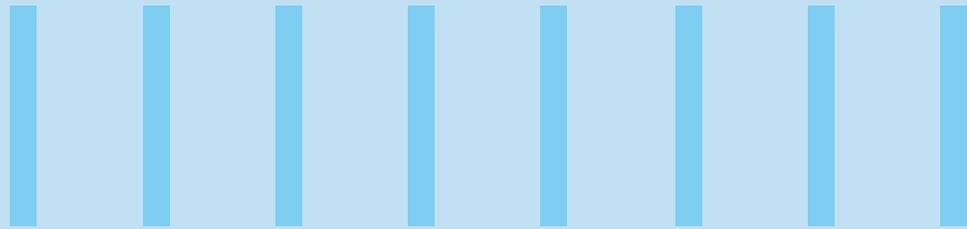




SMART CONNECTED PRODUCTS – REDEFINING THE FUTURE OF CUSTOMER ENGAGEMENT IN MANUFACTURING



Introduction

In this era of digital disruption by IoT, manufacturing enterprises are exploring innovative ways to stay relevant and competitive. The internet wave saw innovation in terms of smart phone apps, ecommerce, online shopping, banking, social, etc. The next wave of internet is now

connecting things and making the things smarter by connecting it to other things, systems, and people. Companies can no longer limit themselves just to sales and service of their products to the customers, but the relationship is becoming continuous with constant touch throughout the life of

the product. Smart connected products are emerging across all manufacturing sectors. The trend is visible in terms increasing spend by the enterprises and the potential economic impact of connected products and IOT in general is expected to grow from \$3.9 trillion to \$11.1 trillion per year in 2025.*

The Evolution

With the sweeping pace of technology, the conventional industrial products which were composed of mechanical and electrical parts are now turning into complex but user friendly and efficient systems with the combination of hardware, software, and connectivity. These smart and connected products — made possible by vast improvements in processing power, device miniaturization, new product development and by the network benefits of ubiquitous wireless connectivity — have unleashed a new era of innovation across industries.



Power of Computing

The cost of the compute, processing, electronics as per Moore's law are truly affordable. Even a 100 USD product today has enough compute and hardware that can fit in software and visualization.



Network Connectivity

With the ubiquitous cellular and Wi-Fi connectivity available, every product will have a built-in connectivity. This enables the data exchange between the product and surrounding environment (to its maker, its users, and any other systems/ platforms).



Harnessing the power of Data

With the advent of big data analytics, it is now easy to interpret the vast amount of data being generated and derive meaningful insights that can help differentiate products and services as well as deliver value.

Key considerations:

Connected products offer remote monitoring and control, but smart connected products will also have in-built optimization and autonomous operation capabilities as well. However, the extent of using these capabilities depends on the type of product. Hence the below considerations play a key role in designing.

Smart Design:

The journey to smart connected products starts with the right understanding of the end user requirements and focus on the obvious things necessary. For example,

- The extent of connectedness of the products- whether the product can be controlled, monitored, configured, secured and so on.
- Relevance of the App - The applications and solutions provided should not look like it is standalone and not creating any differentiation of experience on the product.

- Integrated application to enhance user experience – like Integration of a consumer product with voice interactive services like Alexa and Google Home.

Safety and Security:

- Whether the product can be access or configuration restricted by unauthorized persons. Also keeping it child safe.
- Whether the product has in-built checks and self-correction mechanism to avoid any safety hazard. Whether the software has

in-built intelligence to detect and correct such safety hazard.

- Cyber-secure IOT devices and networks.

User Experience:

- A good product to a great product is possible through a very user friendly intuitive UX/UI.
- The mobile application should be very intuitive to use and with minimal clicks should allow access to all the features, across all the products.

Analytics

- With all the data acquired companies will be able to get additional insights to help engineer better products and deliver better experience.
- Insights into the usage of the products and the patterns help in understanding the usage. Co-related this with the failure data the product can be improved.
- Get the insights and pattern or the different ways of usage across the geography. Patterns of usage, configuration, etc. across the various geographies.
- Insights of product robustness and durability.

- Analyzing all the historical failures and the repairs through the service management database, companies can identify the pattern of failures. This could be some mechanical failures, electronics failures, wrong usage, wrong configuration by the consumer, etc. With these insights the product engineering team can better redesign the appliances to address these improvements in the product.

Disintermediation

- With the smart connected products, the relationship will be directly between manufacturer and the consumer. This helps in disintermediating the retailers and avoid disjointed consumer relationship and experience.

Proactive Service Management

- Smart connected products can be monitored real time continuously. The condition and health can be monitored. Any deterioration of the performance of the machine can be proactively addressed. The Service Technician can be dispatched to address the problem proactively.
- With real time visibility of the product failure, the technician can also get information on the failure that could be caused by any component. The technician will visit the consumer along with the right spares. This will help resolve the problems "Right First Time".

New Business Models of engagement:

Smart connected products have resulted in disintermediation in direct relationship between manufacturers and consumers without the need of involvement from the distributors or the retailers. Manufacturers can now get to know the usage of its products by the consumers. The phenomenon of servitization is gaining prominence with pay-per-use, as-a-service and pay-as-you-use kind of business models, making CAPEX to OPEX model of usage possible. Also, the data accumulated from smart connected products could be valuable to the other entities beyond the manufacturers and customers thus providing additional revenue opportunities.

After-Sale Service is another area that could transform with the advent of smart connected products. Using predictive analytics organizations can anticipate the

problems well-in -advance and alert the customers accordingly. They can provide preventive services remotely and can only send the technicians if there is a need to replace parts. Also, they can provide AR supported services helping them increase the service efficiency.

How Infosys can help?

Infosys offers customer-centric solutions & services to our clients to conceptualize the right offerings that are relevant to their business that can aid them to navigate to the next level of digitization. We use a Design Thinking based approach to envision customer-centric smart connected products and services that are benchmarked against the industry 4.0 maturity model framework.

- Infosys helps enterprises to develop **connected processes, connected products and connected infrastructure**, thereby enhancing

their competitive advantage, customer experience, increase operational efficiencies with increased revenue upside and reduced cost of operations.

- We bring together **engineering, domain, and IT skills**, thus covering **the entire sensor to insights technology stack**, providing **physical to digital** enablement in a world where billions of diverse devices/sensors are interconnected.
- We help enterprises in servitization of their offerings, through a concept of **Digital Thread**, with ERP, PLM, MPS, MOM/MES, LIMS and OT driving digital engineering and digital manufacturing aligned to Industry.

Infosys has an extensive partner ecosystem of Technology Providers, Academia, and Industry Forums, which we leverage to deliver our advisory, consulting, product development, and operational support services.

Case Study: Connected Platform for an advanced farming machinery manufacturer

Context: A leading agricultural machinery manufacturer was looking for a seamless business transformation that could help them shift from a traditional business of a 'OEM-Dealer', 'Dealer Farmer' and 'Farmer-Agronomist' to an integrated 'OEM-Dealer-Framer-Agronomist' connected ecosystem.

Infosys Solution: Infosys architected and developed a connected IoT platform that

- Provided consulting services to assess the AS-IS business processes, architecture, technology stack and organization readiness
- Strategized the TO-BE platform architecture, business roadmap and execution

- Implemented core platform functionalities and flexible integrations

Value Delivered: The singular service delivery platform connecting multiple vehicles from various business lines helped in:

- Real-time monitoring, data capture & analysis leading to enhanced productivity and yield
- Significant cost reduction and opening additional revenue streams for customers and dealers
- Ability to create next-gen services leveraging this service delivery platform



Conclusion:

Smart connected products are poised to re-define the traditional ways of customer engagement, expanding opportunities to manufacturers in terms of product differentiation as well as providing innovative business models and at the same time enriching end customer experience.

Reference

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About the Authors



Algy Ramasamy

Vice President, Industrial Manufacturing, Infosys Limited

Algy is a Senior Industry leader managing clients for the past 25 years. He carries with him deep knowledge about the manufacturing sector and well versed with the latest trends that are going to sweep the current ways of operations of the Industry. Currently he and his team manages engagements with the Discrete industrial customers in North America.

Contributors



Epperla Nandagopal

Senior Client Solution Manager,
MFG Value Design, Infosys



Krishna Sil

Client Solution Lead, MFG Value
Design, Infosys

For more information, contact askus@infosys.com

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