Veeva's early, laser-focus on a single industry contributed to its ability to capture solid operating margins at an early stage of its growth.

Since we first invested in Veeva, it has begun branching out into additional, highly regulated industries in which document control and quality assurance are critical—for example, various manufacturing industries. While it will likely take some time for these expansionary efforts to bear fruit, we believe the market opportunity ahead of Veeva Systems remains significant and anticipate a long profit cycle.

Atlassian, a holding in the Artisan Global Opportunities, Global Discovery and U.S. Mid-Cap Growth strategies, is a leading provider of innovative, customizable team-collaboration software tools for enterprises. The company's growth has been driven by its innovative products and viral

uptake. Increasingly, businesses are not only adopting cloud-based software for workflow automation purposes—rather, a growing number are seeking to make cloud-based app development itself a core part of how they serve internal and external customers. We have seen many of our holdings across all sectors of the economy—industrials, financials and health care—investing to make software development a core capability. Atlassian's primary product, Jira, is at its heart a critical collaboration tool for software developers—and therefore is likely to enjoy a natural tailwind longer term.

## The Importance of Being an Early Mover

A critical factor to success in our new data-heavy world is being an early mover—i.e., finding a workable, scalable, affordable, long-term solution to the various challenges posed by growing data volumes and workflow automation demands. One reason is switching costs tend to be high. Once a software solution is installed, it implies significant disruption to switch to a different solution—not only in terms of additional dollar costs, but also in time spent migrating to the new system, training employees, etc.—as well as the risk the new solution isn't meaningfully better than the prior (or possibly that it is less effective). Furthermore, the cloud-based nature of many of these businesses means updates are pushed out via a software update, which can be done relatively seamlessly—particularly compared to the earlier days when updates required physical/manual installation.

This combination of considerations also allows for generally stickier customers. Consider a hypothetical situation in which a competing software solution has a feature a customer would like. The customer's current software provider can likely relatively easily develop a similar solution and push it out via a software update—thereby diminishing the likelihood that customer jumps ship in favor of their competitor.

Temenos, a holding in the Artisan Global Opportunities and U.S. Mid-Cap Growth strategies is a good example of a company capitalizing on first-mover advantages. Temenos develops core banking software systems—which many banks have been unable to replace for nearly a decade given the headwinds posed by the 2008-2009 financial crisis. Consequently, many banks have operated on software systems that predate some of the most beneficial, cloud-based developments that have unfolded over the last decade. Since initiating our campaign in 2017 (in the Global Opportunities Strategy), we have gained conviction that the most important spending initiative financials are undertaking is replacing legacy software systems and launching high-quality mobile apps that will attract the next generation of customers. As regulatory clouds in the finance industry have lifted and most companies have repaired their balance sheets, banks again have had room to spend on such capital expenditures—and Temenos has won the majority of these clients as its software system is considered the best on the market. Importantly, such a sizeable software-system implementation is likely to be a once-in-a-generation project, which should result in highly sticky clients for Temenos. As its products have gained traction, the company has won contracts from larger banks and built a solid prospect pipeline—including increasingly in the sizeable US market.

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