

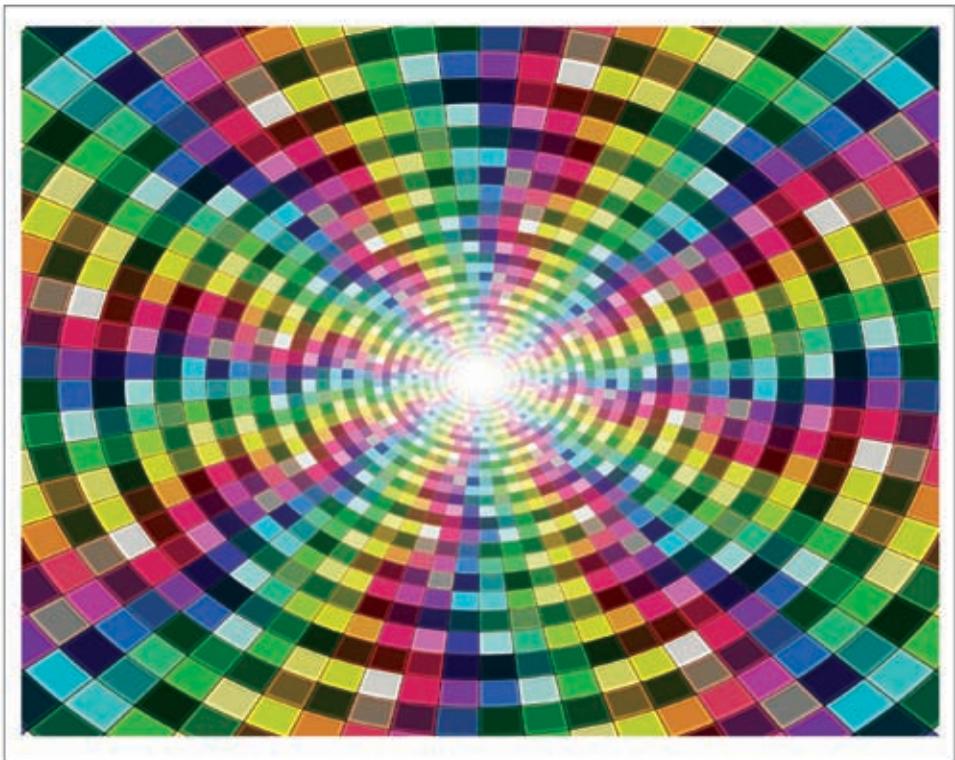
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Factories of the Future

The Dynamically Networked Organization



About the Author:

Robert Dean is Executive Director, Manufacturing Industry Vertical in the United States and Canada, at Cisco Systems. Dean has a bachelor's degree in business administration from the University of North Texas, with a major area of study in business information systems.

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**A critical component for
future factories is an ecosystem
of networked customers,
partners, and suppliers.**

By Robert Dean

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TECHNOLOGICAL ADVANCES CONTINUE TO HAVE A MAJOR impact on business models. But organizations are finding that they can manage technology in a variety of ways, and as a result, these different approaches are creating new kinds of business models. According to the Gartner Group¹, 20% of all businesses will own no IT assets by 2012. This underscores the ways technology is having a fundamental



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impact on IT organizational models. Cloud computing and virtualization, for example, now enable manufacturers to shift resources to more strategic projects.

In addition to businesses not owning IT assets, it is predicted that by 2013 there will be one trillion devices connected to a network, up from 35 billion in 2010². This huge jump is forcing manufacturers to figure out how to leverage that growth and take advantage of the tremendous increase in people and devices interacting with the network.

At first glance, these trends might not seem new. The difference is there are new solutions that allow manufacturers to deal with these trends in a new way. The role of manufacturers has not changed because they still face the same pressures to innovate, to respond to changing demands, and to meet market expectations, but technology can now help manufacturers face these many challenges and bring the information gathered by the solutions to life. Technology is reducing the time it takes to produce a

product and get it to market, enabling manufacturers to compete more effectively in a global marketplace.

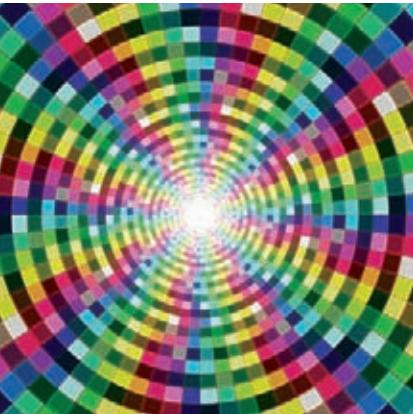
What does all this new technology mean? It means manufacturers can start to evolve their businesses and leverage these technologies to improve outcomes in response to changing market demands. They can create a new era of “dynamically networked” companies and transform the way they do business.

What Is a Dynamically Networked Organization?

For companies to be successful, they need to use technology to find new ways of engaging with their customers, their partners, and their suppliers. This is called the Dynamically Networked Organization (DNO), and it's the future of manufacturing. It's a new business model for how companies work with their value chains to drive business advances.

Most organizations manage their informa-

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tion in a hierarchical manner within their firewall, meaning they are not that good at sharing information outside the organization. This new, dynamic model focuses on sharing information and enabling manufacturers to work across their entire value chain to provide customers, partners, and suppliers with relevant and actionable data.

By operating as a DNO, a manufacturer can begin to view all the parts of its supply chain as a single system. The DNO creates an ecosystem, while addressing the security concerns about boundaries and profit interests.

To be successful, organizations need to enable rich interactions across the value chain to unleash innovation and create new efficiencies. Collaboration, the facilitator of the network, is the component that brings people together so they can create meaningful interactions. People can interact more dynamically through virtual tools, and can have more personal interactions with immersive video and rich media. Employees, partners, and customers throughout the manufacturing ecosystem can unleash their talent through new interactions with a broad-based deployment.

They also need to deliver IT services more dynamically to lower costs and improve business agility. Data center virtualization, as the network engine, delivers personalized experiences very efficiently so relationships can be created on a broader basis. The cloud offers the same secure policy management as the rest of the architecture, so data, intellectual property, and relationships remain secure no matter where they are in the ecosystem. Interactions are open yet controlled and secure.

To be successful, companies also need to share information securely and reliably with anyone, anywhere, and at any time. Borderless networks create the foundation as they let any kind of device, inside or outside the firewall, be provided with the same type of service options. With the borderless network, manufac-

turers can offer information and communications at any time, from anywhere, and on any device. This makes the organization more personalized and more pervasive. Borderless networks also support increased resource performance and workplace flexibility, with reduced operational expenses as well as greater agility and efficiency. Sophisticated policy, security, and manageability features also allow you to be both open and controlled.

No More Tradeoffs

Companies that are not using technology and adapting to new trends have to make unnecessary tradeoffs when servicing their customers and employees. The three key areas that manufacturers are sacrificing are market opportunity, innovation, and the chance to create deeper relationships.

For example, manufacturers need to capture market opportunities, invest in new areas, and keep pace with fast-changing markets, all while continuing to find ways to contain costs. They need to make prudent investments that will capture future markets without driving their costs out of control, but are having a hard time doing so.

Manufacturers are also facing tradeoffs with innovation. Markets are moving faster and manufacturers need to involve more people in their processes—suppliers, partners, customers—but they need to do this in a way that protects intellectual property and keeps assets safe and secure.

In addition, manufacturers are interested in creating deeper relationships with their customers, so they can drive revenue and promote loyalty. They also need to extend their reach and connect with more customers, but are finding it hard to create those deeper relationships at the same time.

- ¹ "Gartner Top End User Predictions for 2010: Coping With the New Balance of Power," Gartner, 2010.
- ² Cisco Internet Business Solutions Group

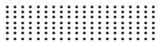
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By embracing the power of the “and,” manufacturers can achieve growth through innovation, speed, and new models. They can also create compelling customer experiences and enhance operational effectiveness.



These challenges and tradeoffs are driving the need for a Dynamically Networked Organization. Up until now, it’s basically been either/or, but the DNO essentially eliminates the tradeoff. Now, manufacturers can have both. Relationships can be personal and pervasive. Manufacturers can be agile and efficient, open and controlled.

For example, immersive video and sophisticated collaboration tools increase agility while also making the development process more efficient. Virtualized data centers and new network capabilities let manufacturers be more nimble and explore more new ideas in a way that is highly secure. New software capabilities and tools distributed through the cloud or the data center give manufacturers a fresh way to enable innovation with greater efficiency. Sophisticated policy and security management capabilities ensure that intellectual property and data are protected.

Personalized and Pervasive

There are a number of manufacturing-specific solutions that allow manufacturers to be personal and pervasive without having to be one without the other. These solutions let manufacturers create closer, deeper relationships throughout the value chain, while making information available across all channels.

Active collaboration environments let remote teams interact as if they were together in the same room. This approach improves time-to-market for new products, facilitates decision-making and problem-solving at every level and stage of a project, and reduces travel expenses and related downtime for team members in design, product, sales, and customer service. It also improves product lifecycle

management, which effectively accelerates sales and revenue, providing faster access to design and customer experts as well as executives throughout the supply chain. And it increases customer satisfaction, shortens the sales cycle, and improves partner relationships.

Scalable rich media solutions, such as digital displays, help manufacturers accelerate product introduction by improving collaboration to increase creativity and speed throughout the value chain. By providing video-enhanced access to technical expertise, the approach minimizes downtime and maximizes uptime across the operation to accelerate sales and increase working productivity, safety, and asset utilization. It also facilitates decision-making and problem-solving at every level and stage of the project, as partners and executives can access each other more quickly.

Agile and Efficient

How do manufacturers know if they are agile and efficient? They need to ask themselves how efficient they are in responding to a situation when it occurs. Merging the enterprise with the factory floor, for example, gives increased visibility into operations for greater efficiency, but also lets manufacturing teams respond more quickly with regard to maintenance and configurations for greater agility.

Converged network manufacturing solutions let manufacturers globalize their operations by integrating IT with manufacturing automation systems using a scalable architecture. The result is secure plant-to-business convergence, improved operational costs, and greater efficiency through familiar tools and secure remote access to plant floor systems.

Lastly, industrial energy management solutions provide manufacturers with the ability to measure actual energy costs in the manufacturing process. They also provide visibility into machine inefficiencies so asset manage-

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ment programs can be implemented. This allows companies to treat energy as a line item rather than general overhead. Manufacturers agree that it is important to know how much energy is being used so companies can determine where they can cut back as needed, saving up to 10%, on a global basis.

There are also solutions designed to help manufacturers be both open and controlled, making it possible to foster innovation while protecting intellectual property. Video conferencing helps global manufacturers move quickly into new markets by improving collaboration between globally distributed design and account teams, partners, and suppliers.

Certain communications management solutions help manage the engineering process workflow to contain costs, maintain quality, improve productivity, and meet traceability requirements. For instance, one large-scale manufacturing company used a management solution to cut the time for engineering and design changes from two weeks to two hours.

Finding Business Advantages

These various solutions and architectures combine to create a truly sustainable business advantage. By embracing the power of the “and,” manufacturers can achieve growth through innovation, speed, and new models. They can also create compelling customer experiences and help enhance operational effectiveness.

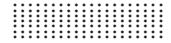
A large-scale manufacturing company used these solutions to help achieve all three advantages—innovative growth, customer

intimacy, and operational efficiency. It used a network of “video collaboration studios” to cut cycle times and foster innovation. The studios bring global teams and partners together to create new products. Immersive video, which gives the experience of being in the same room with people who may be across an ocean, gives the teams a new way to approach development, for added speed and agility in decision-making. The studios have created more compelling experiences throughout the value chain, deepening relationships with existing partners and suppliers while making it possible to build relationships with new ones.

The collaboration studios also support operational effectiveness, as part of the company’s strategy for sustainability. They reduce the need for travel and have shrunk its carbon footprint. The ROI is estimated at 4 to 1 because travel costs have been cut so dramatically. The studios help the company save in other ways. Instead of printing 12 copies of a presentation, meeting participants can view it on-screen during the video-conferencing session.

The factory no longer stands alone. It is tightly integrated into the fabric of a company’s value chain. Getting the right information to the right person at the right time to help make the right decisions is key. The DNO is a critical component of the factory of the future, and manufacturers will get left behind if they do not support this business-model shift. **M**

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