

Inheriting USDs & Acquiring BTCs

How “The Great Wealth Transfer” Will Fuel “The Great Bitcoin Adoption”

March 2020

INTRODUCTION

Bitcoin is so multifaceted, complex, and intriguing that it can be referred to as the “Great Educator.” Mathematics, encryption, monetary economics, game theory, networking, and many more disciplines are prerequisites to understanding it in its entirety. Although bitcoin is a phenomenon that only a polymath could fully grasp, such complexity has yet to thwart off its use and/or ownership. The data not only supports that adoption remains robust, but also that the generations of tomorrow, namely Millennials and Generation X, will champion the next wave. This is particularly conspicuous when considering both generation’s beliefs, preferences, and expectations, which align with the very fundamentals of bitcoin. Coupling this dynamic with the imminent “Great Wealth Transfer,” the most significant wealth transfer that the US and world have ever seen, there is a tremendous amount of wealth that bitcoin stands to capture in the decades ahead. Using conservative assumptions, we attempt to quantify the impact of this massive demographic shift in the United States. Because of the United States’ relevance in the crypto-asset industry, as well as the breadth and quality of readily available data, we’ve focused exclusively on the US market in this discussion. We view our analysis as a potential proxy for global adoption.

Over the next several decades, bitcoin will traverse through its Adoption Phase, a period where new users and investors onboard to the bitcoin network. During this period, the United States will undergo an estimated intergenerational wealth transfer of \$68.4 trillion, a potential tailwind for bitcoin adoption due to this once-in-a-lifetime demographic shift. We’ve calculated that Millennials (ages 24 to 39) and Generation X (ages 40 to 55) could drive nearly \$1T or more of wealth into bitcoin over the next 25 years as both generations embrace the emerging technology and asset class. In sum, the generations of tomorrow will one day look back and recognize the forthcoming decades as “The Great Bitcoin Adoption.”

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DISCLOSURES

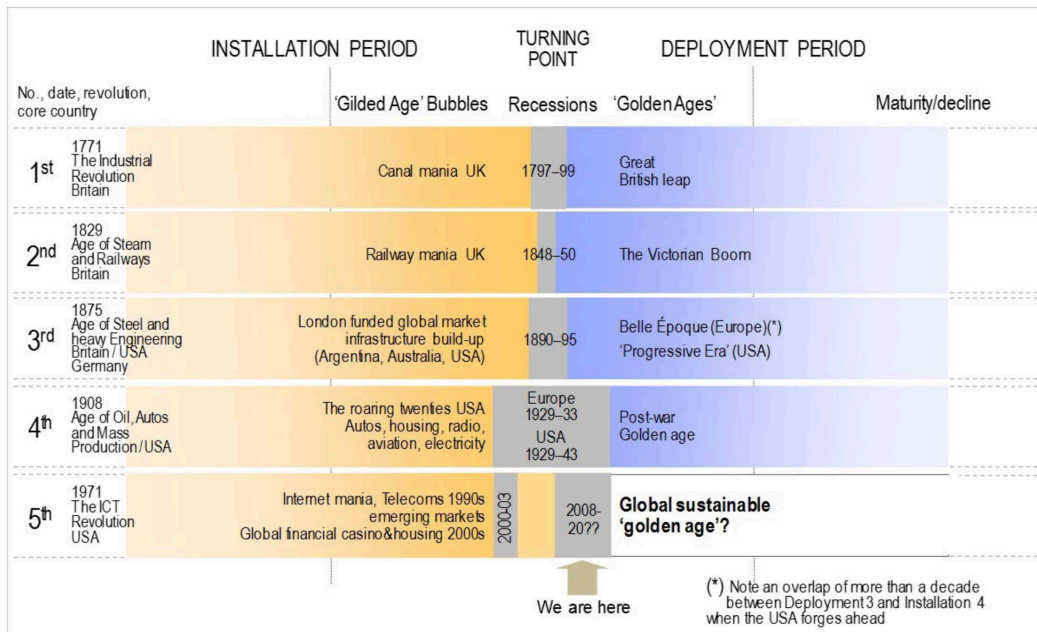
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I. Bitcoin Is Here To Stay

No, It's Not A Fad

Irrespective of bitcoin's ebb and flow, it remains an ever-present topic of discussion. Despite healthy skepticism, it has yet to deter believers. Bitcoin and the broader crypto-asset market are prone to the same shortcomings that the most impactful technological innovations have faced over centuries, including the "railway mania" and the "internet mania."¹ These innovations were initially met with an influx of capital and overestimations of what could be achieved in the short-term that eventually led to irrational exuberance and a market bubble. The innovation's rise and fall served as a crutch for naysayers to dismiss their usefulness and true promise. But, their disruptive potential was too much to be ignored and mass adoption became inevitable.

Figure 1: The historical record: bubbles, recessions and golden ages



Source: Carlota Perez

It may not help that bitcoin is, for now, complicated, nascent, volatile, and widely misunderstood; however, as with other disruptive technological breakthroughs, adoption has not let up even in the face of adversity. At the end of the day, innovation, productive capital, and time will conquer all.

Up & To The Right

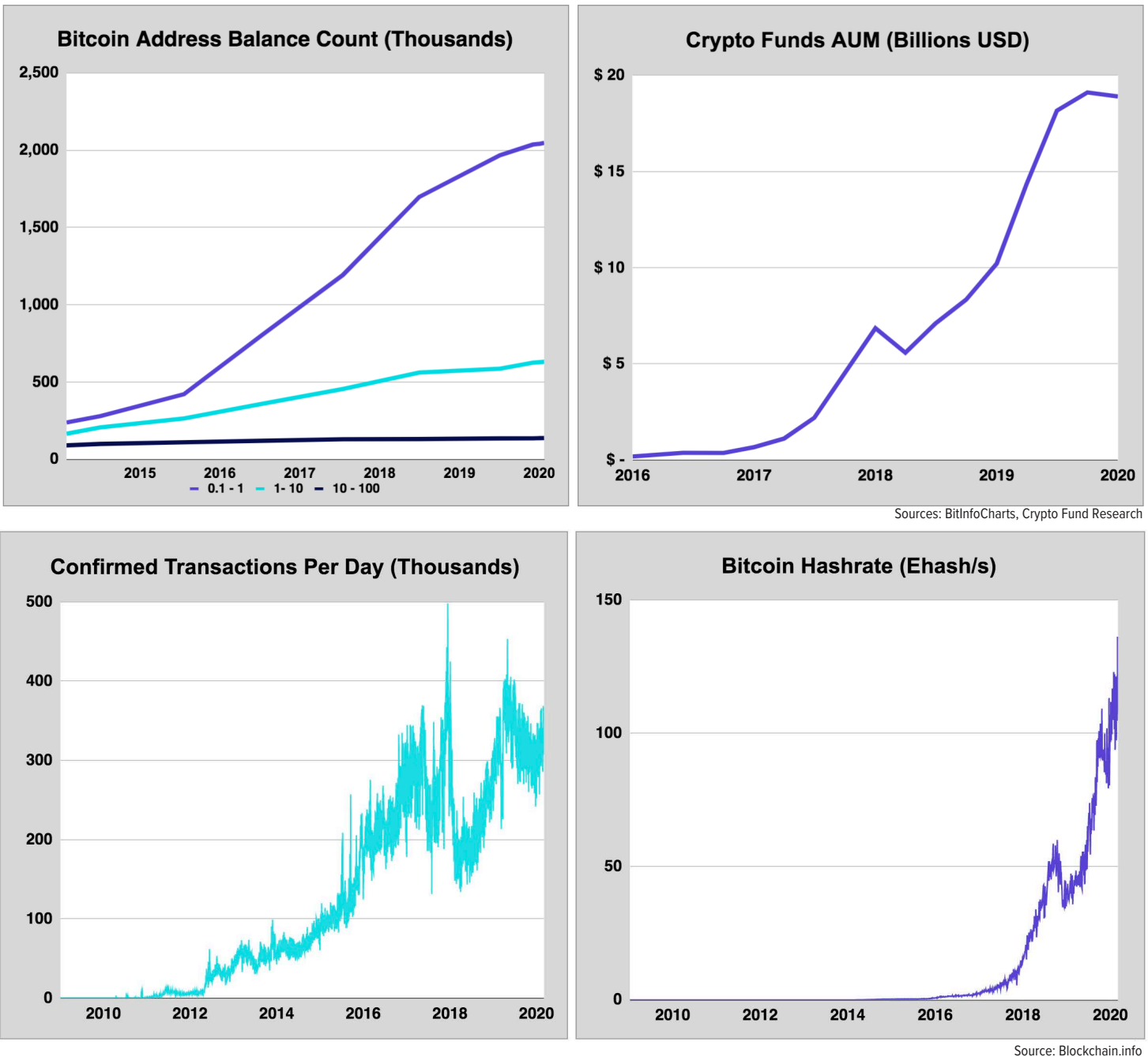
As of September 2019, 81% of Americans have heard of bitcoin, up from 60% in January 2018.^{3,4} Despite the booms and busts, bitcoin continues to attract a global following. In the 11 years since the whitepaper was released, bitcoin has gone from an underground financial experiment in response to the Global Financial Crisis to one of the most significant financial and technological innovations. Never before have we been able to freely store, send, and receive our wealth from or to anyone around the world, at any time, for next to nothing, and without reliance on a third party. Never before has an alternative money existed that isn't at the mercy of centralization, intervention, or forgery.

To put things into perspective, consider that the number of wallets containing between ₿0.1 and ₿1 has grown from nearly 240,000 in 2014 to more than 2,000,000 as of January 2020.⁵ Also, since 2016 the industry's assets under management (AUM) has soared nearly

1. Private Debt Project (<https://privatedebtproject.org/view-articles.php?Financial-Bubbles-and-Technological-Innovations-33>)
 2. Second Machine Age or Fifth Technological Revolution? (Part 2) (<https://medium.com/ljpp-blog/second-machine-age-or-fifth-technological-revolution-part-2-d842863a8df8>)
 3. YouGov (<https://today.yougov.com/topics/finance/articles-reports/2019/09/24/cryptocurrency-bitcoin-americans-millennials-poll>)
 4. Tech Crunch (<https://techcrunch.com/2018/01/23/study-6-in-10-americans-have-heard-about-bitcoin/>)
 5. BitInfoCharts (<https://bitinfocharts.com/top-100-richest-bitcoin-addresses.html>)⁶

100x from \$190M to \$18.9B.⁶ In terms of network activity, the number of daily confirmed bitcoin transactions has leaped from less than 100 in 2009 to more than 320,000 in 2020; the network’s hash rate has also surged more than 970,000,000% between 2011 and 2020 and hit an all-time high on March 1st, 2020.⁷

Figure 2: Bitcoin address balance count, crypto funds AUM, daily confirmed bitcoin transactions, bitcoin hashrate

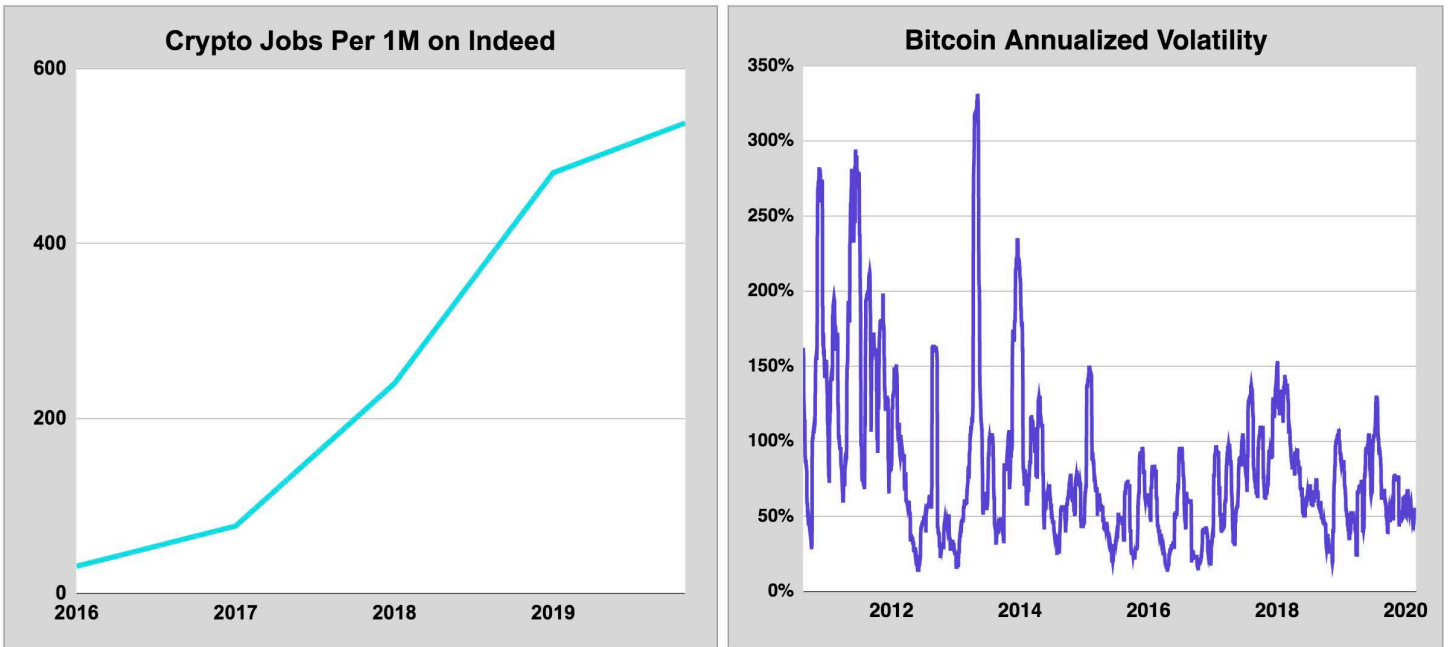


The growth isn't only apparent by the number of wallets, assets under management, transactions per day, and hashrate, but also by the surge in career opportunities. Between September 2015 and September 2019, the number of crypto jobs on Indeed.com grew by 1,457%.⁸ In short, the juxtaposition of bitcoin's growth and (declining) volatility cements the notion that bitcoin isn't just here to stay, but that it is spreading, maturing, and growing exponentially.

6. Crypto Fund Research (<https://cryptofundresearch.com/cryptocurrency-funds-overview-infographic/>)
 7. Blockchain.com (<https://www.blockchain.com/charts>)

8. Seen by Indeed (<https://www.beseen.com/blog/talent/bitcoin-job-market-2019-beyond/>)

Figure 3: Crypto jobs per 1M on Indeed, bitcoin annualized volatility



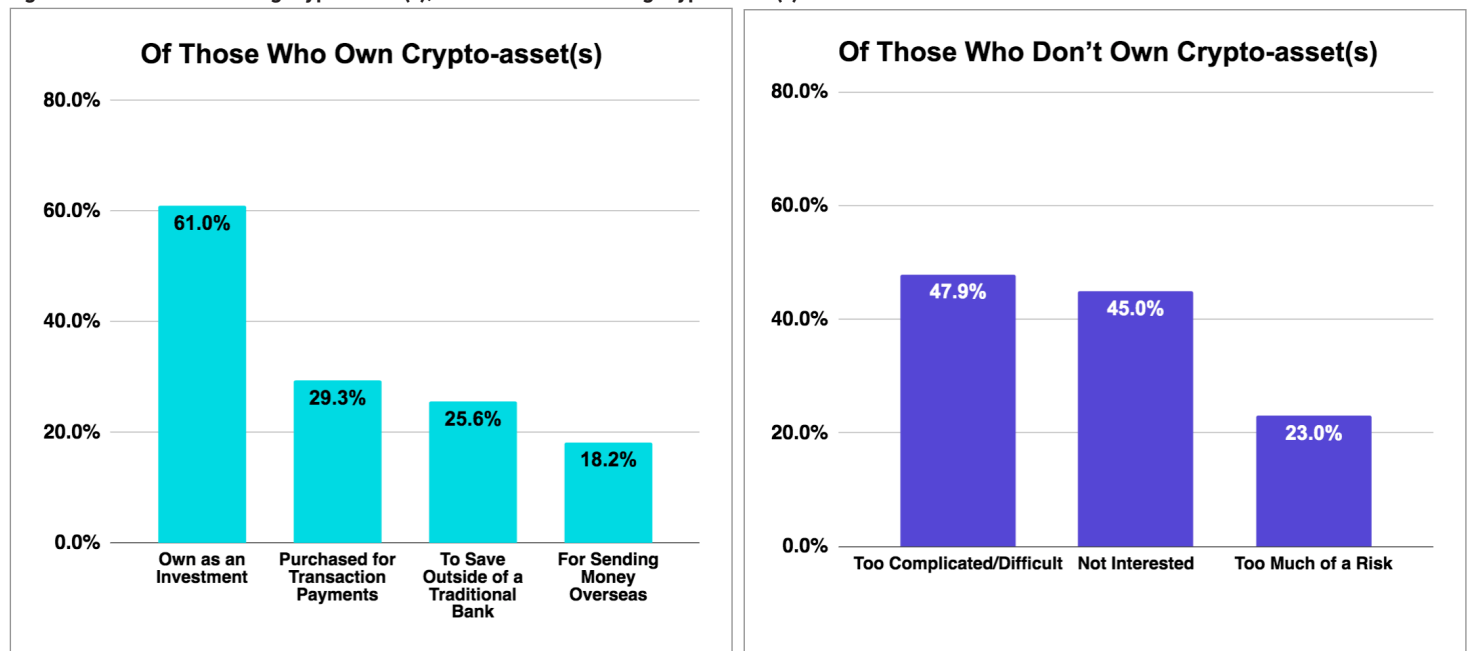
Sources: Indeed, Kraken

The Hard Numbers

A number of surveys were published in 2019 that quantify the number of US crypto-owners, their demographics, and the reasons why they may or may not own bitcoin and other crypto-assets. For example, an April 2019 survey of 2,029 American adults by Blockchain Capital found that 9% of Americans owned bitcoin.⁹ This compares to 14.76% of adults having purchased crypto-assets in the last year according to a September 2019 survey of 1,262 US adults by YouGov and 14.4% of Americans having owned crypto-assets per an October 2019 survey of 2,068 US by Finder.^{10,11} Said differently, between 9% and 15% of American adults owned bitcoin in 2019.

Although said range is likely to come as a surprise to an outsider looking in, there is more beneath the surface that proves that bitcoin is a "demographic mega-trend," as coined by Spencer Bogart of Blockchain Capital. Consider the results from Finder's *A Rising Number of Americans Own Crypto* survey:

Figure 4: Reasons for owning crypto-asset(s), reasons for not owning crypto-asset(s)



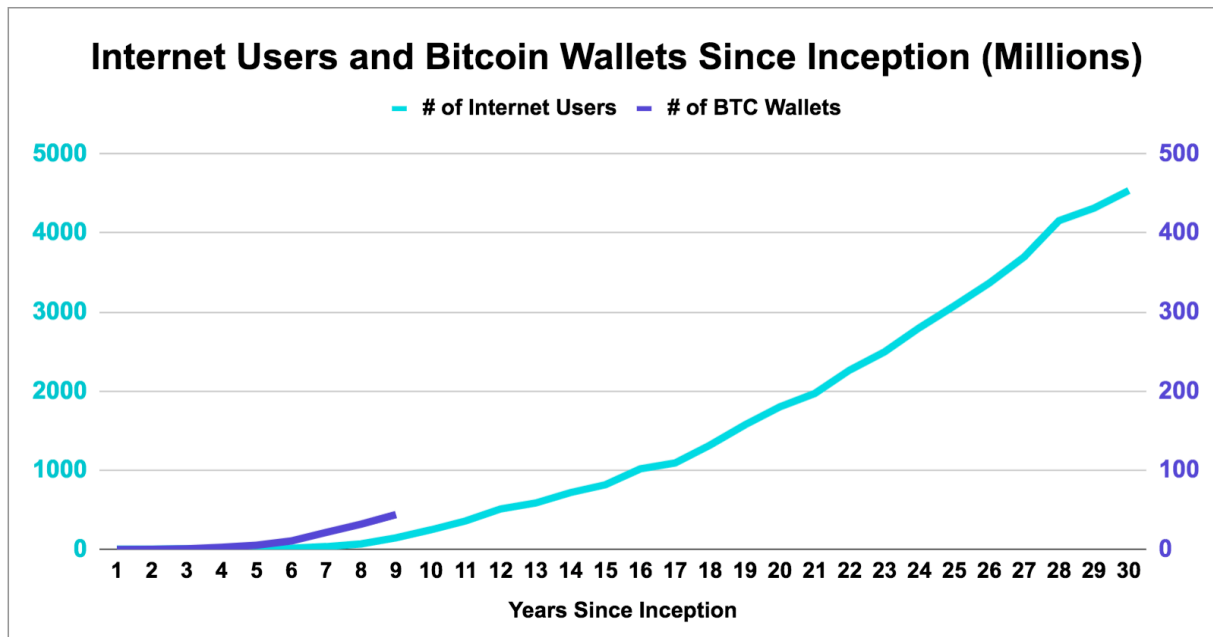
Source: Finder

9. Blockchain Capital (<https://medium.com/blockchain-capital-blog/bitcoin-is-a-demographic-mega-trend-data-analysis-160d2f7731e5>)
 10. YouGov (<https://today.yougov.com/topics/finance/articles-reports/2019/09/24/cryptocurrency-bitcoin-americans-millennials-poll>)
 11. Finder (<https://www.finder.com/how-many-people-own-cryptocurrency>)

Of those who own crypto-assets, 61% said they owned it as an investment, roughly 30% purchased crypto-assets to transact with, just under 26% stated a desire to save money outside of a traditional bank, and more than 18% indicated that they owned crypto-assets for remittance purposes. With respect to those who don't own crypto, nearly 48% of responses stated that it's too complicated or difficult to understand, 45% of responses indicated that they're not interested, and/or 23% of responses expressed that crypto-assets were too much of a risk.¹²

Despite prevalent ownership and a favorable perception by many, bitcoin's adoption remains hindered by beliefs that bitcoin is too complicated, risky, or of little interest. Although these are currently barriers to incremental ownership and/or use, they're not unique to bitcoin. Take for example TCP/IP, the underlying protocol that fuels the world wide web. The birth of this innovation in 1983 was initially plagued by skeptics who believed it was too complicated, difficult to understand, and likely to be of little interest to most. Critics believed that while a global network was inevitable, TCP/IP as a protocol did not have the corporate backing, design, features, and scalability needed. After the creation of the world wide web in 1989, the average person's understanding of the internet evolved such that: (1) its intricacies became common knowledge; (2) an advanced understanding was no longer a prerequisite; and/or (3) its value proposition was blatant. In 1990, it was estimated that 0.5% of the world's population was online. As of June 2019, this figure has ascended to 58.8%, or more than 4.5B users worldwide.¹³ The growth trajectory of the number of bitcoin wallets since 2011 is tracking similarly to that of the number of internet users since 1990, suggesting that bitcoin's value is also being discovered and leveraged at a similar rate.

Figure 5: Internet users and bitcoin wallets since inception (millions)



Note: Data is as of 1990 (internet), 2011 (bitcoin wallets)

Sources: Blockchain.info, Internet World Stats, Our World in Data

A separate survey by YouGov found that older generations possessed a less favorable view of bitcoin than Millennials and Gen Xers. While the survey concluded that 81% of US adults were familiar with at least one type of cryptocurrency, bitcoin being the most popular at 75%, approximately 55% of Millennials and 41% of Generation X familiar with at least one cryptocurrency voiced their belief that cryptocurrencies will become “very” or “somewhat” widely accepted for legal transactions before 2030.¹⁴

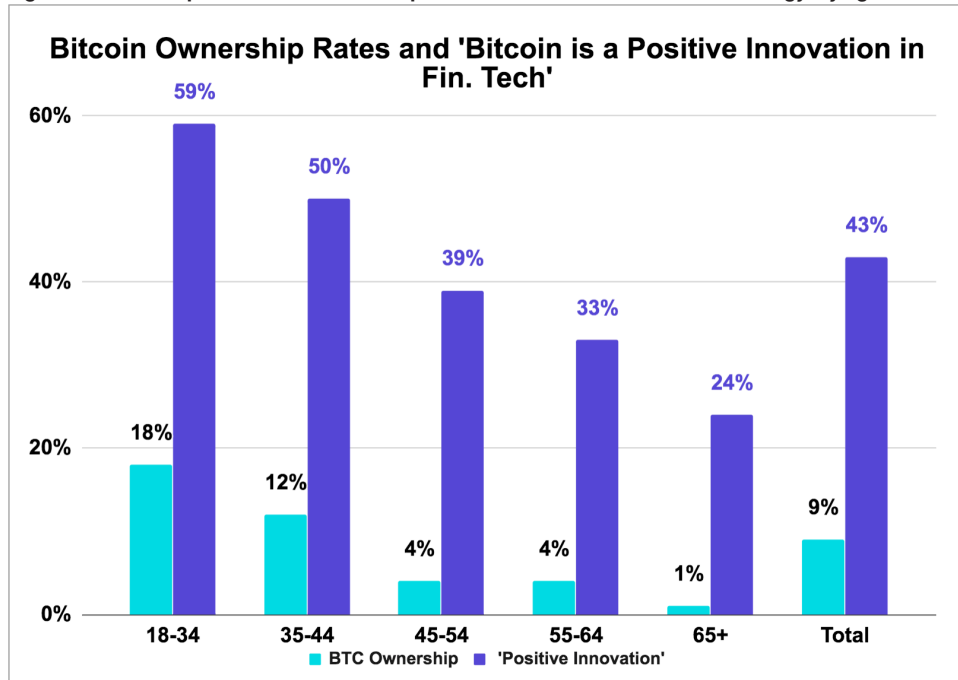
Blockchain Capital found similar results - younger generations in the US don't just possess a positive view of bitcoin, but they're more involved and invested. In the Spring of 2019, almost 60% of those aged 18-34 'strongly' or 'somewhat' agreed that bitcoin is a positive innovation in financial technology and 18% owned said innovation. Of those between the ages of 35 - 44, 50% 'strongly' or 'somewhat' agreed that bitcoin is a positive innovation while 12% were owners. For those between 45 - 54, these figures were 39% and 4%, respectively.

12. Our World In Data (<https://ourworldindata.org/internet>)

13. Internet World Stats (<https://www.internetworldstats.com/emarketing.htm>)

14. YouGov (<https://today.yougov.com/topics/finance/articles-reports/2019/09/24/cryptocurrency-bitcoin-americans-millennials-poll>)

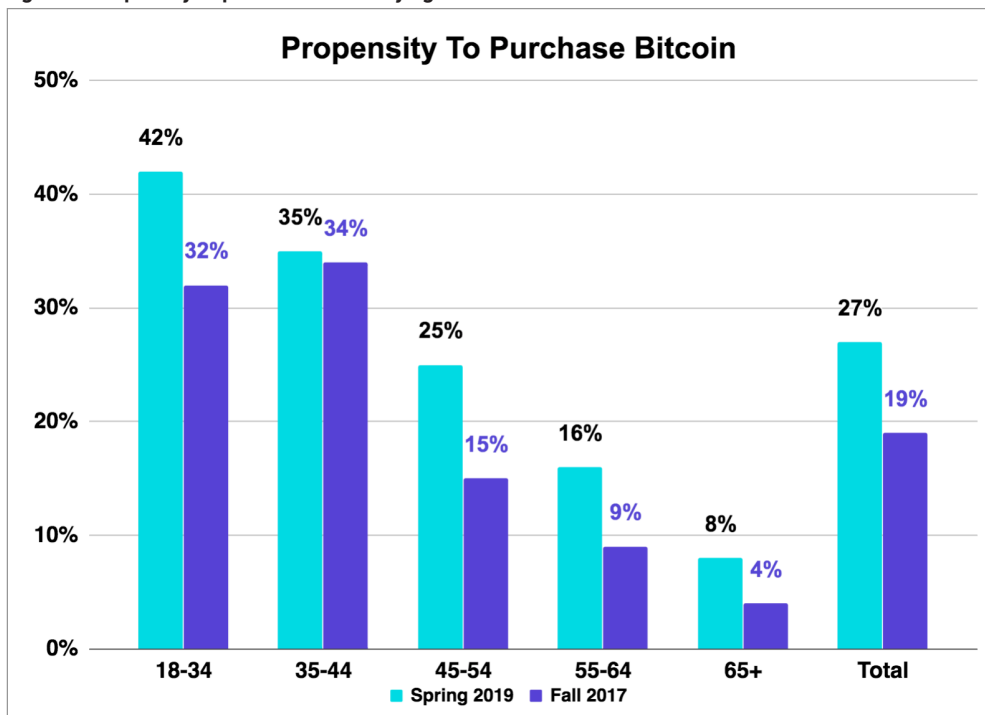
Figure 6: Ownership rates and 'Bitcoin is a positive innovation in financial technology' by age



Source: Blockchain Capital

When asked about their propensity to purchase bitcoin, 42% of respondents between 18-34 said it was “very” or “somewhat” likely that they’ll purchase bitcoin in the next 5 years, a figure that grew meaningfully in less than two years’ time. When those between the ages of 35-44 and 45-54 were polled, the result was 35% and 25%, respectively. Although posting impressive growth since 2017, those aged 55 and older represented a marginal proportion of potential purchasers.¹⁵

Figure 7: Propensity to purchase bitcoin by age



Source: Blockchain Capital

Additionally, Charles Schwab’s SDBA Indicators Report, a well-respected industry benchmark on retirement plan participant investment activity within self-directed brokerage accounts (SDBAs), showed in December 2019 that Millennials already have a head start. According to the report, Grayscale’s Bitcoin Trust ranked 5th as Millennials’ top holdings as a percentage of assets held in equities.¹⁶

15. Blockchain Capital (<https://medium.com/blockchain-capital-blog/bitcoin-is-a-demographic-mega-trend-data-analysis-160d2f7731e5>)

16. Charles Schwab (<https://pressroom.aboutschwab.com/press-release/schwab-corporate-retirement-services-news/schwab-report-self-directed-401k-balances-ho>)

Figure 8: Charles Schwab SDBA indicators report

MILLENNIALS		GEN X		BABY BOOMERS	
AMAZON.COM INC	7.87%	APPLE INC	10.52%	APPLE INC	9.19%
APPLE INC	6.18%	AMAZON.COM INC	7.16%	AMAZON.COM INC	5.32%
TESLA INC	3.22%	BERKSHIRE HATHAWAY	2.37%	BERKSHIRE HATHAWAY	2.75%
FACEBOOK INC	3.03%	FACEBOOK INC	2.26%	MICROSOFT CORP	2.69%
GRAYSCALE BITCOIN TRUST	1.84%	MICROSOFT CORP	2.16%	FACEBOOK INC	1.43%
BERKSHIRE HATHAWAY	1.73%	TESLA	1.45%	VISA INC	1.25%
WALT DISNEY CO	1.68%	ALPHABET INC.	1.30%	ALPHABET INC.	1.23%
NETFLIX INC	1.58%	NETFLIX	1.29%	AT&T INC	1.17%
MICROSOFT CORP	1.53%	ALIBABA GROUP HOLDING	1.23%	BOEING	1.08%
ALIBABA GROUP HOLDING	1.39%	VISA INC	1.23%	ALIBABA GROUP HOLDING	0.98%

Source: Charles Schwab

All things considered, the data suggests that a disproportionate percentage of the Millennials and Gen X will continue to be the driving force of adoption for the foreseeable future. While this can be explained in part by the fact that both generations harness a greater technological competence than their elders, we should also consider that bitcoin’s current volatility is unsuitable for individuals nearing or in retirement. Adoption will not only be influenced by generational beliefs, experiences, preferences, but also an individual’s needs and circumstances. Bitcoin isn’t for everyone, just yet.

II. Generations Primed For Bitcoin Adoption

Generation X (1965 - 1980)

Generation X, also known as the “latch key generation” for growing up when societal values were shifting to less adult supervision, is the first generation to grow up alongside computers. They witnessed technology take over and become embedded in their day-to-day lives. This generation’s ability to be flexible and self-reliant has allowed them to quickly adapt to change; their life experiences have also brought them to the realization that things don’t always go according to plan. They grew up witnessing the Watergate scandal of the 1970s, the tough economic times in the 1980s, and their initial earnings power and savings compromised first by the dotcom bust, and second by the Global Financial Crisis. As a result, this generation has developed a casual disdain for authority.^{17,18}

A majority of Generation X is accustomed to doing tasks online and want more technology-based tools to monitor their financial affairs. Also, they’re the least likely to consider themselves as conservative investors. One in four Gen Xers trust financial services and only half trust financial advisors, making them the least likely generation to have a financial advisor. Previous generations had the safety net of pensions and Social Security, but Gen Xers are reluctant to count on either.¹⁹

The Millennials (1981 - 1996)

Millennials are the very first digitally native generation. They have a distinct set of expectations, such as augmented communication, transparency, and convenience; they expect readily accessible products and value mobility. Being able to connect with digital resources and accomplish work while traveling is a growing trend and of great desire.²⁰ Millennials also have an innate preference for tech-driven products, services, and solutions. Similar to Generation X, this generation has a collective distrust in banks and corporations after growing up during the tech bubble in the early 2000s and the Global Financial Crisis in 2008. This generation is the “Occupy Wall Street” cohort.

Their preferences have pushed them towards online investment clubs, fintech services (Robinhood, Venmo, etc.), and robo-advisors. However, they’re under-invested and have decided to push off major life choices, such as marriage, children, and college. Millennials seem to prefer receiving information from social media, which means they can participate without relying on traditional financial outlets, a financial advisor, or an institutional analyst’s view of the market.²¹

17. Investopedia ([investopedia.com/terms/g/generation-x-genx.asp](https://www.investopedia.com/terms/g/generation-x-genx.asp))

18. The Balance Careers (<https://www.thebalancecareers.com/common-characteristics-of-generation-x-professionals-2164682>)

19. Ameriprise Financial (<https://www.ameriprise.com/retirement/insights/ameriprise-research-studies/genxretirement/?vanity=genxretirement>)

20. Apta (<https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>)

21. PwC (<https://www.pwc.com/us/en/industries/financial-services/library/managing-millennial-money.html>)

Most importantly, Millennials understand the notion of “digital scarcity,” or goods and/or services that are digital in nature but limited in supply. The idea of purchasing a digital item or service that is confined to a particular network or service is widely accepted among this “early adopter” generation. Consider that two-in-three US Millennials regularly play video games and have an average monthly spend of \$72 on game downloads/subscriptions and \$22 on in-game content. In-game content purchases include virtual items, such as costumes for Fortnite characters and “skins” for multiplayer online battle arena games, like League of Legends. In a little over five years, it’s estimated that the global virtual goods market value will reach nearly \$190B, up +500% from \$38B in 2017.^{22,23}

It Will Happen...

The preferences, experiences, and expectations of both generations align with the fundamental characteristics of bitcoin: an alternative to banks & government control, mobile, scarce, digital, and readily accessible. Both generations also understand that challenges must be overcome before massive innovations come full circle - they’ve witnessed it first hand. They’re also acutely skeptical of centralized authority and power; when given the option, they’ll choose to go out on their own terms.

Furthermore, as Millennials and Generation X traverse through major life events and come of age over the decades ahead, this passage of time also brings the accumulation and inheritance of wealth. Over the next 25 years, both generations will participate in the largest transfer of wealth the world has ever seen, or what is commonly being referred to as “The Great Wealth Transfer.”

III. “The Great Wealth Transfer”

Over the next few decades, Cerulli Associates estimates that more than \$68T of US wealth is expected to change hands and mark the largest wealth transfer in history; \$38T of which will be inherited by Generation X and the remaining \$30T by the Millennials.²⁴ Given what we know about both generations and the fact that over the next couple of decades they’ll be entering full-swing into adulthood, one can expect some percentage of this newly acquired wealth to be allocated in accordance with their own preferences, desires, and beliefs. Suffice it to say, how they distribute their wealth will be distinctly different than their elders.

Not only does this trickle-down of wealth mean that two maturing generations have the luxury of allocating their wealth in accordance with their world views, but they can take risks that older generations couldn’t because of their retirement status. With this generational shift in beliefs and risk will come the need for wealth managers and advisors to adapt to a new type of consumer. Currently, 66% of children fire their parents’ financial advisor after they receive an inheritance. Affluent investors between the ages of 35 and 51 represent approximately 40% of users on digital wealth manager platforms, compared to 20% for millennials.²⁵

While we should expect and brace for the repercussions of prolonged negative interest rate policies, exuberant fiscal deficits, increased populism, and greater surveillance in the decades ahead, we might also expect a greater awakening towards bitcoin’s ability to navigate through said issues. With this awakening will come the need for traditional financial services to consider and/or support a bitcoin offering, a potentially significant tailwind for broader bitcoin adoption as well. Who is better positioned to connect the dots, adopt, and embrace bitcoin than two of the most technologically adept, open-minded, disgruntled, and soon to be richest generations than Generation X and the Millennials? No one.

IV. Quantifying The Impact

Given what we know about bitcoin’s growth, the Millennials, Generation X, and “The Great Wealth Transfer,” we can take a view on the wealth that bitcoin could capture over the next several decades. Several factors will impact an heir’s decision on how their wealth is used, but conservative assumptions can still be made. In quantifying this potential flow of wealth into bitcoin, we considered: (1) the adoption rate of innovative technology; (2) the rate of wealth inheritance; and (3) the expected average allocation of wealth to bitcoin in 2044, or “peak allocation.”

22. SuperData (<https://www.superdataresearch.com/millennials/>)

23. Android Market Research (<https://www.androidmarketresearch.com/press-release/virtual-goods-market>)

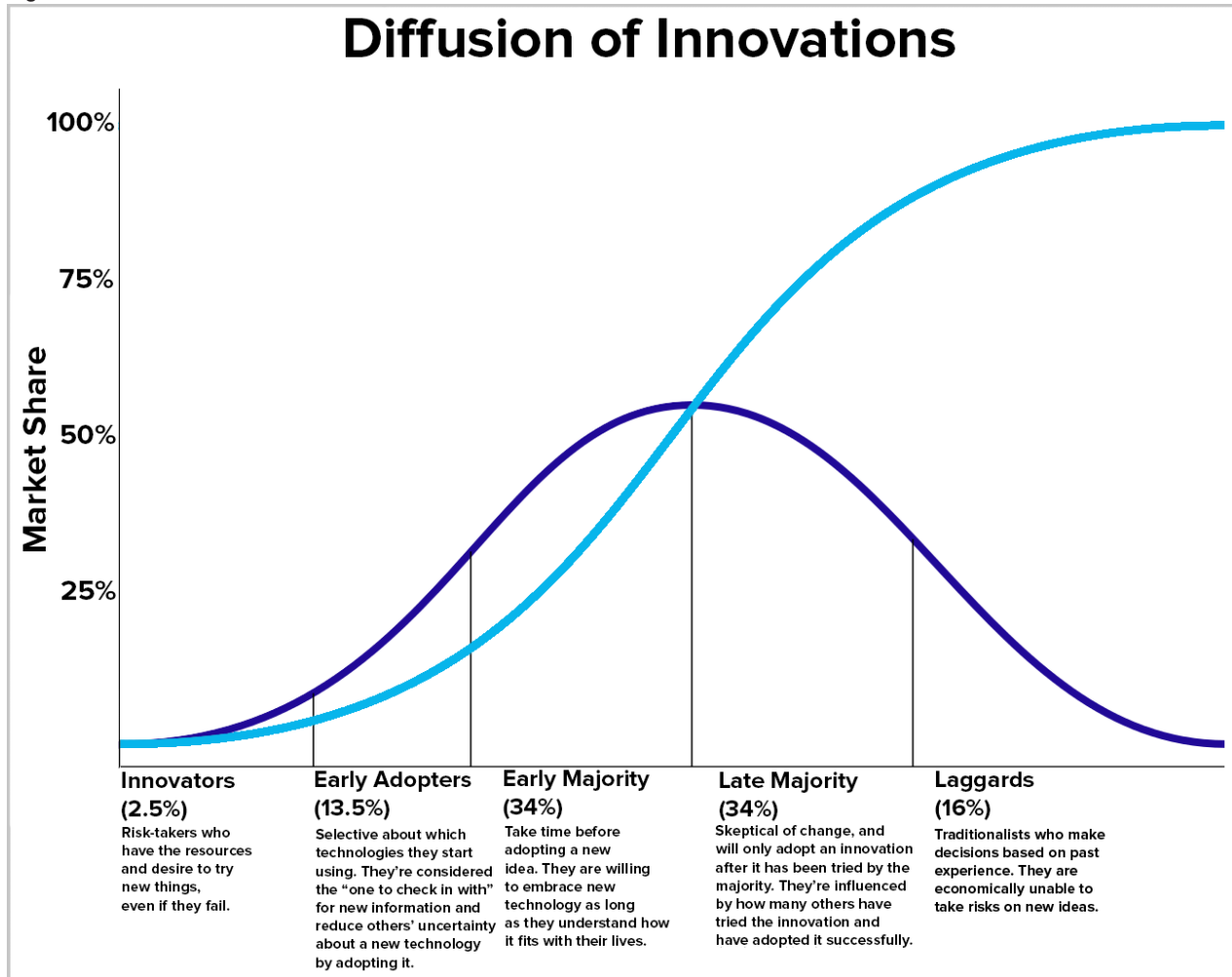
24. Cerulli Associates (<https://info.cerulli.com/HNW-Transfer-of-Wealth-Cerulli.html>)

25. InvestmentNews (<https://www.investmentnews.com/the-great-wealth-transfer-is-coming-putting-advisers-at-risk-63303>)

Adoption & Diffusion of Innovations Theory

The Diffusion of Innovations theory, also known as the Technology Adoption Lifecycle, was popularized by Everett Rogers in his 1962 book Diffusion of Innovations.²⁶ The theory states how, why, and at what rate new ideas and technology gain momentum and diffuse. The rate at which a new innovation is adopted forms an S-curve when plotted over time. When analyzing the widespread growth and acceptance of some of the most transformative innovations over the last 100 years, said concept holds.

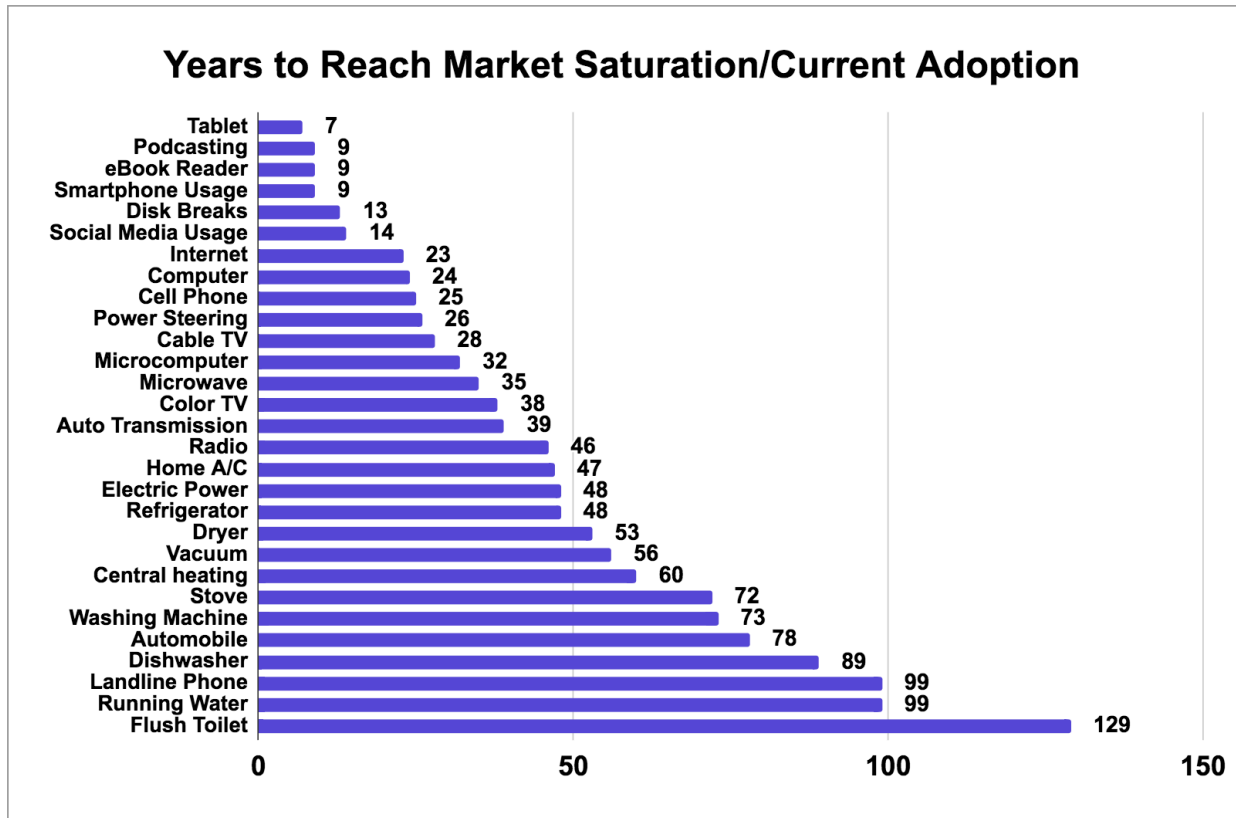
Figure 9: Diffusion of innovations



Over the last century, the number of technological innovations that garnered rapid momentum and, as a result, massive success are numerous. However, it's important to acknowledge that the rate at which successful innovations reach/approach market saturation *continues to accelerate*. Per figure 10, the speed at which the Internet reached mass adoption was decades faster than landline telephones. The internet, cell phones, and computers took on average 24 years to reach market saturation, compared to 38 years for the color TV, 46 years for the radio, 48 years for electric power, and 99 years for landline telephones.

26. Boston University (<http://sphweb.bumc.bu.edu/otl/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html>)

Figure 10: Years to reach market saturation/current adoption by technological innovation



Source: Our World in Data

This remarkable and rapid growth in innovation over the past century can largely be explained by *The Law of Accelerating Returns*, a theory famously developed by Ray Kurzweil, which explains why technological, as well as biological, advancements grow exponentially.²⁷ This concept is similar to *Moore’s Law*, the idea that the number of transistors on a microchip doubles every two years while the cost of computation is halved, which rang true for 50+ years and largely explains the explosive growth in the current *Information Age*.²⁸ That said, we shouldn’t be surprised that bitcoin’s accelerating growth is associated with the rapidly declining cost of internet connection. Not to mention, the fact that anyone can join, transact, and/or participate on the bitcoin network for free at any time has also had a profound impact on adoption. Consider that since 2011, the percentage of the world connected to the internet has soared from 30% to 59% as of January 2020.²⁹ Meanwhile, the average price of a smartphone has fallen -38.4% to \$214.70.³⁰

The rapid acceleration of adoption among innovative technologies is often described as an S-shaped curve, or a sigmoid curve. That is, adoption is initially slow and steady but reaches a tipping point and catapults into hypergrowth before eventually leveling off. The S-curve manifests through “adoption waves,” or sequential periods of time when groups of users adopt the innovation. The essence of an S-curve lies in the variation among each adopting group’s size, values, and reasons for adoption. The faster that any one of these groups adopts new technology, the steeper the curve becomes.

Bitcoin is certainly no stranger to the S-curve and accelerating growth. More often than not, we can see an S-curve when analyzing various network metrics across different time horizons, such as the number of bitcoin wallets, the size of the blockchain, the number of daily transactions, and even price.

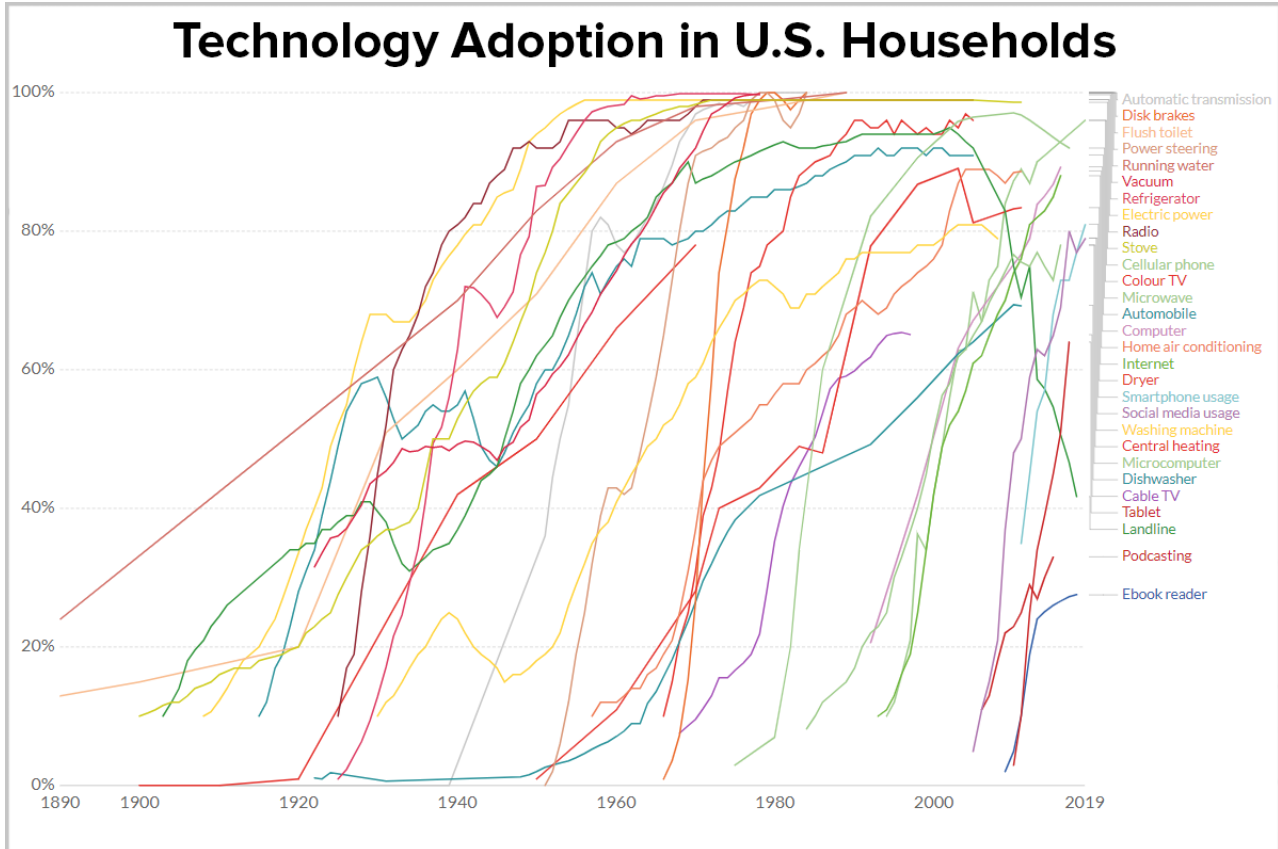
27. Kurzweil AI (<https://www.kurzweilai.net/the-law-of-accelerating-returns>)

28. Intel (<https://www.intel.com/content/www/us/en/silicon-innovations/moores-law-technology.html>)

29. Statista (<https://www.statista.com/statistics/269329/penetration-rate-of-the-internet-by-region/>)

30. Statista (<https://www.statista.com/statistics/484583/global-average-selling-price-smartphones/>)

Figure 11: Adoption rates, measured as the percentage of households in the US using a particular technology



Source: Our World in Data

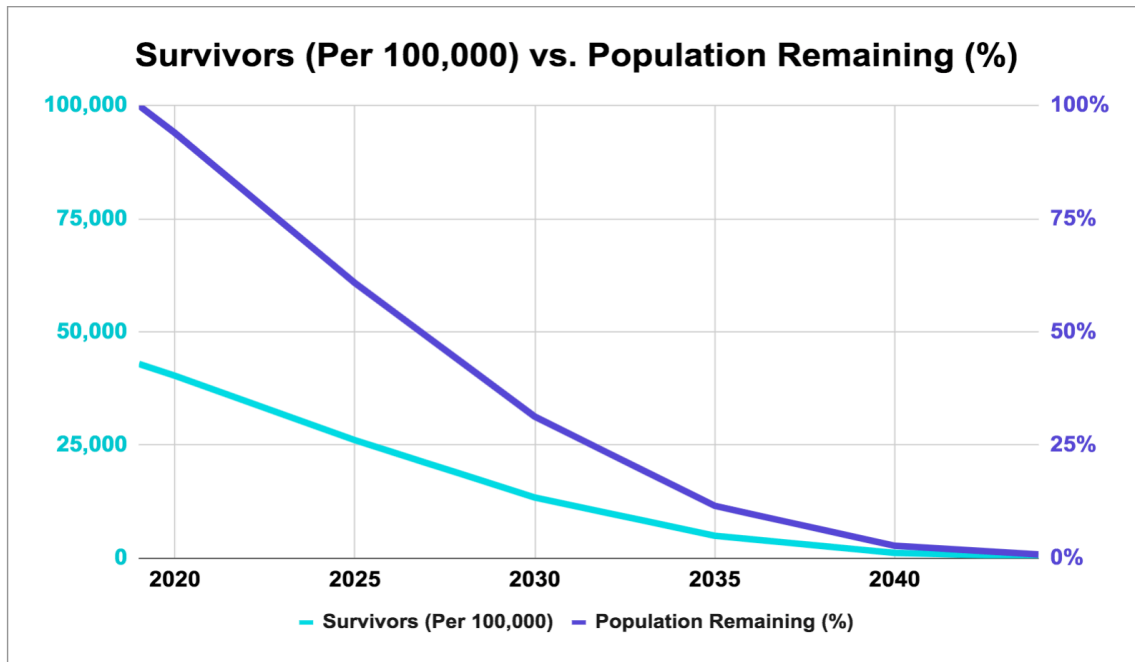
Because the root of bitcoin’s growth is incremental demand, we posit that *as bitcoin matures and the Millennials and Generation X inherit their wealth, the average annual percentage of wealth that flows into bitcoin will also follow an S-curve*. This means that bitcoin’s adoption, or the act of owning, purchasing and/or using bitcoin, and its growth are reflexive - presenting a network effect and a positive feedback loop. New users will result in greater adoption, and greater adoption will result in new users. Assuming this trend holds true, a greater percentage of inherited wealth will flow into this emerging asset class over time as it becomes increasingly understood, appreciated, and valued.

Wealth Inherited Per Annum

Assuming \$68.4T in wealth will be handed down over the next 25 years by the Baby Boomers, the Silent Generation, and the Greatest Generation, *knowing when and at what rate wealth is transferred is vital in estimating annual inflows into bitcoin*. By using the Centers for Disease Control and Prevention’s (CDC) life expectancy table to plot out a survival curve that approaches 0 by 2044, we can estimate the amount of wealth that will be inherited each year over the next 25 years. Using data from 2019, we took the average life expectancy of all races and genders born between 1939 - 1941 and 1949 - 1951 to get the life expectancy curve of someone born in 1945. By 2044, less than 1% of those born in 1945 will be alive, which implies that nearly all of \$68.4T in wealth will have changed hands. The data is supplied in 5-year increments; thus we conservatively assume a linear 5-year decline across all data points provided.³¹

31. CDC (https://www.cdc.gov/nchs/products/life_tables.htm)

Figure 12: Survivors per 100,000 vs. percentage of population remaining

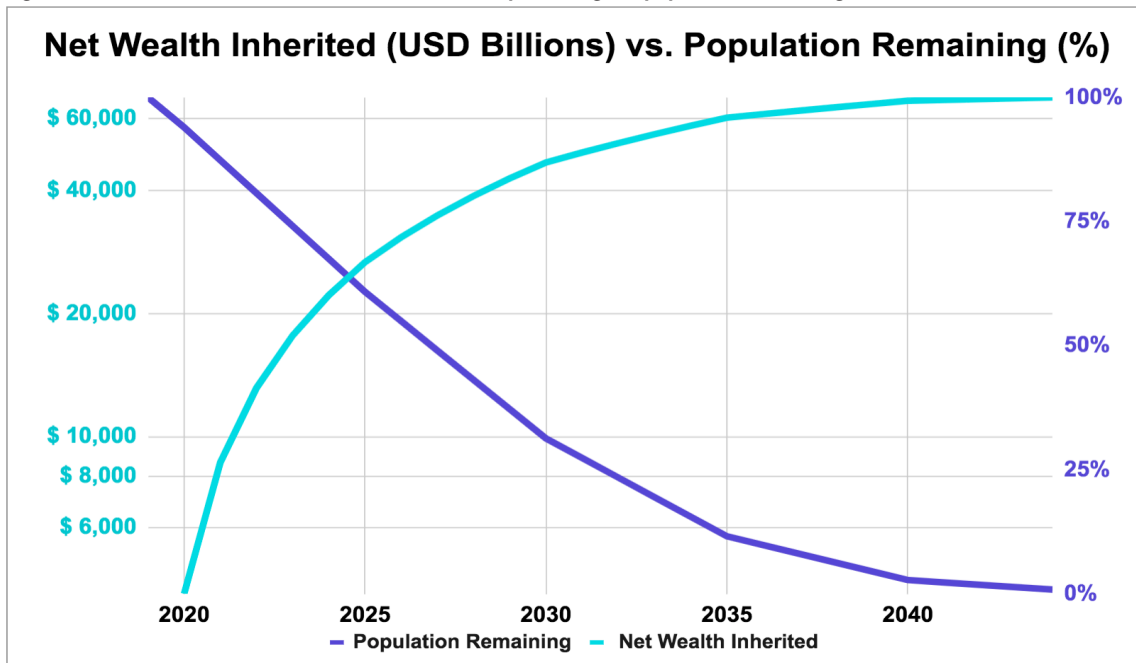


Sources: CDC, Kraken Intelligence

Since we have a robust idea of how much wealth will be passed down and the life expectancy of older generations, *estimating wealth inherited per annum becomes much clearer*. We do, however, need to account for the US estate tax and inheritance tax to arrive at net wealth inherited. As it stands today, there exists a federal estate tax, a state estate tax, and a state inheritance tax.

According to the White House Office of Management and Budget, in 2018 federal income from estate & gift tax was \$22.98B, relative to an estimated \$19.2B in 2019.³² In the past 70 years, revenue from federal estate & gift tax has grown at a compound annual growth rate (CAGR) of approximately 5%. By using the Federal government’s estimates for 2019 and a 70-year CAGR of 5%, we can estimate the annual federal estate tax for the next 25 years.

Figure 13: Net wealth inherited in USD billions vs. the percentage of population remaining



Source: Kraken Intelligence

32. The White House (<https://www.whitehouse.gov/omb/historical-tables/>)

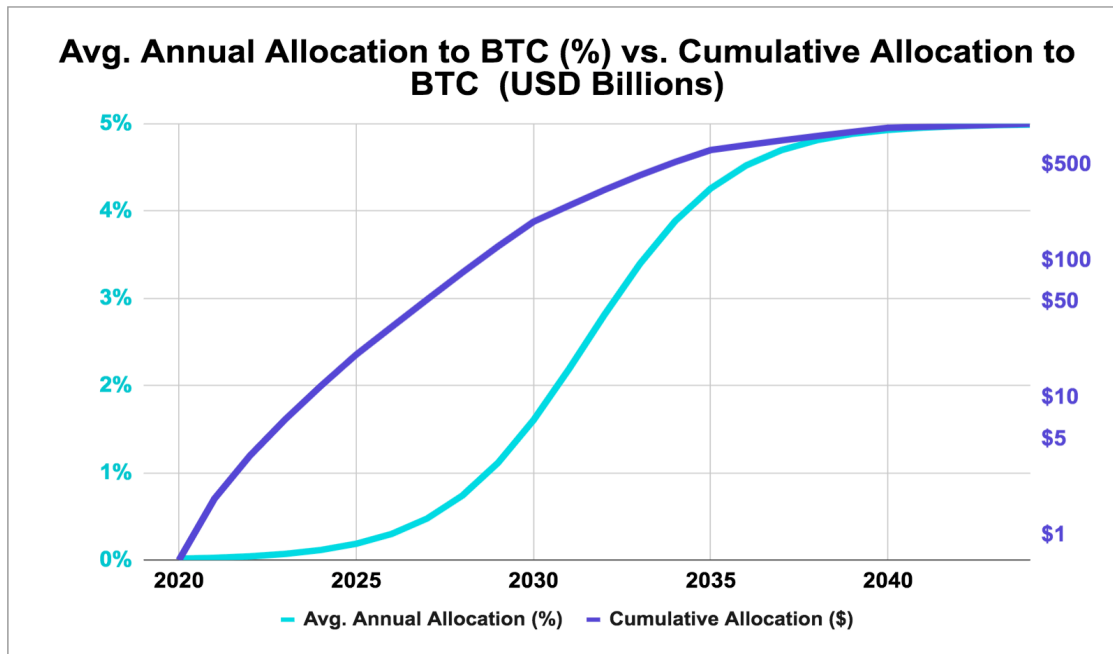
With respect to state inheritance and estate taxes, only 6 states have an inheritance tax while 13 states and the District of Columbia have an estate tax. According to the State and Local Finance Initiative, state and local governments collected around \$5B per year in estate & inheritance taxes since 2013, and in the past 40 years, this figure has grown at a CAGR of 2.5%.³³ Over the next 25 years, we assume that state estate and inheritance taxes will continue to grow by 2.5%. By forecasting federal & state tax over the following 25 years, we estimate the total tax collected from inheritances to be \$1.38T, or 2% of \$68.4T. We assume a 2% effective tax rate per annum to arrive at net wealth inherited.

The Target Allocation Rate

As bitcoin continues to mature, the average person’s allocation to bitcoin will presumably grow in tandem with the many reasons to own it. Be that as it may, this “growth” will most certainly not be linear. Like many transformative technologies of the last 100 years, the growth in a population’s interest, understanding, and demand will follow an S-curve. We assume this S-curve to be a basic logistic function.³⁴ Because technological innovations continue to see faster adoption rates and thus steeper S-curves, it’s worth noting that our assumed steepness of 50% is rather conservative.

If we assume that bitcoin approaches critical mass over the next 25 years, we can also assume that by year 25 the average Millennial and Gen Xer will understand and perceive bitcoin such that a particular percentage of one’s wealth being parked in bitcoin is status quo. Thus, if we assume that by 2044 the average heir will be allocating 5% of their assets/inherited wealth to bitcoin, we can arrive at annual inflows into bitcoin. In this case, we assume that the average percentage of inherited wealth, or “peak allocation,” allocated to bitcoin will reach 5% in 2044. Assuming a 5% peak allocation by 2044 and a 2% inheritance tax rate, we expect just under \$1T of wealth to flow into bitcoin over the next several decades.

Figure 14: Average percentage allocation to BTC vs. cumulative allocation of net inherited wealth to BTC in USD billions



Source: Kraken Intelligence

Sensitivity Analysis

It goes without saying that the average percentage of net inherited wealth that will flow into bitcoin by 2044 is subject to debate. The same is true for US taxes and how both generations ultimately make use of their wealth, i.e. pay down debt, spend extravagantly, put to work in traditional assets, etc. For these reasons, we can sensitize how much wealth could flow into bitcoin by varying the peak allocation to BTC and the amount of wealth consumed by taxes. As shown in figure 15, even if, on average, only 1% of inherited wealth flows into bitcoin and 5% of wealth is eaten by taxes annually, bitcoin will have absorbed nearly \$188B of wealth. Though this figure is substantially lower than our base-case of \$971B (5% peak allocation, 2% tax), it’s no small figure and will undoubtedly have a rippling impact.

33. Urban Institute (<https://slfdqs.taxpolicycenter.org/index.cfm>)

34. A logistic function of $1 / (1 + \exp(-K * (X - X_0)))$ with a standard K steepness of 0.5 and a X0 midpoint of 12.5 years

Figure 15: Net inherited wealth allocated to BTC by 2044 in USD billions

Net Inherited Wealth Allocated to BTC (USD Billions) by 2044

Tax	Peak Allocation (%)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1%	\$196	\$392	\$588	\$784	\$980	\$1,177	\$1,373	\$1,569	\$1,765	\$1,961
2%	\$194	\$388	\$582	\$776	\$971	\$1,165	\$1,359	\$1,553	\$1,747	\$1,941
3%	\$192	\$384	\$576	\$769	\$961	\$1,153	\$1,345	\$1,537	\$1,729	\$1,921
4%	\$190	\$380	\$570	\$761	\$951	\$1,141	\$1,331	\$1,521	\$1,711	\$1,902
5%	\$188	\$376	\$565	\$753	\$941	\$1,129	\$1,317	\$1,505	\$1,694	\$1,882

*Peak allocation - avg. annual allocation of net inherited wealth to BTC in 2044

In figure 16, we sensitize for time and look across 5-year increments to better understand how much wealth BTC stands to capture throughout “The Great Wealth Transfer.” Note that each table assumes a different tax rate on inherited wealth.

Figure 16: Time and peak allocation percentage sensitivity analysis by tax rate

1% Tax

Year	Peak Allocation (%)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
5	\$2	\$5	\$7	\$10	\$12	\$14	\$17	\$19	\$22	\$24
10	\$25	\$50	\$75	\$100	\$126	\$151	\$176	\$201	\$226	\$251
15	\$104	\$207	\$311	\$414	\$518	\$621	\$725	\$828	\$932	\$1,035
20	\$171	\$343	\$514	\$686	\$857	\$1,029	\$1,200	\$1,372	\$1,543	\$1,715
25	\$196	\$392	\$588	\$784	\$980	\$1,177	\$1,373	\$1,569	\$1,765	\$1,961

2% Tax

Year	Peak Allocation (%)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
5	\$2	\$5	\$7	\$10	\$12	\$14	\$17	\$19	\$21	\$24
10	\$25	\$50	\$75	\$99	\$124	\$149	\$174	\$199	\$224	\$249
15	\$102	\$205	\$307	\$410	\$512	\$615	\$717	\$820	\$922	\$1,025
20	\$170	\$339	\$509	\$679	\$849	\$1,018	\$1,188	\$1,358	\$1,528	\$1,697
25	\$194	\$388	\$582	\$776	\$971	\$1,165	\$1,359	\$1,553	\$1,747	\$1,941

3% Tax

Year	Peak Allocation (%)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
5	\$2	\$5	\$7	\$9	\$12	\$14	\$17	\$19	\$21	\$24
10	\$25	\$49	\$74	\$98	\$123	\$148	\$172	\$197	\$222	\$246
15	\$101	\$203	\$304	\$406	\$507	\$609	\$710	\$811	\$913	\$1,014
20	\$168	\$336	\$504	\$672	\$840	\$1,008	\$1,176	\$1,344	\$1,512	\$1,680
25	\$192	\$384	\$576	\$769	\$961	\$1,153	\$1,345	\$1,537	\$1,729	\$1,921

4% Tax

Year	Peak Allocation (%)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
5	\$2	\$5	\$7	\$9	\$12	\$14	\$16	\$19	\$21	\$23
10	\$24	\$49	\$73	\$97	\$122	\$146	\$171	\$195	\$219	\$244
15	\$100	\$201	\$301	\$402	\$502	\$602	\$703	\$803	\$903	\$1,004
20	\$166	\$333	\$499	\$665	\$831	\$998	\$1,164	\$1,330	\$1,496	\$1,663
25	\$190	\$380	\$570	\$761	\$951	\$1,141	\$1,331	\$1,521	\$1,711	\$1,902

5% Tax

Year	Peak Allocation (%)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
5	\$2	\$5	\$7	\$9	\$12	\$14	\$16	\$19	\$21	\$23
10	\$24	\$48	\$72	\$96	\$121	\$145	\$169	\$193	\$217	\$241
15	\$99	\$199	\$298	\$397	\$497	\$596	\$695	\$795	\$894	\$993
20	\$165	\$329	\$494	\$658	\$823	\$987	\$1,152	\$1,316	\$1,481	\$1,645
25	\$188	\$376	\$565	\$753	\$941	\$1,129	\$1,317	\$1,505	\$1,694	\$1,882

*Peak allocation - avg. annual allocation of net inherited wealth to BTC in 2044

Notwithstanding the fact that our analysis focuses exclusively on the US market and cannot predict the price of bitcoin at a future date, we can, however, analyze said allocation of inherited wealth, or marginal demand, to bitcoin relative to bitcoin’s marginal supply (฿2.779M) come 2044. As shown in figure 17, the implied price of bitcoin ranges between roughly \$68,000 and \$706,000 when considering this newfound demand as a function of bitcoin’s marginal supply in the next 25 years. Our base-case scenario of 5% peak allocation and a 2% tax points to an implied price just south of \$350,000.

Figure 17: Implied price of BTC (USD), based on net inherited wealth relative to BTC's marginal supply of ฿2.779M

Implied Price of BTC (USD) - Marginal Supply*

Tax	Peak Allocation (%)**									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1%	\$70,564	\$141,127	\$211,691	\$282,255	\$352,818	\$423,382	\$493,946	\$564,509	\$635,073	\$705,637
2%	\$69,851	\$139,702	\$209,553	\$279,404	\$349,255	\$419,105	\$488,956	\$558,807	\$628,658	\$698,509
3%	\$69,138	\$138,276	\$207,414	\$276,553	\$345,691	\$414,829	\$483,967	\$553,105	\$622,243	\$691,381
4%	\$68,425	\$136,851	\$205,276	\$273,702	\$342,127	\$410,552	\$478,978	\$547,403	\$615,828	\$684,254
5%	\$67,713	\$135,425	\$203,138	\$270,850	\$338,563	\$406,276	\$473,988	\$541,701	\$609,414	\$677,126

*Prices are based on a marginal supply of 2.779M BTC (current supply less est. 2044 supply)
 **Peak allocation - avg. annual allocation of net inherited wealth to BTC in 2044

Furthermore, in figure 18 we can see the implied price of bitcoin varies between roughly \$9,000 and \$94,000 when considering bitcoin’s total supply as of 2044. Our base-case scenario of 5% peak allocation and a 2% tax points to an implied price of more than \$46,000.

Figure 18: Implied price of BTC (USD), based on net inherited wealth relative to BTC's total supply of ฿20.955M

Implied Price of BTC (USD) - Total Supply*

Tax	Peak Allocation (%)**									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1%	\$9,358	\$18,716	\$28,074	\$37,432	\$46,790	\$56,148	\$65,506	\$74,864	\$84,222	\$93,580
2%	\$9,263	\$18,527	\$27,790	\$37,054	\$46,317	\$55,581	\$64,844	\$74,108	\$83,371	\$92,635
3%	\$9,169	\$18,338	\$27,507	\$36,676	\$45,845	\$55,014	\$64,182	\$73,351	\$82,520	\$91,689
4%	\$9,074	\$18,149	\$27,223	\$36,298	\$45,372	\$54,446	\$63,521	\$72,595	\$81,670	\$90,744
5%	\$8,980	\$17,960	\$26,940	\$35,920	\$44,899	\$53,879	\$62,859	\$71,839	\$80,819	\$89,799

*Prices are based on a total supply of 20.955M BTC in 2044
 **Peak allocation - avg. annual allocation of net inherited wealth to BTC in 2044

Do note that these figures *do not account for market dynamics that will uniquely influence and impact the price of bitcoin as hundreds of billions, if not trillions, of dollars in demand enters into bitcoin in the proceeding 25 years.* Also, as previously mentioned, *these figures only account for newfound demand from inheriting Millennials and Generation X in the United States.* These values can instead be interpreted as the implied price of bitcoin when 1) bitcoin's marginal supply over the next 25 years is exclusively met with varying quantities of inherited wealth or 2) bitcoin's total supply is solely absorbed by a specific amount of wealth inherited by the Millennials and Generation X.

V. Conclusion

As with every new generation, beliefs will flourish and choices will be made that are only foreign to previous generations. Equally innate to humans is the tendency to overestimate the short term, underestimate the long term, and think linearly. Both dynamics have, among all else, led many to rationalize a technological innovation's rise to prominence only after the fact. When considering such alongside bitcoin’s growth to date, generational demographics, “The Great Wealth Transfer,” and past disruptive technologies &

adoption curves, one ought to not be surprised should the United States marshal bitcoin's rise to global acceptance and recognition.

It goes without saying that bitcoin is in its infancy and is not without its own set of challenges. By the same token, the data has yet to suggest that bitcoin is doing anything but evolving, maturing, and gaining global recognition. It is with the passing of more than \$68T in wealth over the next few decades that we expect bitcoin to prosper from a multi-generational shift of wealth, beliefs, desires, and expectations. All things considered, the idea of more than a trillion dollars of wealth flowing into bitcoin over the next 25 years is perhaps more conservative than outlandish and its impact will undoubtedly be historic. Every day that passes, bitcoin takes one more step towards becoming a global phenomenon that changes the way we think about our wealth, our time, and our freedom.

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