Tech4Good: Collectively scaling up social transformation

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ABSTRACT

The fourth Industrial Revolution is opening unprecedented opportunities to solve some of the hardest social problems and, in the process, make significant business gains, However, scaling up these new solutions is not easy. Leading businesses will need to reinvent the way they do business to capture these opportunities, including addressing the risks and challenges posed by new technologies. The essential components of scaling up the new business model include being good at orchestrating an innovation ecosystem, defining the guiding principles to harness the collective intelligence of all the ecosystem players, and devising a methodology for successful execution from development and design to sustainable operations. This paper summarizes the position of Accenture on "Tech4Good" and provides actionable insights and guidance for businesses to scale up Tech4Good solutions.

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1 INTRODUCTION

We're entering a fourth Industrial Revolution, rooted in digitalization, that is enabling society and industry to build and consume smart products and services. Thanks to the combinatorial power of AI, blockchain, genomics and other exponential technologies, there are unprecedented opportunities to solve some of the hardest problems we face-including providing access to education and healthcare and promoting gender equality. While the power of digital technology is profound, no single player-government, business, civil society, academia or individuals-could possibly harness it alone. We believe that only a synergistic architecture of these societal players and their 'collective intelligence' can steer the combinatorial forces of technology toward the desired digital impact. The ability of multiple partners to pool significant resources, skills and knowledge is key to advancing the sustainable development agenda.

In this emerging world, big businesses need to think and act differently. The ecosystem play will either help create markets for them where none exist today, or address cracks in the market that prevent them from managing profitable growth. And it is the combination of new market forces, digital technologies and new ecosystems that will, in turn, solve complex social issues and drive impact at scale. Businesses also need to address the new risks emerging from exponential technologies. Some of these are visible. Digital impacts are challenging democracy with fake news, threatening individual freedoms with cyber-bullying, exploiting humans through data privacy breaches and, above all, raising the fear of artificial intelligence (AI) algorithms dehumanizing society at unprecedented speed and scale. Digital technology must therefore be steered to ensure a positive impact on society and the environment. Corporations can be part of this process by joining collaborative ecosystems and leveraging emerging technologies to solve real-world problems while, at the same time, making significant business gains. This is a key component of the "Tech4Good" (Technology for Good) agenda-managing growth, responsibly.

This paper outlines the position of Accenture on Tech4Good. Section 2 describes the ecosystem at play for doing Tech4Good. The basic principles of work are then described in Section 3. This is followed by suggestions for scaling up Tech4Good in Section 4 and Section 5 before concluding in Section 6.

2 TECH4GOOD INNOVATION

We frame Tech4Good around three elements: societal challenges, an ecosystem of partners to tackle these challenges and a framework defining the collaboration between the ecosystem players.

2.1 The Tech4Good Challenges

In January 2016 the United Nations Development Program outlined a set of 17 goals as a call to action to "end poverty, protect the planet and ensure that all people enjoy peace and prosperity." [8]. Those goals can be used to focus the work and the attention of the ecosystem players, especially businesses. Innovating to address these challenges will help business capture part of a US$12 trillion market opportunity by 2030.[5]

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Figure 1: Sustainable Development Goals [8]

2.2 The Tech4Good Ecosystem

Businesses looking for the next big growth opportunity are unlikely to do so alone. Instead of seeking to develop new technologies themselves, they're more likely to adopt and adapt solutions developed by academia and startups, before building them out at industrial scale. They also face challenges in creating innovations where market mechanisms fail to function well. This means they need help from civil society and government. For instance, the poor may not have the capacity and capability to absorb innovations that big businesses create because of constraints in purchasing power, education and infrastructure. By contrast, governments can incentivize change through policy and subsidies. Civil society, especially social entrepreneurs, can create markets where none exist today. All of this means that businesses need to orchestrate a synergistic innovation ecosystem as depicted on Figure 2.

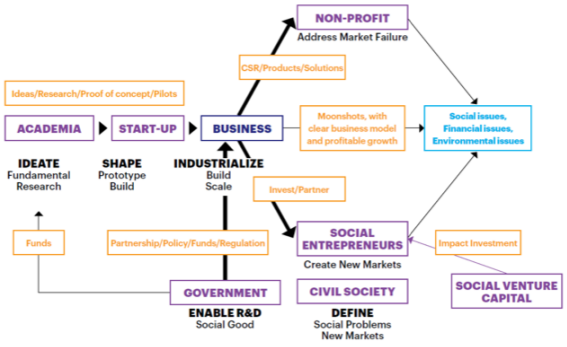

Figure 2: Tech4Good Innovation Ecosystem

2.3 The Tech4Good Innovation Framework

Academia and research institutions conduct fundamental research, develop relevant technologies and shape future progress. All this converts into a growth in startups that build prototypes and innovative business models around these new ideas. The role of big business is to use its vast operational and financial prowess to capture these innovations and industrialize them at scale. Businesses can also create partnerships with academia and government to launch new experiments.

Innovating for people who lack disposable income (those at the bottom of the pyramid) has to overcome the two fundamental issues of relevancy (solving the specific problems faced by people with very low levels of income) and adoption (people's limited capacity and capability to absorb the social innovation).

Because they can live with lower or no returns, nonprofits can address these gaps and help innovation to be absorbed by society. An interesting case here is Akshaya Patra, the world's largest non-profit supplier of cooked meals for schoolchildren. Through a collaboration with Accenture [4], the organization has taken an important step toward ensuring sustainable growth by implementing a blockchain pilot in combination with AI 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 can do more with the resources it has, making it easier to reach its goal of feeding 5 million children by 2020 (from around 1.6 million children today). Government, businesses, foundations and non-profit organizations like Akshaya Patra, which provide last-mile connectivity, all have a critical role to play in solving these problems at scale.

Social projects like Akshaya Patra play a big role in developing and scaling Technology for Good. But the ecosystem also requires one more set of players to be effective in promoting innovations. This is a vibrant social venture capital community ready to provide impact investment.

Businesses need to bind all the players in the ecosystem together in a Tech4Good Innovation Framework. This will harness the 'collective intelligence' currently distributed across the system into a synergistic whole. The result? Innovative solutions that solve complex social problems, scaling up successful models and addressing market gaps through alternative options. Each player in the ecosystem can then contribute based on core competencies like research from academia, funds from government, products and goal orientation from businesses, and reach and focus from civil society (See Figure 3).

3 THE 5ES OF TECH4GOOD

Motivations for participating in the Tech4Good Innovation Ecosystem will be different for each of the players. Academia will likely be driven by ideas, requiring funds for breakthrough research. Governments may favor transformational change-driven by broader economic, social and political goals. Businesses must remain true to creating shareholder value through proper returns on investment. The social impact they create justifies the existence of civil society. Stitching these players into a Tech4Good Innovation Framework to achieve common goals is by no means easy. That's why it's essential to define the guiding principles that will glue them together. To harness the power of innovation for scaling positive digital impact, businesses need a strategic framework that incorporates the 5Es of scaling Tech4Good (see Figure 4):

(1) Build a strong foundation of digital Ethics
(2) Engineer solution for the next billion
(3) Embed social good in business models and offerings
(4) Enable civil society with digital capabilities to address market cracks, and

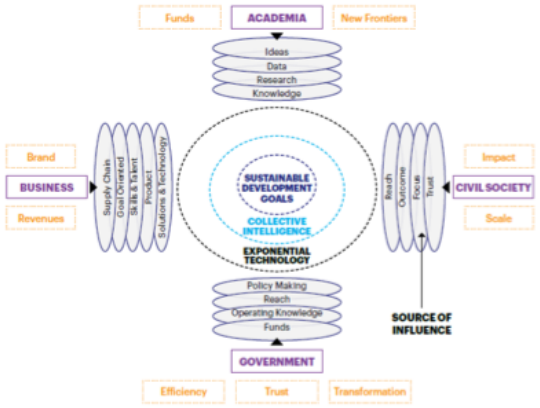

Figure 3: Tech4Good Innovation Framework harnesses "collective intelligence". Each entity stands to benefit from the others, who fill key gaps in their own ability to deliver on social development goals.

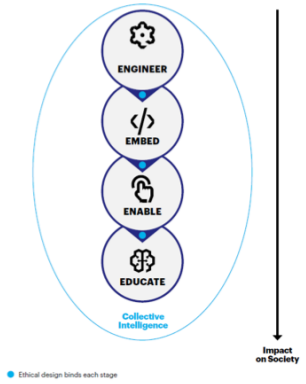

Figure 4: The 5Es framework for scaling Tech4Good: Ethics, Engineer, Embed, Enable, Educate

(5) Educate to build capacity to absorb innovation for the masses

3.1 Build a Foundation of Digital Ethics

The Tech4Good goal is to ensure inclusiveness with the help of digital technologies. Opportunities in an inclusive world would ideally be available to all. Businesses would focus not only on profitability but also on societal and environmental returns to stakeholders-the triple-bottom line. At present, the impact on society and the environment, along with the need to make benefits more widely accessible to society, are largely ignored. Dissonance results.

The synergistic Tech4Good Innovation Ecosystem must be supported by a foundation of digital ethics. At a granular level, this foundation would manifest itself in data protection and privacy practices, and ethical AI algorithms. Ethical AI algorithms would ensure that humans are not exploited for greater profitability and are free from the effect of bias. With this ethical foundation in place, businesses can explore different go-to-market strategies and achieve maximum inclusiveness while ensuring profitability-a potential win-win for all. Market cracks can be reduced or eliminated by re-imagining business models and market offerings with the help of digital technologies.

3.2 Engineer For The Next Billion

Engineering solutions for an inclusive world represents a potential USD$12 trillion opportunity by 2030 that will create 377 million new jobs. But it calls for different design thinking: engineering for the next billion customers may require co-creation with the target population.

3.3 Embed 'Tech4Good' in Current Offerings

Businesses need to examine whether 'Tech4Good' is embedded in their offerings. Are accessibility requirements designed into systems? Are adequate data protection and privacy measures in place? Are algorithms audited to ensure against biases and unethical practices?

3.4 Enable Social Enterprise and Nonprofits to Address Unserved Markets

Even when solutions are engineered for the billions, there will always be populations that fall through market cracks, deprived of opportunities in jobs, education and health-care, among others. While these cracks are typically addressed by nonprofits and social enterprise, businesses can enhance the ability of these organizations to address the needs of the bottom of the pyramid.

One of the major challenges faced by nonprofits and social enterprises serving the market cracks is their ability to manage digital technology. They often lack the skills in-house-the expertise to select and operate the right digital technologies to serve the next billion. Accenture's Tech4Good program [3] also enables nonprofits and social entrepreneurs, helping them effectively use technology innovation for various causes like extending accessibility solutions,[2] improving financial inclusion, and ensuring more children get midday meals[4] and do not leave formal education.[1]

3.5 Educate to Build Capacity for Absorption

The final element of the Tech4Good Innovation Framework is the need to educate-to build capacity and capability at the bottom of the pyramid to absorb innovations. Accenture Labs, for example, has been working with Maya Healthcare to create a Tech4Good solution that educates rural Indian youth to focus on the wellness element of healthcare and prevent non-communicable diseases.[7]

4 SCALING UP TECH4GOOD

All innovators are challenged by the question of scale. Without scale, appropriate returns on investment are extremely unlikely. Businesses are not only good at scaling up new innovations-given their financial, technical and operational competencies. But it is also essential for them to justify the investment and generate shareholder value. There is, however, no ready recipe for scaling Tech4Good innovations. Challenges range from a lack of understanding of end-customers and insufficient information to make strategic decisions,

to an inability to adapt to a changing business and social environment, made more acute by inflexible business models. Many projects fail to scale beyond the pilot stage due to a failure to understand the underlying social and economic context.

It is essential to study cases of both success and failure to understand the key principles for scaling up Tech4Good innovations. The lessons from case-studies of global organizations are clear:

- Scaling Tech4Good solutions requires new skills and capabilities (both business and technical). Large businesses should not force their existing organizational approaches to scale Tech4Good solutions;
- Strategic investors and partners are critical for long-term success, and to lend their expertise in new markets;
- Flexible solutions and a flexible business model are needed to reach end-customers. Don't address all market needs with a predefined solution;
- Influencing the system or key stakeholders and actors in the system should be the focus, rather than trying to completely overhaul the system;
- Advocacy is needed for influencing or collaborating with ecosystem partners and decision-makers to adapt and adopt new solutions;
- Along with advocacy, new communications approaches will be required-such as enrolling NGOs to promote solutions and benefits and working with local communities to design and propagate solutions.
- Finally, the fact that template-driven approaches will likely not work should be embraced-adaptability is key to scaling up.

These lessons, derived from case-study analysis and expert interviews, can be further summarized as a four-step methodology for scaling Tech4Good projects.

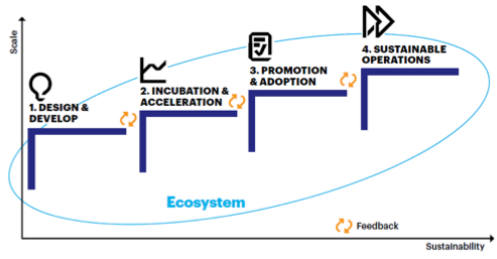

Figure 5: The four-step methodology for scaling Tech4Good solutions

Step 1: DESIGN & DEVELOP is the stage where businesses define customers' unmet needs, as well as identifying challenges that need to be overcome. This is followed by gathering data and evidence, and creating a feedback mechanism for testing, measuring, refining, and proving if the prototype should be taken to the next stage (Incubation & Acceleration). At this point, design is limited to a smaller scale, and may or may not involve ecosystem partners.

Step 2: INCUBATION & ACCELERATION programs are run alongside corporate venture programs or through independent accelerators. These programs focus on providing mentorship, developing the business plan, finding co-creation opportunities, and seeking financial assistance. Innovators can seek financial subsidy in the form of grants, government aid and philanthropy. Financial subsidies are not only common, they are also very helpful in mitigating the high risks of starting a business in volatile, low-margin markets. They do not seem to discourage organizations from becoming self-sustaining.

Step 3: PROMOTION & ADOPTION includes using evidence from the Incubation & Acceleration stage to start securing collaboration agreements with civil society, NGOs and government entities to promote the product or service and adopt and absorb innovation. This is the most time-consuming phase, as promotion and adoption rely on relationships, advocacy and policy development. Every case study we examined involved partnering with a national/local government or an NGO, from pilot stage to finally scaling up operations. Governments, as partners, enable social innovators to achieve large-scale systemic change.

Step 4: SUSTAINABLE OPERATIONS require companies and entrepreneurs to understand the cultural context and develop a structure that can work in any indigenous system. It requires companies to dedicate necessary financial and non-financial resources and invest time to explore ways of operating (as no single organization will be able to mobilize resources alone). It is important to create shared value at the intersection of financial performance and society to solve big problems. To unlock value, companies will need to forge multi-stakeholder collaboration models and incentive mechanisms.

For a sustainable operation, social innovators will need to address market needs by adopting a combination of business models that are either adaptive or disruptive in nature.

5 STRATEGIC GUIDANCE FOR STAKEHOLDERS

All five elements of the Tech4Good Innovation Framework need synergistic coordination between government, academia, business and nonprofits (see Figure 6). The question remains whether digital technology can help us build the collective intelligence that's so important for Tech4Good projects. Evidence suggests that this can be achieved.

Inspired by systems like Wikipedia and Linux, Climate CoLab [6] is a project run by Professor Malone as an open problem-solving platform where a growing community of over 100,000 people-including hundreds of the world's leading experts on climate change and related fields-work on and evaluate plans to reach global climate change goals.

The other big question is how do we prevent tech for bad? Technology is neither good nor bad in itself. But it can be put to good or bad uses. There are a number of areas where the use of technology needs to be regulated to prevent harm. The priority? Governments, policymakers, leaders from technology, civil society, and people in

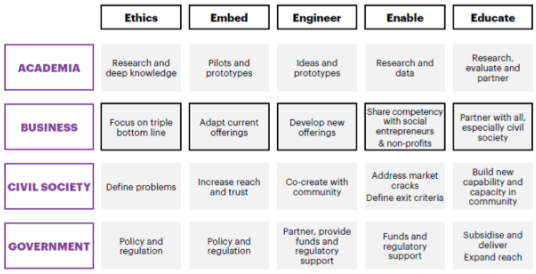

Figure 6: The 5Es require synergistic coordination and collective intelligence for success

general must work together to draft equitable and fair standards. These standards should be focused on three areas:

- **HUMAN AT THE CENTER**: Offering a range of services that enable technologies like AI that are compatible with the wellness of human stakeholders (employees, customers, etc.);
- **ETHICAL DESIGN**: Architecting and implementing solutions that comply with ethical design standards and provide transparency to the process;
- **COMPLIANCE**: Influencing and evolving with government regulations and public sentiment on responsible technology guidelines.

The pace of technological change must be accompanied by ever faster and smarter regulatory changes. We need policies and regulations that address new challenges, risks and threats, including privacy and security. Businesses, along with other ecosystem partners, have an important role to play in helping governments develop appropriate regulations that can steer the impact of digital technologies.

6 CONCLUSION

Businesses can amplify their mission and profitability by leveraging the collective intelligence of an Tech4Good Innovation Ecosystem comprised of regulators, academia, innovators and civil society-rather than doing it alone.

By structuring these interactions in line with our recommendations, it will be possible for businesses to address the needs of society with differentiated go-to market strategies powered by digital technologies and collaborative partnerships.

In doing so, businesses will discover new revenue growth models and develop a differentiated brand. They'll also be contributing to building an inclusive world that is just, fair and prosperous.

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