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Don't Let Volatile Digital Assets Blow Up a Client's Estate Plan

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Estate planners Matt McClintock and Abbie M.B. Everist explain the importance of addressing digital asset issues, particularly given the nascent and "cryptic" nature of the asset, the industry, and the technology through which it is administered — and likely the novel understanding of estate fiduciaries who would administer such assets.

Digital assets present distinct valuation and administrative challenges that require specific strategies as part of an individual's estate plan. The complex manner in which these volatile assets are controlled poses risks to fiduciaries and beneficiaries alike. Beyond Bitcoin, Ether, or other large market-cap blockchain tokens, lack of market depth and liquidity present uncertainty and unpredictability in sales and trading markets. As a result, it's essential to consider the unique characteristics of digital or "virtual" assets when creating an estate plan.

The Need for a Trusted Administrator

Individuals should ensure that a trusted person, such as the planned executor for their estate or their successor trustee, knows about these assets, has at least a rudimentary understanding of digital assets, and is able to access them reliably and securely. Like cash, physical gold, or bearer bonds, Bitcoin and other digital assets are "bearer" assets — they are treated as though they are owned by whoever holds the assets at any given moment. Bearer assets have no title. Absent clear evidence to the contrary, an individual who can control a digital asset is deemed to own the asset.

Most digital assets are controlled through cryptographically secured digital signatures by the owner using a secret "private key" (see Appendix below). Especially as this may involve assets of significant value, keeping private key information secure is paramount to the asset owner, fiduciaries, and beneficiaries.

Because wills may become public documents through the probate process, passwords, key phrases, or other details regarding accounts, account numbers, or other sensitive information should never be appended as a schedule to an estate planning document. Moreover, wills become effective only after an individual's death and after the will is successfully admitted to probate in a court of competent jurisdiction, depending on the state's probate laws. Wills are of no help if an individual has become incapacitated but has not died, a possibility that may be covered in a power of attorney.

Properly funded trusts generally avoid the public probate process, maintaining privacy for an individual who becomes incapacitated or who dies. While it may be appropriate to include schedules that generally describe assets that an individual intends to be held by the trust — of course, including a limited description of the nature of the individual's digital assets — highly sensitive information should not be shared with a drafting attorney, entered into a document assembly program, stored on an internet-connected computer, or shared with a nominated fiduciary before it's truly necessary.

Further, because digital assets with significant monetary value are relatively nascent, technology for safely storing, accessing, and exchanging these assets changes rapidly and frequently. Many owners of digital assets exchange the assets with some regularity and may also experiment with various storage techniques. To this end, any estate plan designed for digital assets must be actively maintained to ensure both that the substantive provisions of the documents are current and that any references to specific assets or storage methods in use remain up to date.

The range of methods for securing digital assets is truly dizzying. An individual may use various software wallets on their computer or mobile device, they may have one or more external peripherals (key signature devices), several custodial or exchange accounts, and hard copy writings that indicate the nature and extent of their digital assets. Adding to the complexity, different applications are required for different types of assets. To allow for "storage," many digital assets have specific technical requirements, which are often incompatible with other types of digital assets.

An industry is developing to provide custody solutions for digital assets, similar to holding assets in a bank. Many people initially invested in digital assets, in part, to allow for private financial transactions without the involvement of a custodial intermediary. Indeed, disintermediation of financial transactions is a key part of the original thesis in which Satoshi Nakamoto described Bitcoin as a "peer to peer electronic cash system." Long-term digital asset purists often do not trust corporate custodians; however, many companies are reputable, closely regulated, and appropriately insured and will significantly ease the burden of administering digital assets, especially when family members and other trustees do not have expertise in this niche area.

As digital assets become more mainstream — and frankly, more valuable — individuals who first acquired digital assets as a novelty or countercultural expression must shift their perspective and plan carefully to mitigate tax liability from sales or gifts of their assets, protect themselves and their loved ones from potential creditor claims, and structure inheritances for the beneficiaries of what may be a surprising amount of wealth. Professional custodians allow digital assets to be held in custodial vaults that may be titled in the name of a trust or other entity. This makes it possible to incorporate the full range of estate planning techniques to digital assets, just as for conventional assets.

Challenges Posed by Volatility

Digital assets may attract investors due to their apparent high-return potential, but this also entails risk, especially for estate and gift planning purposes. Valuing digital assets for tax purposes can be challenging if the asset is either not traded on an open market or traded so infrequently that there are few comparable transactions as of the date of transfer.

The difficulty involved in valuing these digital assets presents an additional problem for gift and estate planning, because gift reporting requires a qualified valuation as of the date of transfer for adequate disclosure, and the substantiation requirements for a charitable gift in excess of $5,000 with a contemporaneous written acknowledgement from the charity. This problem may be alleviated for certain digital assets that have a robust market, such as Bitcoin, but it is imperative that clients discuss these issues with their tax and valuation professionals before conducting any gifting.

Additionally, past markets have shown that digital assets are often subject to extreme price volatility and protracted downturns. Market prices of digital assets are influenced not only by investor sentiment and movements of large volumes in thinly liquid markets, but also by the uncertain and uneven regulation in the United States. To the extent there is significant fluctuation of value before a gifting plan is initiated, special care must be taken to determine the proper asset allocation that should be transferred. While a significant decline in value before gifting may present an opportunity to transfer a larger percentage of assets, it would be unwise to further reduce an individual's asset base beyond their means. Finally, this increased market risk may be especially important when digital assets are gifted in trust. Generally, trustees must act as "prudent investors" and any estate planning documents should contemplate the application of the statutory prudent investor rule; if appropriate, the rule should be modified or waived.

Security Concerns

As described above, digital assets are unique in the way the owner holds and maintains them. Although there is a growing number of regulated, qualified custodians who provide bank-grade management of digital assets, it's safe to assume that most individuals who own digital assets maintain them in self-custody. Access to the assets is maintained in cryptographically secured software applications called "vaults" or "wallets," and managed by complex passwords or cryptographic "private keys." Often, the owner will use a peripheral key signature device to generate a wallet address and manage digital asset transactions. Manufacturers of such devices include Ledger, Trezor, ColdCard, Keystone, SecuX, and other companies. While the devices are not the actual keys, they are used to manage digital asset transactions secured by the individual's private keys.

Because digital assets are bearer assets, the security of passwords, private keys, and key signature devices is paramount. The short history of virtual currency is littered with tales of real individuals who have lost very large fortunes. One notable example was an early Bitcoin investor, Mircea Popescu. Estimates of Popescu's holdings at the time of his drowning in June 2021 off the coast of Costa Rica reportedly range from the tens of thousands to more than 1 million Bitcoins. Popescu was 41 when he died, and his alleged cache would be worth well in excess of $2,000,000,000. A self-described "sovereignty maximalist," it appears that Popescu did not have an asset succession plan in place when he died. To date, there has been no known successful retrieval of his fortune.

Regulatory and Legal Concerns

Digital assets are still in their infancy, and there are many gaps and uncertainties in how the assets are

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regulated. The IRS stated in Notice 2014-21 that "convertible virtual currencies" like Bitcoin and other digital assets are considered property under the tax laws and are subject to income tax treatment as such. This means that in general, compensation in digital assets is taxable as ordinary income when received, and subject to capital gains tax when sold or used. There is mixed guidance — or in some areas, no guidance — as to the tax treatment of air drops, staking or delegation rewards, or other forms of receiving digital assets. The IRS has made compliance and enforcement of tax laws a high priority and now dedicates significant taxpayer resources to pursuing noncompliant taxpayers who have underreported digital asset transactions.

Estate Tax Savings Opportunities With Digital Assets

Individuals with large estates often engage in advanced estate planning to use their federal gift, estate, and generation-skipping transfer tax exemptions during life to shift value and future wealth appreciation out of their taxable estates to reduce future estate tax liability. Under the 2017 Tax Cuts and Jobs Act, the basic exclusion amount for U.S. individual taxpayers was temporarily raised to $10,000,000, adjusted annually for inflation — in 2024 it is $13,610,000. After Dec. 31, 2025, the BEA will revert to $5,000,000 unless Congress intervenes.

By proactively applying their federal gift tax exemption (and, when appropriate, allocating generation-skipping transfer (GST) tax exemption) to completed gifts during their lifetime, wealthy donors may shift the future income and appreciation out of their estate and avoid federal (and, if applicable, state) estate tax on those assets. Because the federal estate tax rate of 40% applies to every dollar above the estate tax exemption, proactive estate tax-oriented planning can be extremely valuable.

Ideally, donors would use their transfer tax exemption to shift assets with the highest probability of appreciation out of their estates. Of course, individuals should consider the volatility of their holdings before gifting to trusts. As with all volatile assets, there is inherent risk in gifting digital assets, because if they were to decline in value (and the taxpayer dies before the value recovers), the taxpayer would have used their transfer tax exemption inefficiently. Trying to time a gift transfer for dips in the market may mitigate some of this risk. If the assets have a lower valuation when transferred, more assets may be transferred out of the taxable estate along with future associated growth. (Of course, trying to time any financial market may easily work against the donor.)

Example 1 — Shifting value out of gross estate

Assume Alice owns 1,000 cryptoasset tokens that were each worth $7,000 on January 1, 2024 ($7,000,000 total value). The market for tokens contracts and the tokens are now worth $6,000 each ($6,000,000 total value). Alice then makes a completed gift to an irrevocable trust. Fortuitous timing saved Alice $1,000,000 of her lifetime transfer tax exemption that she may use for future gifts. (Of course, this does not contemplate any additional leverage that may be available by structuring the assets in a way that generates valuation adjustments for lack of marketability, lack of control, or other constraints that diminish the value of transferred assets. Such a discussion is beyond the scope of this article.) Absent further gifting, Alice has $7,610,000 transfer tax exemption remaining. The BEA is applicable to gifts made during life or at death, or a combination thereof.

Assume further that after those tokens are gifted, the value in the trust increases to $10,000,000 by Alice's date of death on December 1, 2024. Alice's lifetime gift removed $4,000,000 worth of appreciation from her taxable estate, avoiding $1,600,000 of federal estate tax.

Appreciation of assets outside estate	$4,000,000
× federal estate tax rate	40%
= Federal estate tax avoided	$1,600,000

If Alice was a resident of New York, Maryland, Oregon, Massachusetts, or another of the approximately dozen states that impose state estate or inheritance tax, the savings would be even more significant.

It's easy to see, then, that the more the value of the assets grows between the date of the lifetime gift and the settlor's date of death, the more estate tax liability is avoided.

Another technique that may be applied in conjunction with that illustrated in Example 1 is the creation and funding of a family investment entity with tokens and other assets that may justify valuation adjustment for lack of marketability or lack of control.

Example 2 — Using family investment entities for valuation discounting

Assume the same facts as in Example 1, except that before making the gift, Alice put the tokens into a family investment limited liability company. She retained significant, but not all, managerial and investment functions, and then she gifted a minority position of the LLC membership interests. A qualified business valuation expert may apply discounts to the value of the gifted interests based on lack of marketability and control to the

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recipient. That same $6,000,000 may result in only $4,500,000 of gift exemption being used for gift and estate tax purposes. The estate tax savings, in addition to the amount in Example 1, is $600,000.

Pro rata value of underlying LLC interests	$6,000,000
Value of LLC interests for gift tax purposes	$4,500,000
Difference	$1,500,000
× federal estate tax rate	40%
= Additional federal estate tax avoided	$600,000

Layering estate planning strategies is a very important concept to designing a tax-efficient plan while achieving the donor's goals.

Gifting to irrevocable completed gift grantor trusts, often referred to as intentionally "defective" grantor trusts (IDGTs), is a favored estate planning strategy that may incorporate both techniques described above. These trusts proactively use the donor's transfer tax exemption for a lifetime gift, avoiding future estate tax when the donor dies. IDGTs also provide other important opportunities that other trust types may not:

- The grantor is responsible for income tax on trust income that reduces the grantor's taxable estate;
- The grantor is able to sell additional assets to the trust without the sale creating a tax recognition event (including into a GST exempt trust); and
- If provided in the trust terms, the grantor or a qualifying powerholder is able to substitute assets between individually owned grantor assets and trust-owned assets.

Below are examples to demonstrate each of these points.

Completed gifts made during life receive a carryover basis, meaning the recipient's basis is the same as the donor's original basis for purposes of calculating the recipient's gain and tax liability thereof upon any later disposition of the asset (§1015). (This is as opposed to an "incomplete" gift receiving a "step-up" in basis or "basis adjustment" on the date of the donor's death.) Thus, grantor trusts often include as one of the retained grantor trust powers a "power of substitution," which causes the grantor to be treated as the income tax taxpayer. The power to substitute assets is an "administrative" power contemplated by the phrase "…power to reacquire the trust corpus by substituting other property of an equivalent value" under §675(4)(C). The power must be exercisable in a nonfiduciary capacity without the approval or consent of any person in a fiduciary capacity. The trustee does have an affirmative duty to ensure that the substituted assets are in fact of equivalent value.

Because the grantor of the trust is treated as the taxpayer for income tax purposes, all income tax attributes (such as credits and deductions) will be reported on the grantor's individual income tax return for federal and state income tax purposes, even though the value of the principal in the trust is outside the grantor's estate for *transfer tax* purposes.

Example 3 — Using IDGTs to reduce the grantor's estate by the grantor paying income tax on trust income

Alice gifts $10,000,000 to an IDGT. Each year the trust has $500,000 worth of income. That income will go onto Alice's tax return and be her responsibility to pay. Assuming the income is ordinary, the top federal income tax rate is 37% (plus any applicable state income tax), she will owe about $185,000 income tax on trust income.

Trust income	$500,000
× federal income tax rate	37%
Income tax	$185,000
× federal estate tax rate	40%
= Additional federal estate tax avoided	$74,000
= Additional federal estate tax avoided over 10 years	$740,000

These annual savings accumulate to compound the estate tax savings over time. Income tax paid on grantor trust income is not considered a gift for gift and estate tax purposes and is also not subject to the three-year rule of §2035(b), where gift tax paid on gifts made within three years of death is included in the gross estate. See also Rev. Rul. 2004-64. Consideration must be given to the liquidity of the grantor's retained assets and their desire to pay income tax on behalf of the trust. Some states allow trusts to include reimbursement provisions held by an independent trustee (not a related or subordinate party as defined in §672(c)) to make discretionary distributions to the grantor for income taxes paid by the grantor on trust income. This varies widely by state and should not be a prearranged plan of reimbursement between the trustee and grantor — or, under §2036(a)(1), the entire trust may be included in the grantor's estate.

The next point to discuss is the donor's ability to sell assets to an IDGT without triggering tax recognition. The concept is the same as in Example 1, except that the estate savings on the gain are limited to the value in excess of the note payable and related terms of the sale.

Example 4 — Shifting value out of gross estate using a grantor sale to an IDGT

Alice has previously made gifts to an IDGT. She wants to remove additional assets and associated growth out of

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her estate. She sells $10 million of assets to the IDGT on a note for 10 years at an applicable federal interest rate of 5%. If the assets appreciate at 10%, while the note interest rate is 5%, the difference between the asset's appreciation and the interest due on the note at the end of the note term is about $3,000,000, after accounting for annual interest payments (that will also have to be factored into a cash flow analysis to ensure the trust is able to make the payments). The related estate tax savings are about $1,200,000 and will continue to grow for the remainder of the grantor's lifetime based on continued asset appreciation that is now completely out of her estate.

10-year asset growth	$18,000,000
10-year note payments	$15,000,000
Difference	$3,000,000
× federal estate tax rate	40%
= Federal estate tax avoided	$1,200,000

This strategy is also a good way to fund part or all of the grantor's income tax liability associated with the trust income, which as previously noted will reduce the grantor's estate and will not be deemed a gift. Previous gifting to the trust should be sufficient for collateral purposes, for example, establishing sufficient equity in trust assets, usually 10% minimum in comparison to the loan amount, and an adequate period of time that equity assets were held before the purchase of additional assets. See PLR 9535026; *Estate of Trombetta v. Commissioner*. The terms of the purchase agreement should be drafted based on the trust's cash flow capabilities. Finally, this is an effective method to get more assets into a GST exempt trust, because a fair market value sale will not use GST exemption.

When using lifetime gifting for estate planning, there is an important income tax tradeoff that must be considered — and potentially mitigated — with the trust design and asset monitoring.

When assets are inherited through a decedent's estate, the inheritor receives a new basis in those assets for income tax purposes, pursuant to §1014. This is typically referred to as a "step-up" in basis, although the inheritor may actually receive a "step-down" in basis if the assets have gone down in value. By contrast, under §1015, assets received through a *lifetime* gift — whether outright or to an irrevocable trust — receive a "carryover" basis equal to the basis in the hands of the transferor who made the gift.

Income tax basis is important in determining the amount of taxable gain or loss when an asset is later sold. Intelligent estate planning must consider the tradeoff between shifting value out of the estate for estate tax purposes (potentially eliminating 40% estate tax on value above the estate tax exemption) and losing the ability to reset income tax basis by removing the value of an appreciated asset from being included in the donor's estate. Fortunately, when using an IDGT, there's a workaround through the use of a substitution power to create grantor trust status for an irrevocable trust.

Example 5 — Sale during settlor's life

Assume the same facts as in Example 1, but assume the trustee sells the tokens during Alice's life. Further assume that Alice acquired the tokens more than one year prior to any sale of the assets, making the assets subject to long-term capital gains (LTCG) treatment.

Alice will personally recognize LTCG equal to the amount received in the sale minus her basis. If her basis is $1,000 per token and the tokens are sold at $10,000 each, Alice's total LTCG is $9,000,000. Because the grantor trust is taxable to Alice directly, Alice's *personal* income tax liability on the trustee's sale will be $2,142,000.

Aggregate value of tokens, grantor trust	$10,000,000
– Trust's carryover basis	$1,000,000
= Grantor's recognized gain at sale	$9,000,000
× Aggregate federal LTCG rate	23.8%
= Grantor's LTCG tax liability	$2,142,000

If Alice were to hold those coins for one year or less, her gains would be short-term capital gains subject to tax at the ordinary income tax rate. If longer than one year, her gains would be long-term capital gains, subject to lower graduated rates. In this case, her long-term capital gains tax rate will be 20% tax on that gain. In either case, she may also be subject to 3.8% net investment income tax.

The trust's value is preserved without income tax erosion from the recognized LTCG. If Alice is a resident of California, her state income tax liability could be up to an additional 13.3%. *See* Robert Wood article in Forbes. Alice's personal income tax from this sale could be as high as $3,339,000, as the combined California and federal long-term capital gains tax rate could be as high as 37.1%. *Ouch!*

If trust assets are sold after the trust becomes non-grantor due to either Alice's passing or her release of grantor powers, because Alice's gift to the grantor trust during life shifts her basis to the trust, the trust will recognize gain based on the value of the assets at the time of sale reduced by *Alice's original basis*. Because the value of the assets will not be included in her estate, the trust will likely not receive the step-up in basis under §1014 when Alice dies. Although the estate will avoid the 40% federal

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estate tax (and state estate or inheritance tax, if applicable), the trust may later incur considerable income tax liability for federal and, likely, state income tax purposes.

Example 6 — Sale by a non-grantor trust

Instead of selling the tokens during Alice's life, assume the trustee sells them at some point after Alice's death, when the value has continued to rise. If the "crypto bulls are running," the longer the trustee holds the tokens, the greater value of trust assets, but the bigger the income tax problem.

Assume that at some point in the future, the trustee sells the trust's tokens when the value of each token has increased to $15,000. Because the trust has Alice's carryover basis, the trust will recognize gain based on the value at the time of sale reduced by Alice's *original* basis. At Alice's death, the trust had *unrecognized* LTCG. Because the settlor made a lifetime gift, the basis of her gift is carried over from what it was in her hands to the beneficiary; her death does not impact that carried-over basis. When the trustee sells the tokens, the trust will recognize $3,332,000 of LTCG tax liability.

Aggregate value of tokens	$15,000,000
– Trust's carryover basis	$1,000,000
= Grantor's recognized gain at sale	$14,000,000
× Aggregate federal LTCG rate	23.8%
= Trust's LTCG income tax liability	$3,332,000

As with the sale during Alice's life, depending on where the trust has nexus, the gain may also be subject to *state* income tax. The total LTCG tax could be much higher, especially if the trust is taxable in California, New York, or another high-income-tax state. Capital gains are considered trust principal assets, but in some circumstances the trustee may have the ability to distribute and shift the capital gains to the beneficiaries, if favorable and in line with the grantor's intent.

How may the impact of carryover basis be mitigated? If the trust includes the power to substitute assets, and if the power was *exercised* before the grantor's death, she might have swapped the low-basis assets in the trust for high-basis assets of equivalent value. The low-basis assets will be included in her estate and receive a new basis when Alice dies. Let's look at the numbers once more.

Example 7 — Effect of exercised power of substitution

Building on the facts in Example 6, assume that on April 1, 2024, the total value of the low-basis tokens in the trust was $9,500,000. Alice had additional cash or high-basis property valued at $9,500,000. Alice exercised her power to substitute assets of equivalent value and the trustee determined that the assets are in fact of equivalent value. The basis of the new assets in the trust is equal to Alice's basis, and the low-basis assets are included in Alice's estate. The total value of the tokens rises to $10,000,000, and then Alice dies.

All the assets that are includible in Alice's estate receive a new basis under §1014. The unrecognized capital gain from Example 6 simply disappears under current law. On Alice's date of death, the basis on the tokens automatically increases from $1,000,000 (Alice's original basis) to $10,000,000 (the value of the assets at her date of death).

If the executor of Alice's estate later sells the tokens when each has a value of $15,000, the LTCG tax liability will be $1,190,000.

Aggregate sale value	$15,000,000
– Adjusted basis	$10,000,000
= Long-term gain	$5,000,000
× Federal LTCG tax rate	23.8%
= Federal capital gain tax liability	$1,190,000

Exercising her power to substitute assets of equivalent value, Alice saved her beneficiaries $2,142,000 of LTCG tax liability by allowing the tokens' low basis to reset at her death. The estate tax consequence is unchanged, because she moved assets of equivalent value out of her estate when she swapped them for the low-basis tokens.

LTCG tax with lifetime transfer/carryover basis	$3,332,000
– LTCG tax with estate inclusion/adjusted basis	$1,190,000
= Federal LTCG tax savings	$2,142,000

As a practical matter, the biggest issues with optimizing the swap power are ensuring that the estate planning strategies are consistently monitored to exercise asset swaps over time and the that the grantor has high-basis assets to swap.

One last planning consideration to review is the impact of GST exemption in trust on multigenerational estate, gift, and GST taxes. GST tax is imposed at a 40% rate *in addition to* estate or gift tax for transfers that have not been allocated GST exemption to beneficiaries who are more than one generation below the grantor (for example, grandchildren). Every person is currently given the same amount of GST exemption as the gift and estate exemption ($13,610,000 in 2024). Allocating GST exemption to trusts protects trust assets from additional levels of estate, gift, and GST tax for future generations.

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Example 8 — Impact of GST Tax

Alice's estate is valued at $50 million. She has two children and three grandchildren. Her will bequeaths everything to her children equally. Under the current exemption amounts, here are the potential estate tax implications.

Alice's estate	$50,000,000
– Estate exemption	$13,610,000
= Taxable estate	$36,390,000
× Federal estate tax rate	40%
= Federal estate tax liability	$14,556,000
Net to each child	$17,722,000
– Each child's estate exemption	$13,610,000
= Taxable estate	$4,112,000
× Federal estate tax rate	40%
= Federal estate tax liability for the two children	$3,289,600

The net amount to each child is above the exemption amount, so the excess will be subject to the 40% estate tax rate. If Alice put the exemption amount into trust for her children, grandchildren, and other future beneficiaries, the amount in trust may be protected from additional levels of transfer taxes. The exemption amounts adjust annually for inflation but are set to revert to pre-2018 levels after 2025 with the sunsetting of this Tax Cuts and Jobs Act provision.

If Alice had put her exemption amount in trust, the amount going outright to her children would be ratably reduced under this example, while they would still be beneficiaries of the trust that Alice funded with her exemption. The additional $3,289,600 of taxes would be eliminated under this example (depending on the exemption amount for the year each child passes).

Alice's estate	$50,000,000
– Estate exemption in trust	$13,610,000
= Taxable estate	$36,390,000
× Federal estate tax rate	40%
= Federal estate tax liability	$14,556,000
Net to each child	$10,917,000
– Each child's estate exemption	$13,610,000
= Taxable estate	$0

Alice could integrate the other strategies discussed and likely reduce her estimated $14,556,000 estate tax liability as well. These approaches are highly effective individually and in combination.

For ultra-high-net-worth families, GST planning is an incredibly impactful way to protect assets multi-generationally from gift, estate, and GST taxes. Effective GST planning includes in-depth analysis of jurisdiction selection for trust situs based on the location of family members, assets, and fiduciaries; type of assets; creditor protection; and trust duration. State trust law changes frequently, so if a trust has already been established, all these factors should be reviewed to see if it continues to meet family goals.

Conclusion

Digital assets are increasingly in demand as investments and should be discussed during the estate planning process for proper administration, so the value of the assets is not lost. It is important to consider digital assets when creating an estate plan. Because the digital asset space is constantly evolving, it's essential to revisit your estate plan frequently to verify that it remains up to date with the latest developments. By doing so, you may help protect your digital assets and confirm that they are passed on to your loved ones or charitable beneficiaries according to your wishes.

Appendix: Private Key for a Cryptographic Signature

In the spirit of virtual assets, here is a description generated by ChatGPT-4 using the prompt, "Describe a private key for a cryptographic signature."

"A private key, in the context of a cryptographic signature, is a critical component of public-key cryptography (also known as asymmetric cryptography). It's part of a key pair that includes a private key and a public key. These keys are mathematically related, yet it is computationally not feasible to derive the private key from the public key, ensuring the security of the system. Here's how it works and why it's important:

- Generation: The key pair is generated together using cryptographic algorithms. The private key is kept secret by the owner, while the public key can be shared with anyone.
- Functionality: The private key is used to create a cryptographic signature on a message or document. This signature can be verified by others using the corresponding public key, proving that the owner of the private key (and thus, presumably, the sender of the message) created the signature.
- Signature Creation: To sign a message, a hash of the message is first created using a hash function. The private key is then used to encrypt this hash. The encrypted hash, along with the message, constitutes the cryptographic signature.
- Verification: Anyone with access to the public key can decrypt the encrypted hash (the signature) and compare it to the hash of the original message (which they generate

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using the same hash function). If the hashes match, it confirms the integrity of the message and its origin.

- Security: The security of a cryptographic signature relies on the secrecy of the private key. If the private key is exposed, anyone could create signatures pretending to be the key's owner. Thus, protecting the private key is paramount.
- Applications: Cryptographic signatures are used for various purposes, including verifying the authenticity of digital documents, securing communication over insecure networks, cryptocurrency transactions, and ensuring the integrity of software downloads.
- Non-repudiation: Because only the owner of the private key should be able to create a valid signature, cryptographic signatures provide non-repudiation; that is, they prevent the signer from plausibly denying their action later.

"In essence, the private key for a cryptographic signature is a secret key that allows an individual or entity to securely sign digital information, ensuring the information's authenticity, integrity, and non-repudiation."

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