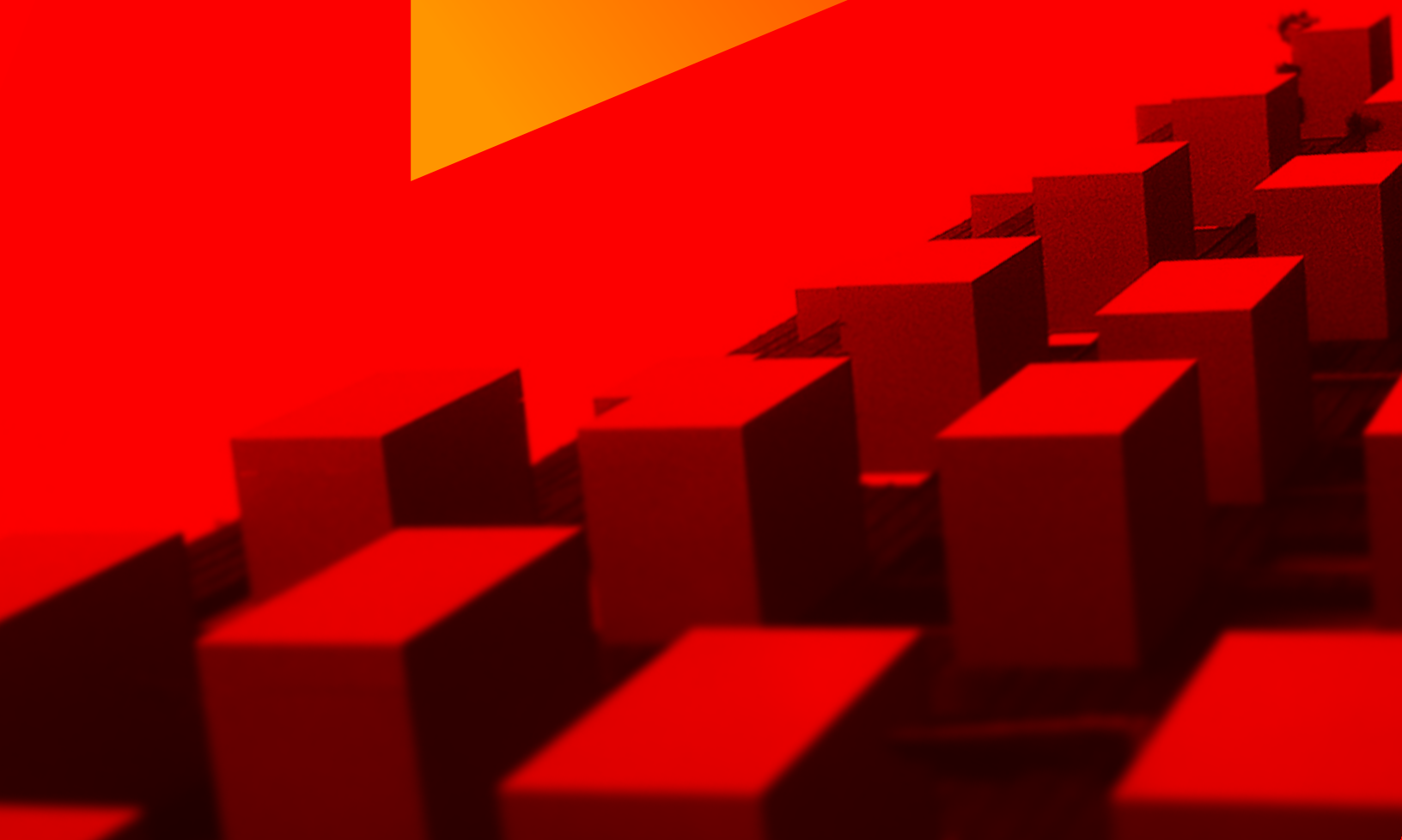
Accenture Labs

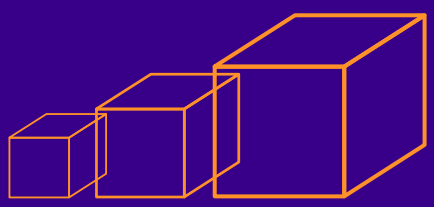
BLOCKCHAIN FOR GOOD

4 Guidelines for Transforming Social Innovation Organizations



Blockchain as a concept is now ten years old. And since its introduction, the technology—comprising a distributed ledger in which each record, or block, is linked to a previous block by a data and time stamp—has revolutionized global economic markets by allowing participants to securely connect and conduct transactions without the need for a central server or a 'trusted' authority to validate interactions.

This revolution has included the creation of Bitcoin, the world's first digital currency. But Blockchain's applications have extended far beyond commercial use cases. Social innovation organizations—philanthropies, NGOs, non-profits, social enterprises, government agencies, and even for-profit organizations promoting social benefits—are also adopting Blockchain in a variety of humanitarian use cases. These include everything from monitoring the extent of human trafficking to restoring land records.

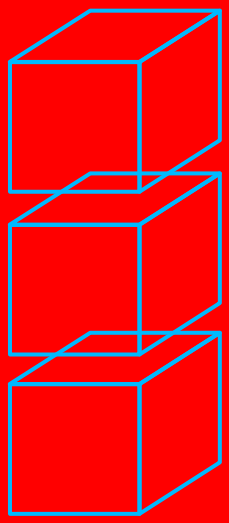


However, most of these socially minded Blockchain applications are still in their pilot stages, and the business cases are yet to be clearly articulated. Why so? It's often because social innovation organizations lack sufficient visibility into how a pilot scheme can be scaled up, and how Blockchain can be used to ensure a larger transformation of the organization. But acquiring this visibility is becoming an ever more essential step. As social innovation organizations face a host of challenges in managing growth and realizing their visions, Blockchain has emerged as a disruptive force capable of transforming their operations for the better. And, as Blockchain continues to evolve alongside other digital technologies like the Internet of Things and artificial intelligence, the opportunities will only increase.

This, then, raises **two fundamental questions**:

1. How should a social innovation organization align Blockchain with its vision and mission to bring about a strategic transformation through an innovative business model?
2. How can non-profits orchestrate an ecosystem to ensure the successful implementation of Blockchain?

To answer these questions, Accenture examined 30 or so Blockchain use cases for solving social challenges. We also interviewed industry experts to get their latest thinking on the topic, and studied how Blockchain has been implemented at Akshaya Patra, creator of the world's largest non-profit midday meal program, which serves wholesome food to over 1.6 million children from 13,759 schools across 12 states in India.



The research reveals various benefits of Blockchain, including its capacity to build transparency and reduce transaction costs.

Indeed, one of the core reasons for the technology's popularity is that it enables decentralized and shared operations. Klaus Schwab, founder and executive chairman of the World Economic Forum, sums up its potential in this way: "In essence, the Blockchain is a shared, programmable, cryptographically secure and therefore trusted ledger which no single user controls and which can be inspected by anyone."[i]

But to reap the full benefits of Blockchain, an organization must both understand its strategic implications and overcome its implementation challenges. For a non-profit organization, that means finding the funds, organizing the right talent, and demonstrating success to stakeholders. It also means rethinking truly innovative business models using an ecosystem—of payers, beneficiaries, technology companies, banks, and government agencies—managed through a digital platform. And, ultimately, it means defining a Blockchain implementation by the outcomes a social innovation organization aspires to, as well as the challenges it faces. That's essential in any successful deployment of the technology. This paper explains how it can best be achieved.

INNOVATING TO ENSURE STRATEGIC TRANSFORMATION: WHY BLOCKCHAIN FOR GOOD?

Social innovation organizations face four critical challenges in delivering their missions. These are affordability, accountability, reliability and marketability (see Figure 1):

AFFORDABILITY

To keep services affordable, and maintain high-quality delivery, these organizations need to reduce transaction costs and leakages, and make use of economies of scale.

ACCOUNTABILITY

These organizations face ever greater scrutiny of how they generate and use funds—transparent and accountable operations are thus becoming critical for their very survival.

RELIABILITY

Many of these organizations face challenges in ensuring the continued flow of funds and often have to cross-subsidize their operations.

MARKETABILITY

From generating funds to finding the right talent, a set of marketability and communications issues can act to slow these organizations' growth.

CHALLENGES FACED BY NGOS

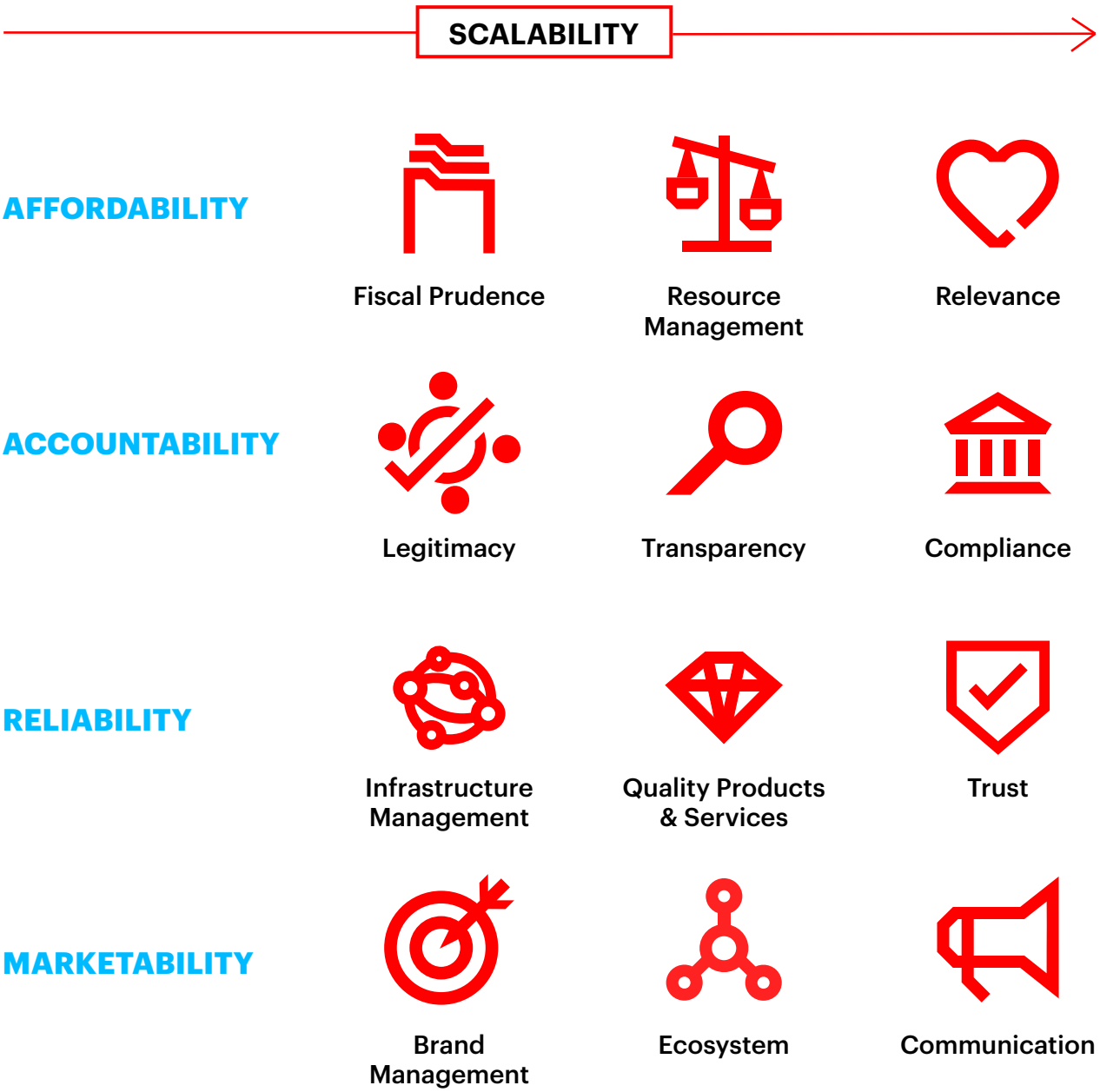


Figure 1: Four critical challenges faced by social innovation organizations
Source: Accenture Research organizations

How can a social innovation organization overcome these challenges?

It takes a strategic shift in technology adoption, with a focus on enhancing transparency, increasing efficiency, promoting sustainability and achieving scalability (see Figure 2). This is where technologies like Blockchain have a critical role to play.

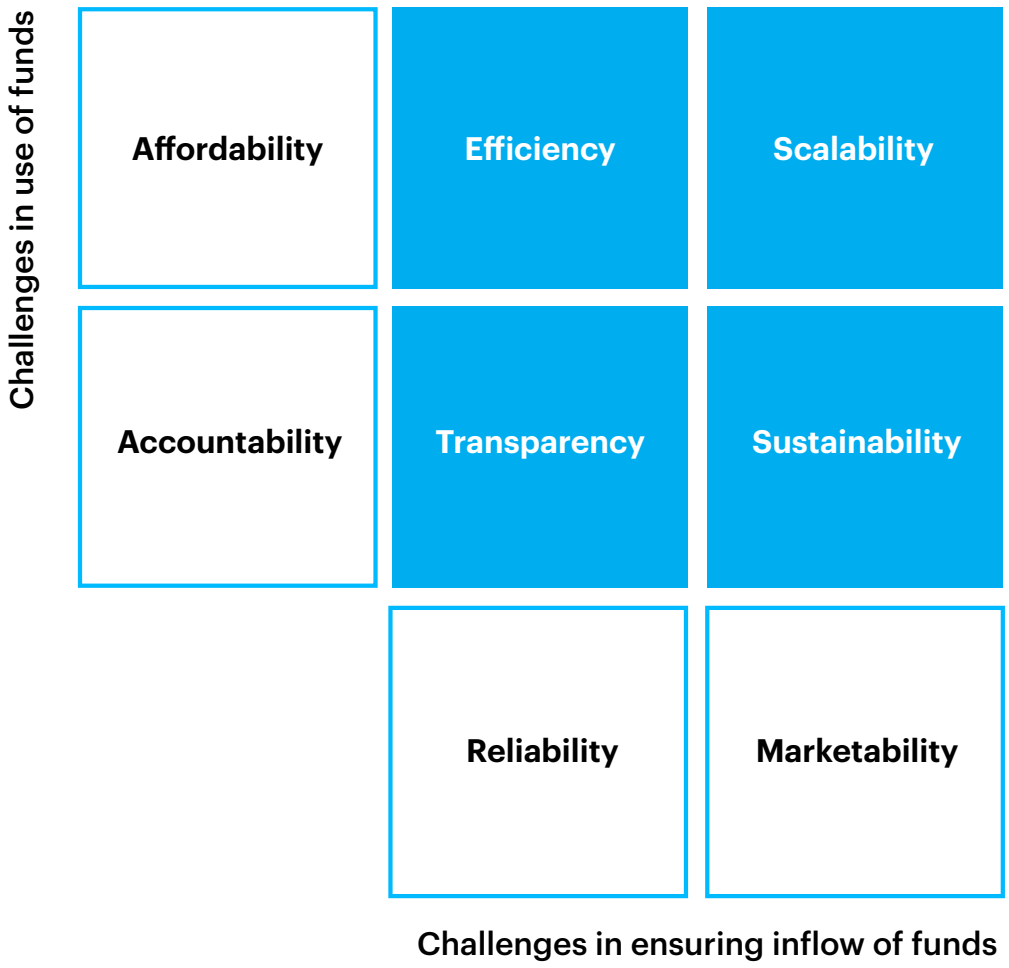
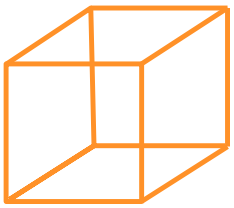


Figure 2: Strategic imperatives for social innovation organizations
Source: Accenture Research

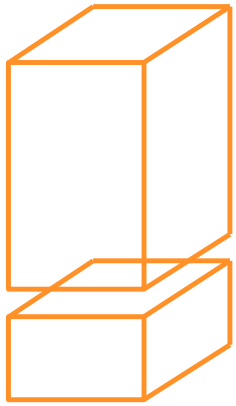


ENHANCE TRANSPARENCY

Social innovation organizations require a 'closed loop' system that is both tamper-proof and generates real-time information to enable transparency in the entire value chain. Blockchain not only allows operational changes to be transmitted in real time, it also enables all parties to transact and share information in a trusted, easily auditable way.

Bitland, for example, is enabling the settlement of land disputes in Ghana through an open ledger of land registrations. Something like 78% of all land in Ghana remains unregistered despite the efforts of the country's Lands Commission to register land titles and solve disputes. The Commission has faced a host of challenges in resolving this complex state of affairs, not least corruption and nepotism in the public sector. Currently being piloted with 28 communities in Kumasi, Bitland seeks to bring transparency to the land registration system by allowing individuals and groups to record titles on an immutable public ledger.[ii]

And the Co-op, the largest consumer co-operative in the UK, has partnered with Provenance to help consumers make more environmentally and socially aware decisions by providing a transparent view of its supply chain. In theory this would be capable of tracking, say, the complete journey of a fish caught in the seas around Indonesia all the way to the consumer's plate in the UK.[iii]

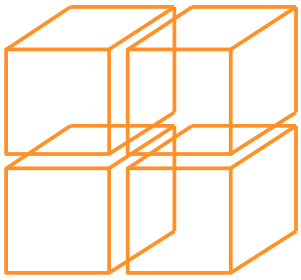


INCREASE EFFICIENCY

Social innovation often calls for tackling high transaction costs as well as fraud, waste and abuse. This is exactly what BitPesa is doing. Using Blockchain, the platform has drastically reduced the cost of remittances in Kenya, a country with one of the highest remittance costs in the world. While the average cost of sending US$200 to an African country was 8.88 percent in the first quarter of 2016, in Kenya it was as high as 11 percent. BitPesa's solution is to convert Bitcoins to Kenya shillings and forward them via a mobile money service to recipients in Kenya, charging only a 3 percent transaction fee.[iv]

Hypergive has a similar solution that makes donations to the poor and hungry more efficient by combatting racketeering. A Blockchain-based stored-value card is used to record donations and issue tax receipts. The card can be distributed to homeless people by charitable organizations, ensuring that purchases can only be made by the person identified by the card.[v]

Blockchain allows all transactions across the supply chain to be tracked in real time, helping to ensure that consumers only pay for what they get. This increased visibility into the functioning of the supply chain offers possibilities for further innovations to increase efficiency and prevent leakages.



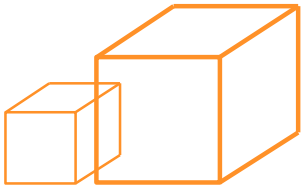
PROMOTE SUSTAINABILITY

One of the big challenges for social innovation organizations is to ensure sustainable growth. This has two aspects: how to do more with existing resources, and how to attract more resources to expand the scale of operations.

Akshaya Patra, the world's largest non-profit supplier of cooked meals for schoolchildren, is blazing a trail with a Blockchain solution. The organization, which feeds around 1.6 million children in 13,759 schools spread across 12 states in India—amounting to more than 300 million meals a year in total—has taken an important step in ensuring sustainable growth by implementing a Blockchain pilot, which also makes use of artificial intelligence technology and the Internet of Things. The results suggest that implementing the solution in 15 kitchens will likely result in operational savings of Rs 30 million.

By continuously reducing the cost of each meal it supplies, Akshaya Patra is able to do more with the resources it has. But also, as trust in the organization's efficiency increases, it is able to attract ever greater levels of funding to bring financial security to its work.

ACHIEVE SCALABILITY



Ultimately, the goal of every social innovation organization is to solve problems at scale. And, by reducing costs and increasing the flow of funds, Blockchain can help social innovation organizations scale up their operations.

Akshaya Patra started its journey in 2000 by serving midday meals to 1,500 students in five government schools. It now feeds around 1.6 million children every day. In scaling up its operations in this way, the organization has had to change its operating model. That has included setting up a large number of decentralized kitchens run by self-help groups to prepare meals for students in remote locations.

Yet this success is still not enough to meet Akshaya Patra's vision that "no child in India shall be deprived of education because of hunger." Its goal is now to reach five million children by 2020. And that means expanding its reach by more than three times over the next three years. Building robust technology solutions that can work in remote locations with limited infrastructure, such as managing and monitoring Akshaya Patra's decentralized kitchens, will be the next step in this organization's development.

It requires a huge operational and financial transformation, especially in building the right kind of ecosystem enabled by emerging technologies like Blockchain. Akshaya Patra CEO, Shridhar Venkat, has explained that "a key element of scaling up is the power of collaboration for transformational change."[vi] This means that government, private corporations, foundations and non-profit organizations like Akshaya Patra that provide the last-mile connectivity, all have a critical role to play in solving these problems at scale.

THE 4 Fs OF A SUCCESSFUL BLOCKCHAIN IMPLEMENTATION

While Blockchain clearly holds huge potential for social innovation organizations, successful implementations that achieve truly transformational change can be challenging. Real change only comes by focusing on how to use technology solutions like Blockchain to achieve the vision of the organization. And then converting the vision into operational and financial priorities, as well as establishing a feedback loop to continuously revise the business model.

Fortunately, there is a methodology which can guide a social innovation organization through this process. It involves managing the 4 Fs:

Focus

Forecast

Funds

Feedback

FOCUS.

Leadership must clearly articulate the long-term vision of the social innovation organization. And then ensure the entire value chain is aligned with that vision, with complete transparency in operations.

This means resolving some critical issues, such as:

- **Converting the vision into clear objectives;**
- **Setting a strategic direction to achieve the vision, such as greater transparency, efficiency, etc.; and**
- **Defining how progress will be measured.**

Because time is typically one of the scarcest resources in a social innovation organization, compounded by the challenge of attracting the right talent to assist in transforming an operating model, leaders tend to focus on one or two strategic goals in isolation—most commonly sustainability and transparency. And, even when operations are sustainable, expanding an organization often seems to be a case of simply doing more of the same. Innovations that can help scale up operations by bringing new levels of efficiency and trust tend to be ignored. And a lack of understanding of how technology solutions can be aligned to an overall vision can act as a further inhibitor.

This is why partnerships with technology firms can be such a huge asset for social innovation organizations. In the words of Shridhar Venkat, CEO of Akshaya Patra, "not-for-profit organizations like Akshaya Patra would benefit significantly from leveraging the core competency of [technology and consulting firms] to create sustainable impact. It is not the same as a grant of $1 million. It is unlikely that we would spend this grant money on such an initiative for a variety of reasons, including talent and time constraints."[vii]

FORECAST.

Guided by this focus, the organization must be able to predict future demand, and then organize the supply chain to meet it. This means clearly articulating the targets to be achieved, both qualitative and quantitative, including the number of beneficiaries and the impact on the supply chain. As such, forecasting is critically linked to the strategic goals of ensuring sustainability and scalability.

It should also involve running a pilot to understand the potential impact of Blockchain. Aid:Tech, for example, piloted a program to provide 500 digital vouchers worth $20 each to Syrian refugees.[viii] The pilot revealed that 20 fraudulent vouchers had been created in an attempt to fool the system. At 4 percent of the total, this was a high number, especially considering the total number of forcibly displaced people—and potential users of the solution—around the world today (estimated to be 59.5 million at the end of 2014 by the United Nations High Commission of Refugees). But the fact that none of these fraudulent vouchers could beat the system to get access to aid shows the power of Aid:Tech's Blockchain solution. What's more, it even worked with an interrupted power supply or lack of network connectivity. Aid:Tech is now building out similar solutions in other areas where large amounts of capital are in circulation, such as social welfare payments.

By making information and insight available in real time, Blockchain creates new levels of transparency in the system, giving the leadership team greater latitude to focus on other strategic imperatives, such as sustainability and scalability.

FUNDS.

Social innovation organizations frequently operate with limited resources. Funds are often therefore directed to the most immediate problem at hand. But the implementation and scaling of new technology solutions like Blockchain can require significant resources—both in funds and in talent. How can social innovation organizations square this circle? How can they generate sufficient funds to meet competing objectives? And how will accountability be built into the process?

One obvious way forward is to leverage the core competency of technology and consulting firms. Another is to build solutions as open source projects. This is the approach that Factom is taking, in partnership with the Bill and Melinda Gates Foundation, in providing secure access to individual healthcare records through smartphones.[ix] Their solution is particularly useful in developing countries with weak infrastructure and for populations affected by economic and political instability. By taking care of infrastructure and similar constraints, this kind of Blockchain-as-a-service can provide customized solutions to social innovation organizations at an affordable price.

But if a social innovation organization builds this kind of solution itself, it not only gains better control over its ecosystem—it also potentially creates new revenue models. With the infrastructure in place, such an organization is well positioned to provide its solution as a service to others, thus creating a new source of revenue growth.

FEEDBACK.

Feedback is essential in improving the effectiveness of operations, re-evaluating focus areas, and demonstrating success to stakeholders. Leaders must therefore ask: are our strategic goals being achieved? Is the process working in the way it should? Are stakeholders continuously engaged in meaningful conversations? This is where a technology like Blockchain can be very effective.

Akshaya Patra's Blockchain implementation is an excellent example of how the 4 Fs can be used to optimize and streamline a program and expand its reach exponentially (see Figure 3). This organization's clear focus—a vision of providing a midday meal to five million children by 2020—helps it forecast the steps needed to expand its reach and achieve its goal. This forecast then informs an estimate of the funds required to scale up operations, including the savings to be achieved by expanding the implementation of Blockchain to all its centralized kitchens. Finally, capturing complete and transparent feedback from schools efficiently and in real time (replacing a previously manual process) not only helps track critical outcomes, such as whether the food was delivered on time, but also serves to predict the next day's meal requirements using artificial intelligence—thus enhancing operational preparedness. This information is combined with data from IoT sensors to monitor and sequence the cooking process, creating further efficiencies and providing insights for more informed decision making.

Another example relates to the urgent but underreported humanitarian challenge of verifying the identities of the more than one billion people currently living without proof of existence. Accenture is working with Microsoft to support ID2020, a global campaign that leverages blockchain to help establish personal identities that are critical for accessing a wide range of services and activities, including education, healthcare, voting, banking, mobile communications, housing, and family and childcare benefits.

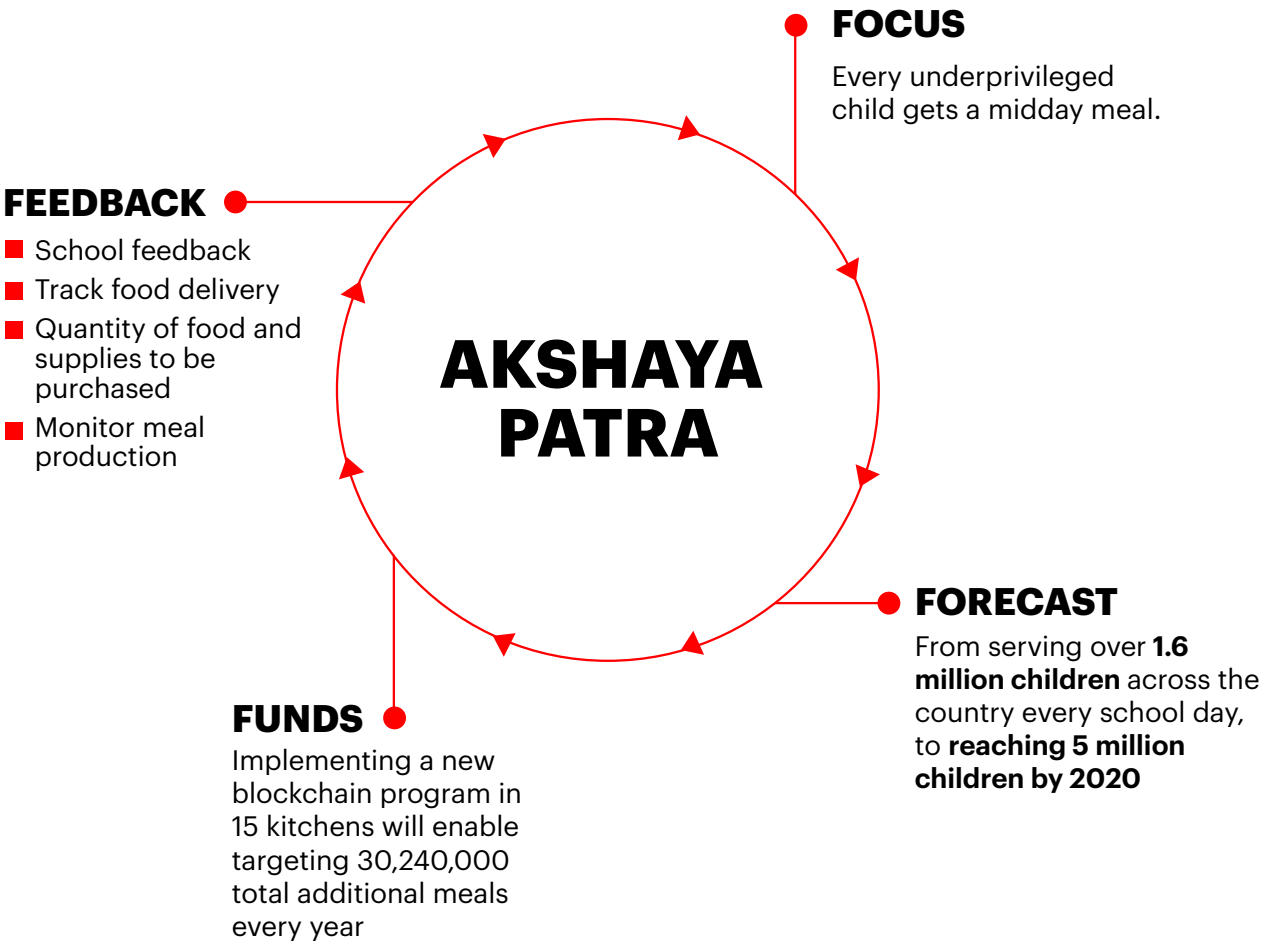
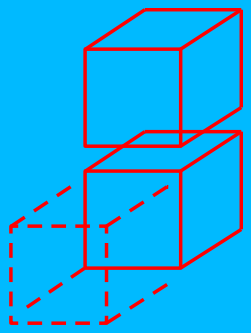


Figure 3: Akshaya Patra is managing the 4 Fs to benefit from technology
Source: Accenture Research



STITCHING THE ECOSYSTEM TOGETHER: USING BLOCKCHAIN AS THE GLUE

The real power of Blockchain is unleashed through the ecosystem it helps an organization build. This helps enable social innovation organizations to leverage the best of all the various players in the system. For Akshaya Patra, it has meant partnering with Accenture Labs to develop the technology applications to track the entire value chain—from suppliers to beneficiaries—and provide relevant information to all stakeholders—from governments to private contributors. Real-time data in the cloud has increased traceability and improved decision making to address challenges in the production and distribution of meals and reach a larger number of children. It has enhanced Akshaya Patra's audit capabilities, attendance recording, invoice processing and payment, and order collection. This has, in turn, enabled the organization to better harness the power of each player in the ecosystem as it delivers its core mission.

Managing the 4 Fs is a key component of stitching the ecosystem together. It creates a virtuous cycle, from focus to feedback, which in turn links up to each component of a social innovation organization's strategic imperatives—transparency, efficiency, sustainability, and scalability—and empowers business model innovation (see Figure 4).

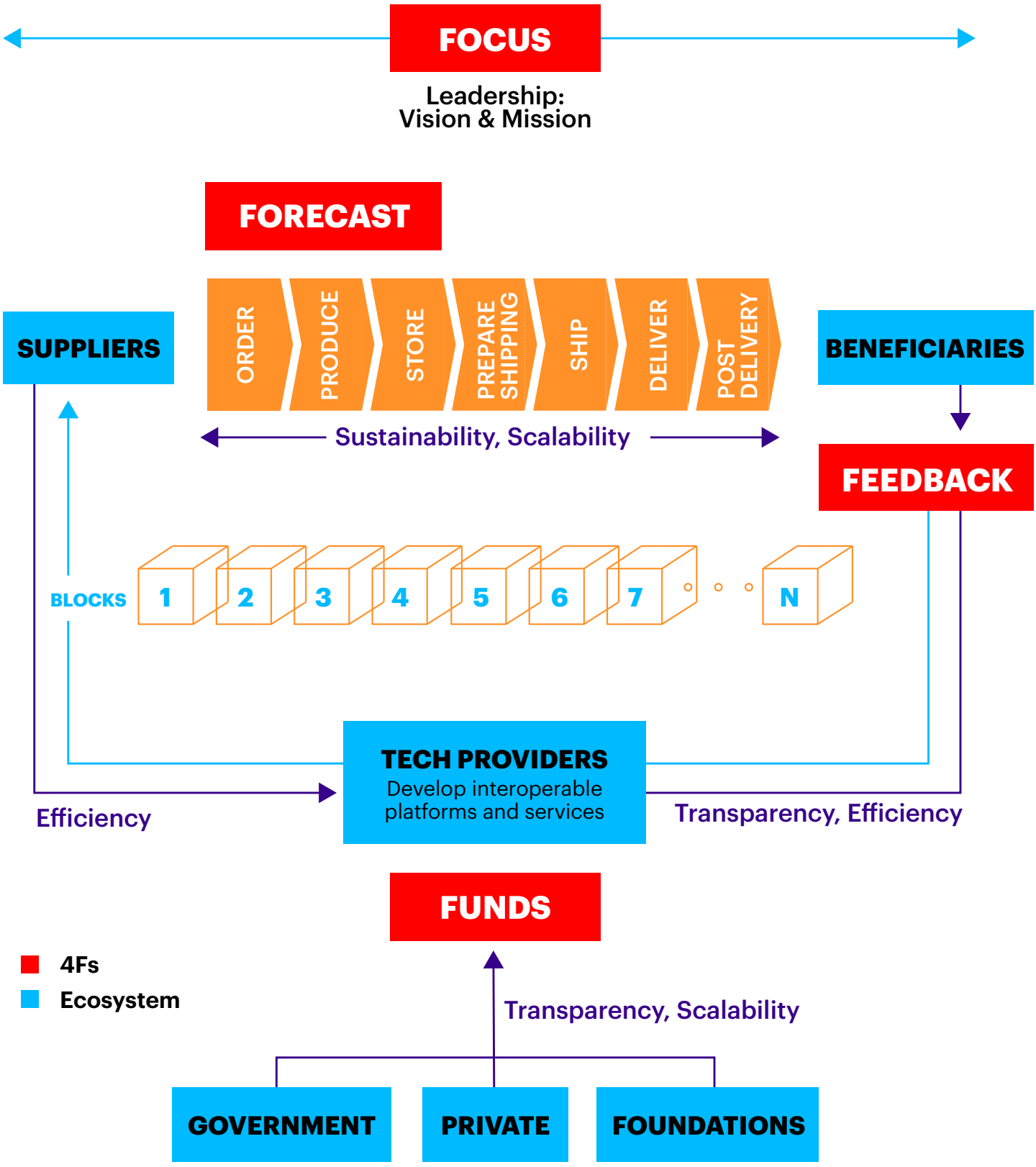
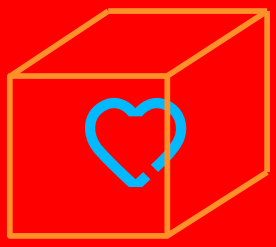


Figure 4: Blockchain acts as the glue within the ecosystem
Source: Accenture Research



TRUST IS AT THE HEART OF A TRANSFORMATION

Trust is fundamental to the success of any organization, whether private, non-profit or public. Indeed, the business of non-profits is entirely trust based. Integrity, transparency, regulatory compliance, open and informal communication, internal assurance, and effective stakeholder management are all essential for their survival and growth (see Figure 5). Yet it is difficult and often costly to build trust throughout an entire ecosystem. To do so, organizations must reduce complexity and uncertainty in their transactions and dealings.

Because Blockchain eliminates the role of intermediaries, central authorities or third-party assurance providers to validate transactions and processes, and because it doesn't require the counterparties to know or validate each other before transacting or sharing information, it engenders a new level of transparency and trust within an ecosystem. And that means the full power of the ecosystem can be brought to bear on the core problem to be solved, giving social innovation organizations more options, and letting them make more informed decisions, as they deliver their core missions.

Leaders today are required to demonstrate a dynamic, ethical approach toward their customers, employees, stakeholders, as well as society at large.

They must assess the combinatorial impact of emerging technologies and their potential for solving the issues faced by social innovation organizations. A spirit of experimentation and exploring possibilities is called for. Indeed, as social innovation organizations continue to improve their operations with new technologies and build trust within their ecosystems, they will likely become role models for future enterprises.

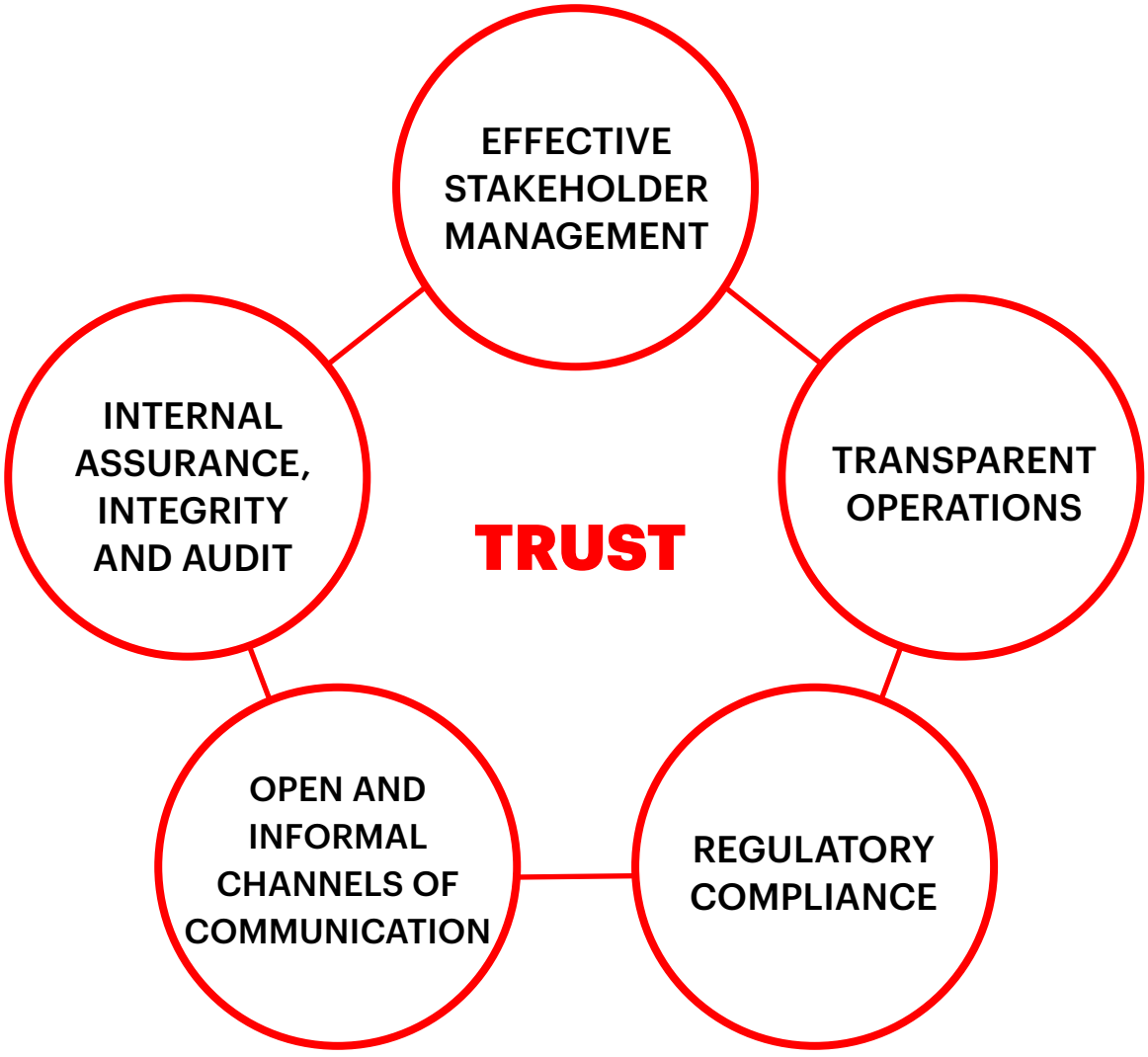


Figure 5: Blockchain and trust
Source: Accenture Research

As leaders prepare their organizations for this future, they must answer **three critical questions:**

1. **Are we prepared for radical, no-limits transparency powered by new digital technologies and social media?**
2. **Can we demonstrate the requisite standards and codes of ethics to innovate at pace, while remaining compliant with current and future regulatory standards? As the regulatory structure evolves, mere compliance with today's rules will likely not be enough in the future.**
3. **How do we protect and promote our brand in the world of decentralized, two-way communications, crowdsourcing and resource constraints?**

By answering these questions, and by using the 4 Fs to guide them as they explore the exciting potential of new technologies like Blockchain, social innovation organizations can set themselves on a path that will open up huge new possibilities for delivering social programs efficiently and effectively.

It's time to unleash the power of Blockchain for social good.

JOIN THE CONVERSATION

@AccentureLabs

ACKNOWLEDGEMENTS

This report, and the research on which it is based, would not have been possible without the generous participation of Morgan Mullooly, Research Specialist, Accenture Research and Vinay N Kumar, Head–Operations, Akshaya Patra.

We would like to extend special thanks to Shridhar Venkat, CEO Akshaya Patra for sharing valuable thoughts and insights for this report.

CONTACT THE AUTHORS

SANJAY PODDER
2017 Eisenhower Fellow
Managing Director - Accenture Labs India
Tech for Good Program Lead
sanjay.podder@accenture.com

PRADEEP ROY
Principal Director
Accenture Research, Bangalore
p.roy@accenture.com

PRAVEEN TANGUTURI, PH.D.
Senior Thought Leadership Principal
Accenture Research, Bangalore
praveen.tanguturi@accenture.com

SHALABH KUMAR SINGH
APAC H&PS Research Lead
Research Manager
Accenture Research, Bangalore
shalabh.kumar.sigh@accenture.com

ENDNOTES

[i] Klaus Schwab, The Fourth Industrial Revolution, New York: Crown Publishing Group, Jan 2016; https://www.weforum.org/agenda/2017/07/how-can-creative-industries-benefit-from-blockchain/

[ii] Narigamba Mwinsuubo, Ghana African Blockchain Initiative | Roger Aitken, Bitland, April 6, 2016, http://bitlandglobal.com/news/bitland-ghana-land-rights-forbes-2016/

[iii] Out on the field and onto shelves: Pioneering trust with The Co-op, March 3, 2017, https://www.provenance.org/news/technology/provenance-coop/

[iv] The cost of sending money to Africa falls over five years – but is still too expensive, African Institute for Remittances (AIR), May 2016, http://www.sendmoneyafrica-auair.org/sites/default/files/Send_Money_Africa_Report_May%E2%80%932016.pdf /

[v] Aiding the Homeless with Blockchain, Entrevestor.com, January 24, 2017 http://entrevestor.com/ac/blog/aiding-the-homeless-with-blockchain

[vi] Interview with Shridhar Venkat, CEO of Akshaya Patra, July 6, 2017. https://www.akshayapatra.org/management-team

[vii] Interview with Shridhar Venkat, CEO of Akshaya Patra, July 6, 2017. https://www.akshayapatra.org/management-team

[viii] AID:Tech offers blockchain solutions to help United Nations and European Commission with refugee problems, Brave new Coin (BNC), October 2016 https://bravenewcoin.com/news/aidtech-offers-blockchain-solutions-to-help-united-nations-and-european-commission-with-refugee-problems/

[ix] Kewl, "Factom Receives Grant from Gates Foundation for Medical Record Development," December 3, 2016, https://www.crypto-news.net/factom-receives-grant-from-gates-foundation-for-medical-record-development/.

ABOUT ACCENTURE

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions – underpinned by the world's largest delivery network – Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With approximately 425,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at www.accenture.com.

ABOUT ACCENTURE LABS

Accenture Labs incubates and prototypes new concepts through applied R&D projects that are expected to have a significant strategic impact on clients' businesses. Our dedicated team of technologists and researchers work with leaders across the company to invest in, incubate and deliver breakthrough ideas and solutions that help our clients create new sources of business advantage. Accenture Labs is located in seven key research hubs around the world: Silicon Valley, CA; Sophia Antipolis, France; Arlington, Virginia; Beijing, China; Bangalore, India; Herzliya, Israel and Dublin, Ireland. The Labs collaborates extensively with Accenture's network of nearly 400 innovation centers, studios and centers of excellence located in 92 cities and 35 countries globally to deliver cutting-edge research, insights and solutions to clients where they operate and live. For more information, please visit www.accenture.com/labs.

ABOUT ACCENTURE RESEARCH

Accenture Research shapes trends and creates data-driven insights about the most pressing issues global organizations face. Combining the power of innovative research techniques with a deep understanding of our clients' industries, our team of 250 researchers and analysts spans 23 countries and publishes hundreds of reports, articles and points of view every year. Our thought-provoking research – supported by proprietary data and partnerships with leading organizations such as MIT and Singularity – guides our innovations and allows us to transform theories and fresh ideas into real-world solutions for our clients.