THE LINUX FOUNDATION | Research

Enterprise Blockchain and the Hyperledger Brand

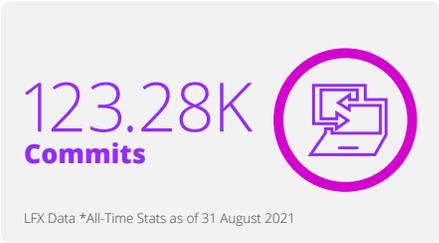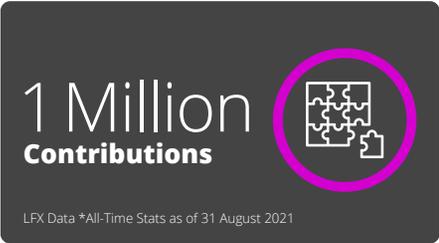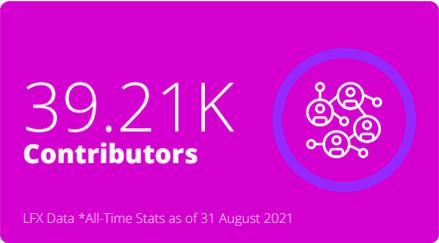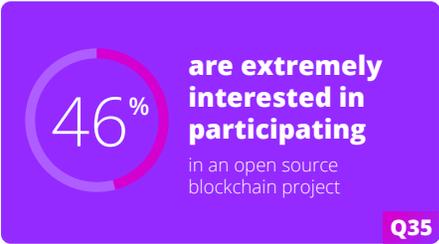## Challenges and Opportunities

October 2021

Marcus O'Dair

In Partnership With

HYPERLEDGER

Contents

56% The majority of respondents were familiar with Hyperledger (those answering familiar, very familiar, or extremely familiar). **Q10**

26% describe blockchain as "a cryptographic data structure that can be shared between multiple entities" **Q11**

55% of survey respondents are evaluating or implementing blockchain, or have done so already **Q12**

43% of blockchain developments or deployments are in financial services, followed by supply chains at 39% **Q17**

87% see business blockchain technologies as "growing moderately or rapidly" **Q19**

Hyperledger and Ethereum are leaders in brand familiarity **Q21**

3% Fewer than 3% described the Hyperledger brand or technologies as "cryptocurrency" **Q22**

Hyperledger and Ethereum are the leading brands in perception with both having greater than 53% very positive and 31% somewhat positive ratings. **Q23**

37% of respondents are within 1 year of deploying blockchain **Q28**

58% will consider, evaluate, or implement Hyperledger Fabric within their organization **Q29**

The leading Hyperledger tools being evaluated include **Hyperledger Explorer (30%)** and **Hyperledger Caliper (21%).** **Q30**

58% view "open source" as the most appealing enterprise blockchain attribute **Q31**

Leading challenges with blockchain: lack of maturity (58%); difficulty in adoption & integration (50%); comprehensional complexity (49%) **Q33**

Nearly ½ of respondents see blockchain as **being associated with regulatory risk** **Q33**

46% are extremely interested in participating in an open source blockchain project **Q35**

45% say Hyperledger should change its name to Hyperledger Foundation **Q37**

39.21K Contributors
LFX Data *All-Time Stats as of 31 August 2021

1 Million Contributions
LFX Data *All-Time Stats as of 31 August 2021

123.28K Commits
LFX Data *All-Time Stats as of 31 August 2021

271 Repositories
LFX Data *All-Time Stats as of 31 August 2021

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Foreword

Hyperledger is home to one of the largest enterprise blockchain communities and code collections. From our seat, it seems that the adoption and maturation of the platforms and tools are accelerating. However, we thought it was important to validate that perception.

We asked the Linux Foundation Research team to take a formal look at the state of the market and of our brand with a detailed survey collected from a knowledgeable but neutral audience. The timing, we felt, was particularly key as blockchain technology has been tested and proven in new ways in the last 18 months.

This survey details a number of interesting findings and confirms much of the progress both the industry and Hyperledger have made in just over five years.

However, it also highlights places where there is work still to be done.

The report that follows will be a valuable tool in focusing the community and staff on building the business case for Hyperledger technologies, creating a clearer project roadmap and enhancing the value to members, all key to our commitment to advancing the state of enterprise blockchain.

 - Brian Behlendorf
   Executive Director, *Hyperledger*

Executive Summary

This report, commissioned by the Linux Foundation, examines perceptions of Hyperledger and enterprise blockchain more widely. The focus is the Hyperledger brand, rather than Hyperledger's technology. Drawing on survey and interview data as well as secondary sources, it identifies both challenges and points of leverage with the aim of informing Hyperledger's strategic development, particularly in terms of marketing, communications, and community building.

According to the interview and survey data:

- Hyperledger is building on a strong foundation, strong governance, and the goodwill of the developer community. To reach decision-makers in enterprise blockchain, it needs clear branding and marketing of its many offerings and clear and compelling communications that make the most of its use cases.

- Hyperledger must tailor its explanations of enterprise blockchain to senior management, focusing on clear business cases rather than technical distinctions, and hone the identities of the brands in its portfolio.

- Hyperledger sub-brands are confusing the enterprise audience. Individual projects need distinct boundaries with distinct attributes or business propositions that appeal to distinct audiences.

- Hyperledger could do more to market itself through high-profile executive education, funding startups using its ledgers, and communicating enterprise blockchain's value through use cases.

- Hyperledger must do more to build a community of enterprise users as it has done for coders and cultivate collaboration to solve blockchain network implementation challenges rather than every Hyperledger member trying to solve these challenges in isolation.

Introduction

While cryptocurrency speculation makes the headlines, there is a sense of 'blockchain fatigue' in the enterprise space, as the initial hype has died away and use cases have emerged more slowly than predicted. Yet enterprise blockchain use cases are emerging, across the board from digital identity to supply chain traceability. As an open source community focused on enterprise-grade blockchain deployments, Hyperledger is well positioned to capitalize on this situation—particularly in the context of a bull market for cryptocurrencies and the digital transformation of business and society accelerated by Covid-19.

Challenges

This section highlights the branding and communications challenges that enterprise blockchain initiatives in general, and Hyperledger project leaders in particular, must work to overcome.

Growing pains of enterprise blockchain

Although they come in all shapes and sizes, enterprise blockchains face common problems across the space. Survey respondents identified these as the top challenges:

- lack of technological maturity (58%)

- difficulty of adopting and integrating with legacy systems (50%)

- difficulty of explaining to senior management (49%)

- regulatory risks (48%).

Interview respondents raised several of these same issues. Montse Guardia, general manager of the Alastria Blockchain Ecosystem, referred to lack of technological maturity as a barrier to communicating

with senior managers who might not be familiar with a research and development (R&D) approach to IT systems. By that, she meant agile methods of managing projects that are nonlinear and iterative, often characterized by design sprints, rather than more traditional linear approaches. Guardia herself does not see this as a problem in her organization, but she does see it as a potential concern for those less comfortable with agile ways of working: "Some enterprises are still thinking that it's too risky to build on something that is still in research. But that's not true. It's risky not to do it."

As is now widely recognized, the management practices of successful organizations can blind them to the value of disruptive technologies because their ways of working are optimized for "more of the same." This is what the late Harvard professor Clayton Christensen called "the innovator's dilemma." Christensen observed, "The very decision-making and resource allocation processes that are key to the success of established companies are the very processes that reject disruptive technologies" like blockchain, smart contracts, and the tokenization of assets.[1]

Ian Putter, head of the Blockchain Centre of Excellence at Standard Bank, explicitly referred to the difficulty of connecting to legacy systems. For Putter, any

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1   Christensen, 1997: 98.

enterprise blockchain solution must integrate with legacy technology for it to realize its full potential.

Sheila Warren, head of data, blockchain, and digital assets at the World Economic Forum, raised regulatory risks as a concern, particularly in the context of decentralized finance (DeFi). "In the DeFi space, very specifically and narrowly, regulation could 100 percent cut off innovation at the knees before it even really gets started," she said. Enterprise decision-makers are unwilling to invest in DeFi solutions that governments at multiple levels could quash instantly through the passage of new regulations or reinterpretations of existing ones.

Several respondents pointed to the difficulty of explaining blockchain technology to senior management. On the one hand, radical advocates of public blockchains and cryptocurrencies resist enterprise innovations that go against the blockchain ethos of transparency, inclusion, and decentralization. Jeremy Epstein, chief marketing officer at Gtmhub and a self-declared "blockchain purist," is unequivocal: "To me, *private blockchain* is an oxymoron. You want to call it a *distributed ledger,* be my guest. But calling it a *blockchain* is insulting. You're trying to ride the marketing hype." On the other hand, the negative associations with public blockchains might be strong enough to give senior managers pause.

Some understanding of the technology is necessary to grasp its full potential, but going into technological detail with C-suite executives is likely to be counter-productive. According to Guardia, blockchains differ from other forms of technology with which enterprise users might be familiar. For a couple of decades, she said, the obvious technological advances have been in user experience. Blockchain, by contrast, is a "back-end technology"; its power lies in networking companies in the exchange of information. For Guardia, the target audience must understand blockchain as "more than IT."

Although less clear in the survey, a theme of the interviews was the need for a change in mindset to go beyond incremental innovation in the enterprise block-chain space. For Epstein, the potential is not simply in making what an enterprise already does better, faster, and cheaper. It is in "decentralizing the business model re-engineering process." That begins with decentralizing databases and increasing transparency and progresses to "re-inventing the enterprise."

Putter, coming from a less radical perspective, broadly agreed: "I think enterprise blockchains will always have a place. But I think that what they are mainly used for is efficiency plays, which is wrong. By 'efficiency play,' I mean trying to make what we are doing today more efficient. [In fact], we can use Hyperledger to totally disintermediate existing systems."

Guardia said it was about redrawing the edges of the organization, looking at the whole ecosystem or "matrix of relationships." Enterprise blockchain represents "a change of paradigm," from autonomy to dependencies. "This is a technology that requires some changes in your understanding of the business," she said. "I'm not interested in how comfortable the car is. What I'm telling you is that the motor is completely different. It's not about the dynamics, or the speed. It's about how it's built, how you are going to be transported."

For this reason, enterprise blockchain—or, as Epstein prefers, "distributed ledger technology" or DLT—languishes in the "trough of disillusionment" stage of the Gartner hype cycle. Epstein sees enterprise blockchain as the equivalent of the intranet: useful in increasing efficiency but ignoring the real innovation taking place on the public Internet or on blockchains, "where you can do stuff you literally couldn't do before." Even those who have more time for enterprise blockchain sense that this is an ecosystem technology. "The benefits for one company on its own," said Warren, "aren't in any way as high as those for cross-collaboration across silos."

Katherine Foster, executive strategy officer of Open Earth Foundation, sees a winner-takes-all approach: "Everyone is building out in silos and competition." As she put it, "Everyone is building websites. No one has built the Internet yet." The technology is powerful because it is distributed, yet enterprise blockchain is being used in silos. "That's the big contradiction." As Michael Casey pointed out in a recent article for CoinDesk, getting the most out of blockchain technology means looking beyond one's own organization to business partners and even competitors. "It requires an open, collaborative, come-what-may approach to participation that's anathema to business models built around trade secrets and protecting competitive advantages," Casey wrote.[2]

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2   Casey, 2021.

Visibility and boundary issues for Hyperledger

The previous section identified some challenges facing enterprise blockchains. This section focuses on challenges unique to Hyperledger.
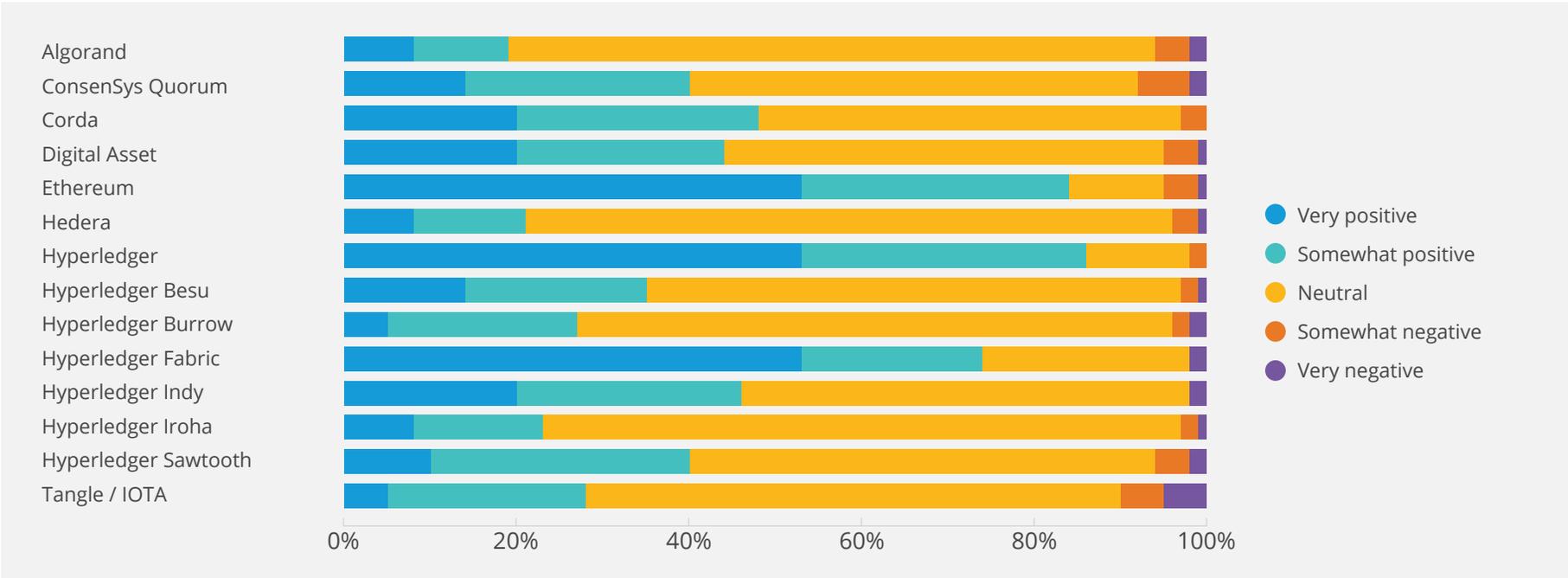
The survey suggested that perceptions of Hyperledger are "very positive" (53% of respondents) or "somewhat positive" (33%). Hyperledger Fabric is also seen very positively (52%) or somewhat positively (21%). While only 24 percent of respondents described themselves as having a "neutral" view of Hyperledger Fabric, a much higher proportion described themselves as "neutral" in their perceptions of Sawtooth (55%), Besu (63%), Indy (53%), Iroha (75%), and Burrow (69%).

Figure 1: Blockchain Brand Perceptions

What are your perceptions of each of the following brands?

N=142, single response per row, percent responding

Legend:
- Very positive
- Somewhat positive
- Neutral
- Somewhat negative
- Very negative

Categories: Algorand, ConsenSys Quorum, Corda, Digital Asset, Ethereum, Hedera, Hyperledger, Hyperledger Besu, Hyperledger Burrow, Hyperledger Fabric, Hyperledger Indy, Hyperledger Iroha, Hyperledger Sawtooth, Tangle / IOTA
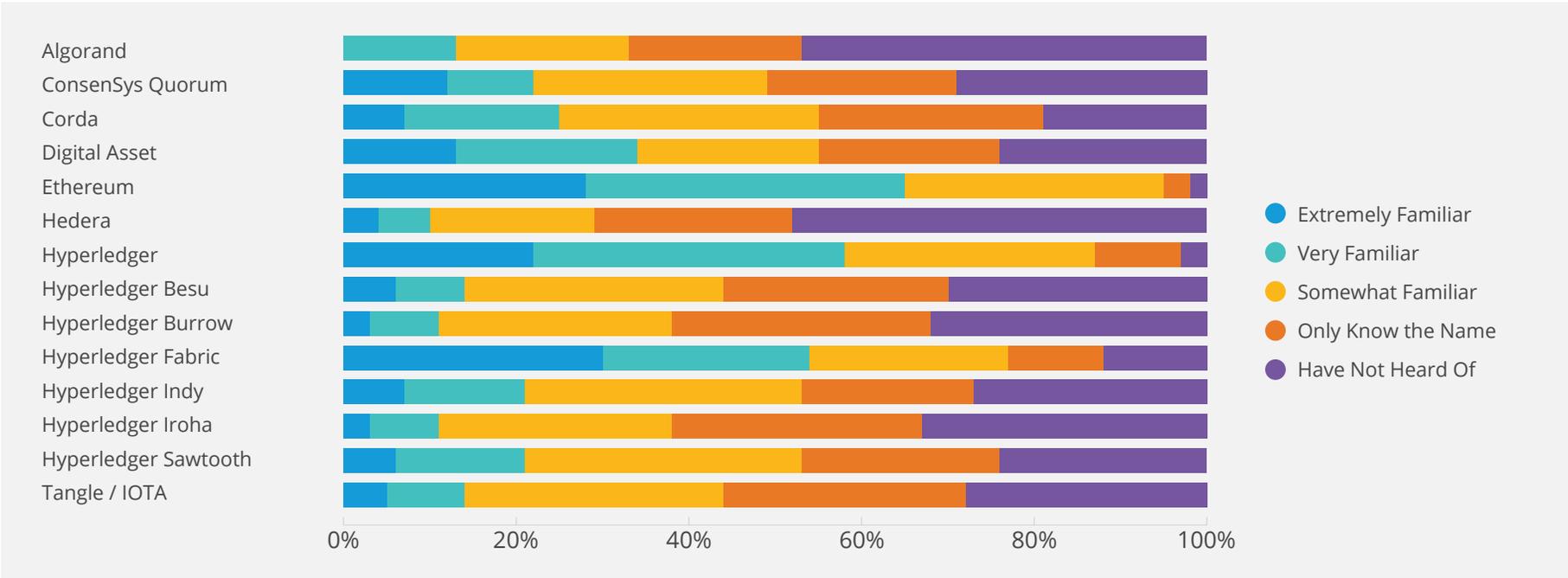
Source: Hyperledger Brand Survey, June 2021.

A higher proportion (30%) of respondents were "extremely familiar" with Hyperledger Fabric than with Ethereum (28%), ConsenSys Quorum (12%), or Corda (7%). However, only seven percent described themselves as extremely familiar with Hyperledger Indy, and the numbers were even smaller for Hyperledger Besu (6%); Hyperledger Sawtooth (6%); Hyperledger Burrow (3%); and Hyperledger Iroha

(3%). At the other end of the scale, only 12 percent of respondents had "not heard of" Hyperledger Fabric but higher proportions had not heard of Hyperledger Indy (27%), Hyperledger Besu (30%), Hyperledger Sawtooth (24%), Hyperledger Burrow (32%), and Hyperledger Iroha (34%).

Figure 2: Business Blockchain Brand Familiarity

When it comes to business blockchain, how familiar are you with the following brands?

N=159, single response per row, percent responding

Source: Hyperledger Brand Survey, June 2021.

Nearly half the survey respondents (49%) didn't know whether Iroha was an open source consortium, a collaborative project, a blockchain platform, or a crypto-currency. The same proportion was unsure about Burrow. Almost as high a proportion (45%) were unsure about Besu.

Hyperledger Explorer (named by 30% of respondents) was the tool most likely to be considered, evaluated, or implemented within respondents' organizations—but there was evidence of confusion, with 54 percent answering, "don't know or not sure."

The interviews also reflected a sense that, while Fabric is widely known, respondents were much less familiar with other Hyperledger ledgers, libraries, and tools. Warren spoke of an "almost bewildering variety of products," citing Fabric, Indy, and Sawtooth as the few she considered reasonably established. ("I happen to know Iroha. I don't think anyone else does.") Putter also admitted to being confused by Hyperledger offerings, while Foster said she knew half of them at most. Guardia outlined the challenge: "People think that Hyperledger is Hyperledger Fabric. Hyperledger is much more than that...But most people in enterprise are not aware of that." Guardia was familiar with Besu, which other respondents regarded as more obscure.

Many survey respondents did not know which companies contributed to the Hyperledger code base, although they associated it with IBM—even though IBM is just one of the seven "premier" members listed on the Hyperledger website, among a much larger number of "associate" and "general" members.[3]

Interviewees also picked up the association with IBM. "I still think the Hyperledger-IBM affiliation persists," said Warren. "I just think that's a reality, despite great efforts to distinguish it." Putter stated that, at some point, Hyperledger had started to feel more like "an IBM ledger" and suggested some community members thought that Hyperledger had been "hijacked" by IBM. "They sell consultancy services through Fabric," said Putter. "There's a business model that's linked to this technology." Although Guardia recognized the strong and enduring association with IBM, she pointed to the use of Hyperledger Fabric by Telefónica as evidence that association is starting to dilute, at least in some contexts.

Three other issues surfaced more clearly in the interviews than in the survey. First was a sense that Hyperledger was in jeopardy of losing its visibility. Warren still saw Hyperledger as the "dominant player" in enterprise blockchain, and Epstein agreed that Hyperledger still has greater brand awareness than enterprise alternatives. But they intimated that this dominance might be slipping. For instance, Aly Madhavji, managing partner of the Blockchain Founders Fund said, Hyperledger "has just been behind. It doesn't even come up, to be honest." Blockchain Founders Fund does have companies building on Hyperledger but, to Madhavji, "it feels less and less popular." Some companies, said Madhavji, are building their own ledgers or using decentralized alternatives. Others are using R3 Corda. Putter also saw Hyperledger as less visible than it was a few years ago. He said, "R3 is putting in a lot more visible effort."

3   Hyperledger.org

The second issue was a perceived tension between corporate and open source cultures. "When I think about Hyperledger, open source blockchain technologies, and the Linux Foundation, there is a tension around the business model—a contradiction or personality split there." Warren likewise pointed to a "tension" between the Hyperledger community, which she likened to Mozilla and the Electronic Frontier Foundation, and the more corporate customer base.

Hyperledger's associations with IBM, Warren suggested, contributed to the perception that it was not cutting edge.

The third issue was the need for Hyperledger to coalesce various actors in the ecosystem. Putter identified what he called the "missing link": although Hyperledger is at heart an open source developer community, its chances of wider adoption would be improved by developing a sense of community at the level of organizations akin to that which it already has at the level of developers. "I think a lot of people want to use Hyperledger as a business model," he explained. "They want to be first. They want a patent. And I don't see that as creating the community for the open source technology to scale and to connect communities."

Opportunities

This section looks at how enterprise blockchain brands in general, and Hyperledger in particular, might overcome the challenges identified above.

A turning point for enterprise blockchain

Figure 3: Level of Agreement with Blockchain Characteristics

Please indicate the extent to which you agree or disagree with the following statements:

N=139, single response per row, percent responding
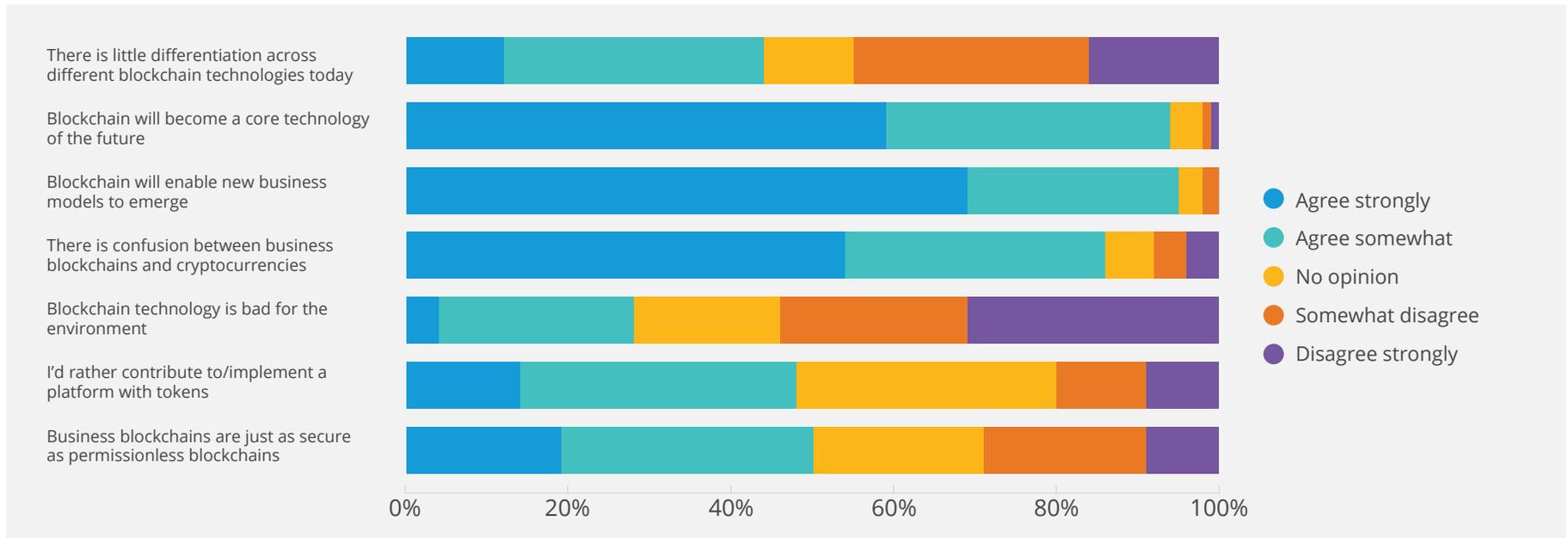
Source: Hyperledger Brand Survey, June 2021.

Blockchain technologies are here to stay, and savvy enterprise users are preparing their organizations for the next wave of blockchain innovation, driven by the scaling of use cases. By and large, survey respondents expected blockchain to become a core technology (59% of respondents said they "agree strongly" with this statement) that will enable new business models to emerge (69% strongly agreed).

The majority of survey respondents expected blockchain to grow either moderately (35%) or rapidly (52%) over the next two years. Many respondents were evaluating and testing blockchains in their organizations (22%) or actually implementing them (33%). Many remained at pre- proof of concept (27%) or proof of concept (22%) stage, but a significant number had reached deployment (25%).

Survey respondents identified several main advantages of enterprise blockchain that advocates and early adopters could be illustrating in graphics and case studies:

- accountability even if individual actors might not be trustworthy (72%)

- single source of truth among multiple participants (68%)

- auditability (60%)

- ability to share data with a greater degree of security (55%)

- traceability of goods and transactions (52%)

Survey respondents pointed to financial services (mentioned by 43%), supply chain (39%), identity (33%), and education and research (26%) as the most promising sectors. Interview respondents highlighted similar areas: Madhavji mentioned healthcare, financial technology (fintech) and insurance as growth areas for private blockchains, while Warren pointed to DeFi, non-fungible tokens (NFTs), and identity.

A theme that emerged in the interviews was idealism, that the crypto maximalists and cypherpunks were naïve. "It's a little bit of a pipe dream at the moment to think that blockchain, defined by Bitcoin and Ethereum, is going to take over the world," said Putter. He pointed to problems with scalability and efficiency, as well as to regulation. "If you look at Ethereum and Bitcoin, people are fanatical about disintermediating what is there. It's not going to happen. Trust is still required. The world cannot be decentralized." Madhavji's view was opposite that of Epstein: "Some people in the crypto space think that an enterprise blockchain is not a real blockchain. At the end of the day, it solves a multi-party trust issue. So, it doesn't actually matter that it's a private blockchain. It creates some sort of value for the parties involved."

For Foster, this is a big moment for enterprise blockchain. "We've gone beyond the hiccups of the first few years. We've grappled with the conflation of crypto with blockchain for enterprise," she said. "That was a big hurdle to get past, as was the period of pitching blockchain solutions for everything with very little architecture actually built. We're now in the wake of those two big waves. We're at a maturation point." She

expects "rapid growth and maturation in the space, in terms of the technology, the use cases, and," she hopes, "a market open to scaling up those use cases." For Guardia, the opportunity is to bring transparency to the supply chain and present the consumer with a clear and more personalized offer. For Epstein, it comes down to trust:

> One day you're going to go into a store and you're going to wave your phone over a bag of coffee with, for example, the Rodriguez family picture on it. And what you're going to want to know is, "How do I know that these beans actually came from the Rodriguez farm and it's not just some marketers slapping an indigenous family picture on to make themselves feel good and sell more coffee?" And not only will I want that, customers will expect and demand that.

It is ultimately a question of brand authenticity. "With consumer trust in brands at critically low levels, the blockchain is emerging as a potential remedy, and may become a key foundation for branding in the future," wrote Sunil Erevelles, Brian Whelan, and Padma Bulusu in their article, "The Blockchain Brand." "Indeed, a picture of the future 'blockchain brand' is emerging, where consumer trust is restored through the use of a secure and transparent technological framework that enhances brand identity and authenticity, while safeguarding consumer data."[4] Enterprise brands can regain consumer trust by using blockchain technologies to increase their own transparency while respecting their consumers' privacy and data rights.

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4   Erevelles et al, 2020.

# Leveraging the strengths of Hyperledger

Hyperledger has many strengths to build on, according to the survey. Among them are its open source paradigm (74% said this described Hyperledger "completely"), its trustworthiness (61%), its strong governance model (54%), its affiliation with a nonprofit foundation (54%), and support from leading companies (54%). Respondents viewed Hyperledger favorably as built by and for enterprise users (53%) and always evolving to meet new demands (50%).

Figure 4: Hyperledger Attributes

How effectively do the following statements describe Hyperledger?

N=142, single response per row, percent responding
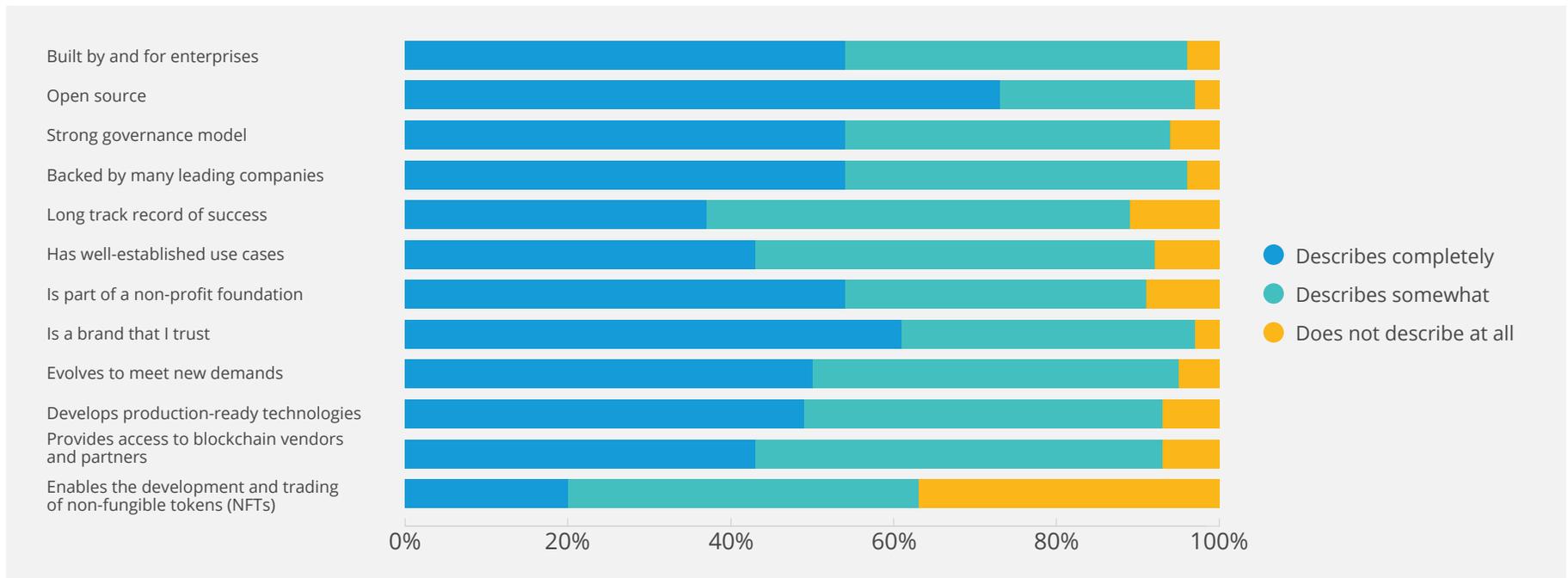
Source: Hyperledger Brand Survey, June 2021.

Interviewees raised some of these points as well. Ian Putter, for one, praised Hyperledger's responsiveness: "It's very easy to work on Hyperledger. There is a community already. It improves rapidly, every single year." To guide and accelerate this improvement, Hyperledger could be just as active in rallying enterprise members to collaborate as it is effective in rallying coders. Also, just as it invites academics to participate via a dedicated tab (https://www.hyperledger.org/participate/academic), Hyperledger could specifically invite business, nonprofit, and government entities to contribute.

Guardia referred to Hyperledger's open source approach as a strength. "It is like Lego...What you need to do as an IT architect is to join the pieces," she said. She prefers building from tried-and-tested pieces to starting from scratch, as it saves time and money. Guardia also pointed to the importance of the nonprofit foundation behind the Hyperledger technology brand. "You want the foundation to be solid," she said. Epstein also pointed to the connection with the Linux Foundation as a strength: "That's the most trusted operating system on the planet...That's a differentiator, for sure."

The interviews raised issues less evident in the survey. One was the strength of the Hyperledger organizational brand. Even Madhavji, who had suggested that its dominance might be ebbing, underscored its value: "The brand of Hyperledger can be revived and brought back pretty quickly. It's a super powerful brand in the space. You probably won't find many people who don't know it. That's a huge advantage."

Acknowledging that people spoke relatively highly of the technology itself, Epstein—a branding and marketing

expert—recommended that Hyperledger leverage existing strengths in enterprise, tone down the details of the tech, and emphasize tangible benefits such as cost savings and supply chain transparency. "Let's get some good business value case studies where we have some customers who are saying, 'Yes, we've realized all these efficiencies, but we've also changed our culture. And it's all been possible because we've used Hyperledger.'" Epstein sees an opportunity for Hyperledger to present itself as "the vehicle to bring trust back to a world that's fragmented and falling apart." Hyperledger could be the brand that brings transparency to supply chains and backs up brand promises. DLT, he insisted, "is a story about trust."

Foster suggested that Hyperledger help others in the community to "communicate what blockchain is and isn't, what platforms we're using and not using." Ultimately, she said, "we don't want to be talking about blockchains at all." In the interim, innovators building enterprise platforms and applications with Hyperledger ledgers, tools, and libraries need simple bullet points, for instance, distinguishing between enterprise blockchains and cryptocurrencies or else "we're always going to get stuck back in that," she said. Interviewees also suggested distinguishing among the Hyperledger offerings according to their value proposition.

For example, Guardia said that the value proposition of Fabric is privacy: it is best suited to a specific use case where an enterprise needs privacy and already knows the other parties involved. At the same time, she pointed out Fabric's trade-offs: "Your use case is closed. It's locked. So, it's very difficult to scale up." She said that it's also expensive: "You need to be able to invest.

You need to have your budget for service maintenance." In contrast, one of Besu's value propositions is scalability. "It's the opportunity to add more nodes, more players, in a fast and easy way," said Guardia. "And it's much cheaper."

Other ledgers have their strengths and weaknesses, too, and Hyperledger could do more to communicate these. Warren suggested that Hyperledger take a "deep dive into and promote the brands that are known [i.e., Fabric, Indy, and Sawtooth] and recognize the other ones are novelty tools; they just haven't taken off." Mapping each tool in the Hyperledger toolkit to its use and illustrating the usage could help to distinguish among them.

Finally, Hyperledger has an opportunity to cultivate a community at the organizational level that mirrors its community for open source developers. For starters, it could leverage LFX Insights (https://insights.lfx. linuxfoundation.org/projects/hyperledger-f) to show the diversity of people in organizations who contribute code to each project and look for patterns of individual collaboration that might inform potential organizational collaboration. Anyone who logs into the Linux Foundation and creates an identity can access the data about top enterprise community contributors. Equally important, this tool would highlight all the companies contributing to the Hyperledger code base.

Table 1: LFX: Active Community Contributor Board

Author Name	Organization	Code			
		Commits	LOC Added	LOC Modified	LOC Deleted
Peter Broadhurst	Kaleido	398	168840	238090	69250
Peter Somogyvari	Accenture Global Solutions Limited	53	715630	1507922	792292
Philipp Etschel	Bosch	230	20398	29894	9496
Nicko Guyer	Kaleido	144	31903	79862	47959
Timo Glastra	animosolution	90	122632	240060	117428
Frank Bernhardt	Bosch	215	13718	24842	11124
Angelo De Caro	International Business Machines Corporation	169	301858	350026	48168
Ivan 'kuvaldini' Kuvaldin	SORAMITSU CO., LTD.	78	48594	65174	16580
Andrew Richardson	Kaleido	141	123317	128505	5188
Ivan Rybin	SORAMITSU CO., LTD.	18	26002	40196	14194

Source: LFX Insights

According to Foster, Hyperledger should use its diverse membership to convene new forms of collaboration around shared challenges such as scaling and regulation. "There are so many pockets of dialogue happening right now," Foster said. "There's a lot of goodwill out there to address this, and we can't each start addressing it in our own little corners. It needs to be done in a collaborative way." Consider central bank digital currencies (CBDCs). Hyperledger rallied its members around three CBDC protocols in what it called a "Global CBDC Challenge."[5] This could be a model for engaging members around other implementation challenges common to particular markets or industries.

Putter agreed that that use cases won't scale in isolation. He suggested that Hyperledger connect those members working toward common goals. "Then Hyperledger could create significant benefits globally to the community." Putter also thought Hyperledger has a significant advantage over Corda: "R3 Corda is a bilateral ledger. It's peer to peer, but it has a central authority that makes sure there's no double spend. If you look at innovation, that exponential curve, R3 Corda is merely one step away from what we're doing today. Hyperledger is further along that curve, in terms of potential," Putter said. "But you've got to start creating more visibility, similar to what R3 Corda is doing, and not everybody running in their own little lane to try and get onto blockchain for the sake of having a distributed ledger solution."

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5   https://wiki.hyperledger.org/display/events/Global+CBDC+Challenge.

Conclusions

One survey question was simple: "Should Hyperledger change its name to 'Hyperledger Foundation'?" Nearly half (45%) of survey respondents were in favor of changing the name whereas a quarter (25%) opposed it, and nearly a third were unsure (30%). Interviewees gave mixed responses to the name change. On the whole, they felt that changing the name was less important than differentiating Hyperledger's various ledgers, tools, and libraries—and, in particular, explaining that Hyperledger is far more than Fabric.

In terms of brand metrics, as developed by Tim Munoz, these are issues of *perception*.[6] One aspect is awareness, that is, a brand's prominence in the minds of customers. Hyperledger as a brand already dominates the enterprise blockchain space, yet the array of ledgers, libraries, and tools is confusing. For Warren, this array is daunting even for a blockchain expert—and such experts are not Hyperledger's typical enterprise end users. The other aspect is *familiarity and consideration:* what customers think about and feel toward the brand. Here, the perception is that Hyperledger is solid and reliable, but not quite cutting edge; and some respondents feel a tension between open source and corporate, though the Linux Foundation has balanced the two relatively well.

In terms of the "brand report card" developed by Kevin Lane Keller, Hyperledger's brand portfolio and hierarchy could be more coherent.[7] While organizations often have different brands for different market segments, each Hyperledger sub-brand needs its own boundaries. While Hyperledger cannot control how members (and non-members) segment these brands, Hyperledger's brand managers or brand champions must articulate their boundaries and communicate them clearly and consistently in language that members can adopt. In terms of ledgers, the Fabric sub-brand is currently far more distinctive than, for instance, those for Burrow and Iroha. Tools such as Caliper and libraries such as Ursa need clear sub-brands, too.

Respondents discussed some potential quick wins. For example, Madhavji wanted to see Hyperledger doing more to support startups directly or through a fund, giving small pots of money to ventures building on their ledgers. He also suggested that Hyperledger do more to provide content—such as case studies—for high-profile blockchain executive education programs, since this directly targets a key audience. Ideas to explore include:

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6   Munoz, 2004.

7   Keller, 2000.

- Creating a page dedicated to educators with guidance on incorporating Hyperledger's plethora of learning materials (https://www.hyperledger.org/learn) into a course syllabus, including terms of use that are easy to find.

- Gathering and publishing sample syllabi from existing executive education courses that incorporate Hyperledger content.

- Inviting educators to take advantage of Hyperledger's speaker's bureau for guest speakers.

- Exploring partnerships with top executive education programs (https://rankings.ft.com/home/masters-in-business-administration, https://rankings.ft.com/home/executive-education).

The bigger point is that Hyperledger must communicate the value of enterprise blockchain through existing and emerging use cases. Once people commit to enterprise blockchain, said Putter, "their choice is typically R3 Corda or Hyperledger" and, as he pointed out, Hyperledger has greater potential for innovation.

Perhaps the most powerful sense in the interview data was the need for Hyperledger to hone its overall brand identity. Hyperledger has a clear market, said Warren, and "right now, it dominates that market." So, the organization should avoid messing with the brand. She explained:

I think blockchain is going to become an integral part of most tech stacks. It's not going to take over the entire tech stack, nor should it. It's going to be a layer in a tech stack, and no one's going to talk about it. Hyperledger is pretty well poised to be that ubiquitous component. No one really thinks about it much, we don't necessarily talk about it much, but it's ubiquitous and everyone's using it. I think there's going to be something that is that. Why not Hyperledger?

Ultimately, Warren's message echoed those of other respondents: "Keep it simple," she said. Double down on what's working, recognize the brand attributes, and go big." To recap, these attributes include the facts that Hyperledger is nonprofit, open source, trusted for its transparency and strong governance, and backed by leading companies.

Finally, Hyperledger must do for enterprise what it has successfully done for coders: build a community. The opportunity, said Foster, "is really about getting out of our own paradigm here and helping to build the Internet." This will be a collaborative community-wide effort, and Hyperledger is uniquely positioned to cultivate, host, and govern such an effort over time.

Methodology

To achieve both breadth and depth of input, the study drew on quantitative and qualitative research methods.

First, in May 2021, researchers distributed a survey to Linux Foundation newsletter subscribers, Hyperledger newsletter subscribers, participants in Linux Foundation's "Introduction to Blockchain" course, and to followers of both Hyperledger and Linux Foundation's social channels. Linux Foundation and Hyperledger team members also distributed the survey using their personal networks. The aim was to solicit insights from a broad community with knowledge of enterprise blockchain technologies. Of the 243 survey respondents:

- Not quite a third (29%) came from North America and an equal percentage were from Asia Pacific. There were also respondents from Europe (23%), Latin America (13%), and Middle East/Africa (6%).

- Over half (55%) worked in companies with 99 or fewer employers; 11% worked in companies with 100–999 employees; 12% in companies with 1,000–9,999 employees; 20% in companies with 10,000 employees or more; and 2% of respondents didn't know.

- Technicians (29%) made up the largest single group. The others were C-suite (24%), managers (19%), analysts (11%), directors (10%), or had other roles (7%).

- Nearly a quarter (24%) described themselves as

extremely familiar with blockchain technology; 20% were very familiar; 28% were familiar; 22% had some familiarity; 5% were not familiar at all, and 1% didn't know.

- Over a tenth (12%) were extremely familiar with Hyperledger technologies; 20% were very familiar; 24% were familiar; 26% had some familiarity; 17% were not familiar at all; and 1% didn't know.

Second, in July 2021, the research team interviewed these six respondents to explore the survey results in more depth:

- Jeremy Epstein is chief marketing officer at Gtmhub, a company offering adaptable business orchestration software based on the OKR methodology for mission-driven organizations. He is the founder of Never Stop Marketing and previously worked at Microsoft and Sprinklr. He is based in the United States.

- Katherine Foster is a lead consultant for the UNCDF-UNDP Dialogue on Global Digital Finance Governance and the Community Director of the Open Earth Foundation, a research and deployment non-profit using digital technologies and multi-stakeholder collaboration to advance open source platforms for climate change and planetary resilience. A former climate diplomat, Foster has

held leadership roles with the EU Climate-KIC and the Green Digital Finance Alliance (Ant Financial – UN NGO) and serves on numerous advisory and working groups including ESMA and BIS. She is based in Switzerland.

• Montse Guardia is general manager of the Alastria Blockchain Ecosystem, a multisectoral consortium working with their members toward the establishment of a blockchain/DLT public-permissioned infrastructure for business multi-segment use cases. She is also a start-up advisor and president of the Quantum Blockchain Alliance. She is based in Spain.

• Aly Madhavji is managing partner of the Blockchain Founders Fund, which supports start-ups and consults for organizations including the United Nations. He is also senior blockchain fellow at INSEAD. He is based in Singapore.

• Ian Putter is head of the Blockchain Centre of Excellence at Standard Bank, the largest financial institution in Africa. Standard Bank is currently building on Hyperledger Fabric. He is based in South Africa.

• Sheila Warren is head of data, blockchain, and digital assets at the World Economic Forum. She has served on advisory boards for the World Bank and the Organisation for Economic Co-operation and Development (OECD). She also has an advisory role at MIT Press. She is based in the United States.

Third, to put results into context of branding and communications strategies, the research team drew on secondary sources, cited at the end of the report.

About the Author

Marcus O'Dair is a writer, consultant, and academic who specializes in entrepreneurship and innovation in the creative economy. His most recent book is *Distributed Creativity: How Blockchain Technology Will Transform The Creative Economy,* written as researcher in residence at Digital Catapult in London.

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