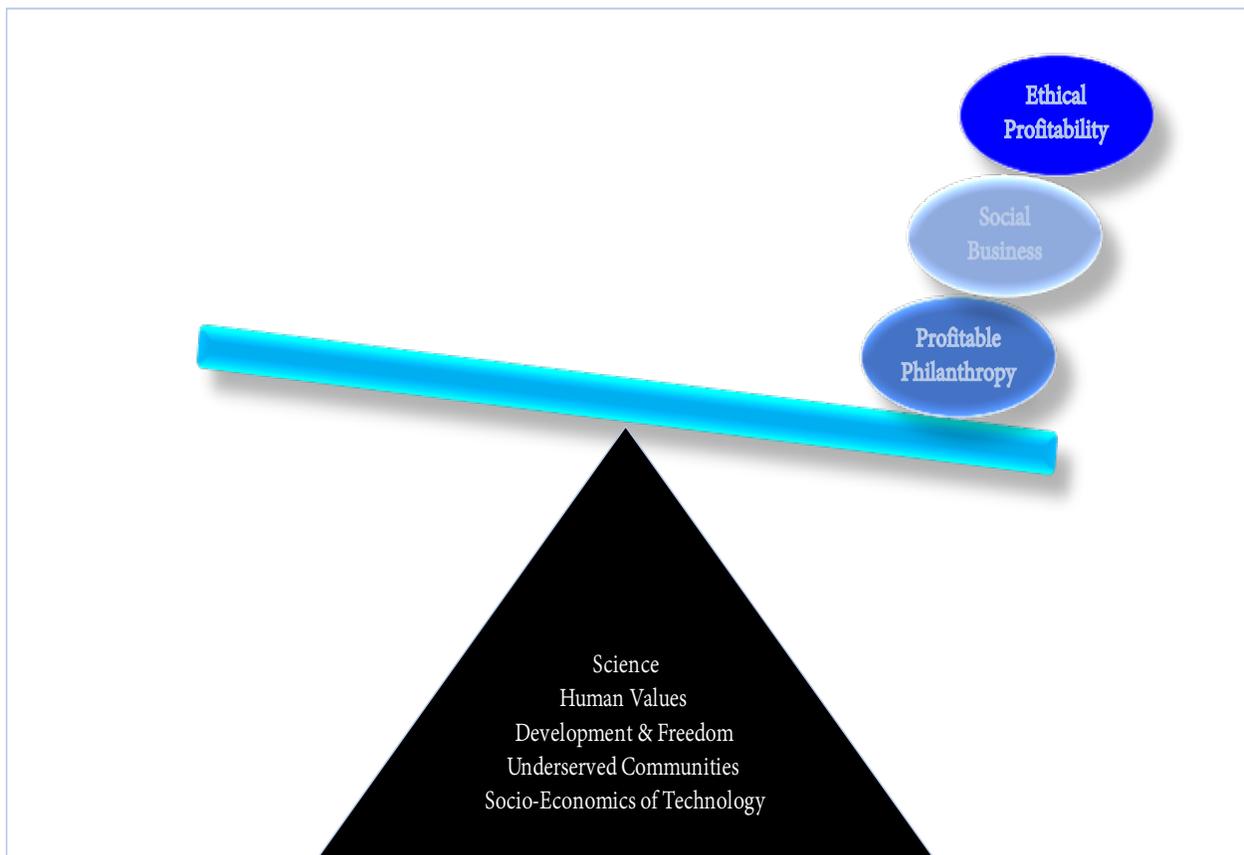


PrEP

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PREFACE

Diverse perspectives are expected to emerge in any discussion which involves PrEP (principles of ethical profitability). The practice of PrEP may mean many things to many people. My version of PrEP and suggestions about the practice of PrEP are outlined (next few pages).

This preface is about the far more amorphous context of PrEP, albeit biased due to my preconceived notions, summarized in the cartoon on the previous page.

Scripturient individuals devoid of fame, fortune or fortitude, can only pontificate about the pursuit of purpose rather than experience the trials, tribulations and occasional triumphs which practice may present. I belong to the former category but I am still reluctant to cease from my elusive quest to find a path to practice.

My preconceived notions include ideas such as distributed nano/micro investment in the form of crowd-sourced funding (this discussion, next few pages) and profitable philanthropy. We will focus on the latter in this preface and it may sound slightly oxymoronic or amorphous but it may not be entirely irrational. Philanthropists may not dislike the idea of recycling investments by funding to build sustainable efforts which may have the potential to return or re-invest the initial funding. Investment to improve access to global public goods (essential goods) may offer economic return, which, if harnessed, could drive profitable philanthropy, at least in principle.

Profitable philanthropy is a perspective not a formula for operating a conventional profit center. The target outcome of profitable philanthropy is to increase productivity and increased productivity, in turn, provides a path to profitability, conceptually. Productivity increases due to better public health, education and energy (essential elements – FEWSHE – food, energy, water, sanitation, health and education) needs no extra emphasis, especially in the underserved world.

This is not new or news for philanthropists and philanthropy but a *modus operandi* that is not immune from waste, ‘polishing the chrome’ and investing in projects for short-term publicity rather than **continuity**, which is quintessential to drive outcomes in underserved communities. Traditional project-based philanthropy with narrow focus is inescapable yet it is the **ecosystem** and the context of the project which will contribute to the project’s ultimate success or failure.

Investment in the inextricably linked ecosystem is not the strong point of philanthropy and few philanthropists possess the panoramic view of the landscape where the problem(s) reside. Later in this essay a simple table outlines the domains which may come into play when and if we target improving access to global public goods.

This is the purpose that philanthropists can address and install changes at the level of the root. Crowd-sourced distributed philanthropic investment may boost project based approaches. The choice is not either or but both in push-pull scenarios and if case-specific balance is required. The lack of originality in these ideas does not necessarily make these suggestions trivial. It is still a worthy pursuit of purpose. It is my sense of purpose.

The difficult pursuit of the principles of ethical profitability (PrEP) for global public goods. Can digital transformation on mobile platforms embrace economies of scale, in practice?

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ABSTRACT

This opinion piece is common knowledge. There aren't any epiphanies. It attempts to reduce the abrasiveness of profitability for providing services in the less affluent world. **PrEP** (principles of ethical profitability) respects the business need to be profitable but also create a sustainable path by working with the community to deliver services. The cost of delivery must be balanced to foster long term growth because businesses catalyze workforce development and creates jobs to improve the economy. Implementing services for FEWSHE (food, energy, water, sanitation, healthcare, education) is replete with problems. We discuss a few scenarios where access to global public goods may benefit from digital delivery services and mobile platforms.

INTRODUCTION

It is necessary to acknowledge that even essential elements for survival requires integral involvement of businesses and industries, for which a payment may be expected. Government welfare, philanthropy and charity may be occasionally necessary but ultimately it is detrimental for long term social development with respect to quality of life and attaining a standard of living to keep pace with the progress of civilization. Businesses are central to global socio-economic health. Attempts to establish harmony between businesses and communities is worth the effort as a constant reminder to rein in and reduce our greed. It is a social responsibility for businesses to curtail their aggressive practices to enhance profitability or remain oblivious of the social and environmental harm their actions may generate.

RATIONALE

The discussion in this article is focused on bare essentials (global public goods, FEWSHE) which are not equally adaptable or amenable to mobile platforms (for example, food) or digital service delivery (for example, sanitation). The delivery of service to the consumer (for the next billion users) will vary widely in value and market demand. But, it is critical to realize that every "lens" and every domain will be immensely affected by the nature and quality of infrastructure which is available and accessible at the point of service. Infrastructure is a complex layer cake which is beyond the reach of this discussion with respect to digital tools and mobile platforms for services. The grave caveat in this discussion about digital transformation is the assumption that the infrastructure is available to deliver mobile services. The cost of the infrastructure is not a part of this discussion which may make this discussion, and its rationale, deeply flawed.

FRAMEWORK

Each idea must be evaluated starting with the domain-specific context of science to serve society (markets of billions). Implementation of knowledge (fruits of science) must be adaptable to the digital scaffold in the form of data, communication or a relevant form of information arbitrage which may enhance the user's experience. The delivery of service on a mobile platform must add value which is *necessary* as a part of the user's daily routine or lifestyle.

The "lens" of science is the bedrock of credibility which will determine the value of the service. Engineering views things through the lens of transforming the principle into practice which may lead to a pragmatic product. The conceptual leap in this stage is the potential for digital delivery of service (cyber) to be associated with a (physical) product. This is the paradigm shift which is at the heart of digital transformation. We are weaving the concept of CPS (cyber-physical systems) into this paradigm shift and applying it to serve FEWSHE (global public goods).

Digital transformation is not about numbers, but *answers*. The "answer" which will add value to the user's lifestyle may or may not include products. For FEWSHE the digital (cyber) path may travel through (physical) products but the *delivery of service* is expected to be digital using mobile bidirectional communication platforms (for example, smartphone or tablet or laptop).

Technology is inextricably linked to telecommunications infrastructure. Any evaluation may grind to a halt if we may lack one or more sub-components, each of which may be mission-critical for *synergistic* systems integration, which is the conduit for science to reach society. If we succeed, we then proceed to determine the human, social, ethical and business value of the idea, followed by an estimation of demand. The latter is often influenced by cost (to the user).

The channel master for digital delivery may not be a vertically integrated vendor with an end-to-end portfolio of sub-components which can be seamlessly stitched with *in-house* systems integration tools. In particular, science¹ and engineering competencies are likely to fall outside the domains which are competent in hardware and software tools necessary to synergize the technologies for optimization of digital delivery, financial transactions and customer service.

The ecosystem is a quasi-rate-limiting step because a good digital idea must be aligned with the supply chain of cyber-physical sub-components (may be products, data or information). If alliances with value chain partners and sub-contractors aren't functionally cohesive or even if one entity fails to contribute their part in the supply chain, then digital delivery will bite the dust. Several examples may be cited but the most prominent is the Google soup (Verily) which is still a work in progress with various companies including DexCom, TypeZero, NovioSens and Onduro. This example is unsuitable for the less affluent market but it is typical of an ecosystem which is a pre-requisite for any digital delivery service that aims to provide value and expect to be paid. Seamless synchronization of diverse elements may falter without credible and true leadership.

⁴ PrEP is in the MIT Library <https://dspace.mit.edu/handle/1721.1/123984>. Opinions are solely due to the author and does not represent the views of any institution. Email shoumen@mit.edu or sdatta8@mgh.harvard.edu

For business purposes, the market *lens* is equally rate-limiting. The economic parameter which often determines market fit and influences demand generation is the *annual index of per capita basic income and disposable income*. If we do not have disposable income, how could we buy or subscribe to goods or use *pay-per-use services* which are not *absolute* bare necessities?

LENS / FEWSHE	FOOD	ENERGY	WATER	SANITATION	HEALTHCARE	EDUCATION
MARKET ▪ <i>Basic Income</i> ▪ <i>Disposable Income</i>						
DEMAND						
VALUE ▪ <i>Essential</i> ▪ <i>Lifestyle</i>						
ECOSYSTEM ▪ <i>Supply Chain</i> ▪ <i>Value Chain</i> ▪ <i>Partners</i> ▪ <i>System</i>						
TECHNOLOGY						
ENGINEERING						
SCIENCE						
INFRASTRUCTURE						

Table 1: Ideas to be viewed through multiple *lenses* to determine the fitness for digital delivery. The exercise will be futile unless all partners agree to abide by an ethical margin of profitability.

DIGITAL CATALYSIS

The central thesis of this discussion is about services that end in digital delivery which can be profitable within ethical parameters, yet suitable for consumers in low resource communities. The emphasis on “ethical” profitability if translated in pragmatic terms must ask what are the type of services which may deliver sufficient value to the end user so much so that the recipient will be willing to pay a ***small*** pay-per-use fee, several times, perhaps daily or at the least, weekly.

This “fee” may unlock a *Pandora’s Box* of issues which is beyond the scope of this essay but deserves to be mentioned. This fee *at the end of the tunnel* may be influenced by the quality of service (QoS) at the point of service delivery, decided by *end-users*. Each *micro-earning* must be shared between ecosystem partners (supply chain fulfillment vendors) in proportion to their contribution. End-users may not authorize micro-payment if the QoS falls below a pre-agreed metric of key performance indicator (KPI). The failure to meet the QoS may be due to 1 vendor, the weakest link in the supply chain. However, the entire *instance* of digital delivery may be penalized by the end-user because the delivery failed to meet the KPI. The entire ecosystem will suffer financially, even if only one partner is responsible for the error.

The design of the digital service may be viewed through a set of lenses (FRAMEWORK) but the central need is to understand the profitability structure. Businesses may begin by asking *how small a fee* and *what types of economies of scale* must be available for financial success within ethical parameters (which will limit the margin of profit).

The “structure” is based on everyday thinking using commonly available data. We are assuming that this *micro-pay-per-use* fee for *digital-dribbling* lacks the panache for customers in affluent nations, hence, we subtract 1 billion from the world population of ~7.5 billion (the total “market”). Let us also exclude the *bottom billion*² who may lack infrastructure to extract any real value from data or information. For example, data on arsenic in water is without value if that is the only water source available at that time for survival of life (humans, animals and plants).

 China	1,387,160,730
 India	1,324,009,090
 Indonesia	255,462,000
 Pakistan	202,785,000
 Bangladesh	158,762,000



Figure 1: Identifying the geographical sandbox for implementing financial instrument PAPPU³ (*pay a penny per use*). Can it improve lives for ~5.5 billion people? More than half of the 5.5 billion resides in these five countries (left top) and ~80% of the 5.5 billion reside in close proximity. The “circle” (bottom left) represents ~4.4 billion people (more than half of world population). Identifying demand patterns in these 5 nations may be key to deconstructing the ecosystem for essential products and services with respect to FEWSHE (Table 1). The strategic task is to use the “lens” of SET (science, engineering, technology) to analyze which services are amenable for digital delivery. Social businesses may deliver such services and reap ethical profit from micro-earnings with nano-margins using PAPPU transactions.

The heart of the idea is outlined in the legend to Figure 1. It is not a new idea but an old axiom worth revisiting with “new” eyes which embraces a “digital” vision. Post-pandemic reset of globalization demands re-prioritization of essential services. Businesses and entrepreneurial innovation may respond to this global reset by reconfiguring financial supply chains and digital value chains to converge on service-on-demand digital delivery to end-users. This calls for an **ecosystem transformation** where each supply network partner must adapt their principles and practice of operations as well as connectivity **between** operations, both internal and external. Compromising transparency will reduce efficiency, which will in turn, annihilate profit from pay per use *modus operandi*. PAPPU instruments generate micro-earnings with nano-margins based on revenue harvesting from economies of scale. PAPPU-driven social business entrepreneurship is key to enabling the underserved population to access global public goods and services.

DIGITAL SERVICES ARE NOT EQUALLY APPLICABLE TO ESSENTIAL PUBLIC GOODS (FEWSHE)

The heart of the idea (Figure 1) crumbles for certain domains when digital delivery of services are viewed through the lens of FEWSHE (food, energy, water, sanitation, health and education) as presented in Table 1. Digital transformation is not a panacea and neither is social business entrepreneurship. People clamoring for survival at the edge of the poverty ridge is not an experimental group for entrepreneurial trials or social business pilot projects.

The 4.4 billion target population (Figure 1) is an amorphous market. Each demographic segment may be re-analyzed using criteria in Table 1. The actual buying power may reside with only one-third of the 4.4 billion population because one third are not adults and remaining one third may be seniors. The ~1.5 billion of the 4.4 billion who are able to “buy” products or services (for their children, seniors or family) are still far from being a “homogeneous” market. Perhaps a third of the 1.5 billion with purchasing-power may not be able to afford or simply may not feel comfortable with mobile phone based transactions for basic goods and service delivery. Hence, approx. 1 billion is the potential market for what we are describing as digital delivery of service.

The rational reductionist approach has reduced the 5.5 billion to a market of 4.4 billion and further narrowed it to a market of 1 billion based on an arbitrary index of decision makers with earnings potential and purchasing power. This final 1 billion is also a segmented population where wellness (preventive healthcare) and dietary safety (food and water contamination) may not be a priority due to limits of disposable income (see Table 1). But, digital catalysis in active healthcare may interest majority of this population (1 billion potential customers) because the value proposition (life versus death) may outweigh the cost/price.

A “back of the envelope” guess-timation indicates that a market of 500 million (half of the 1 billion) potential new customers may use digital services spanning health, food, energy and water. Inclusion of energy is rational because cost of energy and sustainability are valid concerns. The “new” business of global public goods may grow if digital services are imbued with an ethical spirit of social entrepreneurship and may champion the PAPPU paradigm.

The digital vision of global public goods delivery to the *new* market of 500 million is not an ephemeral line of business as dating apps or auction sites or haberdashery recommendations. The goods are still essential physical goods but enhanced by digital delivery services and made accessible by reducing the barrier to entry into the underserved population. The demand will increase with increasing global population (expected to exceed 11 billion by the 22nd century).

Thus, the new customer pool of 500 million and new lines of social entrepreneurship is a social business “sandbox” which will increase by at least an order of magnitude from 500 million to 5000 million (5 billion) customers by the turn of the 21st century. This is a long term march of reason by investing in domains (FEWSHE) which are the pillars for the progress of civilization.

EXAMPLES OF DIGITAL SERVICES APPLICABLE TO ESSENTIAL GLOBAL PUBLIC GOODS (FEWSHE)

Goods-specific analyses through the lens outlined in Table 1 is a trans-disciplinary task. It will depend on the background of analysts. Next steps will depend on funding (if available) to establish organizations to transform one or more principles into practices (PrEP). The outcome may not be immediate because a confluence of services may be necessary to sufficiently impact the individual and the community. Not rewards, but immense patience and perseverance is key to the success of PrEP, no matter how infinitesimal it may be, at the beginning.

A broad-brush analysis of digital services for global public goods is suggested for food, water, health and energy (see 01FW, 02H, 03E in P3⁴). Delivery of online education is the least complicated but its consumption by end-users is perhaps most fractured. The environment where education begins to fuel development is based on a plethora of socio-economic factors (nutrition, physical safety, mental security, telecommunications, cohesive support, aspiration).

Sanitation is the most critical of the essential services and also the most profound thorn of what is possible within the scope of digital services. Lack of managed sanitation services are likely to squander away any measurable gains from health and nutrition (food and water). Lack of sufficient energy and basic infrastructure prevents implementing sanitation services. The idea of pay-per-use sanitation services (for example, coin-operated public toilets in affluent cities) is an obvious option to recuperate the investment in managed sanitation services. But, in places within the circle (Figure 1, bottom, left quadrant) it is a non-starter because the capital expenses (capex) for creating the physical system in underserved areas needs municipalities and national governments to fund the end-to-end system by completing the “last mile” to the household.

Management of waste must be the first criteria in domestic planning but it appears to be an after-thought in most underserved communities. Improper handling of waste influences the rates of mortality and morbidity. Waste is the least favored topic of discussion yet it is ostracizing communities from enjoying the fruits of service from science, engineering and technology, which can improve quality of living, daily. Implementing basic sanitation services may not need any new science or sophisticated engineering. But, monitoring sewers⁵ can improve population public health, predict potentially harmful⁶ agents in the community and excreta⁷ is a key non-invasive source to measure personal wellness for preventive healthcare.

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DO ENTREPRENEURS HAVE THE VISION TO RISE ABOVE PROFIT & INVEST IN THE MARCH OF REASON?

Ethical profitability through PAPPU is a noble initiative, in general. But, is it blasphemous for the greedy and gluttony genetic traits that are dominant in vituperative venture capitalists?

Social businesses may require the evolution of a different class of benevolent funders who are not graduates of business schools where profit optimization and shareholder value are treated as the Holy Grail. Empathy, magnanimity, *égalité* and altruism (EMEA) are a part of the daily routine for 99% of the global population. But *expression* of EMEA is carefully crafted by smug and glib PR clerks who use “polling” data to orchestrate sound-bites to be used by the 1% ultra-wealthy who market their “acts” of charity and philanthropy to congeal their consternation and conceal their disdain for the down-trodden and forgotten. Of course, exceptions may exist.

It is likely that the *distributed* wealth of the 99% of the global population may exceed the *concentrated* holdings of the 1% ultra-wealthy. Progress in social business entrepreneurship may be chained by investors but unchained by distributed ownership by micro-contributors who will become micro-investors. Crowd-funding is key but we must avoid the crowd-funding practices in current use or the vultures in that domain who dominate the practice, at present.

Ethical investment through ethical crowd-funding tools must precede the practice of ethical profitability. **Ethics** must be a **systemic** part of this approach, not in one segment of the ecosystem but pervasive in all the layers of the **system**. Ethics will take time to grow roots.

Sustainable success will take time to grow the practices which may (measurably) improve the quality of lives for the underserved. Digital products to build an ethical crowd-funding tool is eminently within our reach to fuel the future of social business entrepreneurship as a catalyst to improve access to global public goods. Government funding and institutional support will be necessary but the initiative may not have to rely on the individuals whose adulation can be hardly contained on the pages of Forbes.



<https://www.forbes.com/sites/billfischer/2020/10/11/good-ideas-dont-last-forever>

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A \$1 dollar plate of bean stew costs the equivalent of \$320 in South Sudan



The real price of a plate of bean stew is \$321.7 in South Sudan. The result is hunger. Image: REUTERS/Andreea Campeanu

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