IDC FutureScape

IDC FutureScape: Worldwide Digital Business Models and Monetization 2020 Predictions

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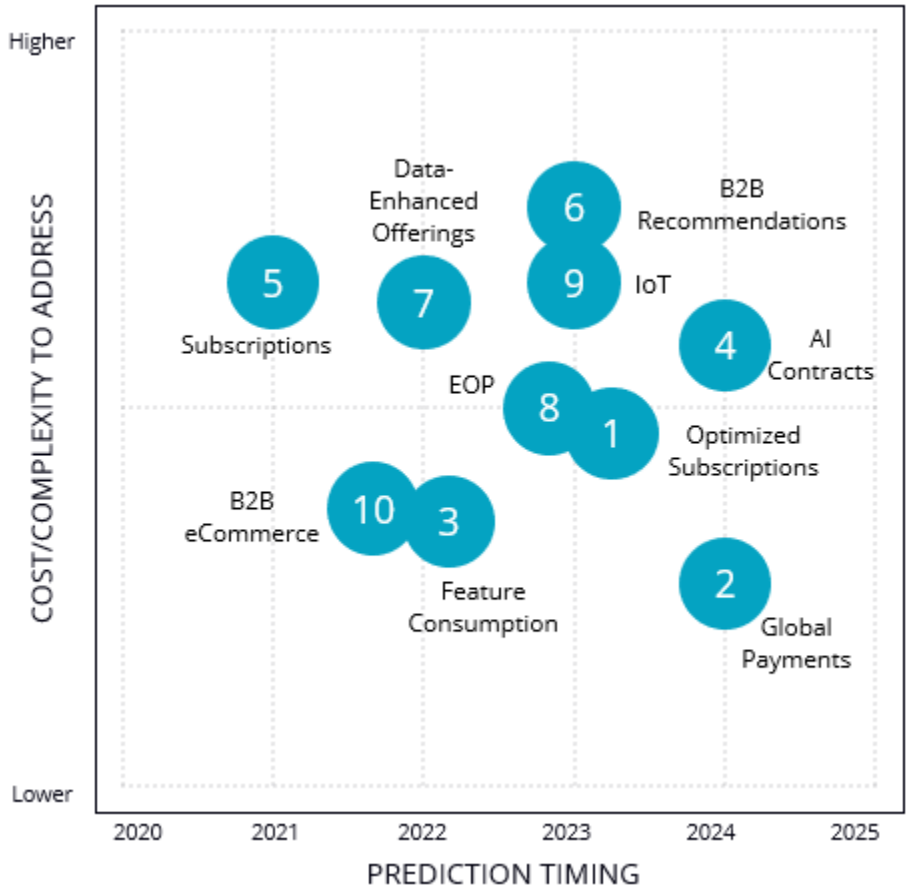
IDC FUTURESCAPE FIGURE

FIGURE 1

IDC FutureScape: Worldwide Digital Business Models and Monetization 2020 Top 10 Predictions



Note: Marker number refers only to the order the prediction appears in the document and does not indicate rank or importance, unless otherwise noted in the Executive Summary.

Source: IDC, 2019

October 2019, IDC #US44643119

EXECUTIVE SUMMARY

In the recent past, monetization technology has been the domain of custom applications, spreadsheets, and an army of financial professionals to make it all work — especially at quarter close. This story is quickly changing as software-as-a-service (SaaS)-based monetization applications mature to automate workloads so that the financial professionals can focus more on strategy.

IDC engages with many clients that are onboarding new technology to allow them to efficiently monetize subscriptions, guide the selling process with personalized pricing, track customer usage, and leverage customer data to make better business decisions. We augment client stories with insights gained through large worldwide surveys such as IDC's *Industry CloudPath* and *SaaSPath*.

We've learned that most companies have modernized parts of their monetization systems and are finding high value and satisfaction with the applications they have implemented. While most have not automated to the degree possible due to time and maturity, it is a priority. From the *SaaSPath Survey,* we clearly understand that customers want to incorporate consumption pricing and leverage features with machine learning (ML)/artificial intelligence (AI) to enable insights to fuel automation.

The top 10 predictions for the next five years are:

- **Prediction 1:** By 2023, 20% of subscriptions, technology, and software will be priced using new price optimization and guidance software.
- **Prediction 2:** By 2024, 60% of businesses with cross-border sales will accept five or more regionally specific alternative payment methods, driving the slow decline of card networks in B2B and C2B models.
- **Prediction 3:** By 2022, 10% of software companies will deploy feature-level consumption pricing due to insights derived from new product usage analytics tools.
- **Prediction 4:** By 2024, 50% of companies will be leveraging automation and AI in selecting vendors, establishing contractual relationships and issuing orders, and accelerating the pace of monetization.
- **Prediction 5:** By 2021, over 50% of software revenue will come from the subscription/consumption business model, which includes on-premise software sold as subscription and hardware/software as a service.
- **Prediction 6:** By 2023, 25% of companies will be using ML-driven tools to analyze customer and operational data to recommend B2B customer expansion options (up/cross-sell) via price guidance and ecommerce.
- **Prediction 7:** By 2022, 50% of software solution vendors will use anonymized data collected within their platforms to provide insights and benchmarks, leading to increased value and differentiation for their offerings.
- **Prediction 8**: By 2023, 10% of companies will use commercial ecosystem orchestration platforms, which are designed to manage, orchestrate, and monetize multipartner offerings.
- **Prediction 9:** By 2023, 25% of organizations will leverage data derived from IoT devices to drive new business models.
- **Prediction 10:** By 2022, 40% of B2B purchases will be conducted via digital commerce channels, leading to the adoption of reoccurring business models and price optimization tools by B2B organizations.

This IDC study highlights key trends in digital business models and monetization technology adoption and presents the top 10 predictions and key drivers for the next five years.

"As the pace of digital innovation quickens, so does the need for applications to efficiently monetize products and services at the speed of cloud. Predictions highlighted in this IDC FutureScape outline some of the new platforms, applications, and automation capabilities, which will enable businesses to not only keep up with business but also lead with data-driven confidence," said Mark Thomason, research director, Digital Business Models and Monetization at IDC.

IDC FUTURESCAPE PREDICTIONS

Summary of External Drivers

- **The age of innovation:** Driving the future enterprise
- **Accelerated disruption:** Navigating business challenges as volatility intensifies
- **Sense, compute, act:** Maximizing data value
- **The platform economy:** Competing at hyperscale
- **Intelligence everywhere:** AI's opportunity and implications
- **Rising customer expectations:** More convenience, customization, and control
- **Economies of intelligence:** AI, human, and organizational "learning" fuels asymmetrical advantage

A detailed description of each driver is provided in the External Drivers: Detail section.

Predictions: Impact on Technology Buyers

Prediction 1: By 2023, 20% of Subscriptions, Technology, and Software Will Be Priced Using New Price Optimization and Guidance Software

Out of marketing's "four Ps" (product, place, promotion, and price), price is the biggest and easiest lever to change to meet revenue and margin goals, but it can be the hardest to set since there are so many variables to consider. Ideally, prices would be personally set according to the target customer's willingness to pay, which is the point of the direct sales model, as a savvy salesperson would understand a prospect's situation and negotiate the best price for both parties. The challenges to the direct model are that savvy salespeople are hard to find, and they need help understanding the customer's willingness to pay.

Prices for most commodities, retail, plane/train tickets, CPG, and B2B physical goods are set using price optimization applications, where high transaction volumes create a rich data set. These applications analyze historical customer transactions and set the right price for the target customer segment, which could be based on several factors. Many of these tools have price guidance features to help a direct salesperson to set the starting and target price to help them with data-driven negotiation.

Today, packaged software, services, technology, and subscriptions are mostly priced manually, leveraging the savvy of the product management, marketing, and sales teams to set and negotiate price based on customer feedback. Some businesses hire pricing consultants who do the hard job of segmenting and interviewing customers to find their willingness to pay. Often prices are set using too little customer data, too many assumptions, and not updated frequently. IDC predicts that ML/AI-fueled

price optimization applications will grow into pricing the subscriptions, software, and services markets. These tools will augment the growing CPQ tools that are available for subscriptions to help a salesperson or ecommerce platform set the best price based on the growing data set that many companies are collecting on their customers.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **Accelerated disruption:** Navigating business challenges as volatility intensifies
- **Sense, compute, act:** Maximizing data value
- **Intelligence everywhere:** AI's opportunity and implications

IT Impact

- Impact could be low/incremental if your existing subscription management solution includes or plans to add this capability. Otherwise, IT will need to onboard and integrate a new SaaS application.
- Price optimization tools usually have an up-front IT and business services need with incremental tweaks to the model after for maintenance. The up-front need largely depends on the complexity of getting the price optimization engine the right data out of existing systems in an automated way.

Guidance

- Several price optimization and management application vendors are starting to focus on this area. Leverage *IDC MarketScape: Worldwide B2B-Focused Price Optimization Applications 2018 Vendor Assessment* (IDC #US44517118, December 2018) to learn more about the leading vendors in this category and engage in conversations with them.
- Some subscription management application vendors have automated pricing on their road maps. Confirm that your current provider has this capability on its road map.

Prediction 2: By 2024, 60% of Businesses with Cross-Border Sales Will Accept Five or More Regionally Specific Alternative Payment Methods, Driving the Slow Decline of Card Networks in B2B and C2B Models

As companies expand across borders through consumer and B2B ecommerce, they must accept payments that are local to each market to be successful. The goal is to never miss a sale due to the inability to accept the consumer's payment of choice.

Attaining global payment acceptance is a steep challenge, considering many nations are adopting localized and disparate noncard, alternative payments. Often these domestic schemes run direct-from-bank payment models, which are optimized through localized acquiring relationships. These schemes are gaining fast traction with growing consumer and business adoption promising to place a dent in traditional card business. The bottom line is users want choice in payments, and merchants must comply. To overcome the global acceptance challenge, businesses will work with both traditional gateways and a new crop of alternative payment providers that promise full payment coverage in each of the markets targeted by businesses, as well as the promise to expand into new markets as needed.

Incumbent processors are making global acceptance a key part of their offering and are getting creative in enabling localized acquiring relationships for both alternative and card payments to optimize pricing. Newer providers are swiftly establishing labyrinth networks of localized acquiring relationships across the globe to enable acceptance with the best possible rates, as well as handling

cross-border disbursements and foreign exchange. In some cases, both act as the merchant of record in the region, holding their global clients as submerchants to optimize authorization rates and pricing.

Associated Drivers

- **Accelerated disruption:** Navigating business challenges as volatility intensifies
- **Rising customer expectations:** More convenience, customization, and control

IT Impact

- Businesses must choose payment providers with gateways that enable global acceptance of alternative payments alongside traditional payments in an integrated offering.
- Global acceptance impacts the commerce platform, a range of back-office systems, and customer-facing functions, requiring merchants to align transformation initiatives across these areas.
- Fraud attacks differ by payment type and geography, so cross-border businesses will need to purpose build their prevention strategies.

Guidance

- Many markets have yet to add alternative payments, but they're on the way. Businesses must assess their payment providers by their ability to accept current alternative payment types and expand to emerging schemes.
- Businesses always need to accept credit and debit card processing, so they must choose a provider that is as adept at providing traditional and alternative payments in an integrated solution.
- Payments are often central to wider marketing and customer experience efforts, such as loyalty programs. Merchants must build these programs around localized payment types.

Prediction 3: By 2022, 10% of Software Companies Will Deploy Feature-Level Consumption Pricing Due to Insights Derived from New Product Usage Analytics Tools

Software vendors are rapidly adopting the subscription business model at a 17.5% CAGR for their as-a-service and on-premise applications for recurring revenue and increased customer engagement. Now they are interested in incorporating the consumption business model, but don't know how to approach value and pricing to confidently move forward. Software companies moving to a SaaS or subscription business model are usually pricing on a usage metric that is familiar to buyers from the days of selling on-premise license software, such as the quantity of licenses, seats, or modules licensed. While this provides a high level of familiarity, it can be a blunt metric for pricing on value.

For example, offerings for infrastructure as a service (IaaS – such as AWS, Microsoft Azure, and Google Cloud Platform) are commonly priced on dynamic quantities of usage – typically the more you use, the more you pay. While this sounds fair to both the buyers and sellers of software and services, the issue is predictability, as the buyer doesn't want lumpy bills and the seller doesn't want lumpy revenue. A best practice is to structure subscription offerings in tiers that package features and an amount of usage into each tier that is tailored to a buyer persona. These personas could be targeted to business size or use cases. While this is a straightforward concept, it is hard to do correctly if you don't understand how your customers use and value the features in your product.

IDC predicts that by 2022, 10% of software companies will deploy feature-level consumption pricing due to insights derived from new product usage analytics applications. Tracking product usage can be

accomplished using software/Internet of Things (IoT) monetization applications (e.g., Flexera and Thales), which can work across on-premise and cloud offerings, API management, and product experience applications (Amplitude, Gainsight, Pendo). Having a platform that spans all your delivery methods simplifies the effort to get a single view of the customer's usage behavior.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **Sense, compute, act:** Maximizing data value
- **Rising customer expectations:** More convenience, customization, and control

IT Impact

- Engage product usage application vendors that support your current and future delivery models (e.g., on-premise, SaaS) to determine best fit.
- While it is a common practice to build this capability in-house (build versus buy), IDC finds that many of these in-house solutions get out of date quickly after creation and do not keep up with the pace of innovation.

Guidance

- Moving to a consumption model should not be done without understanding how your customer uses and values your product.
- Track product usage per customer over time and then analyze against external (e.g., firmographic) and internal (e.g., buying/renewal frequency) metrics to segment your customers to understand value per segment. Automate this process for a scalable way to track value metrics.
- Model prospective pricing and test offerings with customer panels to validate.

Prediction 4: By 2024, 50% of Companies Will Be Leveraging Automation and AI in Selecting Vendors, Establishing Contractual Relationships and Issuing Orders, and Accelerating the Pace of Monetization

Over the past decade, digital transformation has accelerated the pace of business. Automated consumer transactions are commonplace. Transactions that years ago took days, if not weeks, to complete are now completed in hours, if not minutes. Nevertheless, more complex commercial relationships continue to encounter a choke point – contract negotiations. Often prolonged contract negotiations between lawyers and contract professionals on both sides of the negotiating table extend for weeks and even months. Automated workflows and electronic signature applications have had a modest impact on cycle time. Nevertheless, until most recently, contractual negotiations have continued to be a highly inefficient exercise, consuming valuable time and resources and slowing the pace of monetization.

The convergence of Big Data, AI, and automation delivered in a secure SaaS environment is beginning to significantly reduce contract negotiation cycle times and the pace of monetization. AI is being leveraged to evaluate and select vendors as well as to identify patterns in large data sets of negotiated contracts: which products/services meet the needs of the enterprises, and which vendors are most likely to meet the business needs of the enterprise. What are the highly negotiated terms, and how are they most often resolved? What are key terms that most significantly impact financial performance of contracts during their life cycle? AI is being leveraged to evaluate and assess the risk of highly complex transactions assisting contract professionals and reducing review cycle times drastically. Contracts are being assembled using automated workflows supported by AI, significantly

reducing the number of human touch points. Administrative aspects of the contractual review process are being eliminated entirely by sophisticated automated workflows.

IDC observes that such intelligent vendor and contract management is on the cusp of becoming mainstream. Furthermore, IDC predicts that intelligent vendor and contract management will continue to reduce contract negotiation cycles becoming a key driver in accelerating the pace of monetization. Early adopters will gain a significant advantage and outperform their competitors in key financial and performance metrics.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **Sense, compute, act:** Maximizing data value
- **Intelligence everywhere:** AI's opportunity and implications

IT Impact

- IT needs to be proactive in working with existing solution providers to understand and drive road maps for intelligent contract management.
- IT must ensure its workforce understands the impact and business drivers for intelligent contract management.
- CIOs must anticipate budget demands for legacy system modernization or replacement.

Guidance

- Engage business leaders to develop and refine business cases for implementing intelligent contract management.
- Create a plan for modernizing legacy contract toolsets.
- Establish a cross-functional center of excellence for intelligent contract management to leverage and enhance expertise throughout the enterprise.

Prediction 5: By 2021, over 50% of Software Revenue Will Come from the Subscription/Consumption Business Model, Which Includes On-Premise Software Sold as Subscription and Hardware/Software as a Service

Each year, IDC surveys over a 1,000 software companies to understand quarterly changes in their revenue across the applications they sell. IDC also sends out large qualitative surveys to understand the perspective from the user's point of view. IDC uses these data points along with reviewing other public financial data, so we can determine the relative size, growth, and decline patterns for three major software revenue types: license, maintenance, and subscription. These revenue types represent the evolution of software business models as the industry slowly moves from a transactional business model to offering products via subscription.

The main benefit to the vendor for offering subscriptions is recurring revenue. This business model evolution is largely fueled by the cloud since it's based on providing ongoing services versus delivered software. The trend to subscription is amplified by companies increasingly repackaging their delivered software and/or maintenance in a subscription, which enables them to offer integrated cloud services when they are ready.

The trend to subscription is evident in the forecast. IDC expects that, in 2021, over 50% of all software revenue will be purchased with a subscription business model, and this will expand to 58% in 2023 at a CAGR of 17.5%. Likewise, the trend to purchase licensed software has been declining at a CAGR of

2.8%, and it is expected to represent just 16% of all software revenue in 2023. Maintenance revenue will make up the remaining 26% in 2023, and it is growing at a CAGR of 2.1%.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **The platform economy:** Competing at hyperscale
- **Rising customer expectations:** More convenience, customization, and control

IT Impact

- Given that all modern monetization systems are SaaS with well-documented APIs (many have existing API connectors) to connect with the up/downstream SaaS applications (e.g., CRM, ERP), most customers report a relatively painless implementation.
- Implementing new business models (transaction to subscription) can be very disruptive to IT and business personnel since they can change roles and how people work — make change management a number 1 priority to ensure your transformation project is quickly successful.

Guidance

- Strongly consider SaaS-based subscription management applications to automate the monetization of subscriptions and contracts, which can include functionality for revenue recognition, dunning/collections, and discounts/rebates, and multipartner settlement.
- Make it a priority to aggregate all the business and customer data into a single view, so you can see your relationship across all products. Augment these views with external firmographic data to analyze and segment. This data can become fundamental to automating a personalized relationship and provide leadership with a clear picture of their customers.
- Begin with the end in mind when designing your monetization system and look for products that support your future business models. For example, if you plan to adopt the consumption business model, start collecting usage information now, so you'll have the data you need to model into pricing scenarios.

Prediction 6: By 2023, 25% of Companies Will Be Using ML-Driven Tools to Analyze Customer and Operational Data to Recommend B2B Customer Expansion Options (Up/Cross-Sell) via Price Guidance and eCommerce

Any consumer that has shopped on a modern digital commerce platform like Amazon has been exposed to machine-driven recommendation engines. These engines leverage your browsing and shopping history to suggest products or services that might interest you. Increasingly, these engines leverage machine learning to analyze your behavior over time, compare your behavior with other customers in your segment, suggest products, and observe how you respond — using the result of your action as feedback to the entire model.

In *IDC MarketScape: Worldwide SaaS and Cloud-Enabled B2B Digital Commerce Platforms for Manufacturing 2018 Vendor Assessment* (IDC #US44394718, October 2018) and *IDC MarketScape: Worldwide SaaS and Cloud-Enabled B2C Digital Commerce Platforms 2018 Vendor Assessment* (IDC #US44288618, October 2018), we found evidence of recommendation engines in leading platforms; however, most have it on their road maps for delivery in the future. Recommendation engines are also part of leading price optimization/CPQ suites, which typically leverage historical data from CRM and ERP applications and use ML/AI to detect anomalies and predict behavior; however, these applications are still new and rapidly evolving. In addition to these application types, recommendation

engines can be found in CRM, point solutions, and customer data platforms. So there are many vendors working on this evolving monetization technique.

Through the insights gained from these early versions, IDC sees some of these products maturing to pull in data from many different internal and external sources (e.g., product usage, support, subscription management, firmographics, competitive data, entitlement, IoT) to create recommendations that have a high chance of being accepted.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **Accelerated disruption:** Navigating business challenges as volatility intensifies
- **Sense, compute, act:** Maximizing data value
- **Intelligence everywhere:** AI's opportunity and implications
- **Rising customer expectations:** More convenience, customization, and control

IT Impact

- The largest impact to IT is feeding these applications with the data they need in the format that they need it. The biggest challenge is getting data out of legacy systems (file based in some cases), but as companies move their business systems to SaaS, this problem gets easier with APIs.

Guidance

- Use of recommendation engines space for B2B will expand quickly at first for the simpler use cases, but the technology will mature with time as successful recipes of data types and algorithms are discovered. Engage vendors of this technology to get educated and understand the best fit for your business case and selling strategy.
- If you already have a B2B ecommerce, CRM, or price optimization application, ask your vendors about their road map for offering ML-fueled recommendations and which data feeds they will use.

Prediction 7: By 2022, 50% of Software Solution Vendors Will Use Anonymized Data Collected Within Their Platforms to Provide Insights and Benchmarks, Leading to Increased Value and Differentiation for Their Offerings

Data monetization efforts have steadily expanded across industries and regions. However, providing value through data exchanged with external parties goes beyond simply providing data to develop a new revenue stream. Every enterprise that considers data monetization needs to scrutinize the strategic intent of this effort. It could involve developing a data offering that is sold on its own or one that is part of the bundled value-add with existing technology sales and subscriptions, making the latter "stickier" by raising substitution costs or improving customer experience.

A growing number of IT vendors, particularly those with as-a-service offerings, are capturing usage metrics. While most vendors have been using this data internally to inform new product development and provide customer support, increasingly, vendors are making this type of data available to their customers. Some vendors are providing this data in raw form to end users to detail usage behavior across their installed base. Other vendors have developed reports and benchmarks based on anonymized activity within their platforms, including metrics about business process flows and tasks or process completion times as well as metrics and benchmarks of industry or functional process trends based on data from customers that have chosen to opt in to such initiatives.

Creating data-as-a-service (DaaS) capabilities enables benchmarking anonymized user behavior and process monitoring metrics across enterprises. Two common models in place today include one that provides DaaS without charge to companies that opt in to share their data with others on the platform or an alternative where an outside benchmark can be incorporated for a fee. With predefined use cases for the data, many IT vendors have begun to launch some type of value-added data to their portfolios.

Associated Drivers

- **Sense, compute, act:** Maximizing data value
- **Rising customer expectations:** More convenience, customization, and control
- **The platform economy:** Competing at hyperscale

IT Impact

- Much of the way that solution providers will be able to provide the added DaaS offerings is by shifting any on-premise systems to the cloud. Business users may press IT to migrate.
- The availability of new data and benchmarks can build excitement about more analysis of the data or other closely related internal data. IT should be prepared for additional demand for these tools and/or visualization capabilities.

Guidance

- Encourage your vendors to use their data capture and analytic capabilities to tell you how to be a better user of their software. Beyond software itself, consider what your vendors could do for you to enable your process improvement efforts through comparative benchmarking or other analytics.
- Weigh the benefit of migrating from on-premise solutions to cloud-based offerings, considering new value from DaaS offerings bundled with technology offerings.
- Examine the terms and conditions as you choose to join (or not join) cooperative data efforts.

Prediction 8: By 2023, 10% of Companies Will Use Commercial Ecosystem Orchestration Platforms, Which Are Designed to Manage, Orchestrate, and Monetize Multipartner Offerings

Partner-to-partner interaction and service-level combination for delivering enhanced customer value are gaining momentum across a wide array of industries including healthcare, Internet of Things, banking, transportation, virtual computing, manufacturing, and various services sectors. While much talk has been made over the past five years concerning partner-based business opportunities, several operational challenges continue to linger.

Traditional financial ERP or CPQ systems were never built to address the business requirements that partner ecosystem management demands, and a challenge that is often underestimated is how to efficiently orchestrate and monetize these multipartner solutions in an automated way so that they can be easily bundled, monetized, fulfilled, and settled across all partners, as each partner will have its own terms of payment, business model, taxes, currency, and provisioning methods. To create a platform like this today, the current situation is to build it from scratch, which typically results in a long and expensive learn-as-you-go project, which is hard to modify, especially after the team who made it moves on.

Ecosystem orchestration and management is best addressed through a platform approach. An ecosystem-focused business management, monetization, and fulfilment solution, also known as an

ecosystem orchestration platform (EOP), is purpose built to address several core functions. These functions include the ability to create anything in a package from any source, sell this creation through any channel, enable customers to order from any number of suppliers, fulfill each customer order, deliver and bill for each order using any pricing model, settle with partners as resources are consumed, and report analytical insight.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **Accelerated disruption:** Navigating business challenges as volatility intensifies
- **The platform economy:** Competing at hyperscale
- **Rising customer expectations:** More convenience, customization, and control

IT Impact

- EOPs should be multi-SaaS delivered for quick time to market and easy integration via a well-documented API to up and downstream systems, so that the platform is constantly upgraded.
- Rip and replace of existing IT with a platform solution is not prudent nor practical. Many back-office systems such as financial accounting and enterprise reporting can be overlaid with a commercial EOP solution using API-based integrations. Over time, other systems can be replaced as the platform-based business strategy grows.
- Any business-level transformation will involve more than technology. Likely the most challenging degree of change will be related to people and existing processes. IT and business management teams need to work closely together if expectations are to be realized.

Guidance

- Look for capabilities that can easily create complex bundles across multiple partner offerings and offer them as a subscription, consumption, or a one-time transaction using a variety of pricing models.
- Start small to address a rising set of new business and IT technology requirements that a platform-based mindset can bring. Use a SaaS-based commercially available platform to try out new ideas with a small set of customers, then scale when you need.
- Choose a platform that enables each partner to onboard and manage its own services and offers, along with providing management portals and APIs for customers, vendors, operations, and transactions, so all stakeholders can self-serve and automate to the highest degree possible.

Prediction 9: By 2023, 25% of Organizations Will Leverage Data Derived from IoT Devices to Drive New Business Models

To fully embrace and remain competitive in the age of innovation, many organizations have embarked on projects to pilot and test new technologies such as IoT, AI, ML, and robotics. The Internet of Things is helping organizations gain the competitive advantages they seek today by placing sensor and gathering data to gain insights across the organization in order to introduce improvements across processes, services, and products. Among the benefits associated to IoT deployments cited by end-user organizations, such as improving business productivity, reducing operational costs, and others, the ability to create new revenue streams and business models is often quoted among the top 10.

These new business models can happen in ways such as reimaging traditional businesses (e.g., a coffee machine producer that by connecting its machines now enables a self-refilling system), incorporating new ways of selling (e.g., consumption-based models), or identifying new markets (new

industries, segments, etc.). Yet achieving those benefits can often prove more challenging than initially expected. Deriving value and being able to identify and create new business models often require organizations to have a highly cohesive data strategy, which can incorporate not only the storage and security of such data but also the capacity to analyze it, derive insights from it, and ensure the appropriate individuals and teams within the organization gain access to the information gathered. But to monetize the IoT investments, it also requires the ability to ensure actions are taken to ensure the data is being captured and put to good use. Identifying new business models relies heavily on this capacity to analyze and actionize on these insights. This, however, is an area most organizations often underestimate or where they simply lack the necessary skills to pursue and maximize the value of the data.

IDC's latest research (IDC's 2019 *European Vertical Markets Survey*) shows the percentage of organizations where IoT is leading to new business models and new revenue streams as low as 6% in some regions like Europe, for example. Though the proportion is gradually increasing over the years, IDC believes that by 2023 only a quarter of organizations would have mastered the ability to actually analyze and derive sufficient value from their IoT data collected in order to lead to new business models within the organization.

Associated Drivers

- **The age of innovation:** Driving the future enterprise
- **Sense, compute, act:** Maximizing data value
- **Intelligence everywhere:** AI's opportunity and implications

IT Impact

- Organizations will need to carefully consider an all-encompassing data strategy when planning their IoT deployments, including not only the collection and safety of the data but also the internal processes, teams, and individuals required to ensure prompt identification of potential new business models.
- IT departments within the organization will have to work closely with other parts of the organization, such as line-of-business managers, marketing, and sales, in order to understand the potential to create new business models from the IoT data, as well as ensuring a cohesive go-to-market strategy for the new business.
- IT departments may be asked to participate in multiple initiatives to test the viability of potential new business models, adding to the constraints and limited resources they already have. There is a risk, however, that a plethora of potential initiatives gets identified by the different parts of the organization running IoT initiatives.

Guidance

- Stakeholders from both IT and other parts of the organization should form a monetization team to ensure all opportunities are captured and tested.
- The potential benefits of a successful new business model across the organization are too good to ignore. IT departments will have to work collaboratively with other parts in the organization to identify and establish some early parameters so they can launch innovative business models without damaging the established business.
- Organizations need to understand the entire data management life-cycle process and the necessary skills needed in each stage from collecting the data, manipulating it securely, and analyzing it to ensuring data governance and actionizing from its insights.

Prediction 10: By 2022, 40% of B2B Purchases Will Be Conducted via Digital Commerce Channels, Leading to the Adoption of Reoccurring Business Models and Price Optimization Tools by B2B Organizations

Over the past three decades, digital commerce has focused primarily on the retail industry and other B2C use cases. As a result, digital commerce — the sale of products and services via digital channels — is much less common in B2B, and commerce experiences tend to be much less mature. Over the past two years, this trend has begun to shift, with B2B organizations looking to provide better consumer-grade buying experiences for their customers. In fact, IDC forecasts that the B2B digital commerce market will see much faster growth over the next five years compared with B2C (for more details, see *Worldwide Digital Commerce Applications Forecast, 2019–2023,* IDC #US45178919, June 2019).

B2B digital commerce allows buyers to buy products and services in more intuitive, self-service, and frictionless ways. At the core, a B2B digital commerce platform allows B2B sellers to establish a presence on the web while infusing commerce into other channels such as social media and IoT. To be truly successful, the transformation of B2B commerce must also extend to other front-office applications as well to provide a better commerce experience across the entire customer journey.

As B2B organizations digitize their commerce operations and add selling channels, the next logical step is to innovate by optimizing those selling channels and selling their products and services in new business models. Historically, B2B pricing has been very rules based, where the price for products has been based on a cross between a seller's catalog and price lists. On the other hand, price optimization enables sellers to dynamically adjust pricing based on detailed configurations, supply and demand, competitors' pricing trends, and customers' contract terms. This allows B2B organizations to provide their customers with the right price at the right time, providing a better overall commerce experience.

Associated Drivers

- **Sense, compute, act:** Maximizing data value
- **The platform economy:** Competing at hyperscale
- **Economies of intelligence:** AI, human, and organizational "learning" fuels asymmetrical advantage

IT Impact

- A successful digital commerce strategy requires that the digital commerce platform is closely integrated with both front-office applications (e.g., sales, marketing, customer service) and back-office applications (e.g., inventory, order management).
- Building a future-proof B2B digital commerce platform requires an API-first approach to speed up the process of integrating with new cloud services and new selling channels.
- Mobile commerce is seeing strong adoption in B2B digital commerce. B2B organizations must consider how their customers are using their store and build a technology stack that supports this, whether it be HTML5, native mobile apps, and/or a progressive web application design.

Guidance

- Cultural changes tend to be more difficult than the work necessary to integrate a new technology. B2B organizations should focus on making digital transformation a companywide goal and highlight how sales reps will benefit from B2B digital commerce.
- An organization's digital commerce tech stack should be dynamic enough to meet business requirements, not the other way around. Organizations should not settle for a software platform that is rigid and restrictive, as it will result in problems in the future and limit growth.

- Over the long-term future, the digital commerce paradigm of a "shopping cart" needs to be overlooked in favor of a more fluid commerce relationship with the customer based around IoT-enabled orders and the reoccurring models.

ADVICE FOR TECHNOLOGY BUYERS

Monetization technology is evolving quickly to provide businesses with the technology they need to automate complex business models and allow business professionals to focus on strategy versus manually operating the monetization machine they cobbled together with spreadsheets or custom applications, which impede innovation. Given the differences and complexities of each business, there's a large ecosystem of vendors that can be leveraged to do various monetization functions.

IDC recommends that buyers:

- Leverage *The Monetization Ecosystem* (IDC #US43888119, December 2018), which defines the key monetization functions to make it easier to understand how all the functions work together.
- Leverage the IDC MarketScapes referenced in the Learn More section.
- Use multitenant SaaS versions of monetization applications to get automatic updates and lower implementation time.
- Look for vendors that understand and have experience in your industry to speed the implementation and leverage the best practices that they have learned.

EXTERNAL DRIVERS: DETAIL

The Age of Innovation: Driving the Future Enterprise

- **Description:** Digital transformation (DX) — the continuous process by which enterprises adapt to or drive disruptive changes in their operations, customers, and markets — is now being driven by multiplied innovation. Competition is powered by platforms and ecosystems where network effects and innovations feed off themselves. But the changes and innovations aren't accidental; they are driven by data, analytics, and learning, which feed and multiply more innovation. Data drives intelligence yielding insight and knowledge, allowing for action and creating value. Automation and machine learning revolutionize operations, providing major increases in productivity and efficiency. To compete, companies must balance digital and industrial competencies and master them at scale. Yet these efforts will not succeed without leadership and talent and the enterprises' ability to effect change.
- **Context:** With direct digital transformation investment spending of $5.5 trillion over the years 2018–2021, DX continues to be a central area of business leadership thinking. Industry leaders are transforming markets and reimagining the future through new business models and digitally enabled products and services. At the same time, companies that digitize their operating model may see a 40% increase in productivity. Purely digital opportunities aren't enough anymore. New opportunities will come increasingly from combining digital technology with physical assets. To succeed, digital natives need to adopt and transform the traditional world of industrialization and specialized assets. Industrial natives need to adopt and master digital technologies that could affect robustness, reliability, and safety.

Accelerated Disruption: Navigating Business Challenges as Volatility Intensifies

- **Description:** Today, survival of the fittest is linked not to size or strength but to the ability to change — to move quickly, react, adapt, seize opportunities, and be agile. With the increasing uncertainty in economic rules, political stability, climate effects, and disruptive innovations in the marketplace, a sense of urgency pervades companies concerned about their competitiveness and longevity. Beyond that, organizations' ability to navigate the increasingly complex and uncertain business environment has become essential. The new imperative is to keep pace with business change by increasing the speed of business operations, the speed at which changes are delivered, and the speed and scale of innovation. Survival means understanding and adopting these new approaches quickly, throughout the organization.
- **Context:** The best-performing companies are pulling away from the rest, creating a bifurcated and unequal landscape where a few firms exhibit high productivity and profits. The global superstar companies and the unicorn start-ups leverage innovation cultures, agile organizations, and disruptive approaches to everything from machine learning to talent acquisition in order to adapt to complex uncertainty; adjust their products, services, and operations; and seize opportunities.

The Platform Economy: Competing at Hyperscale

- **Description:** Understanding and provisioning the platforms that will sustain, advance, and scale business and operations are essential for every business. The platform is where the future of software, infrastructure, and connectivity will evolve and where edge will be accessed, integrated, and optimized. Megaplatforms compete to own infrastructure, artificial intelligence, and development environments. Application-centric platforms look for the network effect to expand their reach. Industry-specific platforms harness multiplied innovation to build niche ecosystems. Capturing profits will be highly dependent on controlling or participating in the right platform. Every business must incorporate these new realities into its platform strategy.
- **Context:** Today, we are in a platform economy — one in which tools, capabilities, and frameworks based upon the power of information, cognitive computing, and ubiquitous access will frame and channel our economic, business, and social lives. Leading organizations are shifting to platform thinking to evolve their business models and manage their technology architecture. Platform thinking is a fundamental shift in business strategy, moving beyond product differentiation and pricing and toward ecosystem-based value creation. It is also a long-term, sustainable response to new realities in the DX economy, one in which organizations digitally transform themselves into digital-native enterprises.

Sense, Compute, Act: Maximizing Data Value

- **Description:** Today, data and intelligence represent a unique opportunity for creating unimaginable value. Real-time data from IoT, mobile devices, and other devices at the edge — combined with historical data, enterprise systems, and global information — continually sense an environment and put it into new contexts. By combining data with AI and machine learning, organizations are spreading intelligence from the core to the edge to turn data into action and action into value. Automation literally extends beyond decision making and optimization into life-and-death dependencies. Competitiveness is determined by how data is transformed into insight and knowledge to create high-value differentiators for products, customers, and markets and deliver meaningful, value-added learning, predictions, and actions that improve experiential engagement, industrial processes, enterprise decision making, and much more.

- **Context:** In this "data driving action" world, ensuring the veracity of the data and transforming data into insights become a strategic imperative. Sometimes called "decision-centric computing," the need to understand and utilize data goes beyond data integration and governance. What becomes essential is: first, to put data into context to provide meaning; next, to understand it in relationship to other data and events to gain knowledge; and finally, to add judgement and action to achieve the full potential of value realization.

Intelligence Everywhere: AI's Opportunity and Implications

- **Description:** Accelerating progress in AI is impacting experiential engagement, business processes, strategies, and more – autonomously creating a significant portion of new innovations. But, as automation and augmentation increase, so do the ethical issues and opportunities for misuse, surveillance, invasions of privacy, and more. Many future applications will be developed by AI without human supervision. Beyond that, augmented humanity – the fusion of digital technologies and humans – for improved mobility, sensing, and cognition will become routine. There are justifiable concerns and issues around AI-enabled applications, bias, and transparency and the long-term impacts of these on workforce transitions and the essential elements of being human. Social pushback is demanding accountability and rights. Business and governments need to address the ethical and legal issues of AI to realize its opportunities.
- **Context:** AI innovation and application are being driven by massive investments in all kinds of industries. Hospitals are testing how AI can enhance care, school districts are looking at AI-equipped cameras that can spot guns, and human resources departments are using AI to sift through job applications. Government agencies, including law enforcement, are looking for ways to harness this next technological revolution to meet their ends, while others are demanding accountability and an "algorithmic bill of rights." With industries investing aggressively in projects that utilize AI software, IDC forecasts AI systems will more than double from 2018 to 2022 to $79.2 billion, with a compound annual growth rate (CAGR) of 38.0%.

Rising Customer Expectations: More Convenience, Customization, and Control

- **Description:** Customers accustomed to the personalization and ease of dealing with digital-native companies such as Google and Amazon now expect the same kind of service from every business in every industry. The changing expectations are most evident in the newest generations of customers, but all customers are demanding more convenience and personalization. At the same time, they want more control of what data is collected and how it is used. Intelligent customer agents will start to intermediate the relationship on the customer's behalf, taking more control from the vendor. Companies that systematically collect, measure, and analyze data to create exceptional, personal, relevant, and compelling experiences can set themselves apart from their competitors.
- **Context:** With new customer expectations being set by thriving companies that disrupt markets, the previous levels of customer service are no longer good enough. New business, operational, and organizational models are required to meet continually growing consumer expectations. 38% of companies that are digital natives report that they are "almost constantly online" through their device of choice, the mobile phone, providing unparalleled access to behaviors and preferences, that they expect to be turned into customized engagement and experience. While there is also backlash, customers seem willing to relinquish some control over their data in exchange for a sufficiently engaging personalized experience.

Economies of Intelligence: AI, Human, and Organizational "Learning" Fuels Asymmetrical Advantage

- **Description:** Enterprise economies and the nature of competition have changed. While still important, economy of scale has been augmented with economies of scope and economies of learning. Now, leading companies are pursuing "economies of intelligence," the continual improvement, innovation, and variation based on leveraging data and AI technologies to identify and fulfill changing needs to enhance scale, scope, and customer engagement. This is changing the nature of intellectual property, whose value has shifted to where it's created rather than where it's realized and contributing to an asymmetrical accumulation of capital and innovation where an organization's capacity to learn has a distinct competitive advantage.
- **Context:** As enterprises scale their use of modern technologies for complete instrumentation, integration, and insight, they are able to expand their scope by offering a wider variety of experiences that demonstrate increasing value as the organization learns what is most desirable and efficient. This enables the learning organization to capture more knowledge and increase its asymmetrical accumulation of capital and innovation.

LEARN MORE

Related Research

- *Critical External Drivers Shaping Global IT and Business Planning, 2020* (IDC #US45540519, October 2019)
- *Worldwide Software License, Maintenance, and Subscription Forecast, 2019-2023* (IDC #US44435119, July 2019)
- *Worldwide Digital Commerce Applications Forecast, 2019-2023* (IDC #US45178919, June 2019)
- *IDC MarketScape: Worldwide Retail Price Optimization Applications 2019 Vendor Assessment* (IDC #US45034619, May 2019)
- *Usage Intelligence: Five Benefits of Analyzing Product Usage to Optimize Operations and Drive Business Models* (IDC #US41965317, April 2019)
- *IDC Market Glance: Monetization Ecosystem Software, 1Q19* (IDC #US44434518, March 2019)
- *The Monetization Ecosystem* (IDC #US43888119, December 2018)
- *IDC MarketScape: Worldwide SaaS and Cloud-Enabled B2B Digital Commerce Platforms for Manufacturing 2018 Vendor Assessment* (IDC #US44394718, October 2018)
- *IDC MarketScape: Worldwide SaaS and Cloud-Enabled B2C Digital Commerce Platforms 2018 Vendor Assessment* (IDC #US44288618, October 2018)

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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