

BUT IS IT REAL? BY PAUL CAMUSO AND WILLIAM SHATNER

What are you doing with the blockchain? It may sound like one of those preposterous questions asked by today's youth, but it's a very important question to be thinking about these days.

The use of the blockchain is poised to permeate our lives whether we are ready or not. Its uses as a distributed ledger of information has boundless applications beyond Bitcoin and other crypto currencies. World industry is gearing up for global adoption of distributed ledgers becoming the normal way of them doing business in the future.

Smart contracts—think of them as little bits of executable code that work on the blockchain as applications do on your laptops and smart devices—are the future ways industry will utilize those blockchains. Futurists at Mattereum, a leader in smart contract property registrations, foresee a time in the near future when not only purchases can be made via the blockchain, but also ownership transfers of everything from automobiles to houses. Imagine not having to wait days, weeks, or months to pass papers on a new home but having to wait minutes if not seconds? This is where, theoretically, things are heading. It does, however, beg the question: how do you know what you are buying is real?

Certainly, a car is a tangible item, as is a piece of fine art or a designer handbag. For the last two, what assurance do you have that they are genuine? For luxury items, if you purchase something on the secondary market, how do you actually know it is real? With the internet becoming the most common secondary marketplace, it is becoming impossible for the average consumer to tell since, aside from a seller's guarantee and perhaps a paper certificate (which can be easily duplicated), second-hand goods usually come with no assurance of authenticity.

With the rise of counterfeiters and their use of technology to create accurate fake merchandise, sales

receipts, and even product registration cards, there is a strong need to have something that gives buyers a safeguard when purchasing items. This is where the immutable aspects of the blockchain can assist in a very big way.

COUNTERFEIT GOODS

Imagine spending thousands of dollars on the secondary market and finding out that you accidentally purchased a counterfeit luxury handbag. The Global Brand Counterfeiting Report estimates that over thirty billion dollars annually is lost solely to online global counterfeiting. That is a worldwide impact on industry.

The OECD reported that the total value of imported fake goods worldwide was USD \$461 billion in 2013 with nearly 5% of all goods imported into the EU being fake¹. And it's only gotten worse. Harvard Business Review in May of this year ran a story on how Luxury Brands could beat counterfeiters and their numbers were shocking: the total trade in counterfeit goods was put at \$4.5 Trillion and that fake luxury merchandise may account up to 70% of that number! That's a nearly 10 fold increase in just 6 years!

Counterfeit items are sold daily on many after-market and secondary market websites. Sometimes the buyer knows they are purchasing counterfeit items, but sometimes they do not. It would certainly help if manufacturers could implement a device in any item that gave off a faint radio signal which could be picked up by a smart device and verify the item as genuine. It could be as easy as using a transit card or a contactless payment card. This works

only until the counterfeiters eventually figured out how to copy the signals and antenna tags. That is the depressing dilemma in today's world, because no matter how smart or clever the manufacturer's solution is to counter the forgery market, the counterfeiters eventually figure out a way to make exact copies, taking you back to square one.

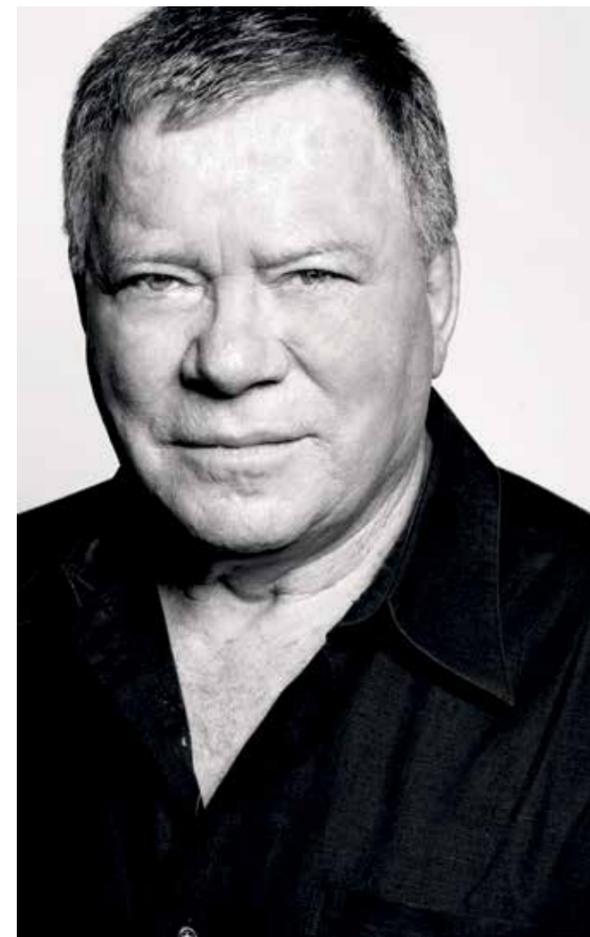
All that time and energy spent, and within months (or even weeks) a counterfeit of a desirable item is being offered up for sale on websites at a healthy discount compared to its street price. Industry losses are mounting daily, and manufacturers have little recourse. Most countries where counterfeiting takes place have few laws or little interest in prosecuting. You can try and shut down the larger counterfeiters but, like an arcade game, as soon as one goes down, three more pop up to take its place. If you have a desirable brand or product that the public wants, you can be assured that somewhere, somehow, that item will probably be counterfeited.

The one thing that has not been copied to date is a crypto token or coin. The way in which crypto assets are created is based on a timestamp and verification of its creation by a number of machines that exist on the blockchain. When a crypto coin or token is "minted", its address and identification on the blockchain is based in part on the timecode of its creation. That information is verified and recorded, making it immutable and thus unalterable. Attempts to duplicate it would immediately be rejected by the other verifying machines on-chain.

So there actually is an item (whether it be a crypto coin or token) that cannot be counterfeited. How can we relate this to a physical, real-world object?

DIGITAL TWINS VERSUS CRYPTO TWINS

A Digital Twin is what the name implies: a digital representation of a physical, real-world object. The definition goes on to include the actual physical object and the relationship between the two. The term has been in use for several years, having been popularized by NASA in the early 2010's as a concept for 3D modeling where designs and ideas could be constructed in a digital world for testing before being constructed in the real world.



William Shatner

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These twins also exist in the world of Crypto. The Digital Twin becomes a "Crypto Twin" aka a Crypto object (a token or coin) that relates to a physical object in the real world. It's a bit of the reverse of a Digital Twin where the real-world object stays the same and a crypto token or coin is created to represent it, with their relationship being connected by the blockchain. This relationship can also be used as a record of authentication.

Our goal at Third Millennia Incorporated is to take real-world objects that have some intrinsic value and tag them in a uniquely identifiable way that can be read via a smart device. Whether it's a one of a kind article, an autographed item, an original piece of art, or a valuable luxury item, we use the Crypto Twin token as a representation of a real-world object and, using the actual record of the blockchain, tie the two items together. This forms an immutable record of authenticity that cannot be counterfeited.

HERE ARE SOME POSSIBLE REAL-WORLD EXAMPLES:

A design house produces a high-end brand of signature designer merchandise. Since their brand is highly sought after by the public, they are victims of counterfeit goods manufactured elsewhere. The counterfeiters and their agents sell these knock offs via websites, street corners, flash store set ups, and secondary market auction sites. The public may or may not be aware that these items are counterfeit, but inability to stem the flow of counterfeit merchandise is worrisome for the brand as it impacts sales and its reputation.

Art has always been a very lucrative investment. If you choose the right artist, your investment in art can appreciate in value considerably while it decorates your walls. As a result, there is a secondary counterfeit market that produces fairly good copies of art by many sought after 'collectible' artists such as Banksy, Invader, and Warhol. Even counterfeit pieces can sell at thousands to tens of thousands of dollars. How can one be assured that they are buying a genuine piece of art and not a worthless fake on the secondary market?

The world of collecting has been around for millennia. Romans collected manuscripts and proudly showed off their treasures in such places as the fabled Library of Alexandria. Even celebrity autograph collecting has been going strong for centuries, with many autographs going up in value once the signer passes away. As an investment, they may not be a cornerstone to a portfolio, but they certainly have a value that can appreciate greatly.

In 2008, Hastings Communication and Law Journal quotes that each year as many as half of the art sold in the UK may be "spurious"². The value of art forgeries trading was estimated to be between \$250 and \$500 million, and counterfeit goods of all kinds had seen a "five fold" rise between 1989 and 2003. Art authentication, by its own nature, is an educated opinion arrived at by a number of people whom the general public accepts as experts. Attributions to artists change over time. It's not a science. Tens of thousands to millions of dollars are up for stakes in authenticating some art pieces. A lost master could bring millions while if an expert isn't quite convinced of the authenticity of a piece; it could become a costly mistake for whomever the owner is. Interpol in its first International Conference

on Counterfeit Art came up with a series of guidelines to raise awareness of the trend of counterfeit art, to enforce and encourage local laws to be passed regarding counterfeit art and to create a centralized database of information that member countries could turn to when they have an issue with counterfeit art.

The dilemma: how do you know that the William Shatner autograph you are bidding on is genuine? A quick look on secondary market sites like eBay list his autographed memorabilia with prices ranging from just a few dollars to several hundred. Since the signatures all look very similar, how does one know what they are bidding on?

In all of the above instances, and in many more real-world situations where authentication is needed, the question of how we know what is real and what is not continues to pose a great challenge.

Third Millennium Incorporated is attempting to solve this issue with a Crypto Twin Authentication service. Although the concept is simple, the mechanisms are technically complex enough to make them virtually counterfeit proof. Using a tag or marker that can be physically attached to a product, the frequency identification technology of the tag, along with other descriptive information related to the item—appraisal reports, manufacturing information, photos, video, etc.—are put into the blockchain record.

The on-chain record keeping database is based on the Semantic Web format. Originally developed years ago for the web, its structured format allows the database of items that have been verified to be easily searched using basic web tools and Boolean expressions. This format is also the preferred format for many museum collection databases.

Once an item is scanned by a user on our smart device app, the technology built into the app will perform several functions. The initial scan will look up the blockchain record based upon the frequency identification, and the app will determine if that item has been recorded. If there is no record, an error will be returned. If the scan indicates that the item has been entered into the blockchain, an authenticity smart token for the item will be sought out. If the token has not yet been distributed, an account can then be set up using by providing a few basic details. The system will then

create a simple crypto wallet on the app and put the authentication smart token into that wallet. The smart token effectively becomes a "Crypto Twin" to the real-world item and certifies its authenticity.

If the item gets sold by the owner on the secondary market, the token can be moved into a new wallet registered on the app for a small fee. Counterfeiters may be able to copy the tag, and even the signal, but unless the token has not been registered by the original owner, there is only one token per item. So an asset without a token is like a vehicle without a title, or a work of art without provenance. It basically delineates the secondary market for real and counterfeit items, allowing buyers and resellers to know what they are purchasing before the sale takes place.

The future for manufacturers, artists, and celebrities is very bright with the help of this technology. Future enhancements to the token could allow an owner to mark the token as stolen if the item is stolen. Then, any secondary market sellers that are offered the stolen merchandise can scan the item and see that it has been flagged. This would make it very difficult to sell, plus the item could be returned to the owner if the secondary market seller contacted the authorities. Furthermore, the service could be white listed by a manufacturer, artist, or celebrity to become a part of their own smart device app; insuring even more brand loyalty by their customer base.

The World Health Organization reported in 2017 that one out of every ten drugs in developing and poor countries are counterfeit. In a worldwide industry of over \$300 Billion dollars in sales this puts the figure at over \$30 million in counterfeit sales. Many companies are turning to crypto companies for solutions. Everledger has been working on a blockchain solution to track diamonds to prevent the distribution of blood diamonds into the economy. They are now expanding that system into the fine wine industry. It is hoped that using systems based on blockchain ledgers will help curb counterfeits from entering the commerce system.

The global implications of adopting this kind of technology would certainly benefit the bottom line of manufacturers, artists, and celebrities. The purchasing public can not only trust in the quality and authenticity of an asset, but can pass along that trust into secondary market. It enforces brand loyalty and helps buoy up



Paul Camuso

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very healthy secondary market price levels to ensure the desirability and sophistication of the brand continues in those markets. This approach to using crypto technology not only enables adoptability by the masses, but also allows for a variety of future applications in everyday life.

"I am very excited to be a part of Third Millennium and it's forward thinking strategies of employing crypto technology to allow adoptability by the masses. I see not only the uses discussed in this article but so many other practical uses of this technology in everyday life. I am going to be adopting the authentication technology in my own store where those who purchased an item signed by me will get one already registered on the blockchain with this service. It will ensure that my signature is authenticated through and beyond the third millennium!"

William Shatner

- 1 OECD/EUIPO (2016), Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact, Illicit Trade, OECD Publishing, Paris, <https://doi.org/10.1787/9789264252653-en>.
- 2 Giondonca, Joseph C. 2008. "Can Intellectual Property Laws Stem the Rising Tide of Art Forgeries?" Hastings Communications and Entertainment Law Journal 31, no. 1: 47-78.

PAUL CAMUSO

Paul has worked in the software technology field from the late 1980's through 1990's before moving to Europe. A former Customer Relations Director for Lotus/IBM EMEA, Paul has many years' experience with multinational corporate satisfaction issues. He has spent the past 20 years working in with actor William Shatner, introducing Mr. Shatner to bring technology uses to the Entertainment Industry and showing how to exploit

technology as a marketing and promotional tool. His partnership with Mr. Shatner in Third Millennium should be tour de force in using the technology of the crypto world in new and exciting ways to allow quick adoption of crypto by the masses. A former resident of both Boston, Massachusetts and London, England he now resides in Los Angeles, California.

WILLIAM SHATNER

William Shatner has cultivated a career spanning over 50 years as an award-winning actor, director, producer, writer, recording artist, and horseman.

Shatner originated the role of 'Captain James T. Kirk' in the television series Star Trek, reprising the role in seven of the Star Trek movies, one of which he directed. He played the title role in the hit television series T.J. Hooker, as well as eccentric lawyer 'Denny Crane' on both The Practice and Boston Legal, for which he was awarded two Emmys, a Golden Globe, and a SAG Award. He has also hosted several television series including Rescue 911 and Shatner's Raw Nerve. In April 2011, Shatner launched his hugely popular one-man show, Shatner's World on Broadway, later touring in Australia, New Zealand, Canada, and over 50 U.S. cities.

His love of music has inspired him to record such albums as Has Been, country album What About Me, and holiday album Shatner Clause (which was number 2 on the Billboard chart). He has also collaborated on a number of musical projects such as Ponder The Mystery in 2013 (for which he wrote the lyrics), and Seeking Major Tom (2011) featuring songs by U2, Frank Sinatra, Queen and Pink Floyd.

Off the screen and broadcast waves, Shatner has authored nearly 30 best-sellers in both the fiction and non-fiction genres. His autobiography, Up Till Now, was a New York Times best-seller and was followed by Shatner Rules which was released in October 2011. William Shatner's book, Leonard: My Fifty-Year Friendship with a Remarkable Man, was released in February 2016 appearing on the NY Times Bestseller list. William Shatner's newest book, Live Long And...What I Might Have Learned Along the Way, was released in September 2018.

Shatner has been successful in another area: as a longtime dedicated breeder of American Quarter horses. As both a breeder and rider of American Saddlebreds, he has won numerous world championships in several equine events. His passions for horses and philanthropy were united when he started the Hollywood Charity Horse Show, which benefits Los Angeles-based children's charities.

Shatner continues to act, write, produce and direct while still making time to work with charities and further his passion in equestrian sports. He and his wife, Elizabeth and three married children live in Los Angeles.

IS A NEW WORLD TRADE ORDER BEING BORN? BY IAN WELSH

When we look at trade statistics we tend to think of trade as being between countries.

While this is accurate in certain senses, the organizations who actually trade, and the organizations who shift goods between countries without trading, are mostly not countries. They are, in fact, corporations. Most of these corporations are private, though some are government owned.

This fact, and the influence of private actors on governments, sometimes obscures the fact that the most important actors in the trade and logistics field are governments. It is governments who determine the terrain of trade; what can be traded or shipped, with who, and how. Governments make the rules, and other actors must respond to those rules. Private actors act within a rule system set, and enforced, by governments.

Currently, the three governments most capable of exerting influence on global trade are the United States, the European Union, and China, with other states such as India, Japan, and Russia possessing these capabilities to a slightly lesser extent. The World Trade Organization (WTO) exists substantially because the US and Europe made it happen. The IMF, World Bank, and the SWIFT system which enables payments are either creatures of government or subject to government control.

The rules around trade, made after the collapse of the great European Empires (each of which was its own free trade zone), were made by the US, with European consultation, after World War II. As time went by other countries gained influence in the system, but it is still substantially a system created by the North Atlantic powers.

This is something the Chinese are very aware of. When Westerners and others who benefit from the current system proclaim it to be an international system of law and suggest that China should support it, the Chinese note that it is a system that was made almost entirely without their input. It isn't their system. It isn't the system that would have been created if, when it was created, China had been a greater

global influence, instead of recovering from occupation and civil war.

If negotiations were started today, from scratch, China would have almost co-equal say with the United States. China has co-equal GDP in purchasing parity power, and slightly more trade than the US.

Bearing in mind that, for most of the last two thousand years, China and India were the largest economies in the world, and that China is returning to that place, to ask China to agree to trade rules and arrangements made when it was at the absolute nadir of its strength and international influence, seems, to China, obviously and blatantly unfair. None of this is to say that private actors don't matter; they decide what is done within the rules set up by nation states. But as with a coach on a football team, they make their decision within rules they did not create. And, increasingly, the rules are being made by China. This is most clear in the Belt and Road Initiative (BRI).

Meanwhile, in America, there is a push to change the rules as well. This is obvious with President Trump's tariffs, his renegotiation of NAFTA, and his refusal to sign the Trans Pacific Partnership (TPP). But it didn't entirely start with Trump. The TPP was an agreement which left out China, the greatest Pacific trade power, because it was designed to create a trade area competitive with China.

So both America and China are seeking to change the world trade order, and the old order is cracking.

The core ideological commitment of the current trade order is a belief that trade always creates a larger pie. This is based on the law of comparative advantage: if countries do what they're relatively better at, more goods and services are produced than if they don't specialize. Since this is the case, we should always strive to create more trade.

This trade order moved a lot of productive capacity away from the United States and Britain, among others. This was planned, and expected. Furthermore, this might not have been much of an issue. America was still wealthy, Americans bought their imports with dollars, and so on.

However a combination of domestic policies, such as reduced progressive taxation and de-industrialization, hit some regions and classes of Americans harder than others. This led to significant inequality in America, and areas of significant poverty. Entire demographic groups found that their futures were less likely to be prosperous than their parents were. Faced with a future that looked worse than the past, many Americans no longer believed (or believe) that the economy is working for them. And since they could see that industries which had provided good jobs had moved overseas, even if they believed it was inevitable, they blamed this on free trade. In Britain, this same demographic was largely responsible for voting to end British membership in the EU. They voted, in effect, to leave a large trade bloc.

So we now have a situation where there are a large number of people, large enough to elect governments and win referenda in core economies, who no longer believe in the current world trade order. They don't think free trade is good for them. Even if Trump is not re-elected in 2020, or if Britain stays in the EU, those people will not go away.

Ironically, the theorists of the modern trade order understood the problem. They knew that some people would lose from free trade, even if the pie was made bigger, and said they should be compensated. But that never happened. And unless something sort of large-scale social assistance programme like a basic income is passed, it seems unlikely to occur. The effects we're seeing of a diminishing popular belief in the old trade order could be interpreted as a consequence of this. In effect, those who feel they have lost from the current trade order now hold a veto over it. Business cannot make supply chain plans which can be disrupted every few years by an election or referendum.

The current US administration seems to be in agreement with China on one particular aspect of trade policy. Trump prefers unilateral or near unilateral deals. He doesn't want to make trade deals with large numbers of other countries. Why? China probably understands. Yang Jiechi, then Foreign minister for China, said in 2010, 'China is a big country and other countries are small countries, and that's just a fact.'



Ian Welsh

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America is a big country, and that's just a fact. When America negotiates with smaller countries, one on one, or one on two as with the NAFTA renegotiations, it gets what it wants because it is capable of exerting greater influence. What Trump wanted, as it turns out, was a clause which said that Mexico and Canada couldn't make trade deals with non-free economies without the approval of the other members. 'Non-free' in this context was widely understood to be referring to China. So, Trump wants trade deals which clearly benefit the United States, does not believe that all trade deals are good, and wants to make deals where he is dealing with one or a very few countries over which he believes the US can exert greater influence. He is backed by a part of the American population deeply suspicious of free trade.

China, meanwhile, has been working on the Belt and Road Initiative. BRI is not just concerned with ports, roads, and railways, although it is actively pursuing deals which allow goods to flow into and through countries. For example, the northern belt portion promises 'one declaration, one inspection, one cargo release' for cargo shipping all the way from China, through multiple countries, to the European Union.

This is a trade area in all but name. The initial negotiations have been multilateral, but the sheer number of nations involved in the Belt & Road Initiative suggests that it has the possibility of becoming a rival to the WTO; a true multilateral trade area. When the EU, all the nations between China and the EU, the nations near China, and many African and even South American countries are added in, this will be a formidable trade area.

Such a trade area doesn't exist yet, but when you consider the aspirations of BRI, it is clear that it could exist. Should

it happen—and there are good reasons to believe it will—the trade area created by the Belt & Road Initiative will likely lack the full depth of what the WTO offers. However, it will still be a vast trade area, and all the appurtenances can be added in time. Given the failure of the Doha round of the WTO, it would seem a sensible course of action for China to create its own system. In multilateral negotiations with all WTO members, there is little chance of China molding the WTO to its preferred image.

Since the current world trade system is seen by many domestic voters in the US (and Europe) as having hurt them, the world finds itself in a position where the current influential trading powers are no longer entirely committed to the trade system they created, while the rising powers, such as China, do not see why they should support a system which was not set up to serve their interests but, rather, was set up by powers which they feel have not given them due regard within living memory.

America has started forcing other nations to choose. Mexico and Canada were easier to convince to align with American positions, largely because of proximity and because they are so dependent on American trade. There was little doubt in the outcome. China has tried to position itself to avoid forced choices of this variety. However, if the US continues down this route, treating China as an adversary, China will have little choice but to respond in kind. The world will split into two trade systems. Likely there will be two major payments systems as well. In some respects, this will resemble the old Cold War world, except that China is a mixed market system.

There will be a choice between two systems, with a slight chance of there being a third system functioning as a neutral

bloc. If such a neutral bloc is established, it will most likely be led by Europe (although Japan may also seek neutrality). Both are firmly in the American bloc currently. But with many European states concerned over such American shifts in policy as the re-imposition of sanctions on Iran, and with Japan's vast business interests linked to China, it is not impossible that they could view deepening trade ties with China, the rising power, as preferable.

There is certainly no guarantee that events will play out in this way. But consider this: if you were a company making long-term plans, would you trust that a trade war could not happen? Would you be comfortable with a supply chain substantially based in China (if your company was American) or based in America (if Chinese)?

That, I would suggest, is what decision makers should consider. What is the risk of such an arrangement, and how much damage could it do to your company if it came to be? Alternatively, is there a way to take advantage of this? Change always provides opportunity.

It seems like there will be technical interoperability between payment systems and in that sense the risk is not great, but in a two-system world supply chains look very different than they do today. Those with production located in the other bloc may find themselves in financial, and even personal, danger if either bloc decides to use legal sanctions.

Certainly, it is not impossible that a new trade order with two principal zones will not come to pass, and that the old order could reestablish itself over time. But how much risk is entailed in assuming that it will, and not taking steps now to prepare for navigating it gracefully?

IAN WELSH

Ian Welsh is a writer, editor, and social media consultant. He has written for Huffington Post and a number of online blogs and journals. An anthology of Ian's essays, *It Doesn't Have To Be This Way*, was released this year. His work has covered such issues as the economy, the

housing bubble, and financial crisis of the 2000s. In particular, he focuses on the ways in which ideologies and ideas interact with economic reality. He is based in Toronto, Canada.