

This IDC Technology Spotlight examines the opportunities and challenges of the technology-as-a-service model within discrete manufacturing and the role of Anaplan in this growing and important market.

Technology as a Service in Discrete Manufacturing

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Introduction

Discrete manufacturing is a vast landscape that ranges from computers to aircraft. Business growth is increasingly tied to the capability of discrete manufacturers to meet emerging consumer/customer requirements, including the pace of innovation. The inherently short life cycle of many newer discrete products means that offerings, either products or services, must maximize revenue and margin opportunities based on consumer/customer demands and competitive market parity. Therefore, it is imperative that discrete manufacturing firms identify additional sources of competitive advantage by which to better satisfy an increasingly demanding customer — which is rapidly leading to co-product partnerships, ecosystem and platform offerings, and different business models. Achieving these new business models requires new, connected business capabilities to change how organizations plan their end-to-end product development, production, commercial, and fulfillment activities.

In a 2012 IDC study, 75% of heavy equipment manufacturers thought that services were key to attaining their growth requirements. Seven years later, the number is almost certainly approaching 100%. In a follow-up survey conducted in 2016, discrete manufacturers cited extending the innovation process to be more collaborative and connected and encourage joint development as their top priority by 2020. 30% of discrete manufacturers believe that by the end of 2020, technology as a service will be a significant percentage of their revenue, representing over one-third of total sales.

Customer expectations in these market segments will make this strategy mandatory, but efficacy of implementing a full life-of-ownership value model will have a strong influence on a manufacturer's short- and long-term profitability. Developing technology platforms and service models is not the norm for discrete manufacturers; therefore, enterprises that are able to develop business capabilities that break down functional silos and implement processes and technologies that support enterprisewide decision making at all levels have demonstrated increased resiliency, innovation, and disruptive advantage. Near-real-time insight into the state of their business, achieved via greater connectedness within and across the enterprise and associated supply and partner ecosystem, has given these enterprises the ability to plan more strategically across the organization and execute their plans more effectively.

AT A GLANCE

KEY STATS

- » Over the next decade, 90% of the growth in discrete manufacturing will be captured by companies that successfully balance products and services to meet both existing and future customer needs.
- » 30% of discrete manufacturers believe that by the end of 2020, technology as a service will be a significant percentage of their revenue, representing over one-third of total sales.

Key Trends

Based on IDC market knowledge and published industry predictions, key discrete manufacturing trends include:

- » Over the next decade, 90% of the growth in the discrete manufacturing industry will be captured by companies that successfully balance products and services to meet both existing and future customer needs. Customers rule the world. They are ubiquitously connected, crave individuality/personalization, and are intolerant of complexity and latency. Consumers are a discrete manufacturing company's worst nightmare — and greatest opportunity. It seems intuitively obvious that companies that figure out how to best engage with and serve these customers will see more than their fair share of growth.
- » The ecosystem rules. The days of stratified suppliers, manufacturers, and customers are over. The business (and supply chain) is now a complex ecosystem of partners, suppliers, factories, logistics providers, and customers. In some segments, the ecosystem of partners is where much of the innovation happens — just look at the content creation ecosystems of the Apple iPhone or the business model shift of traditional publishers caused by the Amazon Kindle.
- » By 2021, half of all discrete manufacturers will offer services that wrap their products; many product categories within discrete manufacturing already offer product-wrapped services. It is IDC's view that this trend will only accelerate over time as large asset sales slow and revenue shortfalls make services an appealing way to augment product experiences. It won't happen in all product categories, of course, but certainly for those in the high-tech and automotive segments. One of the implications here is the need for companies to consider development improvements to the underlying product, along with adding services in the new product development and commercialization process, which has seen simultaneously longer hardware "platform" cycles with faster software and commercial cycles.

Challenges and Opportunities in Discrete Manufacturing

Technology-as-a-service businesses face several challenges to commercial and product viability. First, as discrete manufacturers begin to invest in these new product-as-a-service platform models, product development requires a significantly different set of skills, emphasizing software development and the agile development methodology. As a result, product and service road maps become more portfolio centric, more iterative, and more consumer/customer oriented. Delaying decisions until the last possible moment, due to the need for responsiveness to consumer/customer needs, introduces development risk in the form of possible large swings in resource and skill requirements.

However, the complexity of most modern offering portfolios precludes business leaders from having the visibility needed to accurately assess resourcing trade-offs and business impact based on these prioritization decisions. If resources are redeployed or scaled up and down based on the need to finish a technology solution, is the project or offering still financially viable and able to meet thresholds? If not, what other trade-offs must be made, and how does that impact resources, other projects, and overall expected net present value (NPV)? These types of decisions quickly become multivariate and driven by experience, not connected business logic. That's why discrete manufacturers attempting to adopt the technology-as-a-service approach often struggle to adopt and effectively merge software development and hardware development philosophies.

Second, once an offering portfolio is ready, effectively coordinating across a myriad of internal stakeholders, prototype and manufacturing partners, and distribution, sales, and service partners becomes challenging. Those challenges exist even when the offering portfolio is fixed; if there are changes to NPI/EOL/EOS dates, or products and features, then managing those changes across the organization's product development ecosystem can quickly become a highly complex,

interconnected balancing act. IDC has long evangelized the notion of a singular, integrated supply planning facility, which we view as central to the intelligent enterprise. It is the holistic business process that connects all the various planning functions across the business to enable the alignment of operational and financial performance goals. The key is that these planning processes are not done in isolation; rather, they are done as part of a cohesive, integrated, and enterprisewide whole.

Discrete manufacturing is an industry in turmoil. Large asset sales for many companies are flagging, and trends such as ridesharing mean there is potential for further volume erosion. Therefore, the digital mission of the discrete manufacturer must be to create experience ecosystems that transform the focus from designing, selling, and servicing complex products to one where the product becomes the platform through which new digital products and services are delivered. This shift requires a skill set that is drastically different from what discrete manufacturers have utilized in the past — not only product-centric skills but also services- and experience-centric skills.

Discrete
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industry in turmoil.

The automotive industry, for example, is already preparing for a fractured transportation ecosystem that could have multiple competing transportation modes and ownership models where self-driving cars are the norm but also where the ridesharing noted previously potentially reduces the volume of automobiles sold by 50%. Technology as a service accelerates the delivery of technology innovation, through integrated products and services, to enable additional revenue opportunities throughout the product life cycle, without negatively impacting the ability to scale to profitable volumes:

- » This transformation requires even more integration and collaboration within the value chain for design, manufacturing, delivery, and ongoing services.
- » New ecosystems are created by implementing artificial intelligence (AI)- and blockchain-centric platforms, thus automating 50% of processes.
- » New revenue sources (e.g., information and applications) and the development of digital channels that strengthen the customer experience will ease the extreme pressures on time to volume production. However, the increase in services will bring its own set of complexities for service delivery and the customer/consumer experience.

Traditionally, enterprise performance management has focused primarily on delivering static information to individuals in the form of reports and dashboards available as standalone software or embedded within a range of analytic applications, and often these have been used by the corporate finance function to support decision making. Although great progress has been made in the speed, accuracy, and presentation methods of delivering information to small groups of end users, there has been little progress in extending true decision support functionality to the broader organization. Particularly as discrete manufacturers evolve their business models, traditional enterprise performance management and business intelligence will likely be unable to keep pace with the rapidly evolving, multidimensional business decisions required to meet top-line and bottom-line growth expectations. In the discrete manufacturing industry, product development teams, plant operations, and financial planning teams must be aligned with the overall strategy direction in order to make meaningful decisions. If all these groups are connected, the business becomes more dynamic and resilient to market challenges and will have the ability to better take advantage of opportunities. For example, the finance group can plan for making funding available for all the resources required for the development of a new product and aligning the supply chain required to manufacture that product. Conversely, if each of these areas operates in a silo and on data that is either out of sync or conflicting, the time to market from product conception to manufacturing is both extended and error prone.

To make critical business decisions, business users have often used snapshots of data and spreadsheets that are out of date and inflexible and process limited quantities of data. The nimble technology-as-a-service process required to meet both current and future business requirements is unlikely to be well served by such an approach; it requires a truly coordinated planning effort that connects multiple disparate functions within an organization. Enterprises need the ability to enable cross-function and cross-enterprise decision making at all levels — strategic, operational, and tactical — so they can have full visibility into and access to data that reflects the current state of the business; create plans, budgets, and forecasts that can dynamically change according to changing business needs; and track performance in an effective manner.

The Evolution of Business Planning

This concept of "development resource planning" is just one manifestation of how business planning has been evolving, accelerating the shift away from a disconnected set of individual activities to a continuous business process essential to the performance of the discrete manufacturing enterprise. Although some organizations still operate planning capabilities characterized by multiple, independent business processes and disconnected IT tools, most are moving toward an integrated planning suite across a majority of their internal functions, their customers, and their suppliers. As best-in-class manufacturers take a more holistic view of their planning functions and integrate previously separate processes, they should expect to see significant improvements in their business' ability to both manage and advance a productive innovation pipeline while transforming the business to operate differently.

A single platform does not mean a single data processing engine; IDC is not suggesting that a single relational data warehouse approach or a single application is the answer. The reality is that enterprise data always will, and should, reside in multiple systems of record. A planning platform needs to be able to give users access to all the business data they need to make actionable decisions; it should also enable different perspectives depending on the user's persona. It also needs to provide purpose-built and optimized data processing engines. These engines are for data visualization as well as for simulation, ad hoc n-dimensional analysis, reporting, collaboration, customizable business modeling, what-if analysis, scenario planning, forecasting, predictive analytics, and other related functions. Tools that have been used for planning have been given a multitude of names, including enterprise performance management tools, corporate performance management tools, and financial performance management tools. IDC's taxonomy broadly classifies these tools as enterprise performance management tools. For the purpose of this paper, since we are discussing the concept of a planning platform that connects a variety of business functions, we have opted to use the term connected planning to describe the software used for planning across the enterprise.

Although the move to connected planning is a journey for most discrete manufacturing companies — some further ahead than others — most companies appreciate the urgency. In a survey fielded in early 2019 on the topic of supply chain transformation, IDC asked specifically about the selection of point solutions versus a supply chain planning suite. In terms of the survey results, over 70% of companies said that when they select a supply chain planning point solution, the degree to which it is part of a broader suite is a key element of their selection process. This choice does not mean that they end up necessarily selecting a solution that is part of a suite; it means only that a broader suite is an increasingly important element of their evaluation criteria, particularly as the speed of the business means that traditional functional boundaries are blurring. Companies want an application to solve a specific planning problem, but they also recognize that their longer-term, strategic journey will favor migration to an integrated, connected planning suite or platform.

Benefits of Connected Planning to a Technology-as-a-Service Business

The role of planning is central to the overall success of the discrete manufacturing company, but it is particularly important to a best-in-class technology-as-a service business. Integrating the services that wrap products and shepherding initial ideas through to successful launch for both products and services require a highly integrated and synchronized set of personalized activities.

The inherently short life cycle of many newer discrete products means moving fast, but moving fast requires trade-offs — there is a finite amount of resources, so it's a matter of making trade-offs and understanding the implications of those trade-offs. Ultimately, success in this new reality will come down to:

- » Rapid and productive innovation of both products and services: This involves managing a portfolio of growth ideas from inception to launch and managing all aspects of this innovation pipeline from market analysis to financial modeling, resourcing and staffing, scope control, budgeting, prioritization, pricing, and routes to market.
- » Connected, commercial planning: Once the ideas progress through the funnel and are ready to hit the market, ensuring that you can win in the marketplace becomes critical. This requires close and constant collaboration across brand, channel, contract manufacturer, marketing, customer, and revenue management teams.

We have argued that connected planning is critical to a successful technology-as-a-service company, but what are the specific benefits that discrete manufacturers should expect to see? Based on discussions with companies over the past year, those with integrated supply chain and business planning processes experience significant business benefits over their competitors. These companies can identify the following kinds of results:

- » More rapid innovation/increase in new technology incorporated into the products — better integration of products and services at launch
- » Faster time to market/time to volume — connected planning means doing things in parallel rather than in series
- » Acceleration of the most promising technology-as-a-service ideas but also the quick elimination of those that don't meet business requirements for success
- » Increased revenue thanks to a faster decision-making process, especially in term of better fit of product price with market demand (design connected with demand chain) demonstrated via improved forecast accuracy
- » Better fit of sourcing volumes with demand peaks (introduction connected with demand chain and supply chain)
- » Improvement in working capital via reduced inventory volumes or lower cost of financing due to faster cash conversion

Clearly, the speed of product and service development picks up with a connected planning process. The collaboration mechanisms inherent in a connected planning approach ensure that the proper checkpoints are in place for technology-as-a-service ideas to continue to progress to commercialization.

Considering Anaplan

Anaplan offers a complete, end-to-end, cloud-based software-as-a-service (SaaS) platform that leverages predictive analytics to produce actionable intelligence that gives companies a competitive advantage. Anaplan offers planning capabilities that span many business functions, including finance, sales, operations, human resources, and supply chain, and the true value of connected planning is achieved when enterprises have standardized on Anaplan for multiple business functions — aligning corporate objectives with financial plans linked to operational tactics and market events.

Launched commercially in the United Kingdom in 2011, Anaplan has headquarters in San Francisco, California. The company has been publicly held since 2018 and had just under \$250 million in revenue in 2018. As of January 2019, the company had over 1,100 customers across 40 countries.

The Anaplan platform uses OLAP cube-based architecture, with an in-memory data engine called Hyperblock. The user interface is web based and can be integrated with back-end systems using cloud connectors such as SnapLogic, Dell Boomi, Mulesoft, and Informatica or through Anaplan's APIs. Anaplan also offers application life-cycle management to assist customers in managing each application built on the platform through development, testing, and production. The Anaplan platform helps companies reduce the common operational challenges of wasted employee time, poor decision making, and unnecessary operating costs and allows them to realize the benefits of connected planning with a platform for dynamic, collaborative, and intelligent planning.

Anaplan has several vertical market initiatives for including discrete manufacturing and over 250 applications that have been organized around 22 verticals. It offers flexible pricing options for its customers based on their requirements.

Challenges

Many customers still consider planning to be primarily the responsibility of the corporate finance function, and Anaplan's connected planning messaging might require a little more education to resonate within other lines of business. Anaplan believes that all enterprises should have a chief planning officer (CPO) who can coordinate planning strategically across the organization; however, this capability still primarily resides with the chief financial officer (CFO), and the budget to invest in planning software is mostly owned by the finance, supply chain, and product management or research and development departments.

There are two common triggers for customers considering purchasing a cloud-based planning solution such as Anaplan. One is that users have complicated, legacy enterprise performance management tools that need to be implemented, managed, and modified by IT. The other is that enterprises have outgrown the use of spreadsheets for planning due to the speed and complexity of their business. In both cases, the top requirement for planners is that they want to own and manage the tool without IT's involvement beyond data integration and access, and they want a tool that their users will adopt and actively use.

Most of Anaplan's competitors focus on selling to the finance department. However, Anaplan's connected planning platform requires coordination between multiple departments, which is more complex than a tool that is purpose built just for finance. Connected planning can deliver many benefits beyond financial planning, but it might be intimidating for companies upgrading from spreadsheets or for users who don't want to involve IT.

Conclusion

Across the discrete manufacturing industry, business growth is increasingly tied to the ability of companies to wrap value-added services around their products. Many categories already see services contributing materially to top-line revenue — and this trend is expected to grow. Indeed, a revenue erosion faces many companies whose ability to identify appropriate services to augment their products lags that which will be required to meet business growth goals in the future. The challenge for discrete manufacturing companies is therefore to support the market requirement for services, both quality and quantity, and we have argued in this paper that a connected planning facility is critical to a best-in-class innovation program.

As you think about the balance of products and services at your company, consider the following:

- » What will a connected, integrated planning capability mean for managing the right balance between products and services in your business? Is it important? If so, why?
- » What value will you get from a planning facility that has the bandwidth to be a strategic engine rather than a tactical engine for business growth?
- » How much value do resources allocated to improving the planning process generate for your business versus the disconnected firefighting that exists today?
- » Explore modern digital technologies. They are necessary ingredients to enable rapid, accurate decision making.
- » Find a vendor that can partner with you to drive connected planning in your business.

As we have articulated, the benefits of an integrated planning facility are significant and measurable. Better planning means faster, more successful product and service innovation; faster, more successful integration of products and services means achieving revenue and profit goals.

About the Analysts



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MESSAGE FROM THE SPONSOR

About Anaplan

When exploring technology-as-a-service offerings, every discrete manufacturing organization should consider the three facets necessary to achieve sustainable competitive advantages enabled by technology. First: How does an organization operate itself as efficiently as possible today? Second: Where and how does an organization differentiate its offerings? Is it via cost, service level, agility, speed of response? Some or all of the above? Third: How does an organization identify where and how to improve its current offerings? Other leading manufacturers are connecting product development teams, plant operations teams, and finance to make sure the long-term technology roadmap, engineering platforms, and business strategy are aligned with available resources to deliver the value that customers demand. Whether driving revenue or margin growth, or optimizing cash flow, Anaplan's connected planning platform connects your board room to your shop floor.

Learn more at <https://www.anaplan.com/industries/automotive-and-manufacturing/>

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