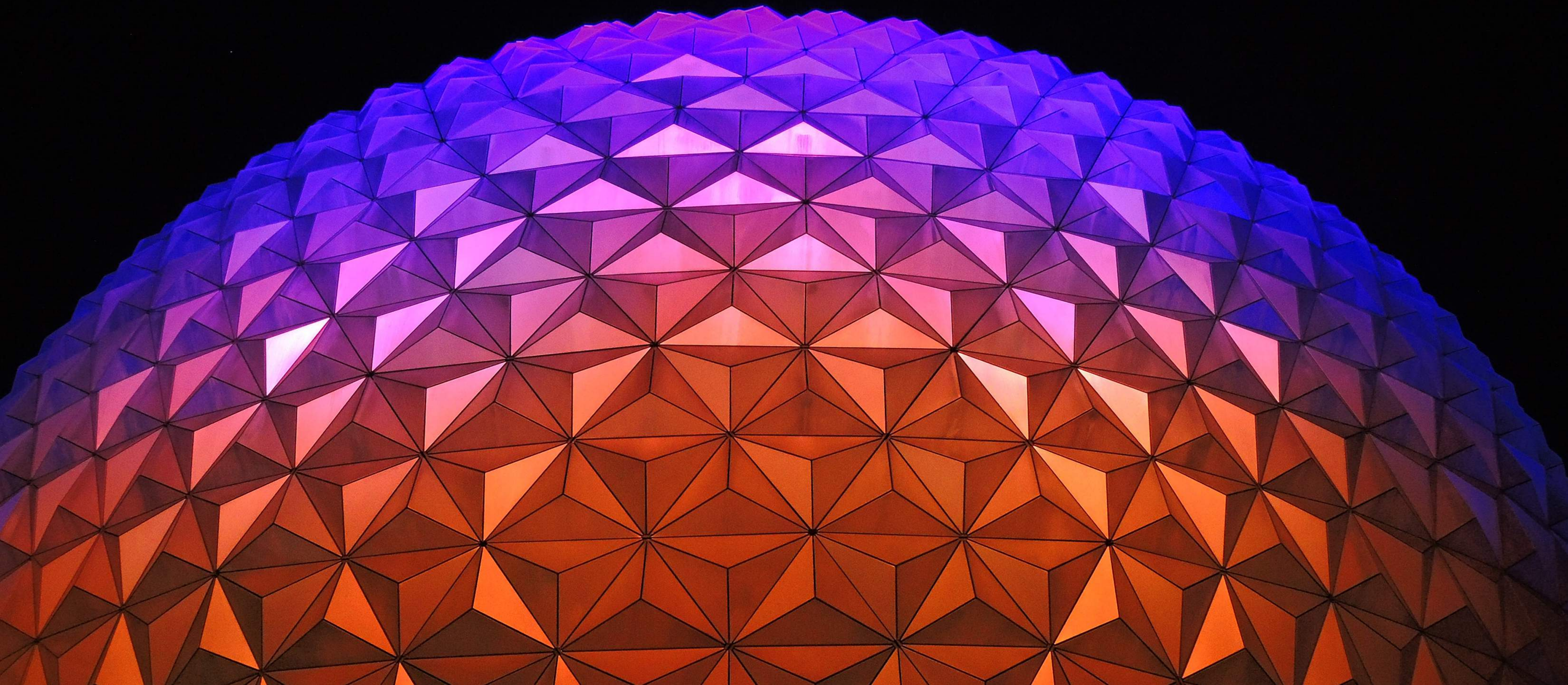


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In Focus

Blockchain in Context
Building an Ecosystem of the Future



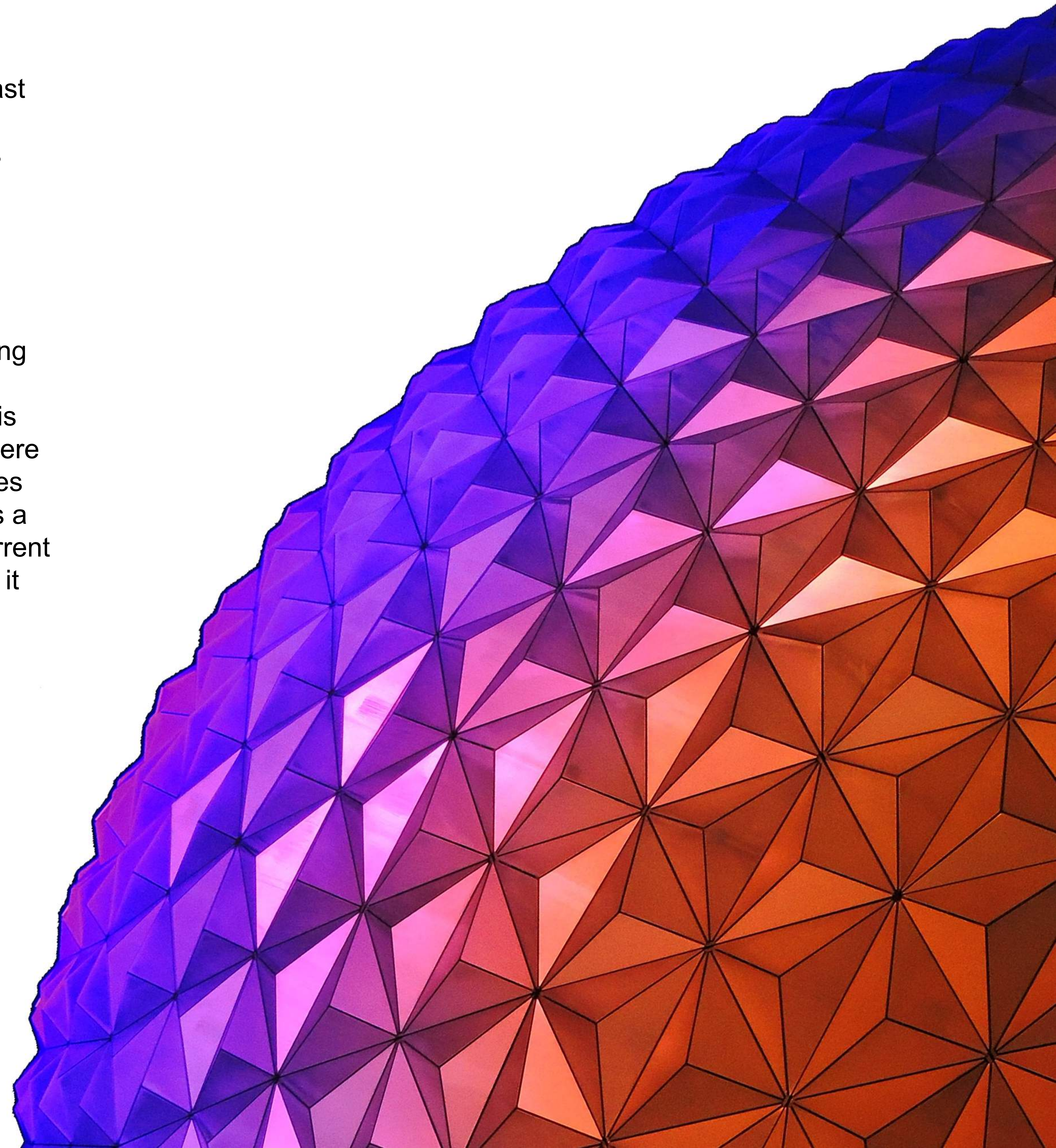
Blockchain in Context

Building an Ecosystem of the Future

This write-up focuses on understanding the current state of blockchain development—how projects have grown, where are the most compelling use-cases, what are the most pressing challenges, and what is the best way forward.

History Lesson

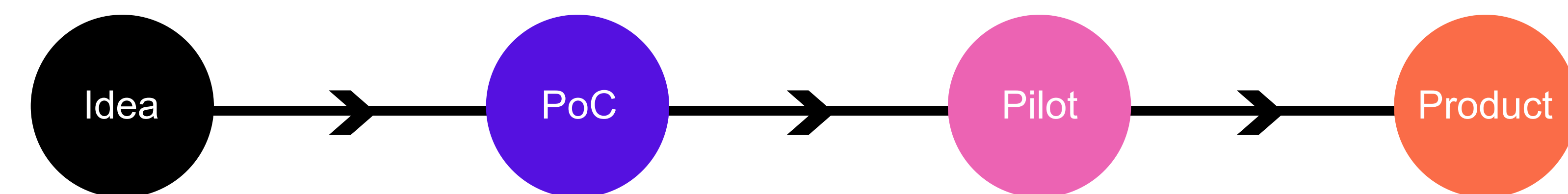
The Blockchain ecosystem is evolving every single day, with numerous use cases emerging across organizations in all industry verticals. The academic hypotheses that was born almost five years ago, is steadily gaining momentum. The past few years have seen a range of blockchain-based concepts being put to test. However, only a handful of these ambitious experiments will actually see the light of day. The China Academy of Information and Communications Technology (CAICT) claims that only 8% of the over 80,000 blockchain projects ever launched are still active today. Furthermore, blockchain projects only average a lifespan of roughly 1.22 years. This is concerning, especially with the importance being placed on the still so nascent technology. These numbers indicate that we might be moving in the wrong direction, but is that really the case? If yes, why is this happening? Why is there a large number of failed projects despite huge potential? Does the technology itself is proving to be a bottleneck, or is this is a case of cultural rejection? If no, what is really the state of current blockchain affairs? Why is there so much noise around it? Is it making any meaningful progress, or is it just massively overhyped? Let's find out.



How Things Stand

At its core, blockchain is really just a modern ledger system. The crux of its ability lies in recording financial transactions, storing medical records, or even tracking the flow of goods, information, and payments through a supply chain. And even though it can offer more security and, in some cases, anonymity, the reality is that on its own, blockchain doesn't really serve a purpose unless it is combined with a solid use case where it can act as a sort of trust system to ecosystem participants. The bottom line is, it's more of a business model enabler than a technology.

A huge number of blockchain projects have come up in the past few years, trying to solve multiple issues across different industries. Essentially, the different stages in a typical blockchain project follows the – Ideation -> Proof-of-Concept (PoC) -> Pilot -> Production – framework. The past couple of years saw institutions experimenting with different aspects of the technology in order to land some real-world use cases. And while most of these initiatives were in ideation/conceptualization stage, this year has seen the transition to the proof-of-concept and in some cases pilot stages as well. Both service providers, and tech disruptors are building multiple prototypes to effectively prove the dependability and usefulness of blockchain-based systems. The purpose of these trial engagements is two-fold – first, to find compelling use cases in specific business operations where blockchain as an enabler can completely transform how a system/function operates, and second, to understand the feasibility of such an engagement, find the true costs and ROIs that come with it, in order to fine-tune future blockchain propositions.



As it seems, a situation that has prominently appeared in most PoCs is that executives are starting to realize that creating a framework around blockchain requires a fundamental change to their businesses. Deloitte in its 2018 global blockchain survey reports that while a majority (74 percent) of the executives report that their organizations see a “compelling business case” for the use of blockchain technology, only 34 percent say their company has initiated some sort of blockchain deployment. With this in mind, for long term benefits, institutions have to move away from a ‘blockchain-as-a-platform’ point of view to recognize that it is more of a business model rather than a technological marvel.

First Wave vs Second Wave

Undoubtedly, the early mover advantage has been capitalized by the crypto-currency market. The growing popularity of the Bitcoins, and the Ethernets of the world has only helped the underlying tech to penetrate through to the masses. However, crypto currencies or digital currencies are only a part of the wider financial services vertical that is predominantly poised to be disrupted by distributed ledger technology. Executives within the financial sector have been actively involved in setting up blockchain-based experiments to pretty much every single vertical in the industry.

One of the major reasons why the financial sector is expected to be significantly transformed through this technology, is the existence of century old business models that involve multiple intermediaries, giving rise to issues such as lack of transparency which in turn leads to frauds, inefficiencies, and mishaps. This is true in the case of the healthcare industry as well. Understandably, these industries will pave way for higher number of use cases, and greater levels of modifications.

While businesses are keen on putting blockchain to ground use, the first level of disruptions have been focused towards creating a collective ecosystem, and ensuring mutually optimized business models. Which partly explains why there are only a handful of successfully implemented real-world business use cases for blockchain. However, the transition to the second wave is on its way, and is being carried in two manners. The first involves moving away from the overly hyped industries to develop solutions that are easier to implement, and have immediate consequences. Recent cases indicate towards the enormous opportunity that the supply chain industry presents, especially the distribution side of it. There is also a surge of blockchain-powered digital identification projects aiming to streamline the processes of identity verification across different platforms. The other dimension of the second wave will see institutions developing more and more consumer-centric solutions, and not just enterprise solutions. This will be accompanied by the increasing popularity of the blockchain phenomena to the masses and will force executives to build consumer facing solutions as well.

And if everything goes per plan, the upcoming third wave will see solutions coming back to the more traditional industries of finance and healthcare again.

The Network Effect

Network effects are a phenomenon whereby the value to the user or consumer of a product or service increases as its user base grows, so they can only be leveraged if users are able to interact on the same network. So even if the overall market for a networked product is very large, it will have less value if that market is fragmented. For example, early on in the telephone industry, even if a friend had a telephone, you would not be able to call them unless the two of you were connected to the same provider. Such fragmentation decreased the value of having a phone.

In its purest form, blockchain can only succeed if every entity involved in a system invests in it. In this context, any industry hoping to profitably deploy a blockchain based project, it will necessarily require all vendors, suppliers and institutions involved or impacted by the process to apply blockchain technology to ensure that they're on the same page. It's not that individual networks cannot survive, but in order to reach a stage where businesses can ensure competitive pricing will require everyone to be on the same network.

Blockchain Mindset

The very nature of a decentralized network creates helps it create a permission-less system which means that no single entity can control such a network, and everyone involved has equal influence over it. Which is why, a blockchain's network effects can be monumentally valuable.

In reality however, for such a scenario to occur it would take a while. A common problem with a large number of blockchain projects not reaching the implementation stage is the lack of a network effect yet. With time, businesses will realize that creating private blockchain is necessary, but communicating with other private blockchains is essential.



The real value derived from a blockchain, is the trust it induces in a system. And while the promise is huge, a lot of propositions intend to apply blockchain to something that doesn't really need blockchain. As tempting as it sounds, decentralized systems are not really required everywhere. In cases where you are dealing with trusted service providers, centralized systems can work just fine. In fact, decentralized systems suffer from their own drawbacks. It's near impossible to figure out a single point of failure in case of a breakdown.

The hype of the technology has forced institutions to approach any problem with a blockchain mindset, which is backfiring in a lot of cases. For instance, blockchain works only in a digital setting. Things which are not digital are tough to be represented on blockchain in a non-repudiable manner. On the face of it, applying blockchain solutions makes sense only when there are multiple parties involved and there is a problem of trust between them.

Blockchain is revolutionary, no doubt about that. But it cannot solve everything! Another extremely significant issue out of blockchain's league is privacy. Contrary to popular opinion, blockchain is actually traceable, which basically means that it can never fully guarantee privacy. And while people have a way of being able to make great things happen, especially with technology, every new piece of tech that comes out looking great, there's always going to be room for human error, emotional decision making, and more.

Challenges



Cost/Revenue

Today, most if not all enterprise blockchain initiatives are in the proof of concept phase – and even though a few have had positive results, none of them have attempted to scale up or run for long periods of time. And until that happens, much of the cost justification explanations for blockchain can only be based upon unsound assumption, and nothing more than that. Furthermore, for businesses to realize the actual cost savings it would again require a unanimous use of blockchain-based systems across the whole ecosystem.



Lack of Talent

The excitement around the areas of blockchain has unfortunately not been matched by a supply of appropriate talent. There is a lack of predefined skill set required, which in turn create an ambiguous career path for future prospects. In fact, most companies are hiring Java developers to engage in Blockchain-based projects, since there is no such thing as certified ‘blockchain developers’. And while both education and training are being introduced to fill the skill gap, it is only a step in the right direction

To best address this challenge, it is important to embrace a globalized delivery of vocational education and training with agreed levels of minimum requirements and a framework that allows for continual assessment of this growing and evolving industry. And until we see significantly transformational real-world use cases, all of this is unlikely to happen.



Business/Economic Model

Probably the biggest and the most important hurdle for institutions will be restructure their business models, and align them with the goals of a new blockchain-powered framework. Again, if all entities involved in an ecosystem are working on using the same tech, it becomes easier to find better business solutions. Since it has the ability to bring an infrastructural technology for how companies handle and process data, invoice, pay suppliers, interact with consumers and operate more efficiently, blockchain has the unique opportunity to develop corporate governance models which make decision-making in large companies more democratic.

Who are they players, and why collaboration is key

Blockchain technology is being explored by both large and small players. The most obvious being the emerging startups and innovators, who are focused on building services, business models, and in turn ecosystems that allow businesses and institutions to transform their existing services. The other major group here is the consulting firms, whose interests are two-fold – first, they want to become familiar with the actual technology by getting their hands dirty, so they can build their own capabilities in the future. Blockchain technology is being explored by both large and small players. The most obvious being the emerging startups and innovators, who are focused on building services, business models, and in turn ecosystems that allow businesses and institutions to transform their existing services. The other major group here is the consulting firms, whose interests are two-fold – first, they want to become familiar with the actual technology by getting their hands dirty, so they can build their own capabilities in the future.

Since collaboration with other firms is now the go-to solution for the players in blockchain's current ecosystem, here are some of the important trends that have come up in this research:

Consulting companies are very rapidly collaborating with tech startups, in order to create offshore development capabilities. Startups do not have the networks to distribute their products to the market, but have all the important tech know-how. Consulting companies on the other industries are bundled with industry expertise and have well-defined scalability networks.

created by blockchain, firms are using their existing relationships to push blockchain initiatives. Again, expertise in specific sectors will play an important role in how this technology can build specific solutions in these industries. A large number of events and conferences are happening around it, to not only create interest around the technology, but also more importantly to initiate collaborative efforts.

Internal trainings around blockchain are becoming a frequent phenomenon in all types of firms, as well as education institutions. There is also a handful of education programs being created to pass the baton to the younger generation. In this light, there is also an angle of collaborations between firms and educational institutes.

Interdependence between different technologies

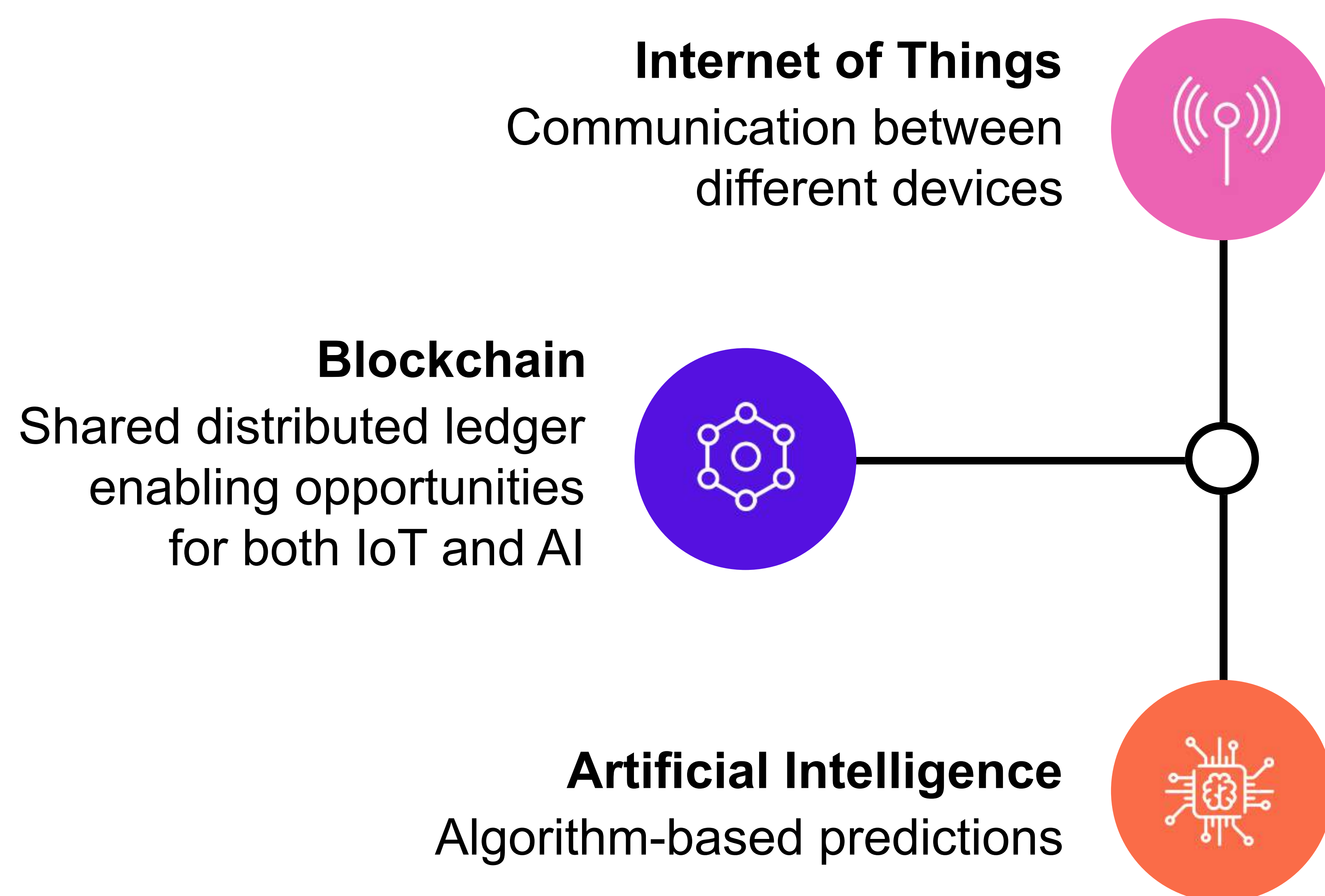
Both Internet of Things (IoT) and Artificial Intelligence (AI) rely on huge chunks of data, which allow them to trigger communications between different devices and make room for algorithm-based predictions. Essentially, access to data is what can make all of this possible. On the other hand, business networks tend to be made up of multiple players who are often reluctant to share their data with each other "because they don't fully trust each other, which makes it difficult to avail the combined set of data.

Now, blockchain can help us do away with the problem of trust. As a technology, blockchain opens up a shared distributed ledger, which is a very specific database that features strict confidentiality, access and consistency requirements. Since these requirements are enforced, parties see an advantage of opening up toward a shared distributed ledger -- providing one truth between multiple companies because there's more protection in terms of cryptography and protocols. It allows those of us on these networks to see databases of data that have never been brought together before, which creates opportunities for new forms of communication and analytics. So basically, in a right set of structures, blockchain should be a prerequisite to IoT and AI.

The Way Forward

The amount of efforts being put into blockchain technology, would allow us to believe that by now we would see a larger proportion of projects in their production stages. Still, even though blockchain is rolling out in a more moderated fashion than expected, its adoption remains promising. In hindsight, organizations can now stop spending too much time and effort focusing on the technology and, instead, focus on identifying areas of friction and outworn processes that can benefit from the democratization of trust.

However, if blockchain is to enter the mainstream it needs active involvement of regulatory bodies, as standardization within the industry will be one of the key factors determining whether it sees mass market adoption. The next year will probably see the continuation of a current trend, a steady move towards create meaningful PoCs and pilots. There is no way to know which will come out on top at this stage, but the bigger picture will be a positive development as a new unified standard will eventually emerge. Blockchain-based companies will start developing applications, serving as the basis for the growth of the technology.



Vision of the Future

If blockchain is anything like its predecessors, it will probably be while until it reaches its full potential. As and when it does, a system as such may solely facilitate collaboration and tracking of all kinds of transactions and interactions. The advent of Blockchain as a trust-establishing mechanism will give rise to a system where no central authority is required to validate the accuracy of transactional records; instead, trust will be a byproduct, maintained through consensus within a peer-to-peer (P2P) network.

This technology of the distributed asset ledger combined with an incentive-producing currency is certain to remain with us for a long time. It is a mechanism that allows for great gains in efficiency in many situations in which trust previously had to be delegated to a central arbiter. Although there is no question that governments and central authorities will continue to exist and play a meaningful role in the world's future, the new blockchain powered ecosystem will see every individual having equal access to all the information. A system like this will not only create decentralized monetary systems, but also give rise to blockchain based self-identity standards, along with credible global trade practices. In turn, enabling fairer governance models, increasing financial inclusiveness, reducing corruption, and empowering decentralized access to value-creating assets. All of this, made possible by establishing a universal, tamperproof baseline; a baseline of trust, and of facts, that cannot be altered by interlopers, governments, or outside interests.

