Creating Greater Economic Value in Industrial Equipment

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Introduction

Industrial Equipment suppliers increasingly face the issue of commoditization, where customers want to buy its physical goods on the basis of price, price, price. To get out of the commoditization trap, IE manufacturers should innovate in 3D experiences that engage, envelop, and excite their customers in the possibilities for creating value for their own customers. One key way of doing so is to mass customize your offerings, efficiently serving customers uniquely, differentiating your unique offerings from any competition and locking your customers in to your business. It is also imperative to embrace digital technology in order to fuse the real and the virtual, to create value from new opportunities in such capabilities as augmented reality, 3D printing, and the Internet of Things. Finally, Industrial Equipment suppliers should seek to help their customers transform their own businesses through the experiences it stages. There is no greater economic value than in helping customers achieve their own aspirations.

Consider a simple cup of coffee. It comes from coffee beans, a true commodity for which coffee growers get only 2-3 US cents per cup. Coffee manufacturers then take those beans and roast them, grind them, package them, and put them on grocery store shelves and get 5-15¢ on a per cup basis. Those that perform the service of brewing that ground coffee for consumers in a vending machine, corner diner, or kiosk somewhere get 50¢ to maybe a $1.50 per cup. But surround that service with the ambiance and theatre of, say, a Starbucks in a three-dimensional place where people want to spend a bit of their precious time, and now consumers pay over $2 and as much as $5 per cup of coffee!

In that same way every industry has four distinct levels of economic value it can create for customers, depending on what business the company thinks it is really in. If you reimagine your enterprise as being in the industrial experience business – rather than merely in industrial equipment – then you can create greater economic value for your company by innovating in 3D experiences that engage your customers and get them to want to spend time with you.
The Progression of Economic Value

Both Starbucks and more recently Nestlé represent companies that understand and are taking advantage of a fundamental shift in the very fabric of the company, illustrated in Figure 1.

Commerce throughout the developed world began as an Agrarian Economy based on commodities, the fungible stuff extracted from the ground. Beginning in the late 1700s it shifted into an Industrial Economy based on goods, the physical, tangible things made from the raw materials of commodities. In the latter half of the 20th century the world shifted into a Service Economy where the primary offering became services, intangible activities performed on behalf of an individual customer. Now, here in the 21st century, all developed countries have shifted once again, this time into the Experience Economy, where experiences – memorable events that engage each individual in an inherently personal way – are fast becoming the predominant economic offering in terms of GDP and employment, as well as in customer desire and company value.

Experiences are not a new economic offering but have always been around. Think of going to a musical concert, theatrical play, or athletic event; visiting a museum, art gallery, or far-off destination; playing a game or sport; having a birthday party with family; or, yes, sipping coffee with friends in a café.

Experience Innovation in B2B Markets

But experiences are not just for consumer industries. Think of how great salespeople have always engaged their potential business customers in dramatic stories, sensory-filled dinners, and challenging golf outings at beautiful resort courses. How user conferences and customer forums have burst on the scene during the past few decades, creating places where businesses and customers can together spend time, the currency of experiences. How executive briefing centers – originally spaces for didactic PowerPoint presentations (and even more boring slide shows before that) – have during this same timeframe become multimedia extravaganzas. Environmental products producer Johnson Controls in Milwaukee, Wisconsin, for example, employs its Johnson Showcase to not only inform potential customers of its offerings, but to let them experience its products by plunging them into a power outage, and then showing how Johnson Controls’ products could recover from that (simulated) outage or prevent it from happening.

Or consider trade shows, which are basically the business-to-business equivalent of going to Disneyland. Think about it. You pay an admission fee to enter this huge space, where various themed attractions vie for your attention to engage you in their particular experience, with the hope that you will then buy something as a result!

How Manufacturers Can Stage Experiences

Other manufacturing companies that have effectively exploited this shift to the Experience Economy include:

Lighting control manufacturer Lutron Electronics Co. created a number of Experience Centers around the United States, including in its Coopersburg, PA headquarters, to let its dealers and distributors
directly experience how its highly customized controls affect the 3D experience consumers have of their own homes. Each one is set in an industrial building, but once you walk inside, it is like you are in a high-end, beautifully lit home.

General Electric runs a number of GE Innovation Centers around the world to showcase its brand. Each showcase also focuses on one aspect of GE innovation appropriate to the locale, such as its “Ecomagination” offerings at Masdar City, Abu Dhabi, and healthcare in Chengdu, China. In every case the company captures each individual visitor’s needs and preferences via smartcards so it can customize the experience and follow-up with tailored materials and conversations, in both physical and virtual environments. More than a showcase, though, the Innovation Centers are becoming a hub for GE’s open innovation efforts as well as co-creation spaces so customers can determine how GE’s offerings can best solve their problems.

Case Construction operates the Tomahawk Experience Center in the northwoods of Wisconsin so potential business customers can try out its excavators, loaders, forklifts, backhoes, and other equipment in a multi-day experience. It lets construction company owners and managers who grew up in the business get back in touch with their inner operator again, allows Case’s experts to answer whatever questions they have, and enables dealers to form close relationships with these customers. The upshot? Case finds that when a normal potential customer heads to a dealer it has about a 20% chance of getting the business, but when the dealer brings the customer up to Tomahawk, the close rate goes up to 80%.

Creating Economic Value through Experiences

So in industry after industry, whether selling to consumers or businesses, goods and services are no longer enough. They are becoming mere commodities sold on price, price, price. Companies therefore have to shift up this progression of economic value to staging experiences for their customers, creating more economic value than possible with goods and services alone by engaging them in places where they want to spend time, and then spend money to purchase a company’s core good or service as well.

Mass Customization

One of the best ways to engage customers and create that experience within them is to mass customize both your goods and the services with which you surround them. For as Figure 2 shows, customization is the antidote to commoditization. Where like the Law of Gravity commoditization drags you down year after year, customization enables you to differentiate yourself because you create customer-unique value.

The Power of Mass Customizing

Customizing further turns goods into services and services into experiences. As economists distinguish them, goods are standardized and services are customized; they are performed for individual customers (whether consumers or businesses). Goods are inventoried after production while services are delivered on demand whenever a
customer says this is exactly what he wants. Finally, goods are tangible and services intangible, but an integrated part of Mass Customization is the intangible activity of helping customers figure out exactly what it is they want. So when you mass customize your good, you are really in the service business of helping customers define their individual goods, and then make and deliver it to them. Think of how Dell kicked IBM out of the personal computer business by letting both consumers and business customers order exactly the computer they want, which Dell then and only then manufactured and delivered directly to the end customer.

How to Lower Your Costs...

Further, Dell actually maintained lower costs than its mass-producing competitors because of what founder Michael Dell calls the “cash conversion cycle,” the time between when Dell has to pay suppliers and its customers pay it. In most companies that is weeks or even months; for Dell that is a negative 30 days or more. In other words, Dell’s customers pay it on average a month or more before it has to pay its suppliers for the components that go into those customers’ end products. That’s called negative working capital, and proves of huge benefit to any manufacturer. (Unfortunately, Dell has fallen on hard times recently as it did not continue up the Progression of Economic Value, failing to follow Apple into computing and retail experiences on the consumer side of its market and IBM into value-added services on the B2B side. Still, it went from zero to US$60 billion on the basis of its Mass Customization business model.)

And Increase the Custom

Industrial equipment manufacturers often have the custom, for business customers know the value of precisely calibrated and customized equipment to its bottom line and increasingly demand it. Less often, though, do they have the mass. For example, Minneapolis, Minnesota-based Tennant Company had long been able to customize industrial cleaning equipment, but it would take it weeks to produce a custom model at a fairly high cost above standard. So a number of years ago it re-architected its floor scrubbers to customize within its three fundamental 3D elements – the operational panel that controlled the machine, the head that cleaned the floor, and the “guts” that housed the chemicals – with many different modular possibilities for each. In doing so Tennant drastically increased the speed of operations (lowering the time it took to produce a custom scrubber to just a few days), significantly lowered its costs, and greatly increased its market share.

Modularizing Your Way to Customer-Unique Value

Tennant illustrates the most fundamental principle of Mass Customization: modularity. When you think of modularity, think of LEGO building bricks. What can you build with LEGO elements? Anything you want, because you have a large number of elements of different sizes, different shapes, and different colors that you can snap together instantly thanks to its ingenious linkage system. That’s how you need to design your manufactured goods and your service processes so that you can link together different modules for different customers instantly, costlessly, frictionlessly, and seamlessly. Every customer then gets exactly what it wants and needs, but you can do it with low-cost, high-volume, efficient, and speedy operations. Standardize the modules at low costs, then link the modules together for individual value, yielding mass + customization.
Enabling Mass Customization through Digitization

Anything you can digitize you can customize. In many cases the product itself can be digitized, such as with information, media, telecommunications, banking, and so forth. In other cases digital technology can be embedded inside a physical good, as Lutron does in its lighting controls to enable them to not only be customized to each customer, but adaptable to each customer’s end use. And in all cases the process by which the product is made can be digitized, and that includes industrial equipment. With manufacturing itself becoming an almost entirely digital activity today – from product design to process development, from customer ordering to order fulfillment, from repair diagnostics to lifecycle management – manufacturers should further apply that digitization to mass customize their offerings and thereby efficiently serve customers uniquely.

How to Avoid Overwhelming Your Customers

Be aware, though, that the easiest mistake mass customizers make is overwhelm their customers with too many choices. For customers don’t want choice, they just want what they want. So every mass customizer needs to create a design tool that enables customers to figure out what they want, and then get that information back into operations to make something unique to that customer. This should not merely be a configurator, but a visual system based on the same 3D designs that engineering uses. For example, Robotunits, an Austrian manufacturer of modular automation systems, provides an online “webshop” so customers can visually see all of its offerings, with links into its CAD models that can be incorporated into the customer’s own digital tools to visualize and then realize automated production lines. Ideally, customized product design should really become its own 3D design experience, as Boeing does with its Dreamliner Gallery in Seattle for airline customers to design their unique configurations digitally but then experience them physically in a mocked-up airplane.

Cultivating Learning Relationships with Each Individual Customer

Mass Customization also affords the opportunity to form deep learning relationships with customers, so much so that they keep coming back again and again. Pneumatic-valve producer Ross Controls of Troy, Michigan, innovated a service it calls ROSS/FLEX to unify its product development, manufacturing, and marketing functions into one integrated team. This team then works directly with individual customers on their unique requirements, solving many issues via 3D simulations run directly with customer engineers. Ross then builds a 3D physical prototype to ensure that it works exactly as simulated. Often, however, customer specifications do not conform with exact reality, so should any problems arise Ross offers to build a second prototype, and then
maybe even a third – however many it takes to get the valve to exactly match the customer’s needs on its own production line. Once that need is met, the valve can be replicated across all the customer’s production lines.

Through this 1:1 process Ross gains a singularly powerful competitive advantage of locking its customers in. As one customer put it, “Why would I ever go anywhere else? Ross is already five product generations ahead of its competition!” Not generically for all customers, of course, but specifically for this customer, based on its unique needs. Because of its customized ROSS/FLEX service surrounding its mass customized valves, so wowed are Ross Controls’ industrial customers that it truly turns development, manufacturing, and marketing into one integrated 3D experience.

What 3D Experience Is Really About

Now thus far the term “3D” has been used in its traditional sense, of the three dimensions of length, width, and height that make up physical experience places as well as the goods that inhabit them. And that’s what all of the experience stagers above have done; they created places that have length, width, and height, that engage people in their physicality, with many also mass customizing their goods in these same three dimensions to better fit their customers’ individual needs.

But now expand the notion of what 3D experience really means. For length, width, and height themselves comprise just one dimension of true experience, that of space. Space is the background source and context of everything that is experienced in life. But within that space lays a second dimension, that of matter: physical entities including not only the tangible goods we manufacture but the people doing the experiencing, and the sensory stimuli they experience. And matter moves not only in space but in the third dimension of all of life, time, the measure of change and therefore of experiencing.

The Fundamental Dimensions of Reality

Physicists tell us that these three fundamental dimensions of time, space, and matter comprise the entire known universe, of all reality, and therefore of all human experience. Businesses have always reconfigured these dimensions in different ways to differentiate themselves from their competition, and ideally in different ways for different customers. Think of how Dell exploits time of payment to get negative working capital; how Case Construction creates a space where potential customers can experience its equipment; and how Robotunits modularizes matter with its automation systems.

Beyond the Known Universe to the Multiverse

But these three dimensions can extend beyond physical reality to encompass new experiences – virtual experiences – enabled by digital technology, opening up new ways of creating value in business. As seen in Figure 3, this enables new possibilities that extend beyond the known Universe, creating a framework that can only be called the Multiverse. It is the full extent of these three dimensions you should have in mind when thinking of 3D experiences.
Material & Digital Substances

While the goods we manufacture as well as the physical places we inhabit are by definition made up of material substances, of atoms, we can also create things and experiences using digital substances, or bits. Digital substances enable us to apply bits that have no length, width, or height to create value for customers. While the examples here are legion, consider how digital video recorders changed all of our viewing habits, how digital music upturned the entire industry, and how digital news is obsoleting newspapers.

In B2B, it’s going back a ways but think of how EDI (electronic data interchange) revolutionized company-supplier relationships, and how today how the ability to design, simulate, share, promote, and modify products inside of a computer system with a single source of truth revolutionizes engineering, testing, marketing, and lifecycle management. Think too of how the Internet of Things combines the material and the digital, enabling any physical thing – components, products, packages, devices, tooling, waste, equipment, and on and on the list can go to encompass any tangible object of size or value – to be digitally addressable on the internet so it can be counted, tracked, monitored, modified, adapted, and on the on the list can go to encompass any activity of import or value. The possibilities for reducing costs, eliminating waste, and adding value are just beginning to be explored.

Real & Virtual Places

Digital technology is not just about the bits; it also enables you to construct offerings not only in real places but in virtual places as well. The ability to interact with customers virtually has revolutionized commerce – via websites, with social media, in virtual worlds, and even by fostering customers’ own imagination on whatever device best meets their individual needs. Consider what Shareables bills online as “The World’s Most Futuristic Online Sales Experience”. You have to see it to fully appreciate it, but when a consumer clicks the “3LIVE SHOP” link near the top of Swedish telecom provider 3’s home page he comes face-to-face with a salesperson, live and in real time, who then virtually demonstrates 3’s offerings there and then on the screen, answering whatever questions arise. It’s not futuristic, however; it’s here and now, involving the simple shifting of the sales experience from a real place to a virtual one.

Product development experiences can similarly be shifted, enabling far-flung engineers to collaborate together in a shared virtual place. So can tradeshows; scientific instruments maker Varian (now merged with Agilent Technologies) created the virtual “Varian Experience” to enable prospective customers to experience its offerings virtually, with a game-like interface. And IBM created the “CityOne: A Smarter Planet Game” so city managers could explore its offerings by solving real-world problems in a virtual environment.

Actual & Autonomous Events

Finally, digital technology also enables you to shift time as well, to create offerings that leave the normal sequence
of actual events in real time to enact autonomous events. Such experiences engage people through the non-linear, asynchronous methods that today’s digitally savvy consumers (and increasingly business customers) so often prefer. Across all industries people have become used to interacting with companies only when it fits their individual schedule, rather than having to match a company’s predetermined priorities, such as banking at an ATM in off-hours, leaving voicemails when you know the other person isn’t there, handling tasks via e-mail, sharing updates on Facebook and/or LinkedIn, and so forth.

And not only can engineers collaborate today in shared virtual places, they no longer have to do so at the same time! Technology allows us to explore possibilities, to envision the future, and then to determine how to make that future happen through 3D simulations. Moreover, when an experience so engages us and our abilities that all else begins to recede into the background, we then get into “flow.” This can happen in mountain climbing and ballet dancing, in surgery and in schoolwork, in playing music and in playing games – even in engineering and in operating – and in every case we shed the tyranny of time to exhilarate our emotions, excite our senses, energize our bodies, and elate our minds.

Fusing the Real and the Virtual

You should not focus your innovation efforts on any single dimension, whether time, space, or matter; rather, innovate in ways that combine these three dimensions in new ways. And do not think of these three dimensions as either/or propositions, where you must choose between material or digital substances, between real or virtual places, or between actual and autonomous events. For the greatest value-creating possibilities of the Multiverse lay in fusing the real and the virtual. Remember how ROSS/FLEX starts out with virtual models and then shifts to physical prototypes, how the Internet of Things effectively combines the material and the digital, or how product development can now shift across space and time.

How Might You Create Value across the Multiverse?

Here are just a few possibilities to think about:

As manufacturing goes digital, we can now design products in 3D, embed intelligence inside them, make them automatically, and customize them efficiently. How can you fully take advantage of the ability to go completely digital throughout your value network?

With the rise of 3D printers, we can now press a button to make physical what was purely virtual, and instantly customize it as well. As Luano Iorio of General Electric Global Research points out, with this technology “Complexity is free.”¹ What should you be “atomizing” via the free complexity

of 3D printing, whether prototypes, production components, or replacement parts?

As mentioned above, the Internet of Everything enables us to put sensors on all physical things and monitor their location, usage, condition, etc. As industrial equipment becomes more "tronic" than "mech," what value could you create for customers through all the addressable things within their operations?

We can now synchronize all of our designs, all of our operations, and even all of our equipment in customers’ hands. How can you provide a real-time “dashboard” that virtually simulates both your own and your customers’ operations?

Telepresence and other communication advances enable us to collaborate globally. How can you take advantage of the possibilities to innovate around the clock, to be in multiple places at once, and to experience humanity digitally, or help your customers do so?

The Multiverse is immense and multifaceted, and the same tools for global collaboration can be extended far beyond your firm. So also consider: How can you open up your own innovation efforts – in goods, services, and 3D experiences – to suppliers, customers, and anyone else who can contribute? Understand, too, that the same modularity underpinning Mass Customization enables customers to also easily modify and play with your equipment in an open innovation environment, effectively co-creating their own customer-unique value. How can you help make that happen?

Creating Even Greater Economic Value

As you consider the infinite possibility spreading out before us thanks to the Multiverse, think too of what 3D experiences ultimately enable. For we are all “the product of our experience,” as the saying goes, and it is through our experiences – as individual people and collectively as organizations and businesses – that we transform to become who or what we desire, and are meant, to be. It is only through such life- and business-transforming experiences that we ever realize our dreams, attain long-held goals, and achieve our aspirations.

Going Beyond Experiences to Transformations

Such transformations are the fifth and final economic offering in the full progression of economic value given in Figure 4. Built atop experiences just as experiences build on services, and so on down the line, transformations are effectual outcomes that guide customers in achieving their aspirations. Many businesses are naturally in the transformation business; think of fitness centers, universities, hospitals, even management consultants; no one buys their offerings unless they have particular fitness, educational, health, or business aspirations that they need help in achieving.

Helping Customers Achieve their Aspirations

Your customers, too, have particular operational, strategic, and corporate aspirations that they find difficult achieving on their own. How can you help them do so? How can you go beyond your industrial equipment goods, beyond the leasing, warranty, monitoring, repair, and operational services you wrap around those goods, and beyond even the 3D experiences you can stage around and through your goods and services? How can you get into the transformation business and help your customers realize their corporate dreams, attain long-held organizational goals, and achieve their business aspirations? To avoid such questions puts your firm at increasing risk of being commoditized, for corporations more and more seek out suppliers that have their customers’ best interests at heart, that become partners in their customers’ success, that help customers help their customers, that think beyond the limited value of their industrial equipment to the far greater value in ensuring customers use that equipment effectively.

That in a nutshell is the success of IBM. While it started out purely as a manufacture of industrial equipment, after it moved into computers it discovered that customers actually valued its services more than its goods! This shifted so dramatically that by the 1990s, rather than a customer buying its hardware and IBM throwing the services in for free, if a customer signed a data center management service contract with IBM it would buy the customers’ own hardware! And today where does IBM find growth in revenue and profit? From systems integration, outsourcing, management consulting, and other methods of what it calls “business transformation.” That’s what business IBM is really in.

What Business Are You Really In?

The same can, and should, be true for your business. Customers already don’t want to buy single-purpose machines; they want delivery of full systems. And in actuality they don’t really want products, systems, or even solutions. They want a better business.

Recognize this: no customer buys your industrial equipment today because they want your equipment; it is always a means to an end. But if you sell the end, rather than the means, then you will create much more business value for your customers, and more economic value for your enterprise. For there is nothing more valuable than helping your customers achieve their aspirations.

Transforming Your Own Business

Again, goods and services are no longer enough. What customers want today are 3D experiences and the transformations they enable. So think about how you should transform your own business to create ever-greater levels of economic value:

If you innovated in 3D experiences, what value-creating offerings would actually get your industrial customers to want to spend their hard-earned time – and harder-earned money – with your enterprise?

If you took from your advertising or trade show budget, how great a marketing experience could you stage that would generate more demand for your industrial equipment?
If you modularized our offerings, could you give your customers exactly the equipment and the industrial services they wanted and do so with low costs, high volume, and efficient operations?

If you fully embraced the three dimensions of the Multiverse, what new-to-the-world industrial offerings could you create that fused the real and the virtual?

If you viewed your company as in the business of transformations, how could you guide your customers in achieving their aspirations?

If you can effectively answer these questions, then you cannot only transform your company and create more economic value for your customers, but just possibly change the world.

The Example of MeadWestvaco Corporation

More so than most industrial equipment suppliers, MeadWestvaco Corporation (MWV) embraces most everything discussed in this whitepaper. That’s clear from the first thing you read on its home page, “Turning Ideas into Impact.” It then goes on to explain how this vision goes beyond conventional offerings to life-enhancing, and at least potentially transforming, experiences: “A good idea has the potential to change the world. At MWV, our ideas have a way of becoming innovative solutions, services or experiences that enhance people’s lives.”

To competitors and outsiders, the 160-year-old, US$5 billion company seems like a traditional manufacturer of industrial packaging equipment. But the Richmond, Virginia-based company focuses relentlessly on not only its customers’ individual needs, but its customers’ customers’ needs through its “Insight to In-Market” program. Its analysts scour the world to discern the constantly changing needs of, say, beverage consumers, and then works directly with its beverage manufacturers to understand how these insights into unarticulated needs yield changing requirements. Its designers explore various packaging concepts simultaneously with the equipment innovations that would be required to manufacture them.

Together, MWV and customers – not just engineers but industrial designers, brand strategists, production personnel, and even salespeople – simulate everything in 3D digital technology, from conception through supply and manufacturing through the customer’s own distribution network all the way to the shelf of a grocery store. Once the simulation proves successful, MWV then goes far beyond supplying mass customized packaging equipment to having its engineers collaborate with customers on their own manufacturing lines, providing ongoing support, and ensuring that the new design works all the way through the chain to being “in-market.” The end result: a successful packaging innovation that helps its customer potentially transform its own business through end-to-end value. As Zack Smith, President, MWV Beverage, recently said, “From key consumer insights to efficient automation, MWV is there every step of the way, helping our customers connect with consumers, build

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brands and drive growth.”

One of its latest innovations that does exactly that is the “Hero Pack,” which opens up in the middle of the package to highlight one of the bottles to let consumers see exactly what they are buying. As the company says, “Beverage companies invest heavily in bottles and labels to create an emotional connection with their consumers, but that investment is ultimately hidden behind secondary packaging on the shelf.” So the Hero Pack brings the bottle – and that emotional connection – front and center. Of course, this “sneak peak” would not make much of a connection if the bottle were skewed at an angle or turned around, so MWV Beverage’s equipment ensures that the middle bottle of the six-pack is always aligned, flawlessly, with the label facing out.

The end result of the Insights to In-Market experience is that its business customers become hooked on MWV, not wanting to go elsewhere because of the amazing degree of insight, collaboration, customized offerings, and results. As Smith related, “In today’s rapidly changing marketplace, our customers require value and efficiencies throughout their supply chain, and we can provide it all through one seamless partnership.” That’s how MeadWestvaco turns ideas into impact.

About the Author

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