



## ENABLING INNOVATION AND GROWTH IN MANUFACTURING IS CLOUD COMPUTING THE WAY FORWARD?

Innovation is a critical component to differentiate an enterprise and its products and services in today's competitive market. Manufacturers striving to gain a winning edge are turning to the Cloud for the several advantages it offers – principal among them is its ability to drive innovation and growth.

The Cloud has the power to change the way products are made, accelerating the development lifecycle by enabling seamless collaboration and creating a smooth and agile supply chain. By lowering traditional barriers related to cost, time, location and organizational boundaries, the Cloud nurtures a Manufacturer's innovative potential.

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This paper discusses how Manufacturers can leverage the Cloud to enable Collaboration, Mobility, and Analytics, and thus further enterprise innovation.

## INTRODUCTION

A volatile marketplace and the ever-increasing complexity of supply chains owing to globalization and dispersed operations are making a slew of demands on manufacturers around the world. Supply chains are so intricately interwoven that even a minor problem can trigger a chain reaction, crippling operations. On the other side of the manufacturing process lie demanding customers who will take their business to the competition if their ever-increasing expectations are not met.

Walking the tightrope in an environment marked by economic weakness, severe cost pressures, and wafer-thin margins, how can manufacturers sustain their business and retain the competitive edge?

Cloud computing – representing a paradigm shift for Manufacturers who strive for a smarter IT organization and business processes – provides the answer.

## The first wave

The disruptive trends of Cloud computing are becoming an acceptable model for running enterprise operations. By consuming IT Infrastructure, Platforms and Apps as a Service, Manufacturers can benefit in several ways –lowered CAPEX and OPEX, improved agility, faster time to market, and enhanced global reach. Moreover, they can scale their IT capabilities as they grow.

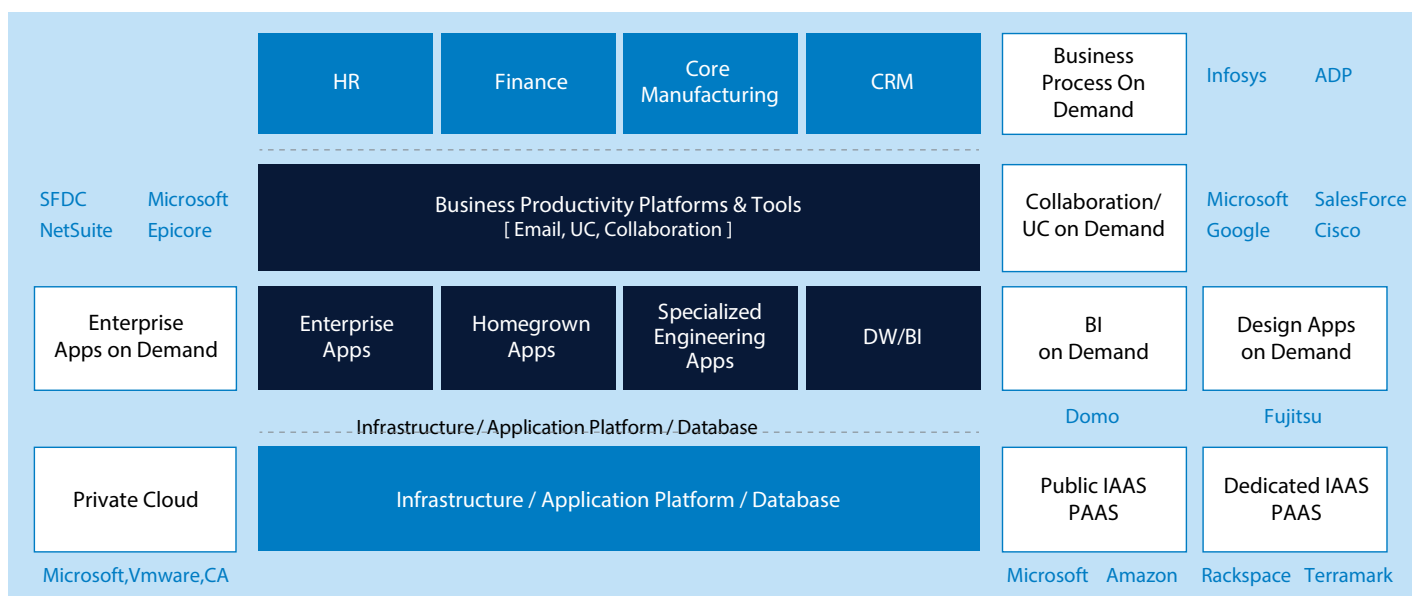
For example, manufacturers are

relieved of licensing, implementing and maintaining e-mails, collaboration, unified communications, CRM and HR apps by moving to an on-demand version at just a fraction of the costs.

Many industry leaders have started benefitting from full virtualization and improved automation in their private data centers. Manufacturers are opening up to dedicated offerings from enterprise cloud providers for some of their needs and

turning to Cloud ecosystem integrators to simplify their Cloud journey. This has enabled manufactures to optimize their operations and focus on more business critical functions.

A recent study by an analyst firm<sup>1</sup> found that roughly 44% of nearly 100 manufacturers surveyed are implementing or evaluating Cloud deployments. This shows the inroads Cloud computing has made into modern manufacturing.



## Moving beyond

Manufacturers are examining every aspect of their operations and processes – from supply chain to product development and manufacturing to employee engagement – to gain the crucial advantage that can help them come out on top. Innovation plays a vital role in this effort. Nurturing sustained innovation can be challenging, time-consuming, and expensive. Cloud computing is becoming an enabler for innovation in a modern enterprise by lowering the traditional barriers related to cost, time, location, and organizational boundaries. The Cloud provides an unparalleled platform for innovation – the Cloud's cover helps integrate people, processes and systems, and derive synergies out of the interaction.

## Collaboration hubs on the Cloud

Manufacturers are part of a global, complex and fragile supply chain. Their dependence on trading partners both on the supply and the demand side has gone up multi-fold. Business processes extend beyond the enterprise's four walls to enable efficient collaboration that facilitate

free flow of information. Manufacturers can benefit from visibility into every aspect of this chain.

With the advent of globalization, modern enterprises must have a presence across multiple geographical locations to remain competitive and expand into newer markets. Global and cross-organizational collaboration holds the key to success for a modern manufacturer. The key benefits of Cloud computing like pay as you go, faster time to market, global reach and elasticity – with availability of best-of-class collaboration and communication capabilities on the Cloud – make it a perfect platform to power such initiatives.

Manufacturers are setting up Cloud-based hubs that foster collaboration and information sharing across a network of partners. These hubs help organizations to effectively plan and manage key supply chain and go-to-market activities in collaboration with partners. Key examples include product co-creation, supply chain activities like procurement, demand planning, logistics, compliance, tracking and risk management, new product launches, and general collaboration with Dealers, OEMs and VARs. And the list grows. Mobility adds another dimension to this by

taking innovation to the field and the shop floors with relative ease.

## Cloud-driven analytics

In a quest to understand customers, partners and processes better, the industry is facing a challenge in terms of explosion of data. The volume of information Manufacturers collect from their customers / partner touch points and, for instance, from MTConnect devices, is multiplying each day.

Manufactures are looking at the Cloud as an effective solution to store this information, process efficiently, and / or back them up reliably. The elasticity that comes with the Cloud in terms of storage and compute makes it feasible for organizations to retain and analyze key information for as long as they want without the pain of doing it on-premise. This, along with the advent of a new breed of BI on-demand solutions, lowers the barrier for manufacturers to gain key insights with the launch of the browser. For instance, a Cloud-based solution can bring data from MTConnect devices, do complex event processing, and provide insights on a dashboard that is accessible through the browser.

Here are a few examples of how various sub-verticals are leveraging Cloud to Innovate.

## AUTOMOTIVE AND AEROSPACE INDUSTRY

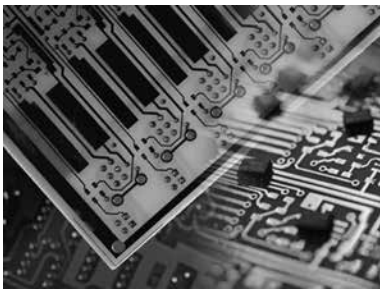


The automotive industry is embracing Cloud-delivered telematics. Initially supporting GPS tracking and safety, telematics is being leveraged to help with a range of other features, from vehicle charging to reducing the stress on energy supply and remote control of domestic appliances. Not only will this benefit the end user – the driver – but it will also help auto manufacturers deliver firmware updates and check on the car performance without the driver needing to bring the car to a service center.

Auto OEMs leverage Cloud-based Dealer hubs to collaborate with Dealers on day-to-day processes and share product information, inventory information, demand signals and sales tools. The Cloud enables them to scale up distributors and expand geographies with minimal capital expenditure.

Players in the aero industry are tapping into the Cloud for analytics, design and testing. A Global aerospace company is accessing a high-performance Cloud to simulate and design aircraft components. Without needing to build physical prototypes, it can deliver products to the market 80 percent faster.

## HIGH-TECH INDUSTRY



A consumer electronics company can leverage the Cloud to analyze the extreme data generated on a consumer's buying and behavior patterns. A leading high-tech manufacturer can leverage the Cloud to analyze extreme data generated about its suppliers from multiple sources to evaluate risk. Another leading player in the high-tech industry is leveraging Cloud-based content delivery capabilities to share product information to global customers.

## AGRI INDUSTRY



Agri-industries leverage the Cloud to collaborate with regional NGOs and other organizations to address the information needs of farmers in developing countries to help them enhance farm productivity and yield.

The food industry leverages Cloud-based food safety hubs to collaborate across the supply chain for sharing information that helps in compliance and during recalls.



### Way ahead

However, to realize the full benefits of manufacturing Clouds, the industry needs a proven Cloud ecosystem integrator who can master the turbulence inherent in an enterprise's flight to the Cloud. The Cloud ecosystem integrator can make innovation seamless by managing the Cloud in the background in partnership with the manufacturer.

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## References

1. Business Strategy: Cloud Computing in Manufacturing, IDC Manufacturing Insights, 2011

## About the Authors

**Balaji Venkataraman** is a Senior Technology Architect with the Manufacturing unit at Infosys. He currently serves as North America Practice Lead for Manufacturing Cloud Solutions. In his current role he is responsible for driving innovation through vertical solutions across manufacturing customers. He has been in the IT Industry for over 14 years and has extensive experience in developing Products and Industry solutions for top high-tech firms. He specializes in Enterprise Collaboration, Mobility and Cloud Computing.

Prior to joining Infosys, Balaji served in multiple technology leadership role delivering innovative SAAS solutions and IT services for Marketing organizations.

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