3D printing taxation issues and impacts

Technology is turning the world upside down for manufacturing and distribution
“3D printing has not transformed the economy quite yet. It’s too early to answer the countless questions this disruptive new technology will raise. But it is certainly not too early to start defining these questions and influencing the policy surrounding the answers.”

Channing Flynn
Global Technology Industry Leader
Tax Services
EY
In 3D printing, we once again have a new technology that could upend supply chains, business models, customer relationships – entrepreneurship itself. 3D printing could do to physical goods what cloud computing is now doing to digital services; what the PC, internet and smart mobility have done to computing; what outsourcing did to software development and business processing. That is, take mass distribution and innovation to the next level, while realigning the very geography of work and trade.

Why address 3D now?
Any significant technology that emerges has a few things in common. It impacts different industries at different times, places and levels of disruption. It poses both opportunity and risk. And it raises tax, legal and policy implications that can trip up corporate leaders and global policymakers alike as they are in full stride toward the future.

Understanding these tax, legal and policy challenges drove us to produce this report. 3D printing implications for the market will be as bedeviling as the current debate over cloud taxation. And it will be as challenging as the intellectual property (IP) issues that disrupted the entire music industry and as the decades-old political debate over outsourcing.

Sighting your company’s 3D horizon
Your company’s 3D printing horizon may be here today, as it is for some medical device makers and parts suppliers. It may fall three to five years out, as some predict for the mainstreaming of this technology by certain manufacturing sectors and e-commerce companies. It may be pushed out even further – 5 to 10 years from today – whether by intrinsic business or technological issues, or by external economic and political developments.

For many companies, though, now may well be the time to begin imagining a world upside down. That’s because whichever time horizon fits your company or industry, significant strategic and business process planning must precede it.

Easing the path to market
The sooner executives understand 3D printing opportunities and their complex global context, the better they can plan investments and begin their future business evolution with confidence in the ultimate returns. And the earlier companies and industries put the 3D printing value proposition in front of their policymakers, the better their chance of averting unfortunate 3D printing policies.

3D printing is neither the first nor the last technological inflection point in the business world. Industries have learned a lot as they have globalized and digitized their business models, and as they have put the case for innovation and progress to policymakers and the public. Perhaps none have learned more than the technology industry as both an innovation driver and enabler.

Now is the time to begin easing the path of 3D printing to market. We hope to facilitate the process with our analysis of the taxation issues and implications that undoubtedly will contribute to defining the 3D market and its future value to businesses and consumers.
A four-dimensional analysis of 3D printing

Whether your imagination’s reference point is jet engines, human hearts or even Star Trek’s food replicator, no one can deny the extraordinary potential and excitement about the future of 3D printing. Now, add a fourth dimension – time – and you will begin to see the nearer-term implications of these machines that can trace the length, breadth and depth of any given blueprint to produce 3D objects.

How close is the 3D printing horizon? Consider that printed jet engines already exist and printed human hearts are believed less than five years away (heart components already have been printed). Star Trek’s fictional food replicator may use a different technology, but one food industry giant is pursuing something quite like it.

Currently, on a larger scale, it is said that nearly the entire US hearing aid industry today relies on additive manufacturing (aka 3D printing).

At a global level, mining companies are printing out spare parts at their far-flung excavation sites. At a consumer level, while early adopters experiment at home and in micro-enterprises, e-commerce leaders are testing digital printing in delivery trucks, setting up 3D printing storefronts that customize on demand (imagine your own bobblehead look-alike), and positioning themselves as global platforms for 3D printing blueprints and customer transactions.

Some companies will be affected by 3D printing more than others. And those impacted earlier should get involved in the evolution of the policy governing 3D printing taxation. If not, other stakeholders will.

Your own suppliers and business customers may already be incorporating 3D printing into their enterprises, as well – conducting rapid prototyping, introducing mass customization, converting selected manufacturing and supply chain functions to 3D printing, or even transitioning entire products. Whole new businesses are emerging, such as a 3D printing service with 20,000 connected printers worldwide, and offering multinationals opportunities to divest some or all of their manufacturing and distribution.

Long story short, some companies’ and industries’ time horizons for mainstreaming 3D printing in their operations will be far shorter than others’, along a projected timeline of 3 to 10 years. And pockets of 3D printing are proliferating already.

“3D printing is on track to be very disruptive. Right now, though, it is in the classic technology industry gap: the concept has everyone fired up about new possibilities, while the infrastructure to make those possibilities come true on a broad scale is still being built.”

Pat Hyek
Global Technology Industry Leader
EY

Going from classic technology gap to mainstream
To put a number on it, the size of the global 3D printing industry itself reportedly topped US$4 billion in 2014, with a compound annual growth rate over the past three years of 34%. The industry is projected to surpass US$21 billion by 2020, as the technology matures and faster, more affordable printers come to market.

However, statistics about the actual number of products produced by 3D printers are not yet available for analysis.
“The taxation of goods and services has always been grounded in the physical movement of things or the provision of services – and that model is exactly what digital printing will disrupt absolutely.”

Channing Flynn
Global Technology Industry Leader
Tax Services
EY

“3D printing is on track to be very disruptive,” says Pat Hyek, Global Technology Industry Leader, EY. “Right now, though, it is in the classic technology industry gap: the concept has everyone fired up about new possibilities, while the infrastructure to make those possibilities come true on a broad scale is still being built.”

How disruptive will 3D be?
Traditionally, material objects (whether chips, sweaters or automobiles) have been built in factories controlled by a single corporate entity that designs the product, manages its supply chain, constructs and sells it, directly or indirectly. 3D printing is about to kick off an era of digital transformation that will redefine such classic models.

Business efficiency is a 3D driver – with reductions projected in employment, capital investment, shipping and inventory. And, inherently, digital printing’s additive manufacturing process promises to be less costly than more conventional “subtractive” manufacturing techniques. (Think about printing something layer by layer instead of milling a block of material into a final product.) So, too, are innovation, customization, speed and other benefits inherent to digital printing.

As with any digital transformation, technology companies likely will find themselves first to be upended. And as with any marketplace disruption, governments around the world will sooner or later find their national interests at stake.

Asia-Pacific provides an example
National interests will certainly vary, and the Asia-Pacific region provides a case in point. “If 3D printing is taking off, then China is going to want to be at the forefront and do it on an industrial scale,” says Jim Hunter, Asia-Pacific Tax Leader, Ernst & Young Tax Services Ltd. “With its middle class market growing to 400 million, China has a very strong base to cater to, in terms of producing products more cost-effectively.”

Among Asia’s global workshops (some of which are already diversifying into 3D printing), higher-cost countries such as China are likely to differ in their approach to policy and taxation from “new play” outsourcing venues like Vietnam. “Some countries just want to be as taxpayer-friendly as they can, to bring in manufacturing and create jobs,” Hunter says, “while China tends to be more proactive toward taxing profits made in its jurisdiction.”

The who, what and where of digital printing
The first disruptive 3D printing question is who owns a product’s IP. Is it the designer, the programmer who translates the design into a printable file, the business or consumer printing out a product – or all of the above? Some argue that each contributes to the creative process and product value. If so, who, what and where become not only practical, but policy questions.

Amid all of this unprecedented uncertainty is the question of how to tax value creation in what is beginning to shape up as a highly distributed model of manufacturing where distributors and customers participate in the production process – and any part of that process might take place in any location on the planet.

Governing a 3D world
Tax authorities around the world are already wrestling with many related policy and tax issues regarding services and intangibles such as IP, as they have been engaged in a far-reaching update of international tax models for the global digital economy.

They have even alluded to the coming arrival of 3D printing, in such forums as the Organisation for Economic Co-operation and Development’s base erosion and profit shifting project (OECD’s BEPS Project).

The new approaches to taxing intangibles (i.e., IP; borderless cloud-based value chains and consumer electronic services) all may have some applicability to taxing the tangible products of 3D printing. However, just how applicable remains an open question. “And even in instances where 3D taxation might not turn out to be so different in concept, it could just become more difficult in practice,” says Stephen Bates, International Tax Services, Ernst & Young LLP.

Channing Flynn, Global Technology Industry Leader, Tax Services, EY, poses a what-if scenario that illustrates the challenge: “In the future, assume you may no longer ship cargo containers filled with manufactured products via boats, trains or planes, but instead digitally transmit production instructions for 3D manufacturers to produce the products. What are the changes in taxation policy?”
Taxation turned inside out

What if 3D printing becomes as disruptive as the PC in the 1980s, when it overturned the way the world lives, works and plays?
Possible scenarios
The possible business and industry scenarios resulting from 3D printing are ultimately limited only by the imagination, but here are some that quickly emerge:

• What if you could move production closer to customers the world over via 3D printing? Customize your offerings in real time?
• What if digital printing could lower inventory throughout your global supply chain? Reduce your capital expenditures on factories and warehouses?
• What if, ultimately, it could transform your company from a vertically integrated provider of goods to a design and branding enterprise that outsources manufacturing and distribution entirely to 3D printing companies?

Opportunities abound
Mapping these scenarios to recent 3D printing breakthroughs helps bring the future into focus. Consider the implications for the pharmaceutical industry and for patients, following the US Food and Drug Administration’s recent approval of the first 3D printed pills. Imagine the changes afoot in the manufacturing and distribution of consumer electronics, since this year’s demonstration of a digital printer producing multi-layer, standards-based circuit boards.

The business benefits of 3D printing run the gamut—from cost savings for human resources, inventory, factories and shipping—and on to innovation, speed to market, customization and new products, new revenue streams or even new businesses.

Each potential benefit carries tax implications that could alter the equation for any anticipated operating efficiency or return on investment (ROI). Analyzing the 3D business opportunity without understanding its tax implications can be an incomplete exercise at best. What happens, for example, if the digital IP value overtakes the production value of your products as costs decline? And will your ROI analysis stand up to value-added taxes/goods and services taxes (VAT/GST) – one of many different direct and indirect taxes that will come into play – with rates in Europe ranging from 3% to 27%?

Compounding any particular tax issue is the matter of compliance and reporting, involving activities ranging from country-by-country registrations to continually updated enterprise resource planning (ERP) systems.

While the OECD is expected in 2015 to finish rewriting tax models for electronic services and other digital intangibles that would clearly touch on 3D printing—as IP and cloud-based digital blueprints, for example, are shipped across borders to printers—there is little clarity about how effectively these taxes would shift to “digital tangibles.”

“Governments are already looking to replace lost tax revenue, and pressure will likely mount for a product’s digital blueprint to become the taxable item or for a 3D printer to create a taxable nexus.”

Channing Flynn
Global Technology Industry Leader
Tax Services
EY
IP is the threshold issue for 3D taxation

IP sets the stage for any discussion of 3D printing and taxation. How and where 3D IP is owned and authorized for use will be critical to business relationships and the characterization of income derived from them.

“3D printing will definitely lead the Chinese tax authority to be more critical in reviewing ownership of IP.”

Andrew Choy
International Tax Services
Ernst & Young (China) Advisory Ltd.

Is the IP provided as a service? Or, are you licensing software? Selling raw materials without charging for the blueprint? Signing customers to subscriptions for IP that they can upgrade and change? Taxation, whether in the form of direct income tax or indirect VAT/GST, hinges on such questions.

Not only is IP a starting point for discussing taxation, but a growing concern. It will account for an increasing share of a product’s value, as digital printing reduces costs. Current multinational tax profiles based on minimizing tax on IP profit rely largely on non-IP related substance. With the anticipated shrinkage in manufacturing operations, customer support and sales personnel that will accompany widespread use of 3D printing, multinationals will have difficulty determining the most relevant factors for determining nexus as 3D manufacturing seemingly does the opposite of what policy stakeholders are indicating must happen: align profits to people and their functions.
In a similar way, IP has already been a flash point for tax authorities developing new OECD models for digital services and intangibles, leading some companies to onshore IP and related functions to the markets in which they are commercialized in products and services. This could also mitigate some of the IP tax issues in a tangible, 3D world.

Still, government pressure on IP is expected to intensify in a 3D setting. “3D printing will definitely lead the Chinese tax authority to be more critical in reviewing ownership of IP, and whether it should be considered part of the contribution of the Chinese subsidiary of foreign companies,” says Andrew Choy, International Tax Services, Ernst & Young (China) Advisory Ltd.

“Filing for industrial design protection is a complicated procedure, and it’s not always sure to be enforceable – especially in the case of private use.”

Dr. Peter Katko
Head of IP/IT/Privacy Law GSA
Ernst & Young Law GmbH

While the technology industry is accustomed to patent-related controversy, IP disputes surrounding 3D-printed objects are likely to involve three other areas: copyright, trademark and, especially, industrial design protection. These instruments protect, respectively, artistic/intellectual creation, elements of branding and product design. “Filing for industrial design protection is a complicated procedure, and it’s not always sure to be enforceable – especially in the case of private use,” Katko says.

Eye on rising IP piracy
No discussion of 3D IP would be complete without touching on IP protection issues. How will you manage your product pipeline when customers begin printing products in their homes?

Something like the disruption of the music business by IP piracy could be repeated in the world of manufactured goods. “Today’s IP law will be able to mitigate this to some extent, but not perfectly at all,” says Dr. Peter Katko, Head of IP/IT/Privacy Law GSA, Ernst & Young Law GmbH.

Business prospect
New 3D printing business relationships and transactions will revolve around the ownership and use of IP.

Ask yourself
What will be the right characterization of your income from 3D IP?

Tax issue
Tax authorities’ focus on IP is expected to intensify in a 3D setting.
Distributed 3D printing will trigger new VAT issues

Innovative companies today are looking for ways to get products to market faster, move away from more traditional distribution models, go direct to retail outlets or direct to consumers and become more flexible in adapting products to local markets and customers. 3D printing takes this ongoing re-evaluation of supply chains to the next level. And, since VAT/GST is a tax on the value added by each actor in a supply chain, clearly there will be ramifications when using 3D to fan out production and distribution.

“Supply chains can be terribly tax-inefficient,” says Anne Freden, Indirect Tax Services at Ernst & Young LLP. “Any transition to 3D printing, without deliberate tax planning, could end up with a structure or go-to-market strategy that is not tax efficient, that ends up with irrecoverable indirect tax in the supply chain, and that eats into margins.”

And if 3D printers eventually become fixtures in consumers’ homes, much of the taxable value may migrate to the end of the supply chain. The current VAT system is largely premised on the notion that full value is delivered to the consumer, which is how the sale is taxed today. Capturing the full value of a 3D sale could be more challenging. “One can foresee governments needing to react to make up for lost revenues – even raising VAT rates,” says Freden.
Whether in the supply chain or the customer’s home, IP and the characterization of income will be key to taxation, as discussed above — whether a sale involves a service, good, software or a license. And there are more tax questions: Where is the IP housed? Where is it being exploited? Who owns it? Is title being transferred? If so, when? “All of this will need to be determined within the 3D printing environment to figure out how it will be assessed from an indirect tax perspective,” Freden says.

Unanticipated VAT can wreak havoc on pricing strategies. And, if not managed effectively, VAT can quickly become a real cost to companies, as a result of VAT not charged to customers and paid over to tax authorities — or due to missed opportunities for recovering VAT on costs in the supply chain. Global VAT rates average around 20%, with penalties for noncompliance commonly up to 100% of the VAT due.

Additionally, administrative costs can be considerable, including registering for VAT around the world and continually updating IT systems to reflect variable and changing VAT rates in different countries.

“Supply chains can be terribly tax-inefficient.”
Anne Freden
Indirect Tax Services
Ernst & Young LLP

Note: VAT is known as GST in some global jurisdictions.
Transfer pricing faces new calculations in flattening supply chains

Every time a company changes its supply chain, it needs to change its transfer pricing. Multinationals may know this already, since they continually adjust their intragroup/intercompany cost sharing of taxable functions, risks and assets across worldwide operations today. What they are less likely to know is how much 3D printing could test existing transfer pricing models.

Think what might happen as 3D printing begins to flatten global supply chains – replacing warehouses and global or regional production facilities by instead printing and distributing products closer to the customer. Consider, for instance, a multinational using a related company as distributor in a given country. Once that distributor begins printing replacement parts, it could be considered a factory. The related transfer pricing would change, but it is unclear how or by how much under current tax laws.
“We’re entering a new world, and there are few comparables in the current world of manufacturing,” says Al Paul, International Tax Services, Operating Model Effectiveness, Ernst & Young LLP. “Models for contract manufacturing or consignment manufacturing may be used by analogy, but they are not exact.” All of which could leave tax authorities without their usual reference points for calculating the range of tax to apply – and leave corporate strategists up in the air, as well.

And while transfer pricing of services and intangibles already is challenging for companies and tax authorities alike, it could become even more challenging as the function, risk and asset footprint likely will change due to the introduction of 3D printing into company supply chains. Plus, as the manufacturing of tangible products becomes more geographically distributed, it will encounter rules that often change from jurisdiction to jurisdiction.

“We’re entering a new world. It is going to create havoc on existing transfer pricing models.”

Al Paul
International Tax Services
Operating Model Effectiveness
Ernst & Young LLP
Arguably, as 3D printing begins to cut production costs, the percentage of a product’s value that resides in any given manufacturing location could begin to decline as well. Say the cost ratio today is 80% manufacturing to 20% design/IP. In a 3D printing world, ratios could evolve to 60/40, 50/50 or 40/60.

Changing production values raise the risk of double taxation

“In a 3D printing world, the value of your product becomes more intangible than tangible,” Hunter says. As we have seen above, this sweeping change could produce plenty of gray areas surrounding IP, 3D printing and taxation.
Geographically, then, where is the base of a product’s profit located and who gets the right to tax it? Tax authorities in different countries could come up with different answers to this question.

A primary purpose of bilateral tax treaties is to avoid imposing the cost of double-taxation on multinationals. But cross-border tax issues can be difficult to resolve, even where countries have reached an agreement in principle, because there are different political motivations and diverse schools of thought about how corporate taxes should operate.

Consider a product designed in the US and digitally printed in China. While US authorities may say that the “lion’s share” of product value remains in the US, for tax purposes, Chinese authorities may see it the other way around.

“Then, you could find companies double-taxed on the same profit,” Hunter says. “Companies have to come up with a structure and controversy plan that at least gets them to single-taxation.”

“In a 3D printing world, the value of your product becomes more intangible than tangible.”

Jim Hunter
Asia-Pacific Tax Leader
Ernst & Young Tax Services Ltd.
Crossing borders digitally, 3D printed products confound customs

Companies and governments often find themselves contesting the value of imports, as products are shipped across borders and through customs controls. Both sides of the argument have a good cause. For companies, customs duties are a generally unrecoverable cost of doing business that directly impact margins. For governments, customs duty collection remains an important contribution to the national treasury.

Such cross-border calculations could become a whole new equation, as the increasing placement of 3D printers in local markets changes global trade flows. While the raw materials or components used in 3D printers certainly may still cross borders the old-fashioned way, more of a product’s value will be defined by the digital blueprints that invisibly traverse the globe.

Another key point in this regard is that the raw materials may be lower in value than parts or products that would otherwise incur customs duties. “Governments will be looking to replace lost tax revenue, and pressure could mount for a product’s digital blueprint to become the taxable item,” says Flynn.
In global trade, you have got to have a cross-border flow of a tangible good for it to create a taxable customs event,” adds Michael Heldebrand, Indirect Tax Services, Global Trade, Ernst & Young LLP. In global supply chains deploying 3D printers to serve local markets, taxable events may include the one-time import of the printer itself, as well as the sourcing of raw materials or components.

The flip side involves export controls, aimed at keeping certain technologies out of the hands of foreign governments and actors that are considered a threat. While this is more of a trade issue than a tax issue, export controls can present opportunity and compliance costs. “Advanced countries in the EU and the US will be very protective of what the printers can do and what they cannot do, and you may see specific restrictions on 3D printers,” says Heldebrand.

Other rising trade matters could determine the inclusion of digital printing in free trade zones, under free trade agreements or in tax incentive programs aimed at developing national 3D competencies and hubs. Japan provides a case in point. “The Japanese government has an ambitious program to develop the world’s best 3D printing, technology and software for a wide range of global industries,” says Amit Ranjan, Ernst & Young Advisory Co. Ltd.

“In global trade, you have got to have a cross-border flow of a tangible good for it to create a taxable customs event.”

Michael Heldebrand
Indirect Tax Services
Global Trade
Ernst & Young LLP

Business prospect
Companies rely more on digital technology to distribute products.

Tax issue
With fewer final products crossing borders, governments could see their revenue from customs duties fall.

Ask yourself
Where are the taxable events in your new 3D supply chain, if not at customs control?
Location, location, taxation

Three more highly location-sensitive tax matters that could arise as traditional manufacturing becomes more globally distributed via 3D printing are permanent establishment (PE), exit taxes and “substantial contribution” provisos.

“Could vertical distribution models become a thing of the past? In this scenario, third-party 3D printing companies would handle much of multinationals’ manufacturing and distribution, mitigating tax issues like PE, transfer pricing and compliance.”

Alex Postma
Global Director
International Tax Services
Ernst & Young Tax Co.

Could a 3D printer in a supply chain constitute a fixed place of business — a taxable PE in a particular jurisdiction? Several variables could affect the answer to this question, including different printer ownership structures, control of printer use and revenue from designs used by the printer. Each one may carry a risk, especially as tax authorities around the world seek to lower PE thresholds as part of the OECD BEPS Project and national tax policy.

And whether a company owns the 3D printer in the customer’s local country or, alternatively, licenses the customer rights to print products on their own, 3D printing will likely prompt the OECD to expand the analysis of PE to include these models.

The flip side of this discussion involves exit taxes, which can be assessed as a company moves operations out of a given country. For example, some countries have determined that when companies take their domestically developed IP and then transfer those rights...
to an overseas affiliate, there may be tax due upon exit. The rationale, roughly, is that the home country and its infrastructure supported the buildup of the IP and its business potential, but was left for more tax-beneficial shores at the point of profitability (ergo, no domestic tax revenue). In such situations, for example, the US federal tax rate alone could be as much as 35% of associated income over a period of years.

Enter 3D printing. Countries will have various impacts as taxation of profits related to commoditized 3D printing suffer, but those with control over the printing materials, supplies and manufacture of the printers themselves will see a boost to income tax profits. This is even before the analysis of the customs and duty taxation impact. And tax authorities should be able to see just how much revenue is going overseas due to standard country-by-country tax reporting that is now coming into effect under OECD guidelines.

However, the baseline issue will be how to assign value to any IP perceived to have been migrated overseas, when offshore 3D printing is introduced into the global manufacturing model.

Meanwhile, the analysis under the US tax code’s “Substantial Contribution Test” may become increasingly complicated by the introduction of digital printing into manufacturing models. This is a US-centric test that focuses on how much control a company exercises over the manufacturing process through the activities of its own employees (e.g., manufacturing control functions, such as procurement, quality assurance and capacity planning).

Although US companies are generally taxed on worldwide income, taxation of foreign earned profits of a controlled foreign corporation (CFC) can be deferred until repatriated provided, for example, that the foreign subsidiary “manufactures” products or controls (i.e., “substantially contributes to”) the physical manufacturing of a third company. “When you throw in 3D manufacturing, it may draw into question how a company can ‘substantially contribute’ to the manufacturing process when its customer prints off a part,” says Paul.

If, instead, a related company, rather than a customer, prints a product on behalf of a principal manufacturing company, that may also increase the risk of additional tax exposure.

“The tax challenge we will have, as in every industry, is how do you untangle the value chain?”

Stephen Bates
International Tax Services
Ernst & Young LLP

Business prospect

Production locations multiply in 3D-enabled supply chains.

Tax issue

Several location-related tax issues could emerge, including PE, exit taxes and substantial contribution provisos.

Ask yourself

Where might your company begin making money via 3D printing, how, and how will it be taxed?
Turn your 3D opportunity right-side up

What if 3D printing does indeed turn your business world upside down and your tax profile inside out?

How would your company make money in a world where your products become more intangible than tangible, your consumers become producers and local digital printers draw production back from outsourcing arrangements in the global workshops of Asia and other shores?
“Don’t ask ‘what is my 3D printing strategy?’ Ask ‘what is my business strategy in a world becoming more and more dominated by 3D printing?’”

David Jensen
Global Innovation and Digital Strategy Leader
Ernst & Young LLP
Preparing for 3D
Companies need to frame their 3D analysis around opportunities and threats – to innovate or be disrupted. “Don’t ask ‘what is my 3D printing strategy?’ Ask ‘what is my business strategy in a world becoming more and more dominated by 3D printing?’” says David Jensen, Global Innovation and Digital Strategy Leader, Ernst & Young LLP.

Flynn adds, “Many companies tend to ignore the tax implications of their investment and operational decisions until the final analysis – and then have to hit the ‘reset’ button. This acts as a drag on companies trying to operate at the speed of innovation.”

Lessons learned
Lessons can be drawn from the recent history of cloud computing and its sudden explosive impact on global business.

One lesson is to plan sooner for 3D, in order to seize the opportunity and mitigate the risk posed by upstart competitors and defecting customers.

Second, keep your tax team closely engaged in your strategic development, for realistic analysis of potential business efficiencies and ROI.

And third, engage earlier with policy-makers to coax 3D policy and taxation into step with this new technology and its promise for business innovation.

Above all, start imagining your business world upside down. Understand that it won’t be easy to turn it right side up again. If you begin planning now, though, time may still be on your side.

Imagining your business world upside down

Opportunity analysis
• What would be the cost/benefit of flattening your supply chain and moving production closer to your markets?
• How could digital printing heighten your innovation, product development and speed-to-market?
• How could digital printing and its promise of mass customization change your relationships with customers?
• Are there entire new lines of business that your company could only execute in a 3D world?
• Are there operations you would shed?

Threat analysis
• How could 3D printing upstarts exploit these benefits of speed, cost and customization to compete against you?
• How will you protect your IP from piracy or other loss of value?
• Could your brand face quality erosion or other damage as your designs are distributed and modified in a shared economy model?
• Could your 3D business proposition be undermined by tax costs?

“To remain viable in the digital economy, companies must be nimble, flexible and entrepreneurial – capable of transforming at the speed of innovation. In such an environment, tax risk is at an all-time high. And your tax planner becomes your best defense – so make sure that tax has a seat at the decision table.”

Channing Flynn
Global Technology Industry Leader
Tax Services
EY
Sources

2 Ibid.
7 “New VAT tax rules are making a mess out of online retail in Europe,” Quartz, 24 February 2015, via QZ website, Quartz, 2015.
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