Blockchain is one of several technologies du jour. It combines clever methods from peer-to-peer decentralized computing to provide an online tracing function for virtual transactions, and, once someone sets it up, it requires minimal intervention from a central auditor. While Bitcoin is the most well-known application of this innovative computer science, verification of authenticity and identity are key functions for many transactions. There could be considerable value in creating low-cost and reliable (read: hacker-free) automated approaches in virtual environments.

Despite potential applications in pharmaceutical, food, and chemical supply chains, as well as a range of applications in contracting and internal auditing, the technology remains in an immature state. The symptoms of this early state are visible: the volatility in the valuations of firms that offer virtual currencies; the startups with fewer paying customers than the pages in their slide desks; lengthy Wikipedia pages composed of technical explanations, not commercial applications; and the endless online discussions in which younglings worry about missing out on the next big thing.

This column will do something rare for popular discussion and eschew addressing whether an ambitious person should or shouldn’t join a blockchain firm today (and, if so, which one). For reasons that should become clear below, this column also will avoid an in-depth conversation about which of many commercial applications for blockchain deserves the most attention or scrutiny. If that is the only interest you possess in blockchain, feel free to stop reading.

To my not-yet-jaundiced eye, the early state of things makes this a good teaching moment. Stepping back from wallowing in didactic details, blockchain contains a wonderful feature. It nicely illustrates the paradox of technological déjà vu.

As commonly understood, déjà vu is the feeling that the present situation is being re-experienced. Accordingly, technological déjà vu arises when events in technology markets generate an eerie sense of watching the same movie again and again. The paradox of technological déjà vu highlights a resulting inconsistency: Despite resemblance with prior events, no participant in a technology has much prescience at all.

Any long-time observer has seen the paradox in action. The market for applications opens with bright enthusiasm for a major technological breakthrough. Yesterday, the attention focused on personal computers, local area networks, client server architectures, web-based Internet, peer-to-peer architectures, or streaming. Movements grew up around the technologies, and, as those movements played out, every observer became surprised by one outcome or another. Eventually, the entire sequence ended up somewhere surprising, not anticipated by anyone.

Blockchain contains all the pieces for this sequence. Best of all, the example can help illustrate the causes behind the paradox, once it gets broken down to its core economic elements.
COMPLEMENTS BEGET SUPPORT

In the case of blockchain, some applications involve tracking the identity of products to prevent piracy, while others aspire to automate the authentication of transactions to accumulate ledgers of transactions, or merely track virtual transactions as a means to evade taxation. While any of those applications might or might not evolve into something of value, if any of them do, it will involve complementary investments from both users and vendors. Somebody has to create and customize the application’s technical features. Someone has to adapt it to user needs, create operating processes to make it easy to use, and choose designs to serve many purposes.

To be sure, that differs from the earliest applications, such as Bitcoin, which appealed to a libertarian fantasy about government-less transactions supported by online communities. It is, however, a delusional pipedream to believe any serious commercial application will lack firms. This is especially true where the application shapes large value, such as credit transactions, contracting for licensed services, and ledgers for crowdsourcing, which are all areas where there are prototypes for blockchain today.

Serious commercial buyers won’t use the application until there’s a reputable firm taking responsibility for it. There’s no mystery as to why. Users will train themselves, adopt and implement within existing systems, and build routines. They don’t want to incur those expenses and then become orphaned.

Just as with other software, users want somebody to take responsibility for the technology. That is, a firm must build the software and ID tags, define and maintain the human interactive process, fix the bugs when unexpected problems emerge, improve designs after suggestions, persuade new users to try experimental features, and record the sales of commercial services.

That’s not all. We should expect the modal use case to change and elements of modal operating strategies to adjust, as well. Blame that on popularity. New learning from users will lead to aggregation of those lessons by the marketing staff, who will translate those insights into incremental improvement in specific features of products and services. Hence, the valuable use case we look at today might or, in all likelihood, might not operate in ways similar to the valuable use case tomorrow.

The changes tend to accelerate as new features become widely deployed, diffused, and adopted. The value of mass-market rollouts might not be predictable because the operating model of mass-market firms remains shrouded in inexperience. The scale-relevant costs and margins can’t be known until firms deploy the valuable use case to actual users. No one will have experience with operations at scales to support mass-market users.

The timing also remains shrouded in unpredictability. In practice, these type of details—about operating strategies and their change—rarely make their way into industry conferences or general publications from consultants. Only the best white papers go there, and most often those stay inside firms trying to support the mass market.

Let’s tally it up. Any seasoned observer can expect complements, the evolution of use cases, and the inherent challenges of mass diffusion. More to the point, if you put yourself in the shoes of someone involved in building a product, why is forecasting difficult for major technological movements, such as blockchain? Even experienced experts can’t anticipate the twists and turns this evolution will engender. There are simply too many challenges.

Say, for the sake of argument, you can see behind the optimistic veneer of self-serving pronouncements and forecast where complements and operating models could generate value. After all, that isn’t implausible for an experienced founder or software business analyst, many of whom could sketch 90 percent of a firm merely from reading about the application. What is the next challenge for a forecast? It has to foresee the modal application of the technology (and complements), its operations, and, crucially, the timing of its evolution.

Again, prior experience helps forecast the likely outcomes, but won’t be foolproof. Broadly speaking, a consensus forecast will emerge, with analysts supporting or hashing out several identifiable theses for which businesses create more value, and which have pivoted appropriately to customer needs.
ECONOMICS

EXPERTISE

Standard economic analysis provides two reasons to expect low extrinsic incentives to invent technical transformations, such as blockchain. Inventors of major technologies typically don’t gain from the applications as much as the application providers do, and most of those gains come long after the inventor could possibly reap any rewards.

The usual antidote for lack of economic incentives are motivations other than extrinsic ones. Many people enjoy acquiring expertise for its own sake, for the scientific adventure of it, and for the hope of translating that expertise into a great wave. Indeed, at this very moment, a new generation of technological analysts are educating themselves on the nuances of blockchain. Some of this is about the money, but a lot of it is about enjoying the adventure and becoming expert.

As found in other big technological movements, we can expect a particularly prominent group of enthusiasts to occupy one extreme place, forecasting the arrival of valuable transformations next month. Contrast those with another, mostly misanthropic group that occupies the opposite place, laying skepticism in front of all projects. Somewhere in between these two, and usually closer to the enthusiasts in tone, are investors and business builders who also make such forecasts.

At the early stages of most big technical movements, enthusiasts typically outnumber misanthropes. Enthusiasts usually deliver incomplete analysis and push exaggerated views of the future, based on limited experience with nascent applications. There also are strong social sanctions against misanthropic conversation. Prescience about disasters is rarely rewarded in any social circle, much less in an industry conference for like-minded enthusiasts.

Returning to the economics of it, the incentives push in the same direction. Misanthropes have incentives to hold their tongue and not reveal all they know, so they can profit from the foolhardy behavior of others. The selection biases work badly at nascent moments: Talkative investors are the optimists, or merely the charlatans, and hearing only from them leads to a biased outlook. So much for getting an objective narrative from anyone.

CONCLUSION

In our own era today, there are many use cases for blockchain and scores of firms experimenting with developing prototypes to address those use cases. It is quite reasonable to forecast that one of these prototypes might someday lead to value. But which one, and when? The paradox of déjà vu makes forecasting nearly impossible: Though many of us have seen this movie before, we should expect it to remain unpredictable every time.

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