

# FROM BILLIONS TO TRILLIONS

How a transformative approach to collaboration and finance supports citizens, governments, corporations, and civil society to share the burdens and the benefits of solving wicked problems.



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# 1. INTRODUCTION



# 1.1 INTRODUCTION

Each year hundreds of millions of people work in tens of millions of organisations, and deploy trillions of dollars in an effort to solve the most pressing challenges of our time.

Yet despite this vast commitment there remains an estimated \$50 trillion funding gap required to address the Sustainable Development Goals (SDGs, or Global Goals) - the most comprehensive, cohesive and coherent description of these wicked problems to date.

The existing approach presumes that a multitude of entities addressing some part of the greater challenge will, without appropriate incentives and mechanisms, self-organise themselves into an effective, efficient, and scalable solution. This is dangerously and wilfully naive. By comparison, the International Space Station (ISS), the largest multi-lateral project, and the single most expensive construction project in history, came at an estimated cost of *only* \$150 billion. The ISS would never have been launched without clearly defined incentives, and a coordinated pathway to success - so what makes governments, corporations, and civil society actors believe they can solve trillion dollar problems through a piecemeal, incremental approach?

Over the past three years we have consulted with many of the world's largest and most active public and private institutions that are deploying significant levels of capital towards the resolution of the Global Goals. Without exception, while those we've connected with all consider the resolution of the SDGs to be a moral imperative, *none* of them genuinely believe that the Global Goals will be achieved by 2030.

We beg to differ.

On the face of it, the bottom line is depressingly simple - there is no single entity with either the cash or the capacity to invest or deploy the requisite capital to achieve one,

let alone all, of the Global Goals. And there are currently no incentives rewarding outcome over effort, or mechanisms for collaboration at the scale necessary to actually solve the SDGs.

In that challenge also lies the opportunity: the constellation of entities working to address these issues require financial incentives, operational infrastructure, and no small measure of humility, to transition from organisation-centric behaviour, to mission-centric behaviour.

From our perspective, this is the only way in which human society can move from treating the acute problems the SDGs represent, towards the systemic resolution of the underlying chronic issues.

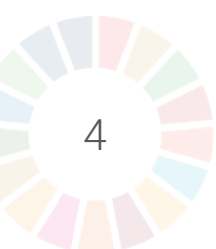
We believe that not only *can* the SDGs be solved by 2030, but that it is the single greatest moral imperative of our time that they *must*. Further, we believe that the primary impediment to their resolution is rooted not solely in resources, technology, or intent, but primarily in a combination of ineffective systems design, and intransigent human behaviour driven by short-termism, fragmentation, and counterproductive incentives.

What follows is the distillation of decades of combined thinking and acting in service to global change. Rooted in both philosophy and practice, this document is a roadmap we are already executing against. Our execution partners are organisations that agree that global infrastructure is the missing element necessary for not only the resolution of the Global Goals, but for each successive wave of global issues that humans will continue to face as we continue to evolve.

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San Francisco, CA | Portland, OR | Geneva, Switzerland

March 1, 2018



# 1.2 NOTES

*Billions to Trillions* is less of a white paper, and more of a roadmap. It articulates and builds upon concepts and perspectives developed by a vast network of individuals and organisations.

We have not thoroughly footnoted this document, as we are not so much seeking to make an argument, as to issue an invitation.

Our intention is to stimulate action, and as such we welcome the opportunity to discuss the contents in order that these ideas may be further refined in service to the common good.

This document pays particularly close attention to digital technologies and systems — not because we believe that technology in itself is a silver bullet, but because it is the foundational infrastructure necessary for mobilising all forms of capital at scale. A theory of change that cannot be executed against is a fantasy, and we are nothing if not pragmatic.

Of note is our use of the catch-all ‘world-positive’ to describe the constellation of individuals, organisations, and networks who are working for the common good.

We reject the false-dichotomy of non-profit and for-profit, and further reject the way in which the various players in this space are separated by who they serve, and how they serve them.

No matter if you are an academic or entrepreneur, a philanthropist or impact investor, a consumer product company or an NGO — or anything in between — we believe that we are all bound together by our willingness to deploy *all* forms of capital in service to a better world for all.

‘World-positive’ — a term initially coined by the team at [Obvious Ventures](#) — has been embraced and extended by our team to include *all* individuals, and *all* organisations that are working for the common good.

We are all moving in a common direction - world positivity.

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# 1.3 GLOSSARY

One of the greatest challenges in developing documentation is the proliferation of terms, acronyms, and internal ‘short hand’ we use to describe our work, much of which has divergent meaning.

Countries, cultures and contexts all determine our use of language, and so, for the purpose of this document, we considered it essential to define in advance what we mean in our use of some terms.

Of specific note is that we are using the United Nations’ Sustainable Development Goals solely as an organising principle for wicked problems. That is not to say that this work is focused exclusively on the Global Goals, simply that they represent a near term opportunity for global coherence amongst world-positive people and projects.

A clickable chart of these goals, with links to their descriptions on the United Nations website, appears on the next page.

“API”	Application Programming Interface
“Citizen”	Individual human
“EBITDA”	Earnings before interest, taxes, depreciation, & amortisation
“GIIN”	Global Impact Investing Network
“Global Goals”	Sustainable Development Goals
“IRR”	Internal Rate of Return
“KM”	Knowledge Mobilisation
“OBF”	Outcome Based Funding
“PaaS”	Platform as a Service
“SaaS”	Software as a Service
“SGB”	Small and Growing Business
“SME”	Small and Medium-sized Enterprise
“SSO”	Single Sign On
“SDG”	Sustainable Development Goals
“UX”	User Experience
“Wicked Problem”	A problem that is currently difficult or impossible to solve
“World-positive”	Organisations, people & outcomes serving the common good





# 1.4 SUSTAINABLE DEVELOPMENT GOALS



# 2. OPPORTUNITY



## 2.1 OPPORTUNITY

The business of change is the biggest business there is.

Solving trillion dollar problems is not achievable by any one entity in isolation, however. As such, the opportunity is for all citizens, across all sectors, engaging in any behaviour that contributes to measurable and often monetisable beneficial outcomes, to:

- A. participate in the funding, design and deployment of core infrastructure.
- B. connect their current digital systems to backbone systems such that the value they already hold may be more effectively mobilised, and compensated.
- C. be appropriately compensated for the value they create

Our model combines outcome based financing - a methodology by which funders fund on the basis of success - with the financial, legal, and technical structures to incentivise and operationalise collaboration at an unprecedented scale.

The core question we are answering is:

***What could be not only more urgent, but more rewarding, than solving the greatest challenges of the 21st century?***

Of course, there are a number of significant challenges in the way, as the following pages discuss.

**\$50 Trillion**

# 3. CHALLENGE



# 3.1 CHALLENGE

The core of the challenge is simple. Despite their commitment to change, most world-positive entities are either unable or unwilling to move beyond competition, or simple collaboration, in order to mobilise capital at the scale, and with the speed necessary, to solve wicked problems.

Over time this has resulted in the mass proliferation of parallel organisations, networks and initiatives that are frequently cited as evidence of ever increasing market demand for world-positive solutions.

Unfortunately, despite the best of intentions, each new venture spawns a new set of operational systems, and inevitably becomes constrained by organisational thinking, jargon and process. As much as these entities may intend to support the resolution of a mission larger than their own, they are often functionally unable to do so.

Further, the normative behaviours of markets have become the *modus operandi* for any venture seeking to catalyse beneficial change. Through individual, organisational and social spheres, we have become ensnared in Industrial Age metaphors, models and missions, failing to recognise that our relative affluence and privilege is rooted in an extractive economic system that is fundamentally unsustainable, and hence antithetical to our ongoing 'success' or 'progress'.

Funders of change are complicit in this state of affairs, rewarding novelty over utility, competition over collaboration, and outputs over outcomes. This is further exacerbated in philanthropy by the prevailing 'two pocket thinking' that typically allocates 5% of capital to making world-positive change, while the other 95% remains invested in the industries and practices that produced the problems we face in the first place. We expand on the challenges exacerbated by the 'golden herd' on p. 12.

The business models of world-positive organisations have evolved to primarily serve the needs of the organisation, its partners, sponsors, and stakeholders, and are not designed to support cross-organisational funding, knowledge mobilisation, data sharing, deep collaboration, and resource efficiency.

Further, as the diagrams on the following pages indicate, an unnecessary volume the of the value these organisations create is locked within silos. Data, insights, and resources are essentially inaccessible to peer organisations working on the resolution of the same or similar problems.

This results in unconscionable waste, the cost of which is measured in predictable and thereby avoidable social, economic, and environmental tragedy. At the same time as we are seeing unprecedented levels of interest and activity toward addressing 21st century challenges, we are witnessing the disruption, deterioration and demise of many of our most significant social, political, environmental, and economic systems.

The problem, to anyone who is paying attention, is simple. We are running out of time to assign our limited resources to their greatest use, and our current behaviours, business practices, economic models and levels of citizen engagement are inadequate. We must institute vast and immediate change, and do so in a way that limits the necessity of behavioural change — most frequently considered the primary impediment to successful global outcomes.

If we are to mobilise the necessary capital to solve our most pressing problems, it is a requirement that we rethink our collective approach to global development.

Cooperation, collaboration, and co-creation aren't just interesting concepts, but functional requirements for thriving in the 21st century.

## 3.2 UNDUE INFLUENCE

While philanthropic capital is patently insufficient for achieving the SDGs, it is nonetheless disproportionately influential in shaping how we go about addressing wicked problems.

Networks of the richest and most influential funders and philanthropists tend to move in 'golden' herds. The core differentiation between them lies in their idiosyncratic networks of influence, and choices of the geographies and sectors in which they operate, with brands often expressed in terms of the 'theory of change' against which investments are made.

Those with the biggest brands and banners tend to set the development agenda in any given sector. They provide the ecosystem *gestalt*, around which smaller entities manoeuvre to either position themselves in partnerships for co-programming or co-funding, or as direct recipients of capital in exchange for program execution services.

Typically these services are transacted on a the basis of efforts undertaken to achieve an intended change according to the funder's 'logic model', rather than an outcome model where verified success is rewarded.

Unfortunately, philanthropists and foundations are ultimately answerable to no-one — their results are as transparent or opaque as they choose to make them, and while they ostensibly serve the public good, they are not governed by the public in the public interest.

Financial capital is not, and should not be, the the sole determinant of influence in addressing wicked problems. Neither should political capital. While there is no denying the power of the intention and intellect these individuals and organisations bring to bear on wicked problems, there is also no denying that the wealthy are not imbued with superpowers.

Equating position, financial wealth, education, or convening power with the knowledge of how best to address wicked problems is fundamentally the same thinking as that which has created (and reinforced) the inequities of neoliberal economics.

If our current development wisdom is one that simply reinforces the status quo, and ignores solutions that incorporate the knowledge and incentives of the affected citizens, or 'beneficiaries' in the parlance of philanthropy, we unintentionally perpetuate the extractive *status quo*.

By imbuing major foundations and philanthropists with unearned privilege and unilateral influence on what is 'important', we unintentionally perpetuate the top down, extractive nature of these interventions, as distinct to working on a basis of merit, innovation, and above all, the cooperative logic that drives any successful endeavour.

The disclosures and transparency which form the very essence of being 'public' for a company, are the same essential ingredients necessary to support responsibility and efficiency in a global development marketplace where trillions of dollars are spent each year on millions of service providers.

The bad habits we diagnosed previously are exacerbated by the habits of the golden herd. Together, they result in a development industry marred by high operating overheads and business model inefficiencies, market externalities and distortions, and lack of transparency.

**The resulting patterns (see over) have shaped systems that serve neither people nor planet as well as they could.**



## 3.3 OBSERVABLE PATTERNS

Creating world-positive solutions at the scale required represents a great many challenges. As impact investors, technologists, and systems-thinkers, we see these challenges manifesting directly in the information systems and tools (financial, legal, and social) that we use to conceptualise and operationalise the

work being done on wicked problems. Badly designed systems both inhibit the flow and utility of data, and make inefficient the flow of capital to the urgent problems of our time.

We consider these impacts on the following pages.

PATTERNS	SYSTEMS
• Citizens are treated as beneficiaries and / or consumers	• Ignore individual sovereignty and agency
• Funding rewards largely untraceable efforts over outcomes	• Incentivise and accept sufficiency of 'trying' over 'succeeding'
• Organisational needs eclipse mission objectives	• Limit deep, cross-organisational collaboration
• Risk averse funders stifle innovation	• Minimise breakout innovations
• Enormous replication of effort	• Waste scarce capital resources
• Disagreement on standards and protocols	• Lock useful data in silos
• Effort and reward inversely proportional	• Place unnecessary burden on ventures
• Lack of transparency, accountability and disclosure	• Don't learn quickly enough from feedback and failure

## 3.4 DYSFUNCTIONAL SYSTEMS

As the previous slide indicates, scaling solutions to wicked problems is adversely impacted by systems that have not been deliberately designed for this purpose.

These systems can be essentially broken down into three primary areas:

### **Social Systems**

The patterned network of relationships constituting a coherent whole that exist between individuals, groups, and institutions.

### **Technical Systems**

The hardware, software, algorithms and processes that facilitate the storage and transaction of data

### **Capital Systems**

The instruments created for the purpose of valuing, storing and transacting capital

While there is no denying the impacts our social systems - informed by our values, beliefs and behaviours - have upon systems design, the purpose of this document is primarily on the latter two.

Frankly, our experience has been that, when confronted with the inconsistency between their values and behaviours, most people opt to change their behaviour.

Repairing and redesigning the underlying technical and capital systems is no small task - yet it is made substantially easier when we align on the importance of solving the problem, as distinct to being the ones to solve it.



## 3.5 DYSFUNCTIONAL DATA

In support of the inefficient, sub-optimal status quo described in previous slides — in which merit and innovation do not truly thrive — our industry has built a plethora of dysfunctional systems in which data is trapped and unable to provide the greatest good for the greatest number.

When it comes to mobilising knowledge, resources and capital, the primary obstacle to be overcome relates to ideas of data ownership, and how data is treated as a result.

While organisations may not have quite caught up operationally, it is a widely acknowledged belief that the individual can, and should, own their own data, and be at liberty to determine who, when, and how this data can be used.

In this context, much data is simply sitting, unused, and essentially unusable, in spreadsheets, databases and reports. Unused data is worthless. Further, data that is not unique has limited commercial value.

**Only data that is both unique, *and* in use, represents any value to the organisation that 'owns' it.**

As a result of outdated ideas about data - most importantly, the outmoded assumption that world-positive organisations 'own' generally available data about citizens and organisations - the considerable expense these organisations endure to aggregate, curate and store data, results in it being either 'siloesd', inaccurate, and / or inconsistent.





Subsequently, the next organisation that requires this data must start from scratch, going through a similar process, at similar expense, and continuing this unnecessary cycle.

In summary, data is:

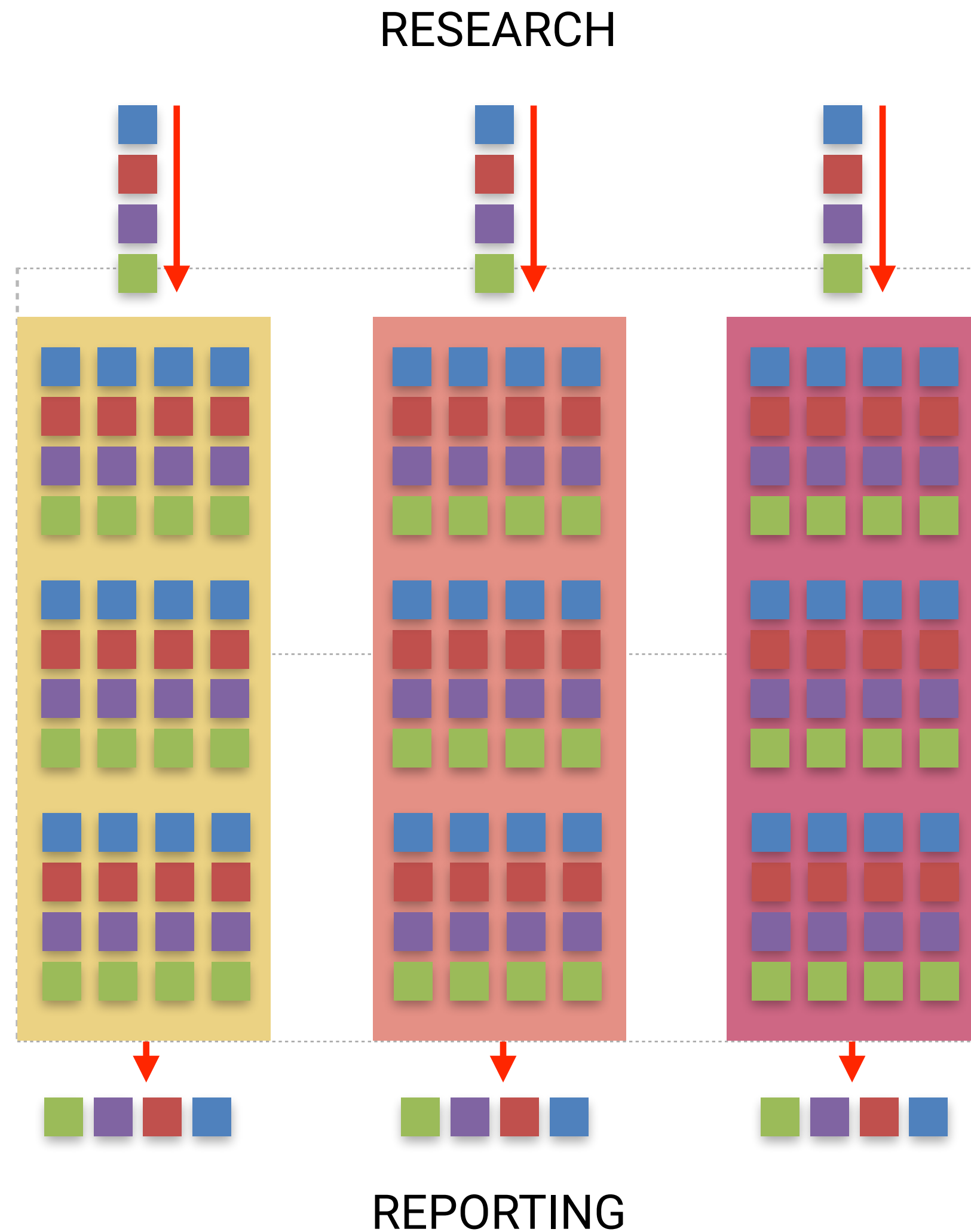
- Siloesd
- Fragmented
- Inaccurate
- Immobile

The key below shows the various data types and how they flow (or not) throughout the current systems, as expressed on the following pages.

### Key

-  Individual data
-  Organisational Data
-  Content Data
-  Network Data

## 3.5.1 SILOED DATA



Organisations (represented by the vertical rectangles) invest considerable resources into aggregating, curating, analysing and storing data.

This data can relate to everything from their partnerships, to their funders, to their investees or grant recipients, and the range of programming these undertake in the name of their organisation and its theory of change. Organisations are frequently unable to do much with data belonging to anyone else, especially if it is organised differently.

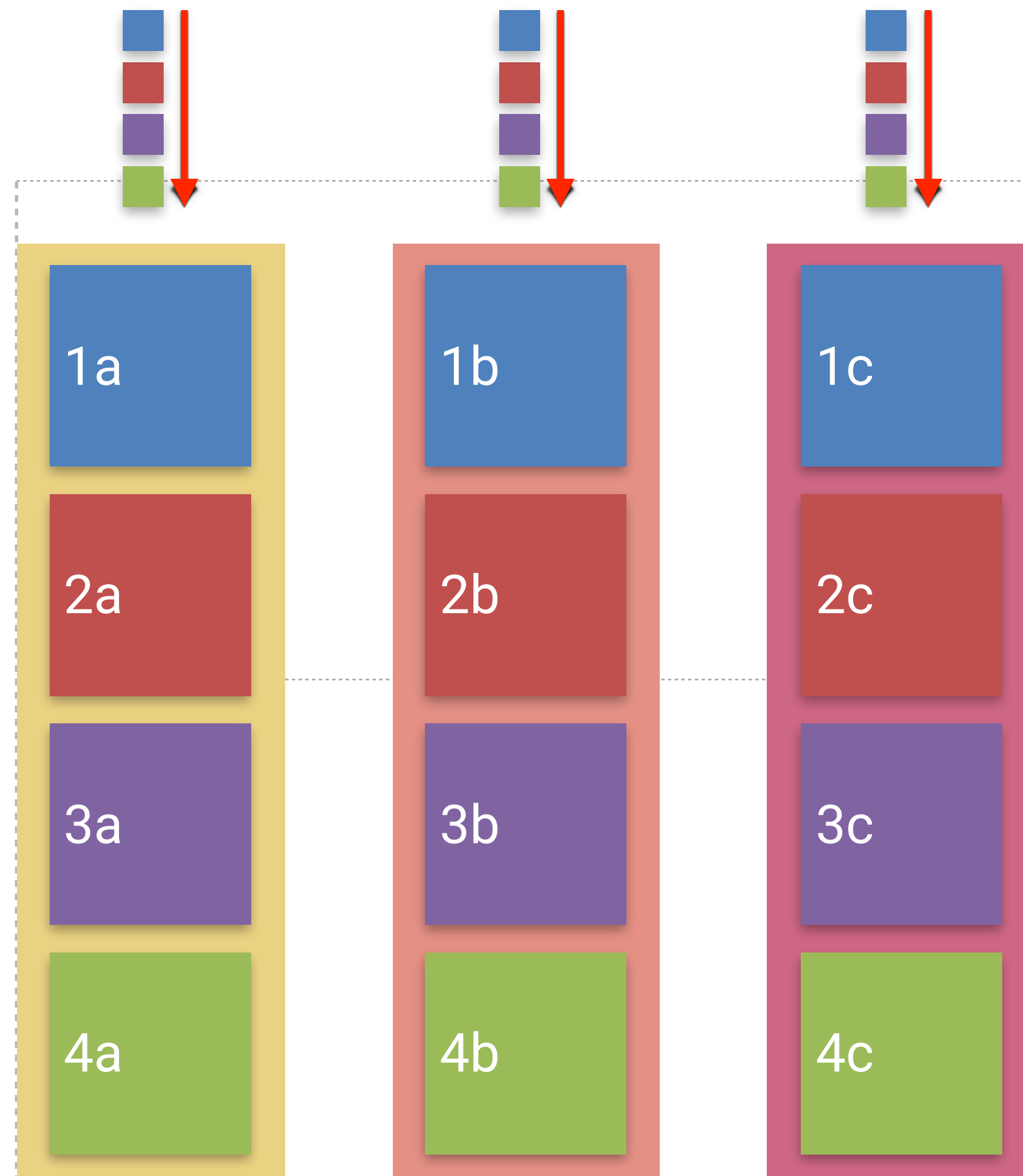
Further, proprietary operational systems inhibit the sharing of this data, despite the fact that much of the true value is not in the output, or the project summary, but in the raw data, and the learnings along the way.

The only interactions typically seen between these data silos are at the beginning of a project, in the market research and data gathering phases, and at the end of a project, in the reporting phase.

Much of what occurs in between is comprised of in-effect non-proprietary materials and processes, yet bound in proprietary systems.



## 3.5.2 FRAGMENTED DATA



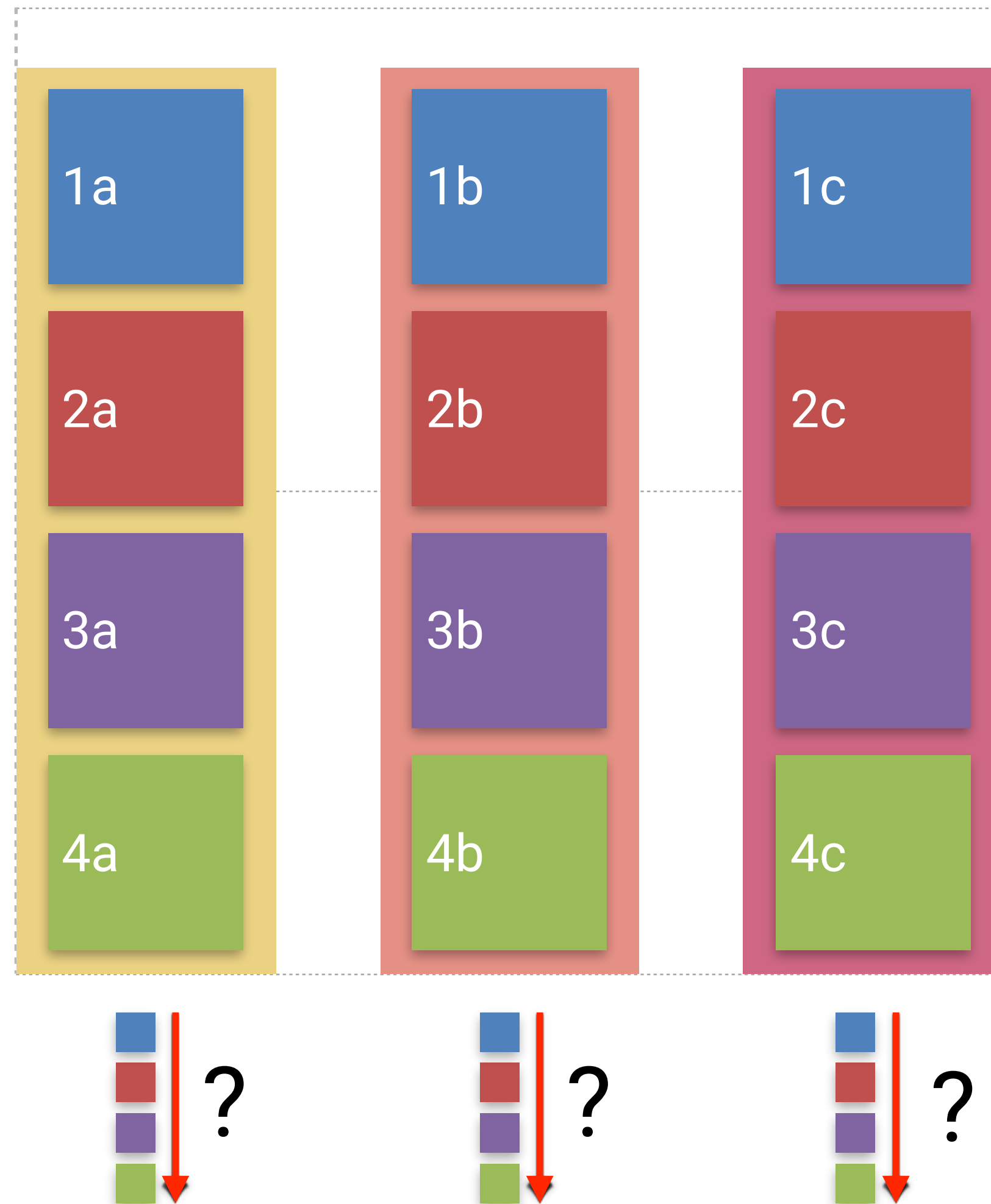
The model at left simplistically demonstrates the issue with data fragmentation and silos.

Three different organisations (yellow, orange, pink) have collected variations of the same data (a-c) on the same projects (1-4). In reality, it is significantly worse, as data isn't always static, being impacted by temporal, and contextual factors.

*When* data is collected, *why* it is collected, and even *how* and *by whom* it is collected, all has an impact upon the nature of the data we rely upon in our decision making. As Einstein noted, the act of observation can be known to alter or change its subject — data gathering is no exception.

Subsequently, the data inputs to each organisation are rarely if ever the same, and inevitably result in exponential fragmentation.

## 3.5.3 INACCURATE DATA



With the level of data fragmentation that occurs through how and why data is collected and stored, even if it were able to be effectively shared it is virtually impossible to establish an effective source of truth,.

Subsequently, much data, in its current form, is essentially worthless from an holistic perspective.

Once collected, most data is never updated, as there are few, if any, incentives for the people, organisations, or situations about which data has been collected to maintain an increasing number of records across a growing number of disparate databases.



## 3.5.4 INEFFECTIVE DATA FLOWS

As the previous and following diagrams illustrate, the proliferation of databases, platforms and tools has resulted not only in an inability to effectively share data, but the impossibility of determining which database represents an effective 'source of truth' for data being shared between sources.

Data about people and organisations, is not effectively synchronised, and there are few if any incentives for maintaining consistency across disparate databases.

While technologies like single sign on (SSO) are partially useful for solving this on a person-by-person, case-by-basis, they fail at scale. The corollary of *social* sign-on – using organisations like Facebook as the identity validating intermediary – are fraught for reasons that shouldn't require further exposition.

Further, even if the issue of a universal *personal* digital identity were solved, there is no corresponding solution for *organisational* identity. This results in a trail of increasingly out-dated organisational data being stored in a multiplicity of locations.

While this may be useful from an historical perspective, the inability to combine this data means that the historical data is largely stagnant.

The diagrams on the following pages demonstrate these problems in three contexts:

1. Simple user flow as experienced by an entrepreneur
2. Simple data flow
3. Universal data flows

### MASSIVE REPLICATION OF EFFORT

At latest count, there are well over 100 platforms that all purport to match impact investors and social enterprises, as shown in this chart compiled by Audrey Selian and Robert Rubinstein.



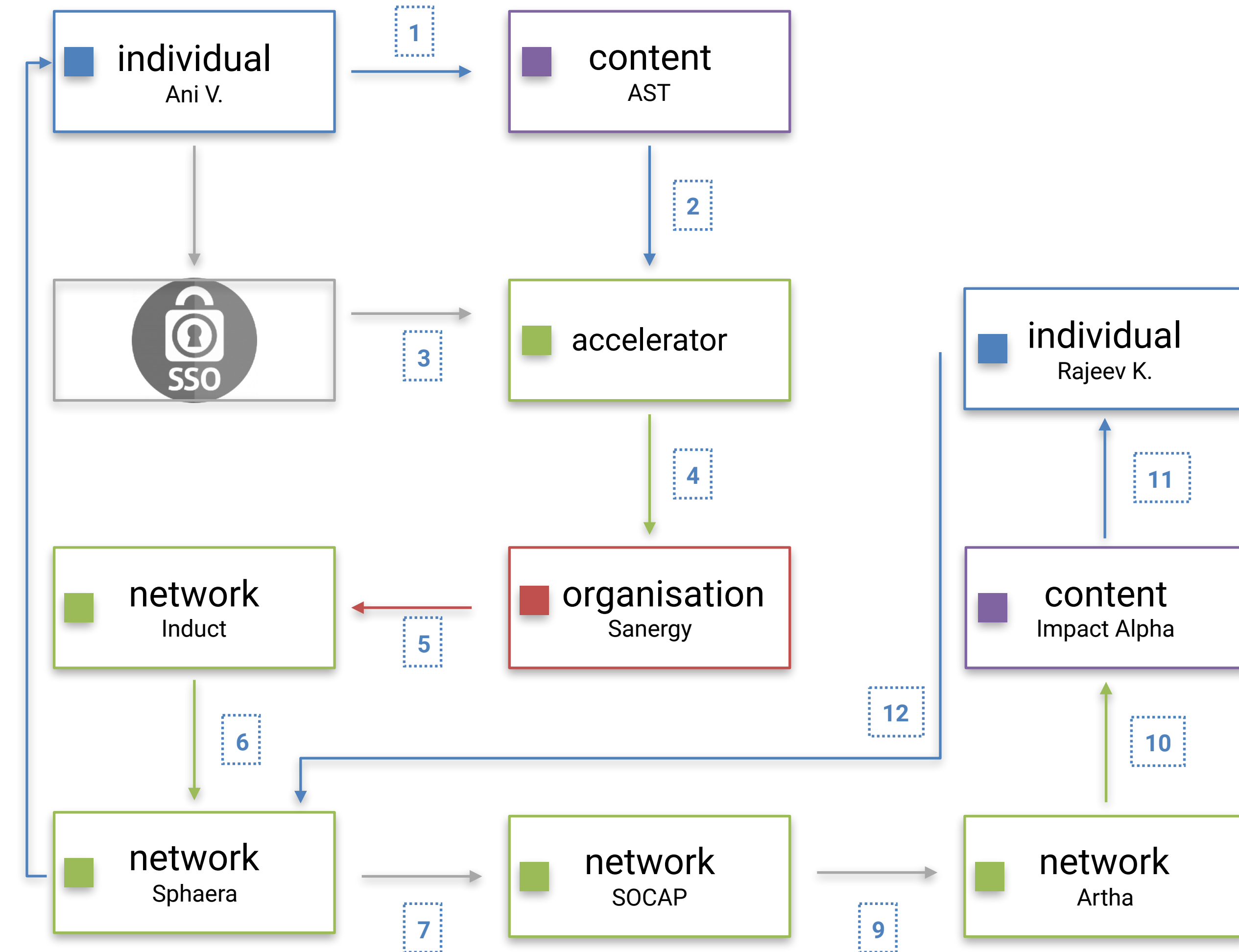
Source: TBLI Conference, Impact Investing Platforms, 27 May 2017, available at <http://www.tbllgroup.com/item/581-impact-platforms.html>

We expand on the folly of everyone trying to build their own proprietary platform given the barriers to effective data flow in a [recent article in ImpactAlpha](#).



## 3.5.5 SIMPLE USER FLOW

1. Sanitation entrepreneur Ani V. searches Accelerator Selection Tool (AST), finds Accelerator profile (**manually entered by Accelerator staff**)
2. Ani applies to Accelerator, registering with LinkedIn credentials (**if he's lucky!**)
3. Ani **manually adds extra information** about himself and his company to the Accelerator application
4. Ani creates Sanergy organisation profile on Accelerator, **copying and pasting from whichever profile he last wrote**
5. Ani is accepted into Accelerator, and workshops his business idea on google docs, asana, or whatever other project management tool is either proscribed, or arbitrarily determined by his team.
6. Sanergy graduates Accelerator, discovers Sphaera, and **manually enters personal and company information, as well as information about products/services/solutions** into their Sphaera profile.
7. Ani attends SOCAP, and **manually adds information about himself, his company, and his services and needs, copying and pasting from whichever profile he last created**
8. Ani meets impact investor at SOCAP; is advised to submit business plan and enterprise profile to Artha
9. Ani signs on to Artha with LinkedIn profile; **manually adds extra information** about himself and his company to the Artha Platform; this information is significantly different to the information supplied when he applied to the Accelerator
10. Sanergy receives investment. Impact Alpha discovers the investment, researches Sanergy, and **copies and pastes data from wherever they find it** into ImpactSpace.
11. Another sanitation entrepreneur, Rajeev K., reads story on Impact Alpha
12. Rajeev K. navigates to Sphaera to learn more about Sanergy and connects with Ani, who refers him to the AST ... and the cycle continues

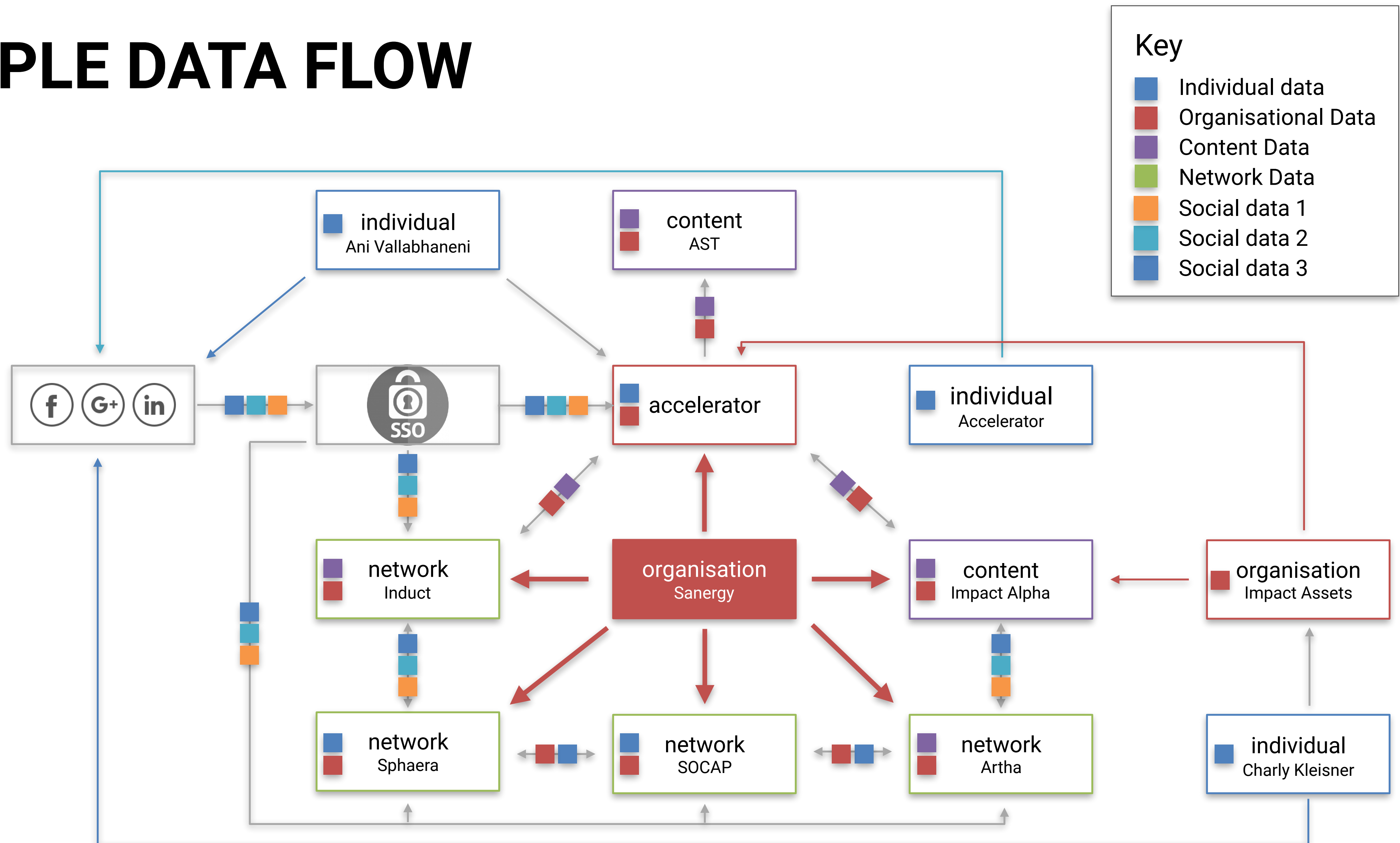


This diagram demonstrates the various data inputs an entrepreneur must make into disparate databases. Compound this over typical annual activity flow, and it quickly becomes clear how unwieldy the entire system becomes.

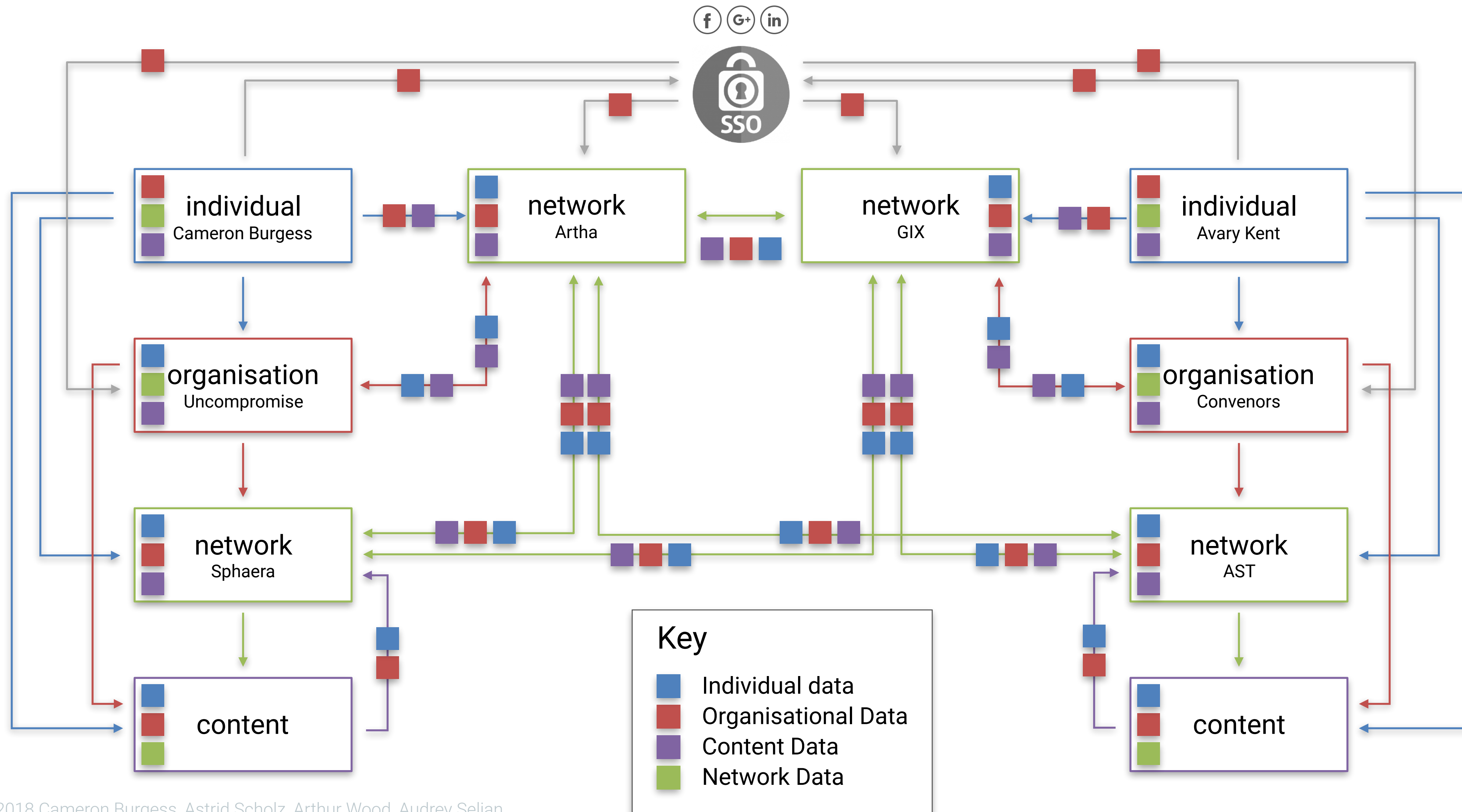


## 3.5.6 SIMPLE DATA FLOW

As the previous slide indicates, without standardised agreements on the nature and location of organisational data, this data is the most open to fragmentation. It is also the most valuable data in the market network. Social sign on, while decreasing some friction, results in further fragmented individual data.



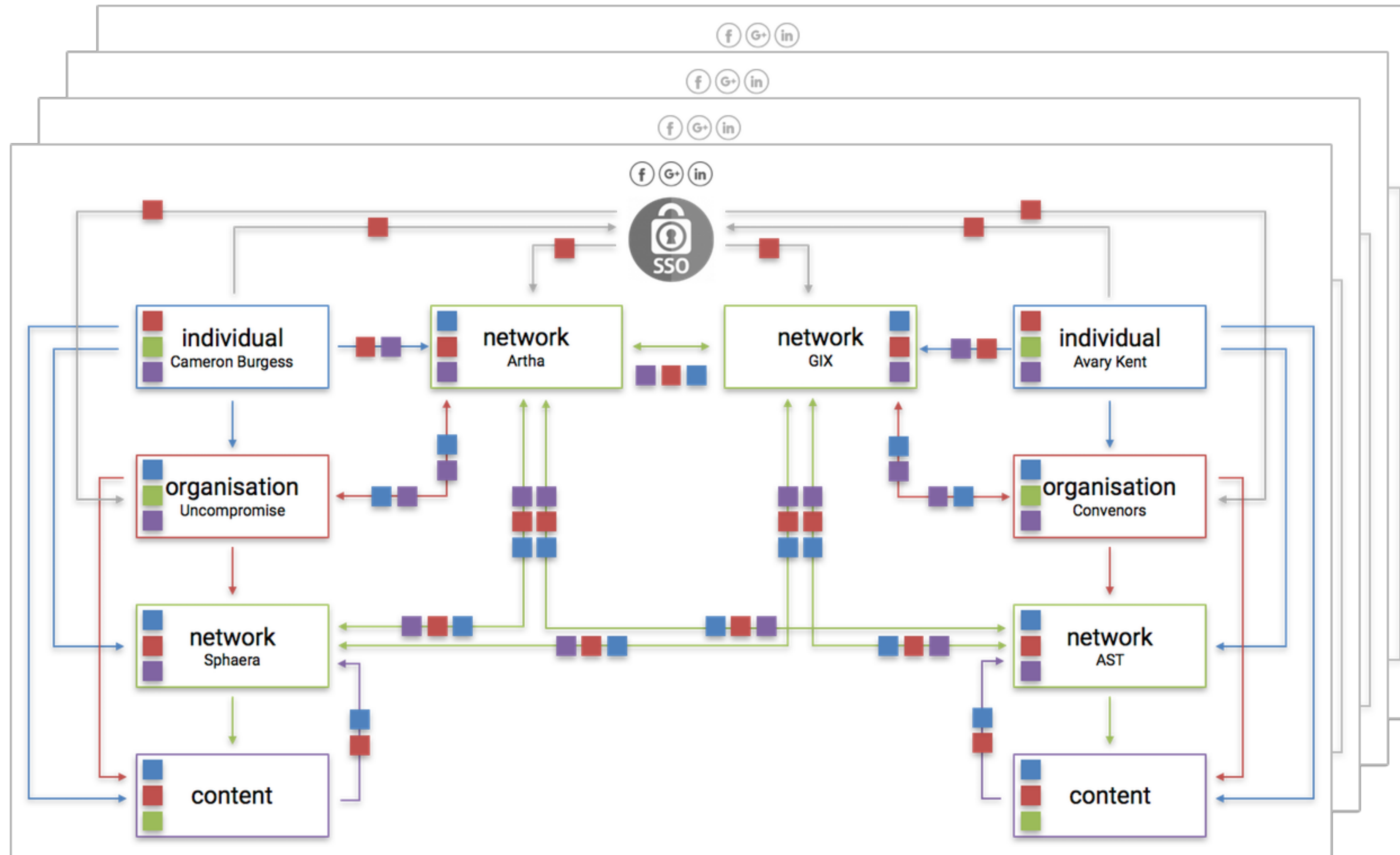
## 3.5.7 UNIVERSAL DATA FLOWS



A simple schematic demonstrating how different types of data flow between different entities. When taking into account the previous slides, it becomes apparent just how this data is replicated, uncoordinated, and thus rendered redundant.



## 3.5.8 DATA FRAGMENTATION



With the added the variable of time data becomes n-dimensionally fragmented.

## 3.6 MISALIGNED CAPITAL

Humanity is better off today, overall, than at any time in recorded human history; even despite the ever growing threat from climate change. Governments and markets have been getting better at providing for our needs, with civil society stepping in where one or both fail — and those failures are pervasive.

Yet the urgency of resolving basic education, health and income challenges for the bottom billions remains stark, and with an annual funding gap between \$1.7 and \$2.5 trillion, it is clear that investments of billions, or even hundreds of billions, are simply inadequate.

National foreign aid budgets are flat and declining as industrialised nations feel the demographic strains of increasing health and pension costs, and corporations are experiencing decreased consumer spending across the board, due to a combination of economic uncertainty, and a fundamental values shift away from consumption, and towards meaning.

There are other funding sources for addressing the gaps in human wellbeing, of course, but even in totality, the most widely considered are also inadequate:

- Globally, assets of private foundations top out at \$1 trillion. Most of that is not directly invested in world positive outcomes, with less than 20% deployed annually, and less than 3% actually making it into projects on the ground.
- Personal giving is highly fragmented, and in the US (the largest national personal giving market) tops out at \$275 billion per annum, most of which is not aligned with the SDGs.

- The capital markets of the global south have approximately \$2 trillion (in local currency) in local pension funds — estimated to reach \$17 trillion by 2050 — most of which is invested in cash and local government bonds, and misaligned with the social and economic imperatives of their citizens
- Impact investing, while estimated by GIIN at \$75 billion, and growing 16% year on year would need to scale at 300% *per annum* in order to come close to achieving the SDGs. That's assuming all of the required interventions are appropriate for investment, which they aren't.

Even if we could mobilise *all* of the above capital, it would still leave a substantial gap in funding required to close the human wellbeing gap.

**In fact, a rough back of the envelope calculation indicates that we need to mobilise roughly 5% of all global capital to achieve the SDGs by 2030.**

Relying solely on increased access to philosophically aligned capital would clearly be a mistake.



## 3.6.1 INEFFECTIVE CAPITAL

If our social structures are flawed, and their underlying systems, and the data moving through them, are dysfunctional, how can we expect our capital allocation practices to be effective?

If we take the spectrum of financial returns from -100% (grants) to 10x (venture capital), individual and institutional investors are distributed along that spectrum according to their risk preference, their goals for achieving social impact, and their financial return expectations.

At present, this is a chaotic system where entrepreneurs and organisations that have social interventions to address wicked problems are searching for the right type of capital for the type and stage of their intervention. Similarly, investors are looking for the interventions that match their 'theory of change', risk tolerance, and financial return expectation.

So how do the interventions and investors with matching impact, risk and return profiles find each other?

At present, the answer is "through a series of costly, bilateral search and diligence processes" that create massive inefficiencies and inhibit the flow of capital to where it is needed the most.

In the next two slides we consider the dynamics that lead to path dependencies, blind spots, and underserved types and stages of enterprises in mobilising capital for world positive change.

## 3.6.2 MYOPIC CAPITAL

Entrepreneurs and other changemakers implementing solutions to wicked problems have capital needs that span the entire spectrum from grants to VC.

Often, their capital requirements are driven by R&D and market making activities—including intense training and awareness-building for products and services that most of us take for granted, such as sanitary practices, last mile health care, or mobile finance. These activities incur a burden that no one small enterprise can or should take on alone.

Funders, in turn, tend to shy away from the operational risk and administrative cost engendered by these market-making activities—which are cost-prohibitive for any one funder.

In many cases, a coordinated ecosystem of grant funding, subsidy, and concessionary debt would generate systemic benefits to a range of endeavours for both investors and implementers.

Currently, an entrepreneur looking for funding has to conform to the worldview of funders who have organised the world according to the flavour of capital they disburse, rather than the capital that's needed. Typically in a series of bilateral conversations with different types of funders, the entrepreneur engages in a time and cost-intensive, bespoke search for the right fit capital—forced to develop fluency in the logic models and capital forms (grants, debt, equity) preferred by the funders.

In the present system, there is a vast collaboration 'margin' that creates distortions and does not enable any kind of systematic leverage, particularly where 'free' money / subsidy is on the table.

These dynamics are compounded by the fact that a vast number of individual investors and organisations follow the beacons of the “golden herd” without benefitting from their technical and operational knowledge, local footprints, social capital or risk-mitigating programmatic work.

So while some of these at the top are indeed well-positioned to make change, and may be big enough (in terms of assets under management) to make a systemic impact, they do little for their field of micro-peers.

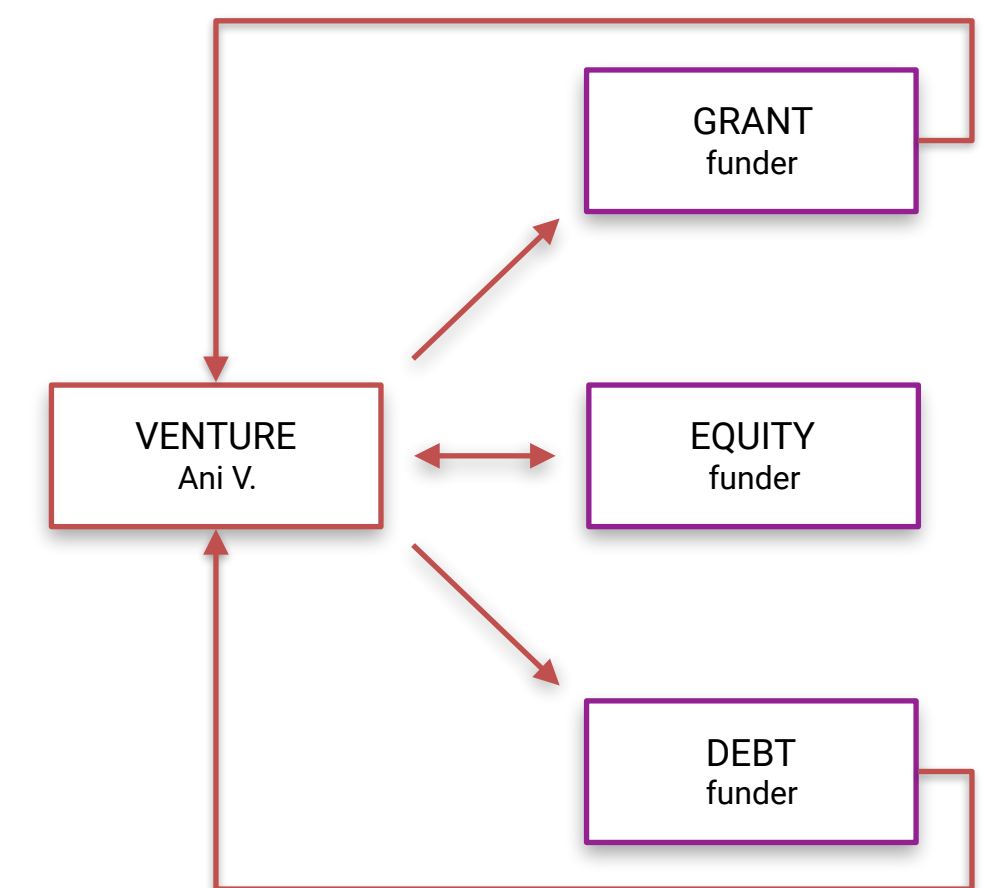
The urgency of the problems faced by the bottom billions on this planet should obviate the need for funders and service providers to struggle to identify one another, especially if they are newcomers to a given field.

### CAPITAL-CENTRIC CAPITAL

This diagram demonstrates the problem that occurs when funders put themselves at the centre of the design process.

Ventures are required to input data against divergent taxonomies, and report against varying requirements, resulting in fragmentation of organisational data, duplicated due diligence, and stifled capital flows.

Further, the flow of time and effort is inversely proportional to available time and capital, with ventures working for their funders - before they're even funded - rather than the opposite.





## 3.6.3 REPLICATION OF DILIGENCE

### WHAT ABOUT IMPACT INVESTING?

Impact Investing, which globally accounts for about \$75 Billion available for SDG financing exemplifies the counterproductive patterns of the current system.

Currently, the closest a cautious impact investor can get to financing an 'outcome' *per se* is to engage in equity investment, preferably on the basis of convertible (preference or other) shares, whose value can be determined on the basis of achievement of performance milestones.

Performance can be assessed on the basis of turnover, EBITDA or both, as well as on the impact metrics that in themselves are frequently idiosyncratic and tough to track.

Funders that focus on turnover may be driven primarily by ensuring a critical need (i.e. providing potable drinking water to marginalised remote communities) is prioritised; while those engaging in more long term, systemic solutions may be interested in operational efficiency and EBITDA. Most will fall somewhere in between, however, as they determine the risk profile of the money they disburse.

Debt investors may also mimic this if they tranche their secondary and tertiary debt disbursements contingent upon timely repayments, although the effort involved in setting and tracking performance and impact metrics is often untenable in line with relatively shorter time periods of engagement.

Currently there is little visibility on these disbursements, and no collective intelligence applied to the dynamic between funding flows, whether they are occurring in parallel (i.e., grants disbursed to non profits or raised from the crowd, and equity or debt financings completed), or over time.

SDG solutions financing could be vastly enhanced by surfacing the diligence history along the entire capital spectrum associated with a venture.

Some of this occurs already in a piece-meal fashion, as individual niche networks guide their members to one or another sector or geography. To date, however, we have not yet seen the alignment of incentives around one or another SDG.

**How we get there, harnessing contemporary social, financial, legal and technical innovations, forms the remainder of this paper.**

We will show how it is possible to align incentive and coordinate implementers and investors, using a unifying, dynamic legal structure that provides ecosystem stakeholders an actual 'shareholding' in a single vehicle dedicated to radically reduced transaction costs.

Until there is a system level 'reward' for reduction of those transaction costs, these remain the bread and butter of hundreds of thousands of service organisations and their intermediary advisors who draw money off the top and bottom of project budgets to reinvent the wheel at the expense of the citizen.

## 3.7 FLAWED DECISIONS

Institutional patterns, and normative behaviours, result in ineffective systems design, and correspondingly dysfunctional data, resulting in unnecessary friction for those most committed to doing the work.

The data outputs from these systems are being used to inform our biggest bets, meaning many of our decisions are potentially misaligned with our intentions.

Further, the inability for disparate systems to connect means that we are a long way from leveraging our assets to greatest effect.

All of this results in an exponentially fragmented market that is diametrically opposed to rapid scale.

As a consequence of the lack of connectivity between systems, capital becomes trapped, and is unable to be combined to greatest effect.

The good news is, it's a solvable problem through combining contemporary innovations, new forms of social equity, and inclusive systems design, as the following sections describe.



# 4. INNOVATION

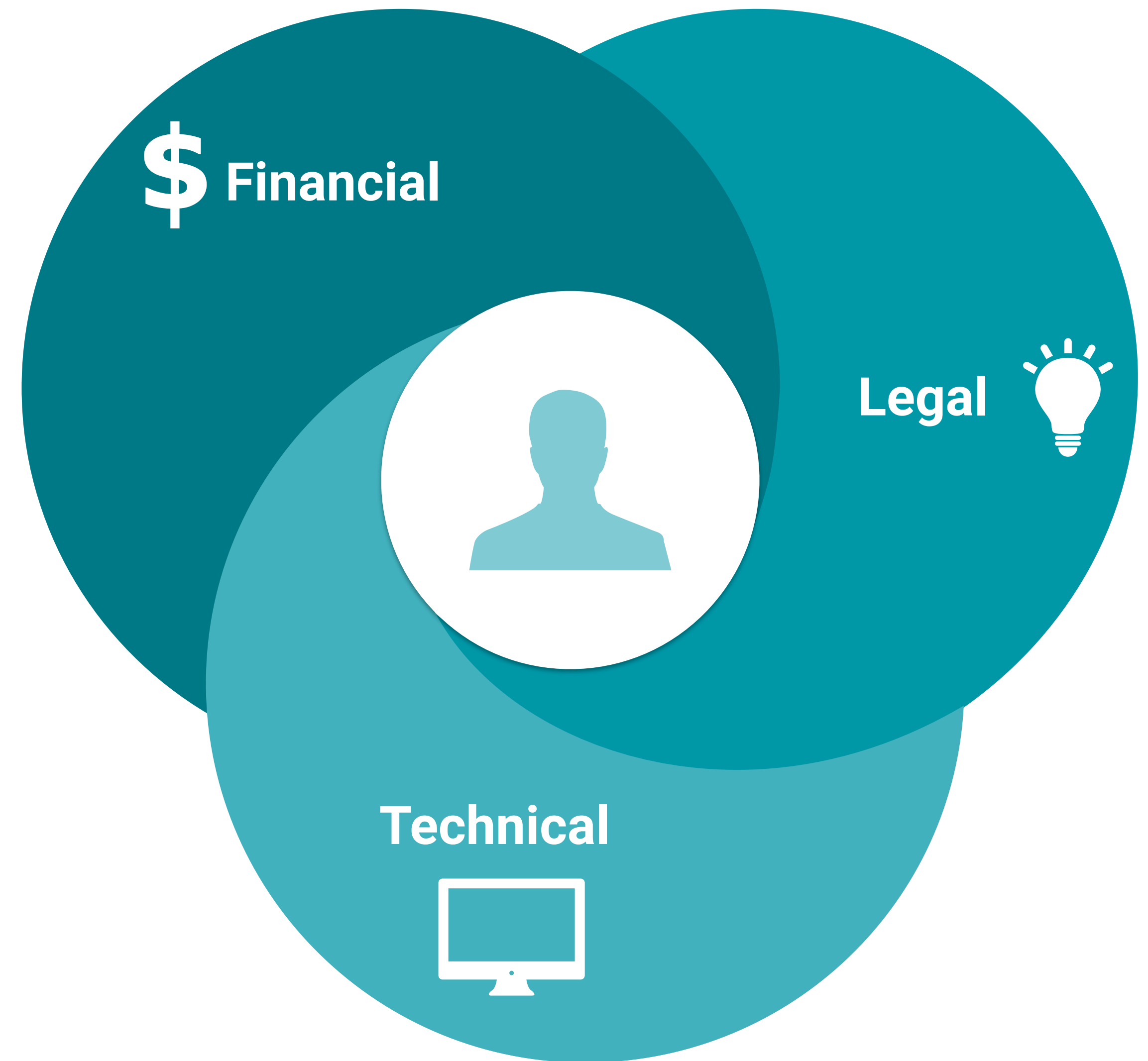
# 4.1 INNOVATION

There are four distinct streams of innovation that have been occurring in parallel over the past decade. Yet up until now, these innovations have not been effectively combined and harnessed toward the global good.

While much attention is given to the evolution of financial instruments and capital markets, the rise of purpose-driven legal forms, and the rapid advances in technological infrastructure, we believe it is essential to draw attention to what lies at the root of all innovation.

People.

All of these innovations are being fuelled by a dramatic shift in human values, resulting in significant changes in social innovation, including innovations in human behaviour, and corresponding social systems.





## 4.2 SOCIAL

Renowned futurist Faith Popcorn is tracking trends that illuminate substantial shifts in human behaviour. Each is significant in isolation, but when viewed as a whole they represent a significant change in how citizens are engaging with the world, and driving our social, economic, and political systems to respond:

**Being Alive:** Awareness that good health extends longevity and leads to a new way of life.

**Clanning:** Belonging to a group that represents common feelings, causes or ideals; validating one's own belief system.

**FutureTense:** Consumers, anxiety-ridden by simultaneous social, economic, political and ethical chaos, find themselves beyond their ability to cope with today or imagine tomorrow.

**AtmosFear:** Polluted air, contaminated water, and tainted food stir up a storm of consumer doubt and uncertainty.

**EVEolution:** The way women think and behave is impacting business, causing a marketing shift away from a hierarchical model to a relational one.

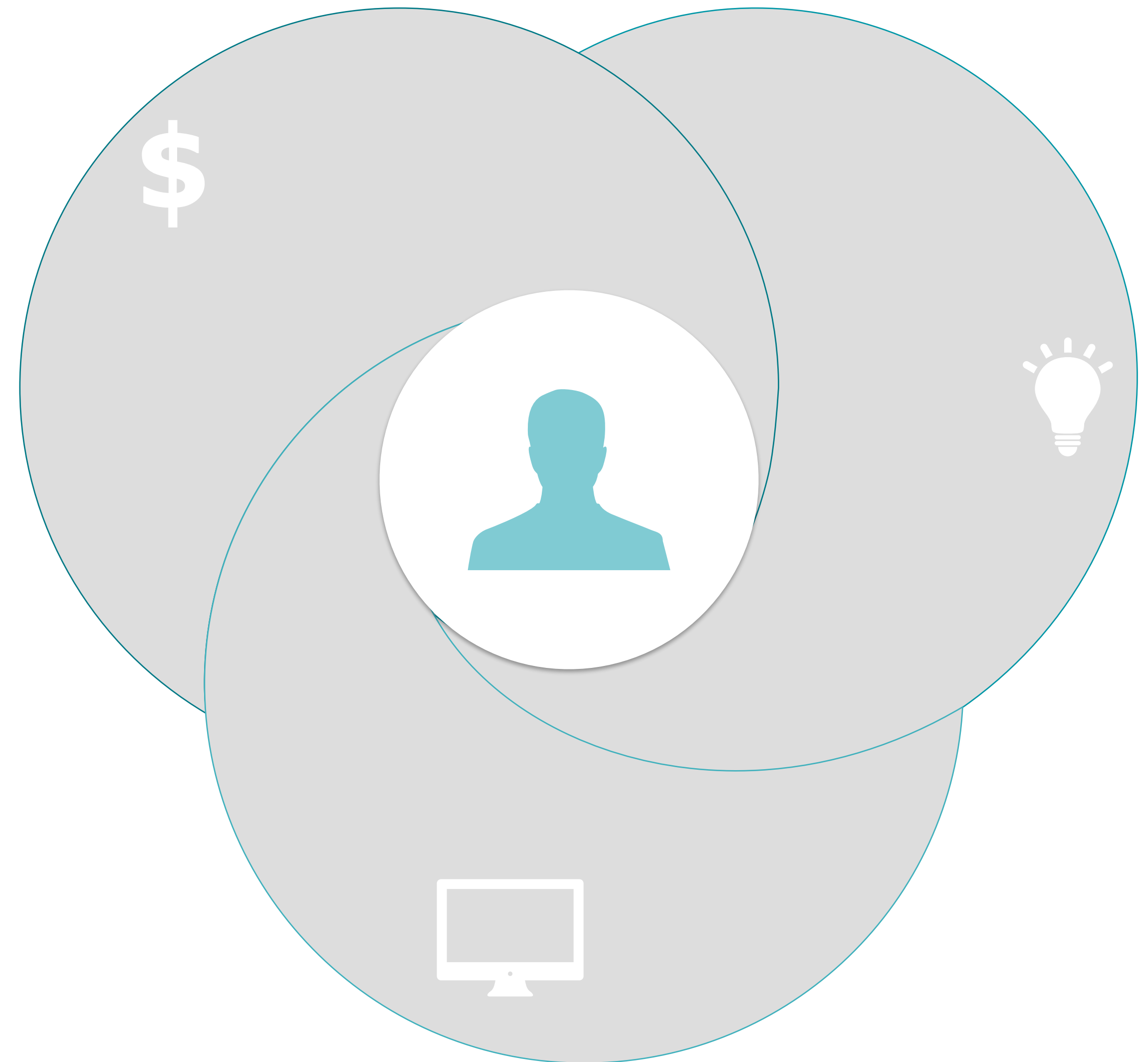
**Icon Toppling:** A new socioquake transforms mainstream communities as the pillars of society are questioned and rejected.

**Save Our Society:** The country rediscovers a social conscience of ethics, passion and compassion.

**Anchoring:** A reaching back to our spiritual roots, taking what was secure from the past in order to be ready for the future.

**Vigilante Consumer:** The consumer manipulates marketers and the marketplace through pressure, protest and politics.

**Cashing Out:** Working women and men, questioning personal/career satisfaction and goals, opt for simpler living



## 4.3 FINANCIAL

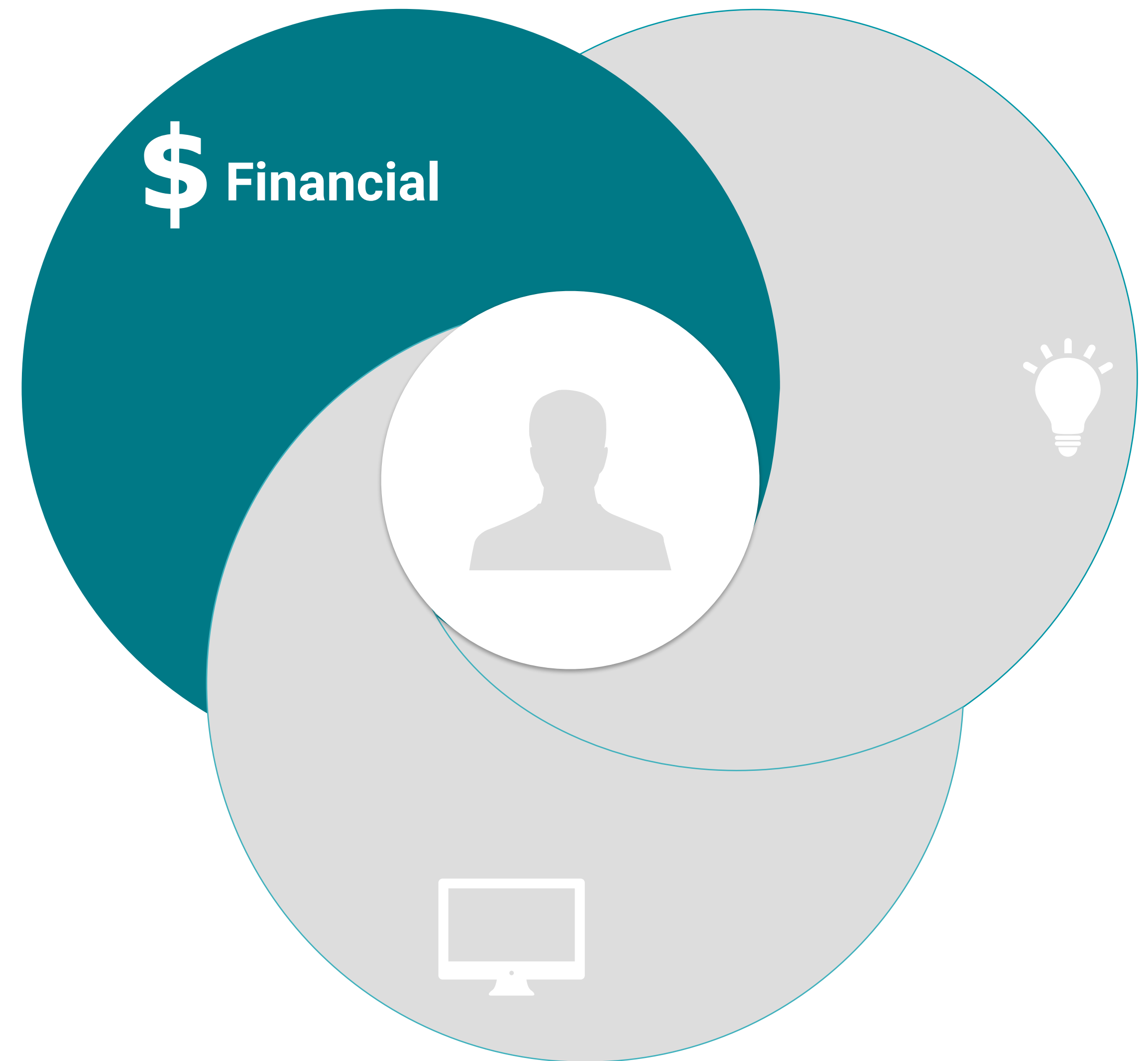
On the finance side, we are seeing a plethora of financial tools and solutions that are being developed and that can be applied **tactically** to various social issues. **Strategically**, in turn, we see the development of outcome models and the ability to structure investment vehicles that make it possible to financially reward the achievement of social outcomes, or the demonstrated improvement over a baseline.

This makes it possible to create securities that are exactly like other equities, but whose value reflects the achievement of social outcomes. These vehicles monetise the social problem—making the problem the market opportunity, and providing an avenue for attracting private and institutional capital, including the \$1 trillion held by private foundations globally, 97% of whose core capital is currently unaligned with their social mission.

It is this alignment of capital with social and economic frameworks, and the monetisation of externalities, that stands to unleash the volume of investment needed to address wicked problems.

We elaborate on this in the subsequent section on Social Equity.

We cannot complete an overview of financial innovation without addressing cryptocurrency. Cryptocurrencies, and the underlying systems that enable them, are the intersection between capital transactions, reputation management, and equitable governance.





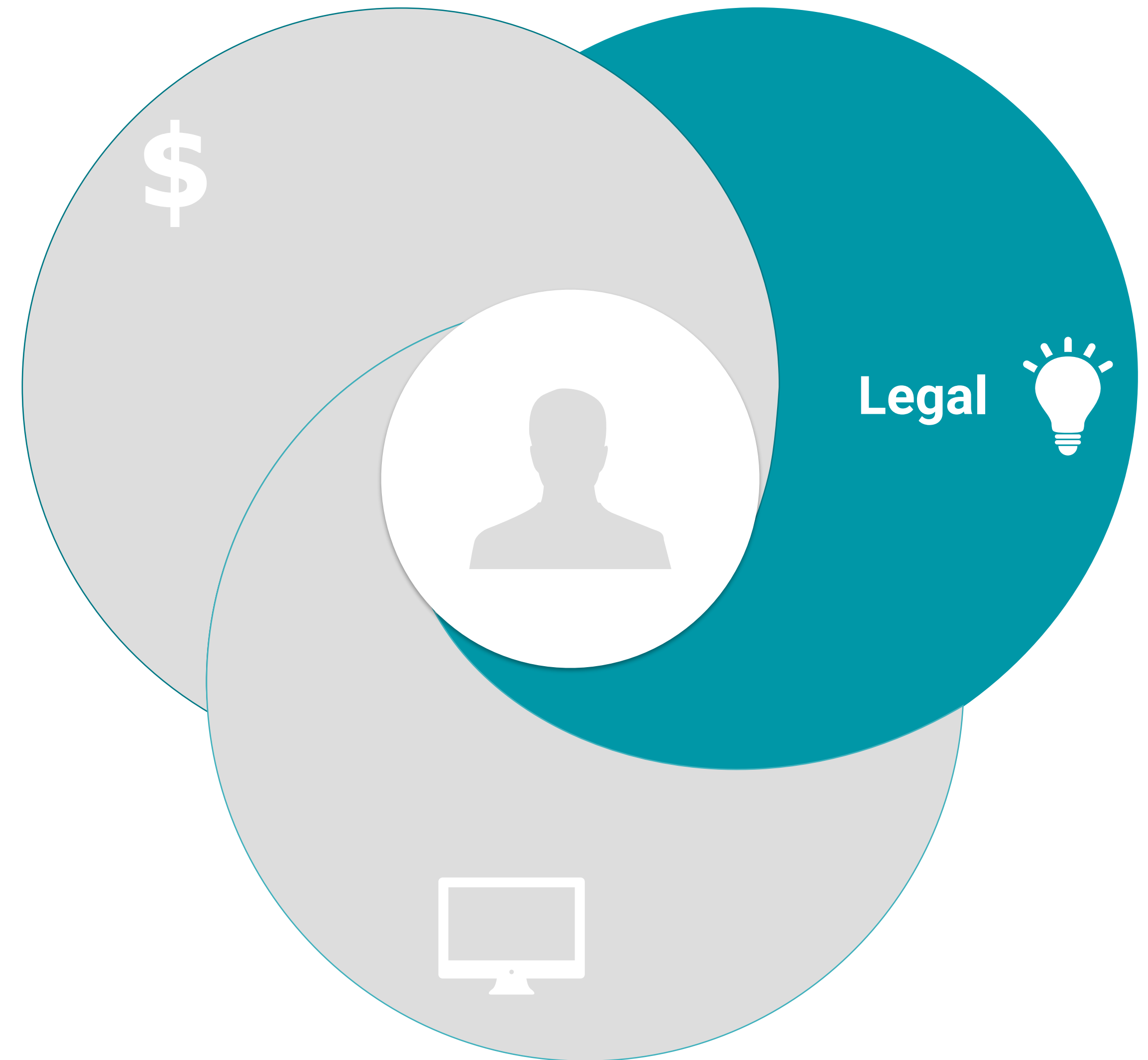
## 4.4 LEGAL

The evolution of corporate forms has expanded the tool kit for creating structures that combine economic and social goals. In particular, the development of Public Benefit Corporations (PBCs) provides greater flexibility to governmental funding in partnership with the private sector. PBCs hardwire the social purpose and the interests of stakeholders other than investors into their articles of incorporation.

Partnership Structures such LLCs and LLPs are now found in over 50 global jurisdictions, and allow varied economic returns to different partners (each taxed individually according to their native corporate status) that are aligned in a common purpose of the LLP / LLC.

From 2008 a social dimension was added and we now have legal structures such as the low-profit limited liability company (L3C) that adds an explicit social dimension to that structure, facilitating the layering (and the cross-subsidisation that lies at the heart of “impact investing”) of different types of philanthropic, public, and commercial capital with different and differing risk-return expectations.

Mutualistic structures — the most commonly understood of which are cooperatives — are a centuries old model for distributed and equitable ownership between parties united by common cause and mutual interest.



## 4.5 TECHNICAL

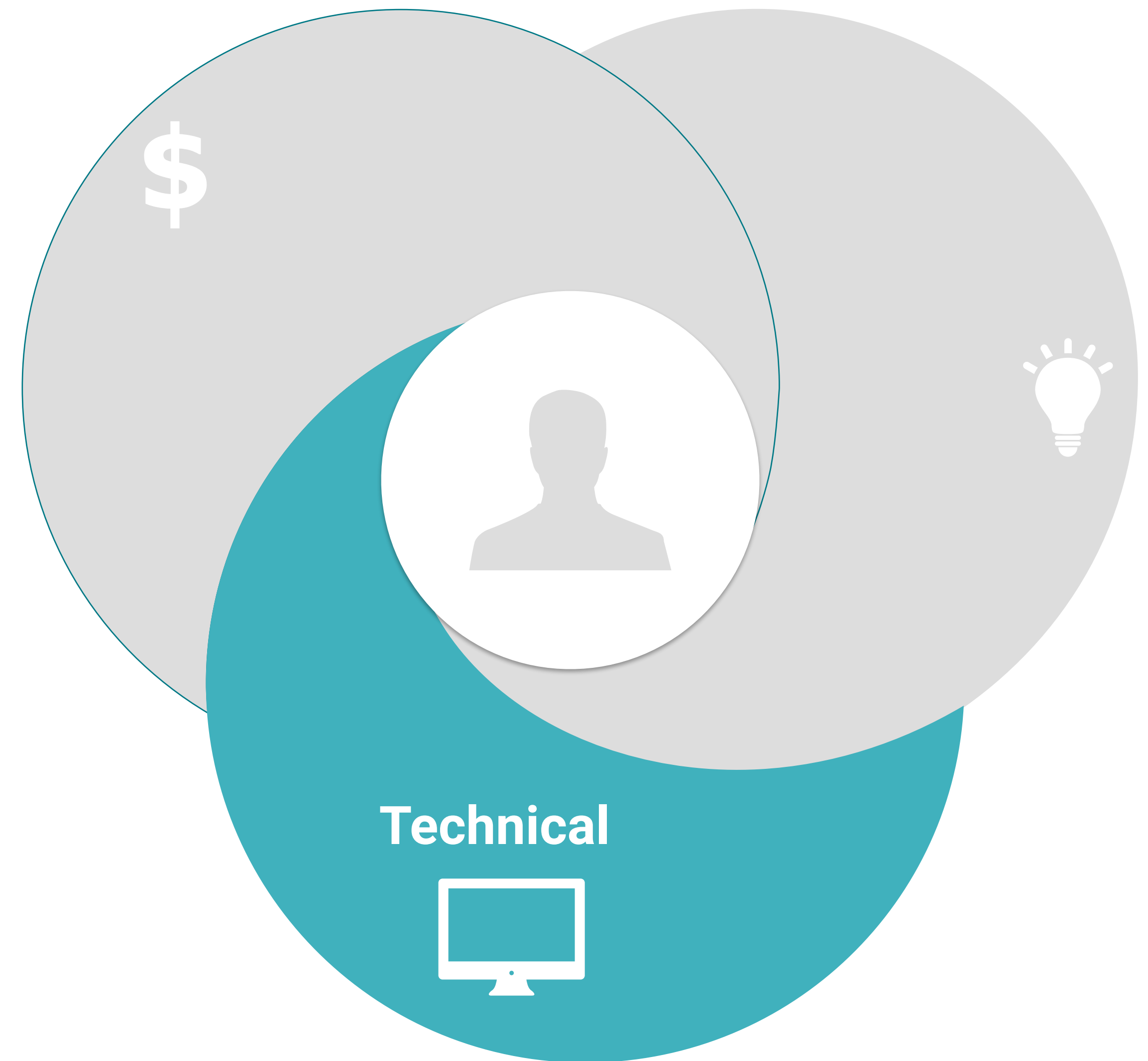
While there are a significant number of evolutions in technology that have made it possible to consider a new infrastructure pathway - including trends in personalisation, customisation, cloud computing, mobile, and distributed registries, the three emerging mega-trends, as identified by [Gartner](#), are:

**Intelligence:** AI, Intelligent apps and analytics, and intelligent things

**Digital:** digital twins, cloud-to-the-edge models, conversational systems and immersive experience

**Mesh:** Distributed ledgers, and continuous adaptive risk and trust

These innovations make it possible to create a responsive, adaptive, modular infrastructure that organises the workflows required to scale solutions, to leverage the legal, financial and behavioural innovations outlined above, and to do so in a way that mitigates the primary challenges identified previously.



# 5. SOCIALEQUITY



# 5.1 TRANSFORMING SOCIAL FINANCE

Social Finance is finance in service of achieving the greater good. It takes the form of capital, and therein the range of diverse instruments available for its deployment. Current social finance approaches are woefully inadequate for stimulating the flow of trillions of dollars towards solving wicked problems, as previously laid out.

Yet the now almost predictable response is to propose alternative solutions, instruments, and product variations that, while philosophically sound (on the surface at least), are largely untenable at scale.

The fundamental reality is that no crypto currency, crowdfunding, impact investing, or philanthropic initiative will ever be able to generate the required traction and volume in the required time frame. Nor is it likely that today's hedge-fund managers and bankers will dramatically shift their focus away from current practices.

*The simple truth is* that unless we can create a compelling reason for today's primary holders of capital to shift their investment focus, and to do so in a way that supports their expectations of risk and reward, we are likely to fail.

We must hold true to our ideals, while not being blinded to the urgency of our situation.

We believe the answer lies in the creation of **Social Equity**—both in the justice and fairness meaning of the word, and in the financial sense of creating new, tradable securities.

**Social Equity is the radical idea that the citizens, communities, and organisations contributing to the solution of wicked problems participate financially in the outcomes to which they have contributed.**

Those whose experience and knowledge contribute toward the development of solutions that work, should be rewarded systematically. This is a fundamental premise about human labour as a unit of economic value; the economic value of a good or service is determined by the total amount of "socially necessary labor" required to produce it, rather than by the use or pleasure its owner gets from it, or from giving it away at no cost. That which works should be granted rights to participatory equity.

Social equity, in combination with distributed ledgering technologies, and 21st century workflow tools, is the only way we can see that we can achieve the degree of financial and innovation liquidity necessary to support investments and collaboration at the unprecedented scale required to achieve the SDGs.

The following slides lay out a five step process for this transformation:

1. Monetise the problem
2. Align diverse stakeholders
3. Focus on outcomes over outputs
4. Create social equities
5. Embed finance in a larger system

# 5.1.1 MONETISE THE PROBLEM

The SDGs are associated with massive externalities, such as the \$300B+ incurred due to lack of access to adequate water and sanitation.

Any given intervention can be quantified in terms of its contribution to reducing these externalities, which in turn is of interest to the philanthropic, corporate, or public actors who see a benefit in tackling a negative externality.

For example, the tourism industry in the Caribbean has an economic interest in ecosystem restoration. Corporate employers in Africa have an economic interest in a healthy workforce that's not suffering from waterborne diseases. And citizens—at the very least—simply want to reside in an economically productive location where basic / universal services in health and education are accessible. These actors thus have an interest to pay for the achievement of the positive outcome, contingent on its success.

This promise to pay by contingent payers can be securitised—turned into a tradable product that investors can invest in, and that trades as a function of the achievement of the social and /or environmental metric.

Paying for success, or for outcomes, is not a new idea. What is different is the opportunity afforded by innovative legal frameworks to *align* investors with other stakeholders, including—importantly—the organisations or enterprises implementing the intervention, and the citizens in the communities that these interventions serve. All become the equivalent of equity shareholders and stakeholders in the same vehicle, whose sole purpose is to serve all involved using the principles of business management and the impetus of wealth creation; the two forces that have served the 'top of the pyramid' so well.

We expand on this in the next two pages, and then reflect subsequently how the process we propose puts the social back into today's most common outcome-based social finance instruments, the Social Impact Bond (SIB).

PUBLIC AND / OR PRIVATE  
ACTORS

HAVE A VESTED INTEREST IN  
SOLVING A PROBLEM

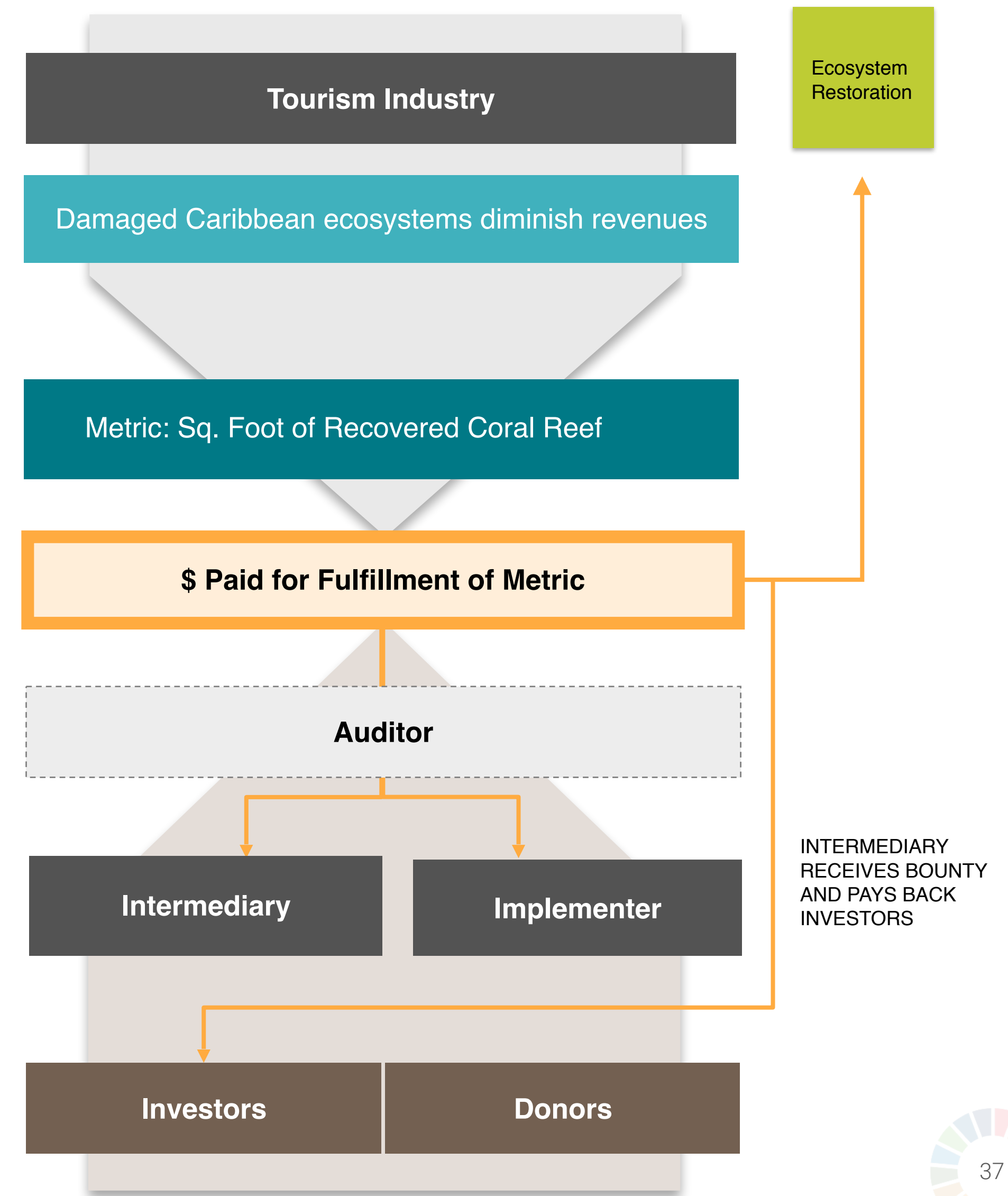
AND WOULD BE WILLING TO PAY  
FOR SOMEONE ELSE TO CREATE  
MEASURABLE OUTCOMES THAT  
ADDRESS THIS PROBLEM

UPON ACHIEVEMENT OF SOLUTION BY  
ECOSYSTEM PLAYERS & POSITIVE  
MEASUREMENT OF OUTCOME, FUNDS  
ARE RELEASED

OUTCOMES ARE VERIFIED AND  
MONITORED

INTERMEDIARIES AND  
IMPLEMENTING ORGS ARE  
CONTRACTED TO IMPLEMENT  
INTERVENTIONS

ALIGNED INVESTORS FINANCE  
ORGANISATIONS THAT ARE MOST  
LIKELY TO ACHIEVE **POSITIVE  
IMPACT OUTCOME**



## 5.1.2 ALIGN DIVERSE STAKEHOLDERS

Using legal innovations such as the L3C form in the United States, it is possible to create an equity structure to incentivise different stakeholders both as investors but also the stakeholders who require funding.

As long as there is a known baseline, and a quantifiable contribution to reducing a negative externality, it is possible to measure the improvement, or delta, of an intervention towards an outcome.

That delta, while specific to a given problem area or application, serves in essence as a uniform measure of social capital. Depending on the sector, a Dollar of investment gets you more or less delta, making the incremental change exchangeable.

The measurement of this impact Delta can be driven by direct feedback loops from the community, thus making them a stakeholder and shareholder in the outcome and its financial upside.

Such a structure not only captures the total value of social outcomes, but also does so within a framework that becomes competitive and comparative, and that can be applied to many different sectors.

Social R&D now has value, unlike in the traditional paradigm, and the quicker the Delta of achievement, the higher the internal rate of return (IRR).

This, in turn, allows the creation of a new range of uncorrelated equity assets reflecting the achievement of social outcomes across a range of social impact sectors — e.g. the SDGs — and serves as a channel for private and institutional capital that need not need to be aligned on impact to participate in its creation.

PUBLIC AND / OR PRIVATE  
ACTORS

HAVE A VESTED INTEREST IN  
SOLVING A PROBLEM

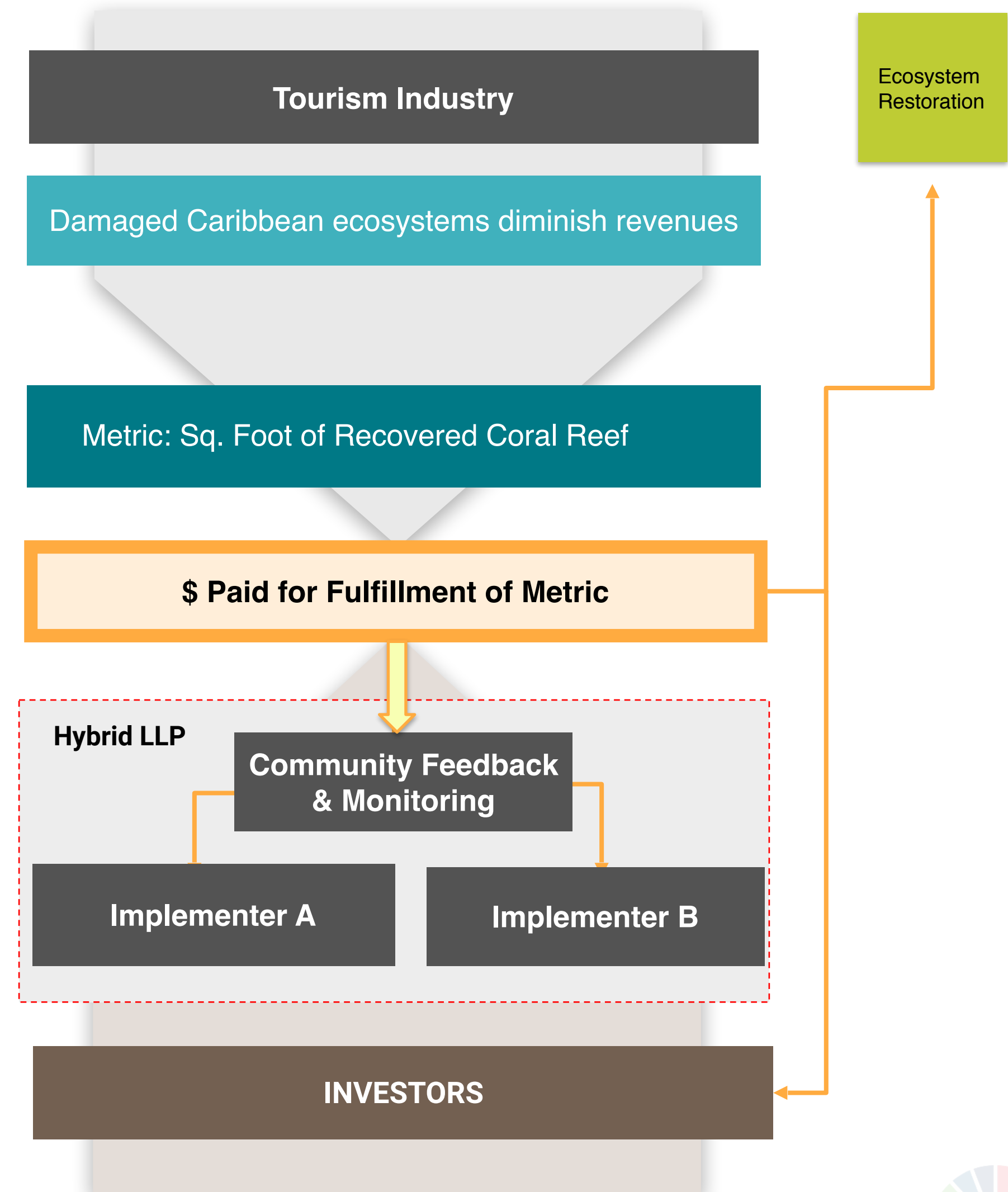
AND WOULD BE WILLING TO PAY  
FOR SOMEONE ELSE TO CREATE  
MEASURABLE OUTCOMES THAT  
ADDRESS THIS PROBLEM

UPON ACHIEVEMENT OF SOLUTION  
BY ECOSYSTEM PLAYERS &  
POSITIVE MEASUREMENT OF  
OUTCOME, FUNDS ARE RELEASED

OUTCOMES ARE VERIFIED AND  
MONITORED BY COMMUNITY

IMPLEMENTING ORGS ARE  
CONTRACTED BY (AND CO-OWN,  
WITH COMMUNITY) A HYBRID LLP

ALIGNED INVESTORS FINANCE  
HYBRID LLPs THAT ARE MOST LIKELY  
TO ACHIEVE **POSITIVE IMPACT  
OUTCOME**





## 5.1.3 DETOUR: PUTTING THE SOCIAL BACK IN SIBs

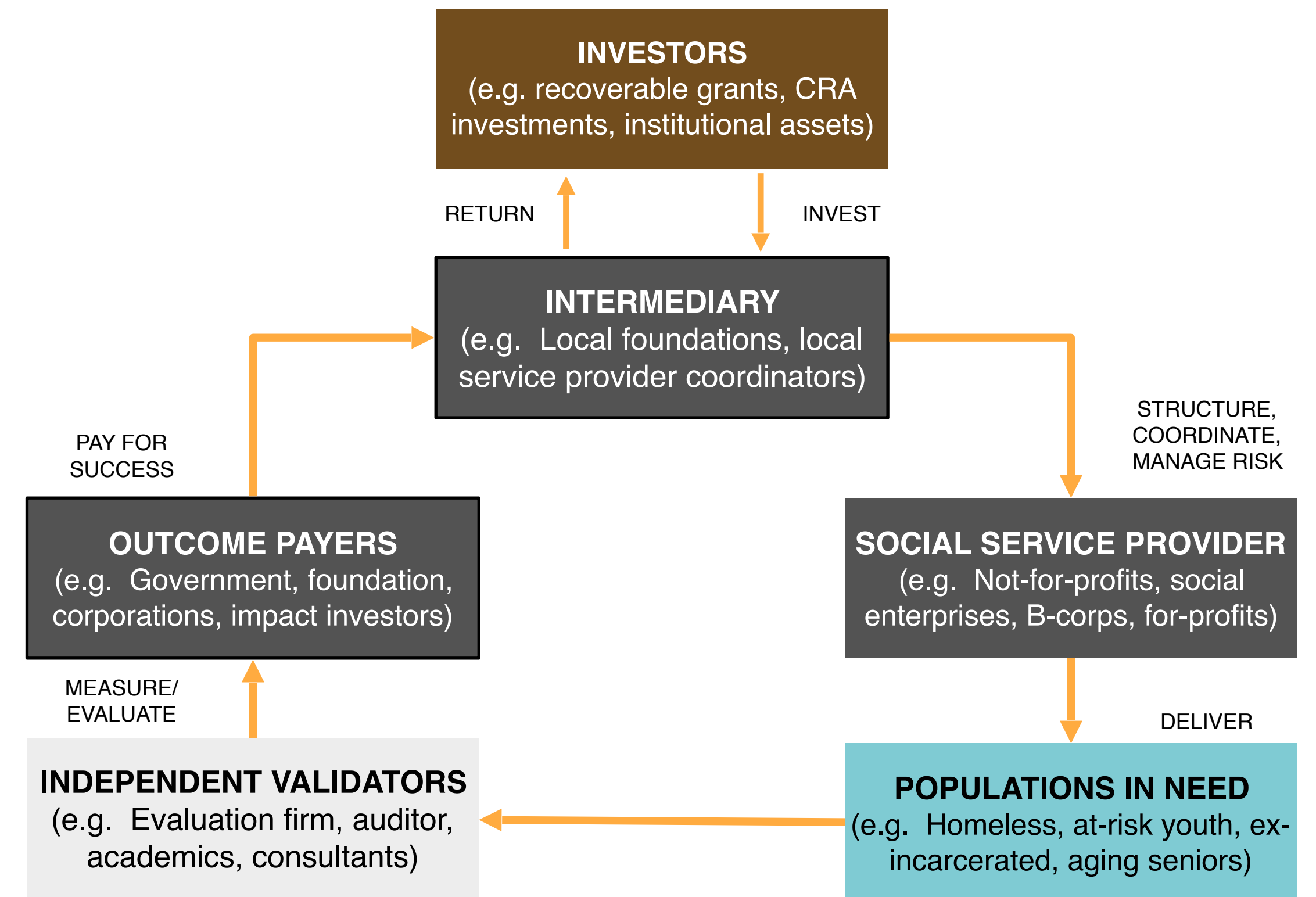
The best known model of outcome based, or pay-for-success, finance is the Social Impact Bond (SIB). The prevailing approach to SIBs is a contractual structure, coordinating contingent payers (typically government agencies), debt and grant investors, and service delivery organisations, and employing an audit mechanism to verify the performance.

Technically speaking, the reliance on a contractual mechanism puts it more squarely in the realm of a structured financial product than a bond. The classic SIB has placed a financial institution at the centre of the transaction as principal, and places social stakeholders and citizens in the roles of implementers and recipients of impact, but not as owners of the financial upside created. Social benefits flow downstream, but governance and profit flows up.

This framework has a number of issues:

- Limited transparency regarding the potential risk to social stakeholders
- Given the absence of regulatory framework, potential governance and 'moral hazard' issues.
- Reliance on scaling the innovations of a single institution, rather than adopting a hybrid, multi-stakeholder approach to wicked problems.
- Reliance on government as contingent payers in times of increasing budget constraints.

In the framework we propose, social stakeholders and citizens are central to governance, and the primary beneficiaries of both social *and* financial outcomes. Further, we expand the market for contingent payments to other parties in the business and civil society sectors that are equally motivated to find solutions.



Source: Adapted from the OECD, 2013 "Understanding SIBs", Link: <http://www.oecd.org/cfe/leed/UnderstandingSIBsLux-WorkingPaper.pdf> (p5)

## 5.3 FOCUS ON OUTCOMES OVER OUTPUTS

The current bilateral approaches to foundation funding and impact investment, results in a broadly dysfunctional use of capital and resources, as described in the Challenges section above.

That's a bit like launching 1,000 ships to sail from London to New York in a hurricane, with only enough resources on hand for a fraction of them to make it all the way.

Further, rather than incentivise them to coordinate and cooperate, we let each of them believe that they operate in a zero sum game, in which there can only be one winner. Finally, if and when they reach the other side of the Atlantic, there is no guarantee that they will be landing on fertile ground.

Beneath all of the sophisticated models, frameworks, and metrics, it's a crap shoot that results in a proliferation of innovation, with limited (if any) scale and collaboration.

By moving from funding-for-*trying* to funding-for-*succeeding*, an outcome framework is designed as a multi stakeholder 'equity' solution utilising a modular and open architecture framework where different players can take different and/or differing economic social returns.

The proposed mechanisms either reduce cost or a stakeholder is rewarded for their innovation as it is applied elsewhere. The key focus is to create scale and align risk on a standardised framework based on identifying and maximising social impact—where the incentives are to collaboration and scale and the quicker they are achieved in a systems approach the higher the IRR.

In short, we need to move from bilateral *outputs* to multi-stakeholder *outcomes*.

AN ENTITY WITH A VESTED INTEREST

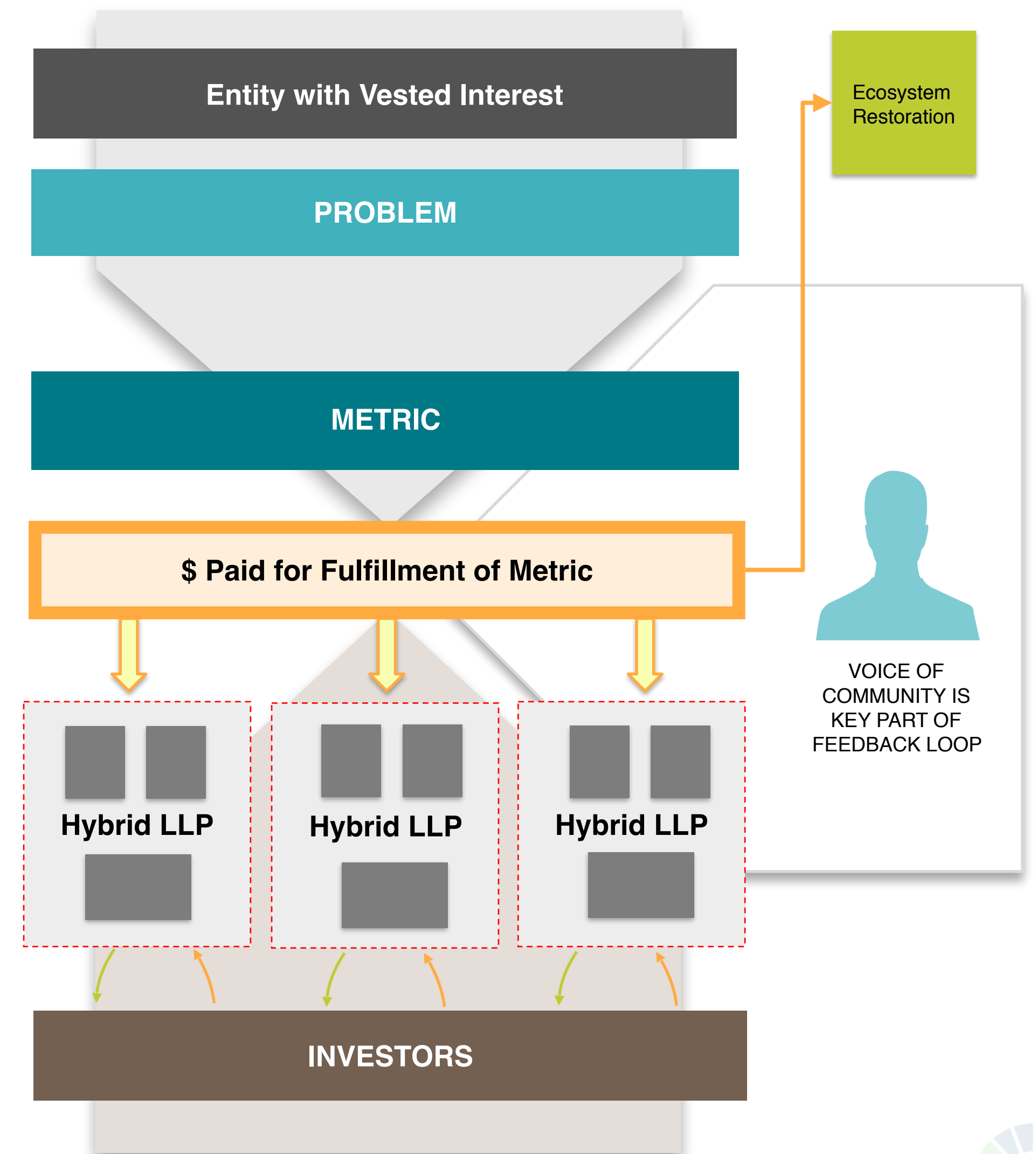
WOULD BENEFIT FROM SOLUTION OF PROBLEM

AND IS WILLING TO PAY FOR MEASURABLE OUTCOMES THAT WILL SOLVE THIS PROBLEM

UPON ACHIEVEMENT OF SOLUTION BY ECOSYSTEM PLAYERS & POSITIVE MEASUREMENT OF OUTCOME, FUNDS ARE RELEASED

MULTIPLE LLPs WORK INCREMENTALLY TOWARDS FULFILLMENT OF METRIC

ALIGNED INVESTORS FINANCE MULTIPLE LLPs THAT ARE MOST LIKELY TO ACHIEVE METRIC



## 5.1.5 CREATE SOCIAL EQUITIES

The standardised process can then be applied to a range of social impact investments—increasing impact on a sustainable cost base at a much lower unit cost, and with increased transparency, especially in the way public finance is allocated.

This makes it possible to create social equity structures—shares of ownership in the hybrid structures that are creating beneficial social outcomes, priced by the impact created in, and validated by, the communities where social programs are implemented.

At the core of this mechanism are not the bankers, as in the current paradigm, but rather an open architecture framework that has social mission hardwired into it, and that uses distributed ledgers for tracking and paying the granular value produced by the participation of a multiplicity of stakeholders.

**In the proposed framework, stakeholders become shareholders, thus also advancing social equity in the traditional sense of the word.**

The open architecture of the framework allows future proofing but also flexibility for participants to dovetail with their own theory of change and capability including their own compliance constraints. If a theory of change, once deconstructed upon assessment of (both subjective and objectively assessed) outcomes holds water, there can be no better validation of this method.

Importantly, this framework also serves as an engine for financial innovation of interest to bankers and intermediaries.

Social Equity allows for the creation of tradable securities that will trade as a function of the social outcome. For private asset managers and pension funds it creates a range of tradable equities (with less reputational risk) where social value now has a secondary and tradable value.

It also provides an architecture that can be applied to a range of social impact investments on an open, modular platform that we describe further below—offering better portfolio, project, client and risk management in exactly the same way that banks increased their offerings to clients on a single integrated platform as they moved from a product focus to client focus in the late 1990s.

The twist in 2018 is that big data, when applied to this framework and leveraged with machine learning, results in a mechanism that will become predictive as to the economic and social impact of a social intervention.

**Creating social equities makes social problems tradable market opportunities on a standard cost of social capital calculation. By definition, eliminating an externality means we have solved the problem.**

Under this paradigm the issue is no longer capital, or innovation — both of which will be substantially better leveraged and focused. The issue is collaboration, and how quickly and effectively it is achieved. It will, of course, require existing institutions to adapt considerably, and we harbour no illusions that this will be easy.



## 5.1.6 EMBED FINANCE IN A LARGER SYSTEM

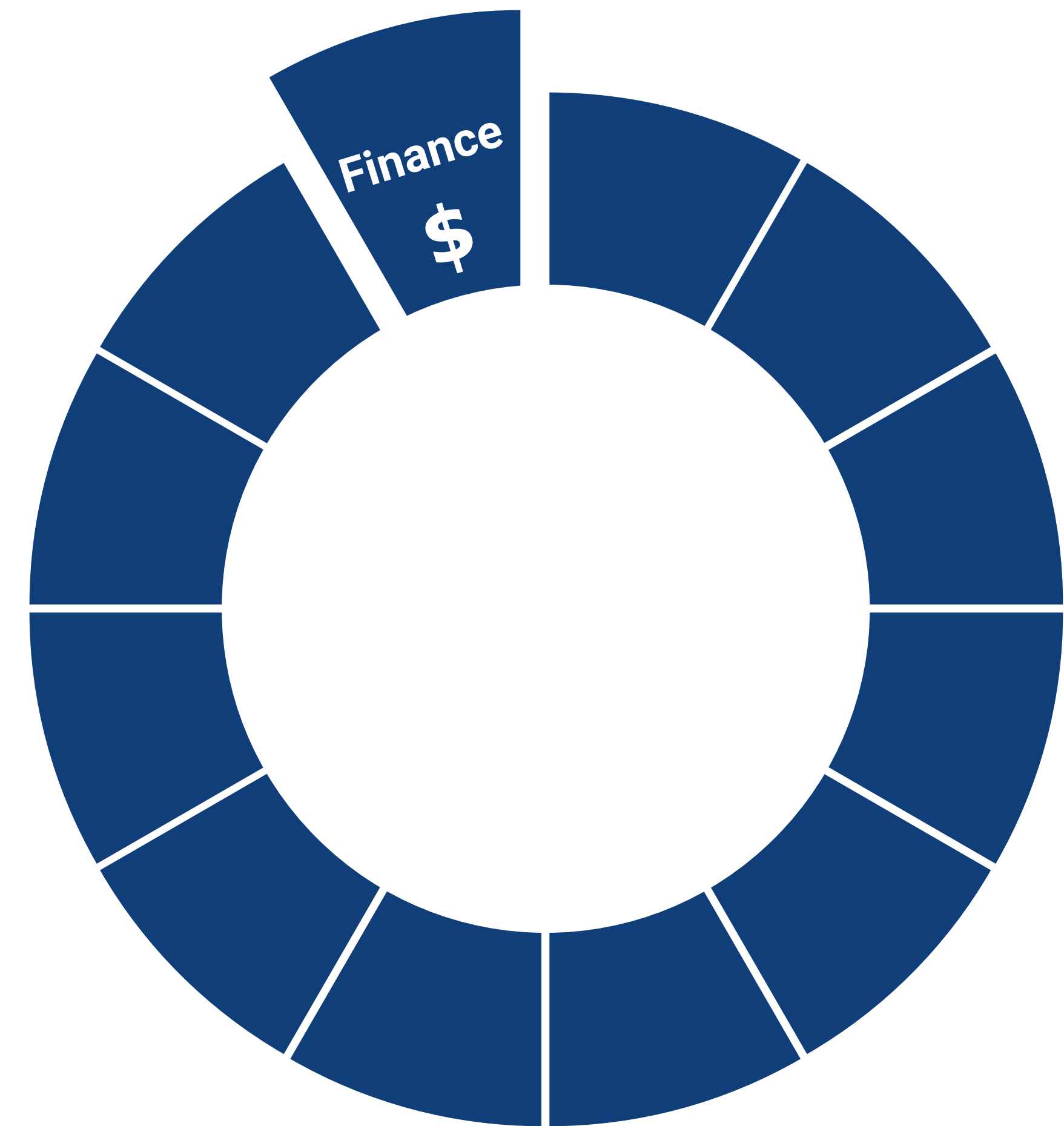
By marrying recent technological, financial and legal innovation we have an opportunity to create win-win frameworks across the entire spectrum of financial interest—from non-profit to for profit.

We have shown how existing capital sources can be realigned around the purpose of solving social problems, using a framework that leverages impact tools beyond SIBs to achieve outcomes on a scalable, cost-effective architecture.

While finance has consistently had a significant role to play at critical junctures in human history, it is clear that *financial capital alone* is incapable of achieving the SDGs.

Rather, it is part of a larger set of market mechanisms that have to work together to deliver the outcomes we need to achieve the SDGs.

We now turn to the System Design for the framework we propose.



# 6. SYSTEMS DESIGN

# 6.1 SYSTEMS DESIGN

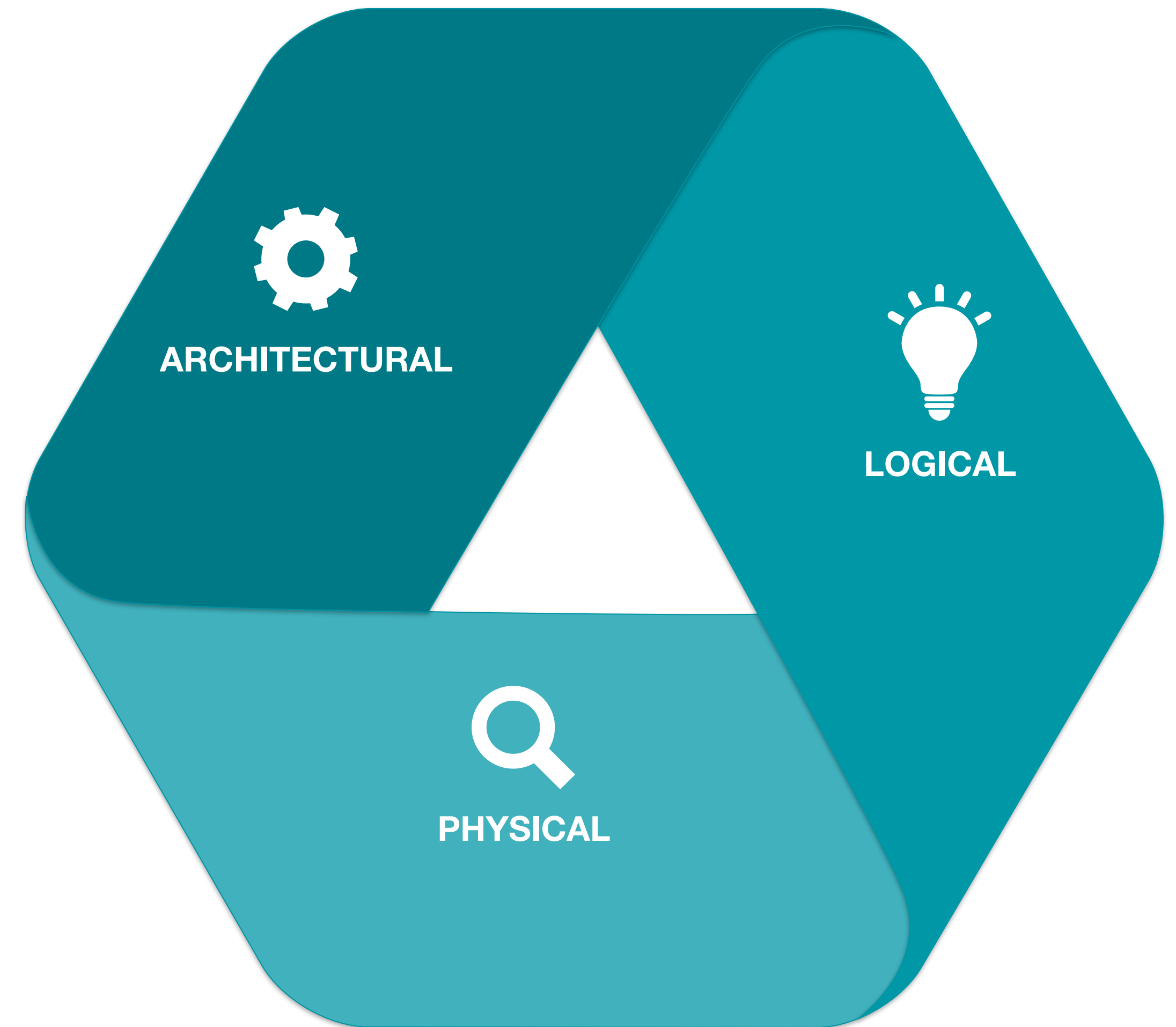
It is common knowledge that the basic components of a national innovation system (in both theory and practice) are based on the existence of a proactive government, strong private sector players, and strong national academic foundations to support knowledge creation and sharing.

We argue that the critical grease in the wheels of the interactions between and amidst these core stakeholders in any innovation context must be deconstructed, and its component 'active' ingredients laid bare to ensure that the various forms of human, social, organisational and financial capital necessary to lift humanity are unlocked. Naturally, these 'active' agents are human beings. Understanding the roots of their influence, and their convening power, in the context of system design that integrates social network analysis is a vital step toward ensuring that the necessary changes in human behaviour we need are going to follow smart system design.

Systems design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements. It comprises three primary areas of focus:

- architectural design; the conceptual framework
- logical design; the presumed data flows
- physical design; user experience design, database design, process design

The following slides express the known elements of the architectural, logical and physical design components of the overall systems design we refer to as a Market Network.





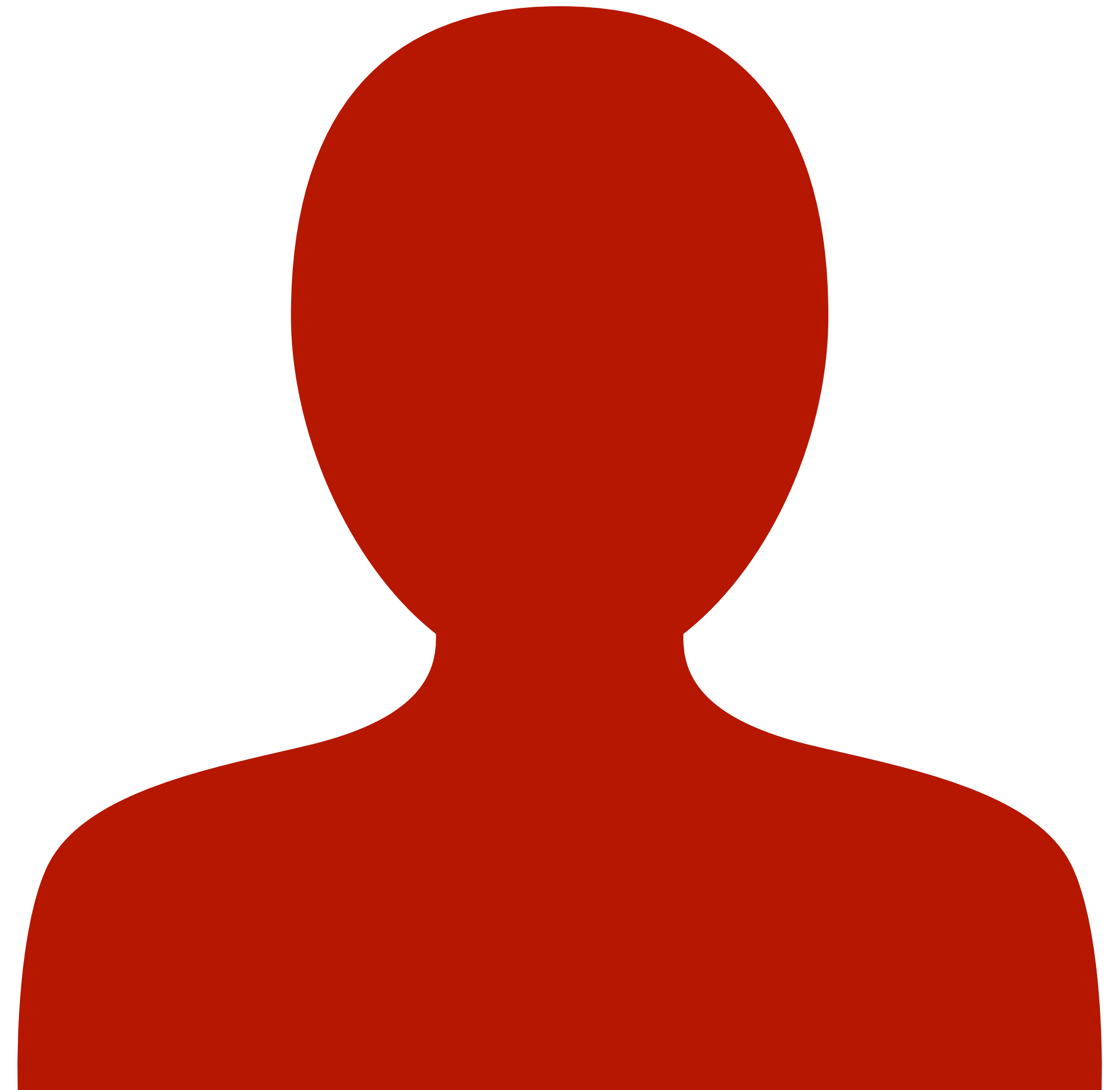
# 6.2 ARCHITECTURAL DESIGN

## 6.2.1 CITIZENS

The human individual is the core of all human experience, and is the driver of all change. The language of markets typically defines humans as 'consumers', while the language of social change frequently defines them as 'beneficiaries' or 'customers' - neither of which adequately defines the role we all play in the world.

We believe that the language of 'citizen' is the most respectful and accurate characterisation, as citizens are imbued with sovereignty and agency, and are recognised as valuable participants in shaping the world in which we live.

A truly global system must be designed to support the participation of *all* citizens, regardless of location, language, economic power, or communications infrastructure.

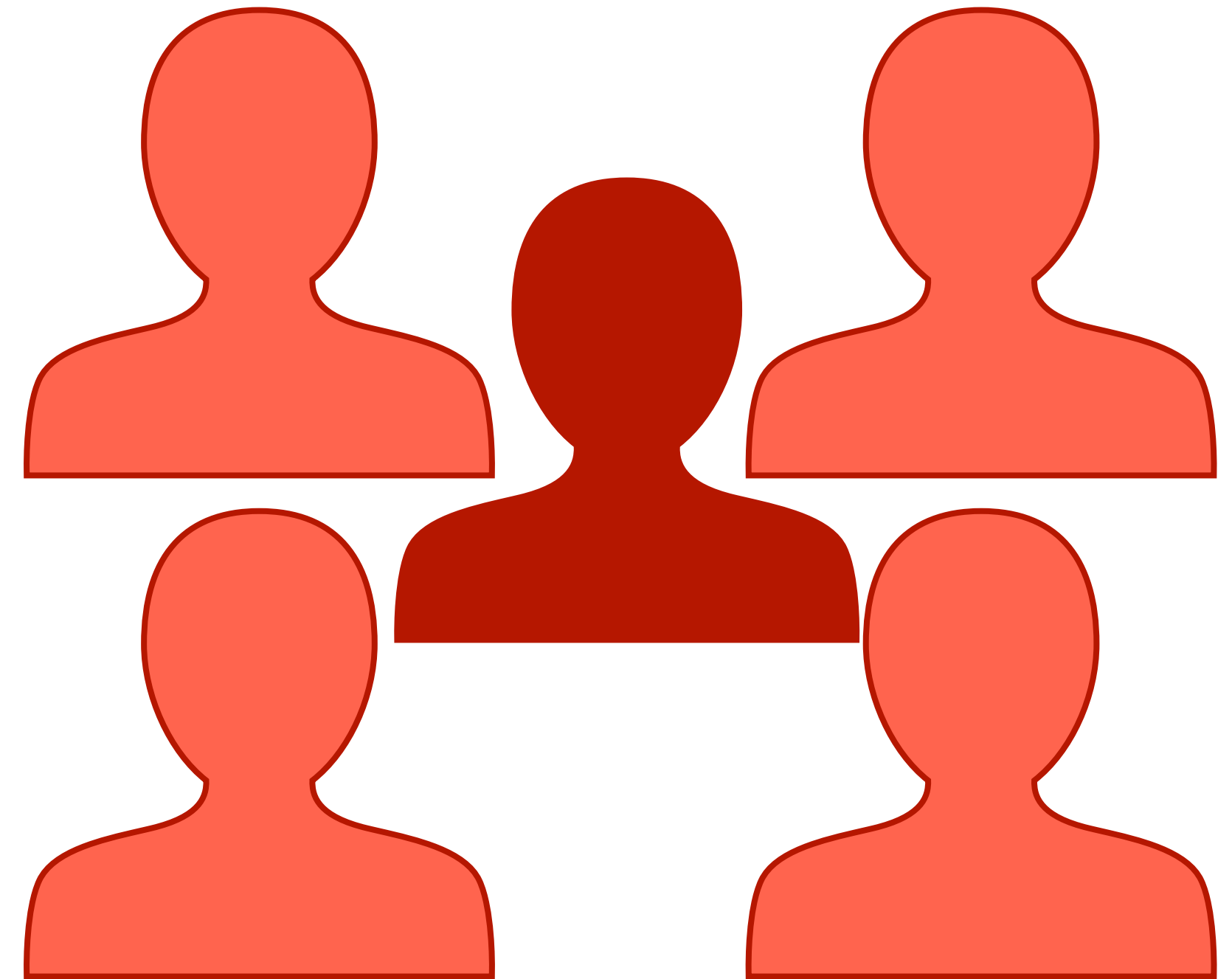


## 6.2.2 COMMUNITIES

Community can be defined in a number of ways, however for our purposes we consider community to include the primary ways in which humans self organise:

- Family
- Ethnicity
- Geography
- Politics

Putting community at the centre of the design requires us to correctly identify what form of community we are discussing.





## 6.2.3 CAPITAL

There are nine primary forms of capital, only five of which are (currently) measurable, and thereby tradable:

- Financial
- Material
- Intellectual
- Human
- Natural

There are four other forms of capital that we consider to be of equal significance, although not readily 'transacted' within a market:

- Social (as distinct to 'social finance')
- Experiential
- Spiritual
- Cultural

These latter forms are essential to consider, but given their inability to be measured, they do not form part of this current model.



## 6.2.4 SECTORS

The three sectors of society are well understood, and form the basis for considering the 'who' of the participants in a market. Each of these sectors can be extensively defined, however, we have included only the sub-sectors most relevant to this model.

### **Government**

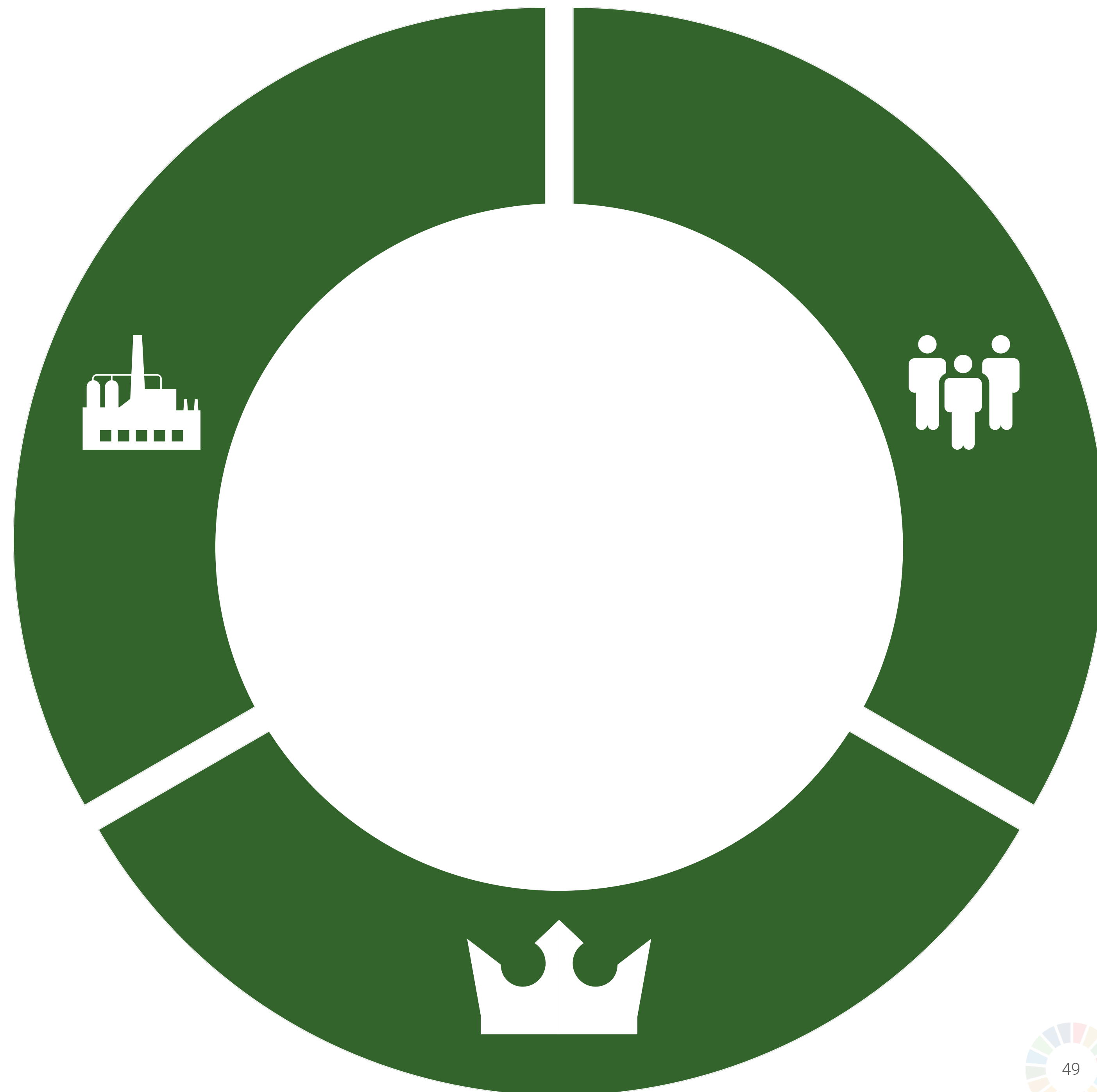
Political (local, state, federal)  
Economic (trade alliances and treaties)  
Intergovernmental (UN)

### **Business**

Corporations  
Cooperatives

### **Civil Society**

Academia  
Charities  
Foundations  
NGOs  
Professional Associations  
Religious Organisations  
Social Enterprises  
Trade Unions



## 6.2.5 FUNCTIONS

There are a number of primary functions essential for a market to have structural integrity. These functions are the foundation of an organisations' activities, with most entities focusing on one primary function, and several adjacent or overlapping ones. Understanding the functions is essential if we are to eliminate replication of effort.

**Financing:** investments, philanthropy, grants, and debt.

**Convening:** conferences, professional networks etc

**Educating:** academic and vocational education

**Catalysing:** incubating and accelerating

**Implementing:** the business of doing

**Measuring:** metrics and measurements

**Legislating:** enshrining in law the policies necessary for success

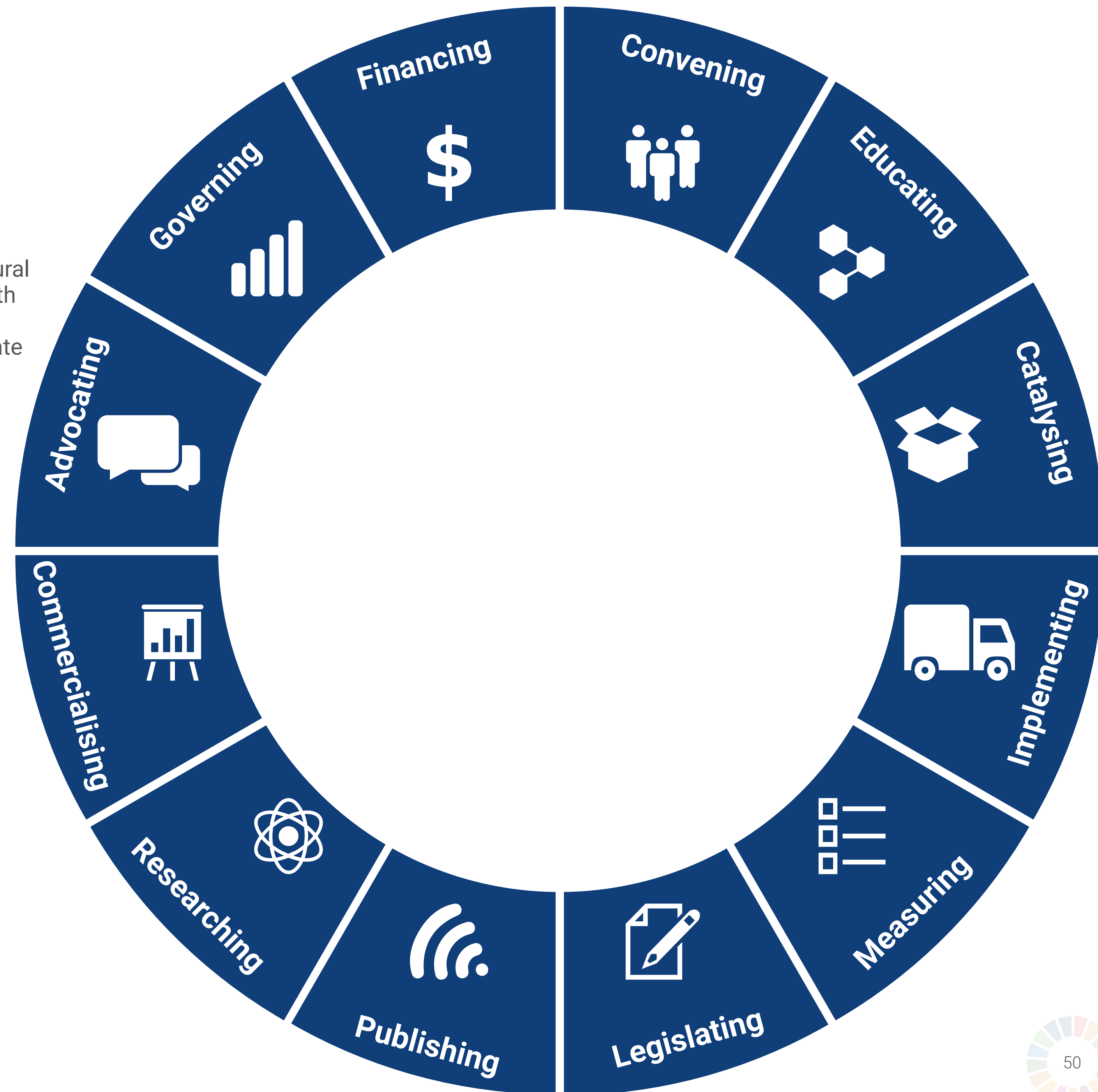
**Publishing:** print, tv, radio and the web

**Researching:** academic and corporate research

**Commercialising:** bringing products to market

**Advocating:** seeking to influence governments and corporations

**Governing:** Managing, legislating, regulating, and enforcing





## 6.2.6 MECHANISMS

Each of the functions have a number of mechanisms associated with them. Some of these include:

**Financing:** financial institutions, banks

**Convening:** conferences, events, online community

**Educating:** courses, certifications etc

**Catalysing:** incubation & acceleration programs

**Implementing:** projects, products, services

**Measuring:** metrics frameworks

**Insuring:** insurance policies

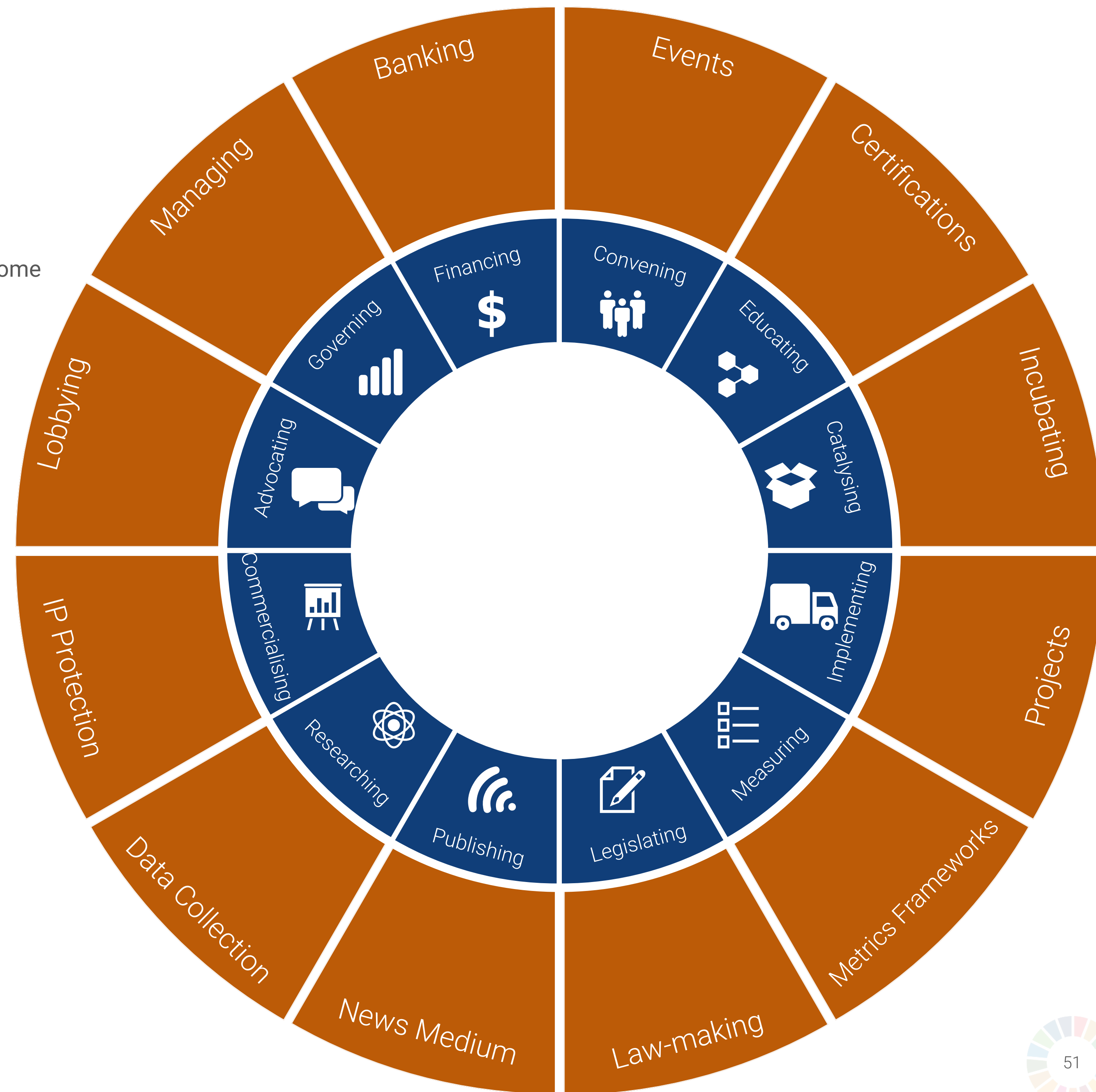
**Publishing:** reports, programs, stories, data

**Researching:** quantitative research & data collection

**Commercialising:** patent registration

**Advocating:** lobbying

**Governing:** passing legislation



## 6.2.7 MARKETS

The Sustainable Development Goals represent the most coherent and cohesive definition of humanity's wicked problems.

Each of these segments is clearly articulated, with discretely defined outcomes, evolving metrics, and increasingly refined models of funding.

The Global Goals are rapidly being adopted as the primary lens through which world-positive actions are being viewed. As such, they are a useful organising principal for market opportunities, both seen and unseen.

While any one of these goals represents a market opportunity in the hundreds of billions to trillions, the aggregate value exceeds \$50 trillion.





## 6.2.8 MARKET NETWORK

A Market Network is the aggregate of all of these elements:

1. A citizen
2. Lives in a community, and
3. Deploys capital to people and organisations.
4. The organisations are within a sector;
5. And have a market function
6. and associated mechanisms
7. For deploying all forms of capital
8. into the market

Market Networks are the foundation of our approach to addressing wicked problems. They leverage the contemporary innovations described in Section 4, including the capital innovations expounded upon in Section 5, in alignment with the design principles described above.

Most importantly, they recognise that each human individual has a part to play in addressing these challenges, and should be appropriately incentivised by compensation and control, as the primary actors in effecting world-positive change.





## 6.2.9 MECHANICS

Within each SDG 'market' is a set of mechanisms that are undertaken by a network of service providers, some of which are bolstered by public oversight, and many of which are structurally private. These mechanisms serve a series of functions as described, including convening, researching, catalysing, measuring, educating, funding and governing that which is implemented. No single stakeholder or funder is able to manage this process from soup to nuts effectively, and to say that the current Western development model which enshrines unilateralism, 'proprietary' approaches, and the frequent importation of untenably expensive non-local consultants and advisors is an understatement. This is because there is no reward for frugality or efficiency.

With each stated function required for execution of solutions around an SDG, must come the machinery of relationship creation and management with local third party service providers capable of a) being identified b) submitting transparent bids comprised of c) articulate responses to requests for proposals (RFPs) on any given element of a transaction.

In other words, a necessary use of social network technology in this context would involve supporting the emergence and creation of trust between people, on a software layer synchronous with the data being aggregated about deals, projects or organisations. This comes clearly back to citizen-centred design.

In order for incentives to be aligned correctly and optimally around the functional work of accelerators and incubator organisations, one of the key elements about the enterprise and 'solutions' data that these organisations aggregate is that it be consistently and visibly attributed to them. This is particularly important in the context of their activity, which is often extremely difficult to fund and reliant on grant or 'soft' money. Note that attribution should not be confused, however, with ownership of data. Attribution merely refers to identifying a 'source', or channel of valuable and potentially finance-worthy activity.

## 6.2.10 REQUIREMENTS

### Digital Identity

In order to track, value and compensate the various contributions to the Market Network, it is essential that individuals, organisations and assets are able to be identified with an unique and perpetual identity.

### Distributed Ledgering

Distributed ledgers constitute the key technological innovation around which much froth, misunderstanding and speculation currently revolve. Our utilisation of these is limited to the following two elements:

- The ability to execute closed transactions and to track (pay and motivate) stakeholders, just as a CRM system does inside a bank.
- The application of an extended distributed ledger which allows one to track granular value through a complex system and reward it, such that cross-border contributions may be identified, tracked and paid

We intend to look to the team at [Holochain](#) for this functionality

### Open Architecture

By constructing this framework in an open manner (not open-source), the Market Network becomes a configurable framework that transparently enables other processes, entrepreneurial capability, and financing tools to be integrated, ensuring some degree of future-proofing.

### Customisation

Partners must be able to brand a configuration of tools, processes or competencies as their own. From a risk management perspective, this means one can control one's own compliance and procurement as a function of one's own brand.

### Bidirectional APIs

This is pretty straightforward. If you have a database that can't be both read and written to, you're not participating in the creation of a Market Network.

### Data Visualisation

Complex data sets cannot be parsed semantically. Participants must be able to consume relevant data from the market network in a way that best supports effective decision making.

### Analytics

As the volume and quality of data flowing through the Market Network increases, so too does its value. The ability to run a robust analysis of this data is a critical first step in maximising its benefit to all participants.

### Progressive Enhancement

By developing in a 'mobile first' manner, the Market Network brings the ability to connect and generate feedback at a granular level and at extreme low cost, such that citizens and communities are prioritised as key participants.

### SMS Integration

Given the proliferation of mobile telecommunications in the global south, the framework must support the sending and receiving of sms messages as the baseline for market network interaction.

### Reputation Metrics

While not a functional requirement at launch, the Market Network can and should begin to recognise the value of the contributions made by participating entities, and enhance their reputation in visible and beneficial ways in order to grow social capital.

### Compliance

The framework must be constructed, managed and hosted in such a way that it is fully in compliance with the various jurisdictions in which its participants will be active.



# 6.3 LOGICAL DESIGN



## 6.3.1 LOGICAL DESIGN ELEMENTS

When organisations reclassify their data, and focus on securing only that which is proprietary, or which their contractual agreements prohibit them from sharing, we see an immediate increase in the possible mobilisation of existing data.

Further, by supporting rightful ownership and attribution of data, individuals and organisations can maintain their own coherent records, dramatically improving the accuracy of this data, decreasing the operational burden associated with its aggregation, analysis and storage, and exponentially increasing the speed and accuracy of decision making.

The degree of shading at right indicates the portability of data at each level.

### LEVELS

#### Unique:

Constrained by commercial/legal/transactional requirements

#### Marginal:

Lacks consistent taxonomy; may be partially unique

#### Common:

Contextual to a market or platform, but still interoperable

#### Universal:

In consistent use across all platforms

### TYPES

#### Individual:

Specific to a human person

#### Organisation:

Specific to an organisation

#### Network:

Specific to a group of individuals or organisations

#### Content:

All forms of shareable artefacts

DATA CLASSIFICATION TABLE

	Individual	Organization	Network	Content
Unique				
Marginal				
Common				
Universal				

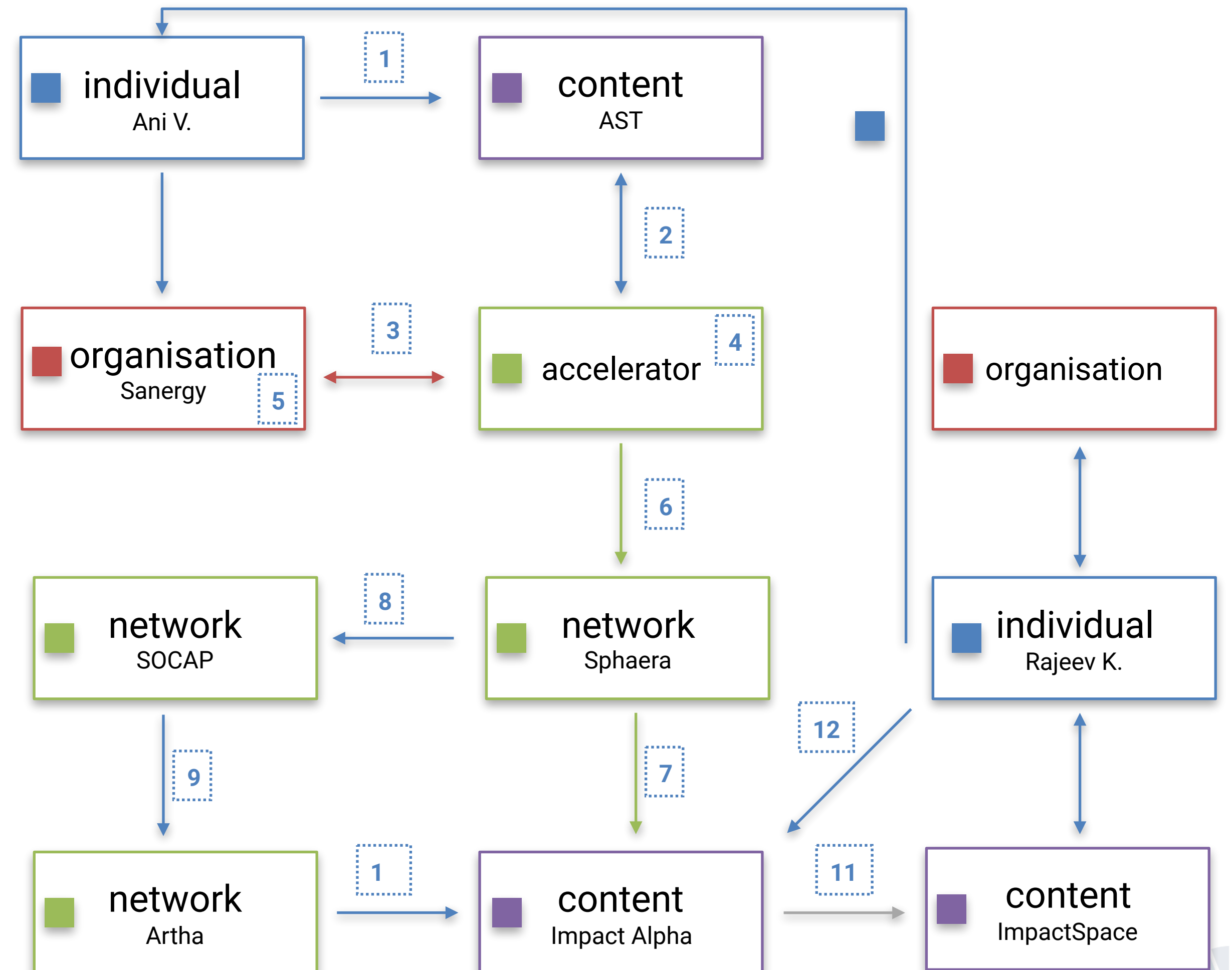
# 6.3.2 DATA CLASSIFICATION SAMPLE

	Individual	Organization	Network	Content
Unique	Intellectual Property Private Transactions	Intellectual Property Private Transactions	Intellectual Property Member Transactions	Intellectual Property
Marginal	Organisational Affiliations Network Affiliations	Partners Clients Legal Form Funding Events Company Stage	Member Contributions	Other Versions Other Publishers All content (if not protected)
Common	Alias Secondary Email Secondary Telephone Secondary Location Secondary Social Bio	Team Industry Other Locations	Individual Members Organisational Members Other Locations	Author(s) Publisher(s) Date of Creation
Universal	Name Email Telephone Location Social Photo	Name Website Email Telephone Head Office Social Logo	Name Website Email Telephone Head Office Social Logo	Title Type Description

## 6.3.3 SAMPLE LOGIC FLOW

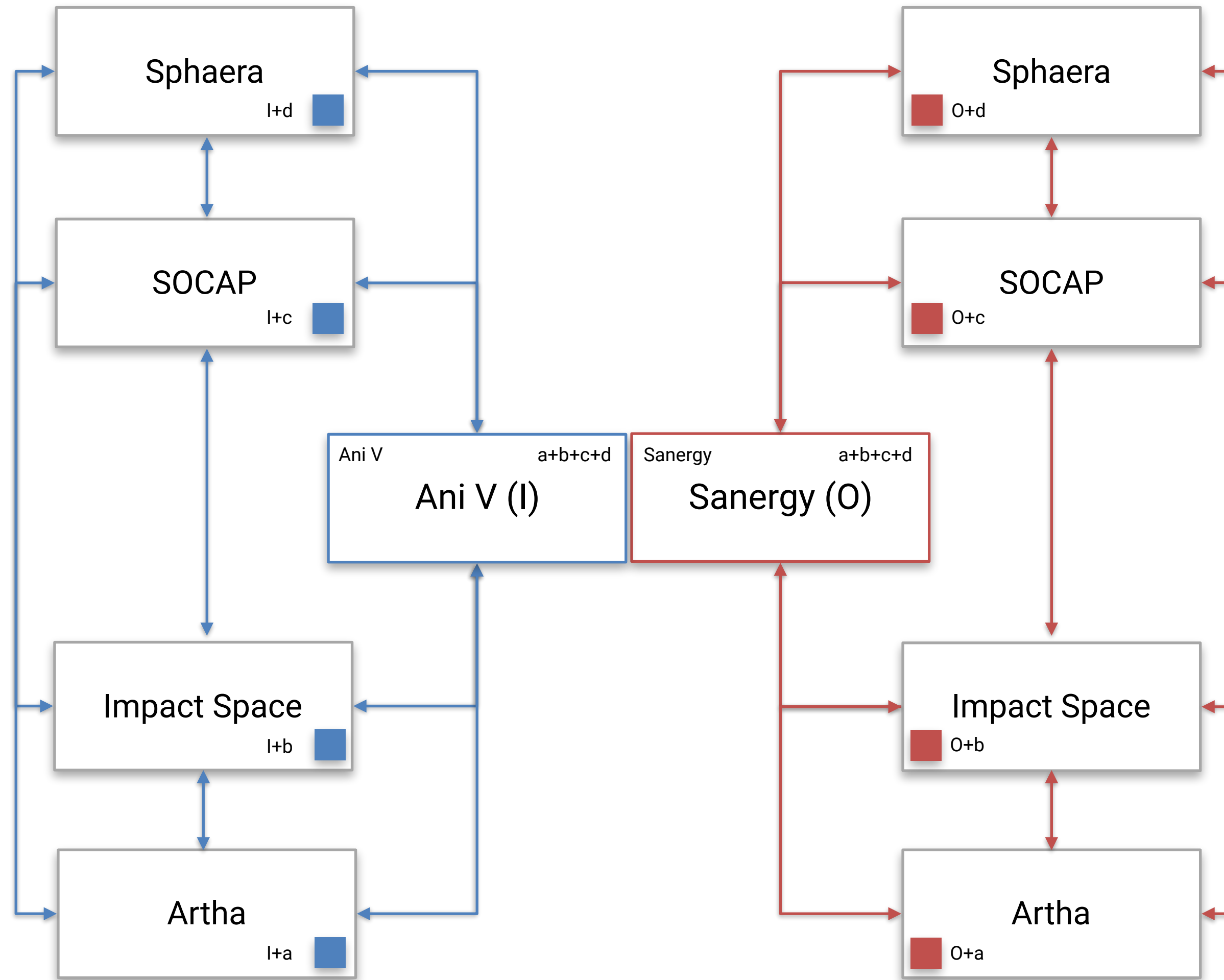
1. Sanitation entrepreneur Ani V. searches Accelerator Selection Tool (AST), finds Accelerator profile *pulled from organisational record on the holochain (HC)*
2. Ani applies to Accelerator, using his *unique individual record on the HC* as validation
3. Ani creates an organisation record for Sanergy as part of Accelerator application, and this information forms the basis of a unique organisation record on HC.
4. Accelerator gathers additional information about Sanergy, and adds this to their own metadata about Sanergy on HC.
5. Ani is accepted into Accelerator, and workshops his business idea. Specific outputs - products and services defined - are stored in machine readable form, and attached to the Sanergy record on HC. Non-proprietary information is published, with Ani's consent - to Sphaera, and linked to Ani's individual profile and organisational profile from the HC
6. Ani adds more solutions to Sphaera, and this information is connected to the Sanergy record.
7. Ani attends SOCAP, registers with HC, and automatically populates his profile with all relevant information.
8. Ani meets impact investor at SOCAP; is advised to submit business plan and enterprise profile to Artha
9. Ani joins Artha with HC, and populates individual and organisational information from HC. Artha requests additional information from Accelerator, Sphaera and SOCAP to round out the record. Artha requests deal information from Ani, and this information is attached to the Artha record for Sanergy.
10. Sanergy receives investment via Artha. Impact Alpha is alerted to investment, researches, Sanergy, and writes an article.
11. Impact Space is populated with details from the Sanergy record on HC, and the story is linked to the individual and organisational records.
12. Another sanitation entrepreneur, Rajeev K., reads story on Impact Alpha, joins Impact Alpha with HC credentials to comment on the article, and auto-populates a user profile with his information. Impact Space requests permission for Rajeev's organisational profile, and Rajeev connects this profile, adding his organisational record to the ecosystem.
13. Rajeev K. And Ani V connect

This diagram demonstrates how data flows more easily, and generates more value, when distributed.





## 6.3.4 SAMPLE DATA FLOW



By changing the way in which data is collected, organised, stored, and shared, we see an immediate gain in the quality *and* quantity of information available to the market network as a whole.

Every entity — individual or organisation — maintains control of their primary data, and the additional value created by other participants can also be leveraged to greater effect.

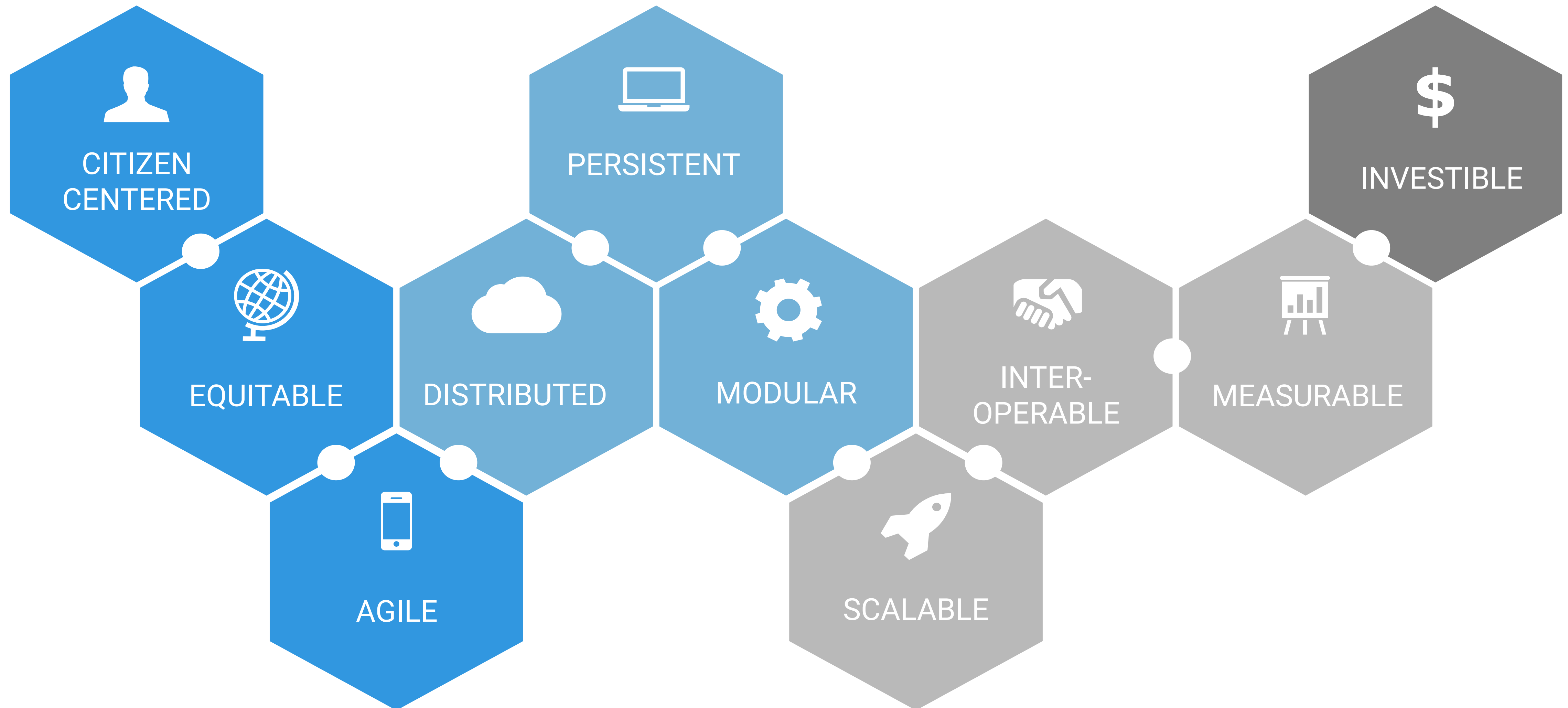
While the graphic at left focuses only on two entities - the individual entrepreneur and their company — every entity referenced on this slide would be treated the same.

When organisations reclassify their data, and focus on securing only that which is proprietary, or which their contractual agreements prohibit them from sharing, we see an immediate increase in the possible mobilisation of existing data.

Further, by supporting rightful ownership of non-unique data, individuals and organisations can maintain their own coherent records, dramatically improving the accuracy of this data, decreasing the operational burden associated with its aggregation, analysis and storage, and exponentially increasing the speed and accuracy of decision making.

# 6.4 PHYSICAL DESIGN

## 6.4.1 PHYSICAL DESIGN ELEMENTS





## 6.4.2 PHYSICAL DESIGN DESCRIPTIONS

### 1. Citizen-centric:

Citizen-centric design means designing for the needs of the individual participants and recognising their sovereignty and agency. By placing the human individual at the centre of the design experience, we ensure the design of a system that transcends organisational and political boundaries.

### 2. Equitable:

All participation in the framework must be appropriately recognised, attributed, and valued, with participation in the governance of the framework *in situ* commensurate with one's level of experience, investment, and/or risk.

### 3. Agile

We are not going to get this perfectly right before we begin. Being agile means focusing on the development of minimum viable agreements and a minimum viable product, and iterating forward on the basis of user feedback.

### 4. Distributed

The centralisation of data is one of the primary causes of dysfunction within this market. We favour a decentralised approach to both data sharing, and platform interactions, utilising technologies such as holochain to validate value creation.

### 5. Persistent

Network participants should be able to interact with the network regardless of physical or digital location, technology, bandwidth or other factors unique to their context. Further, they should be able to meaningfully interact with the entire system from any of the platforms involved.

### 6. Modular

By developing an ecosystem comprised of multiple external platforms, each with their own business model, the components can be designed to work together, or alone, with equal effectiveness. This also minimises risk, by permitting modules to be swapped out as required.

### 7. Scalable

Most 'development' technology platforms are designed for use in high-bandwidth, high-computing power environments, with reliable network and power access. This excludes many citizens from actively participating in, and benefiting from, the framework. For the framework to be scalable it has to work in low bandwidth settings, and allow for asynchronous operation.

### 8. Interoperable

The platform, and its data, must be interoperable with all other adjacent and overlapping platforms and databases. This requires data protocols and standards, including universal taxonomies (see below), as well as the design of APIs as a functional requirement.

### 9. Measurable

The system must be designed in such a way that the flow of value is quantifiable, supporting better sense-making, decision-making and capital flow.

### 10. Investible:

Monetary value must be able to be assigned to the value created within the framework. This is the only way in which the necessary level of financial capital can be brought to bear on wicked problems.

# 6.5 MARKET NETWORK PROTOTYPE



## 6.5 PROTOTYPING AN SDG6 MARKET NETWORK

A number of aligned partners are already working to bring form to a scale expression of a Market Network, focused on SDG6 - Water, sanitation and hygiene for all. The parties referenced below have agreed, in practice, or in principal, to share data in order to accelerate the realisation of this goal.

While we are not executing on the full scope of this vision - it will take a significant investment to digitise the entire framework - our frustration with the business-as-usual of change, and the seeming lack of urgency it demonstrates, demand we take action.

By nature, a Market Network is constantly evolving, and so while we have a number of confirmed partnerships, we continue to seek the development of mutually supported relationships with actors in the WASH market.

### Identified Partners

- Sphaera
- Artha Platform
- Kellogg Consulting
- Impact Space

### Non-Identified Partners

- Major US Foundation
- Global IP Registry
- Global Network of Engineers
- Global Network of Sanitation Practitioners

## 6 CLEAN WATER AND SANITATION





# 7. CONCLUSION

# 7.1 CONCLUSION

Addressing the most urgent issues of our time is, as we said at the beginning, an activity that hundreds of millions of people are engaged with on a daily basis. From girl guides selling cookies, to local food entrepreneurs, billion dollar green cleaning companies, and international aid organisations tackling the refugee crisis, there is no question that humanity is increasingly engaged with finding ways to live more peacefully, equitably, and lovingly.

This document, while it takes the sword to many of the ways in which we work in service to humanity, is not intended to diminish the importance of the work already being done. If anything, it is to propose a path to elevating it, such that, collectively, we are able to create a better world for all.

Like you, we are inspired by all that has been achieved, and frustrated by the gaps that still remain.

Solving wicked problems is no small task, we know, and we are grateful to all who are contributing their time, talent, and resources to ensuring a thrivable future for not only our species, but all species. Further, while some are looking to the stars for answers - and we laud their efforts - we are looking to the ground beneath our feet.

By 2030 there will be close to 8.5 billion people living on earth. All of them have their own lives to live, their own stories to write, their own destinies to fulfil. And yet, for too long, we have accepted the unnecessary reality that some, more than others, will have access to healthcare, housing, education, and a compelling future for themselves and their loved ones. We have become inured to the true cost of current systems, and have, to a certain extent, lost our urgency as we talk

increasingly in abstractions in order that we can not only understand the true scope of the problem, but avoid being emotionally crippled by the awful realities of human suffering and environmental degradation that we seek to address.

Our hope, in not only writing this document, but in continuing to forge partnerships with like minded individuals and organisations, is to explore how best we can make change at the scale and pace required. Clearly we believe that better systems are a significant part of the answer.

More importantly, however, is a more truthful connection with ourselves, each other, and the world at large. For it is only in honestly acknowledging that it is love, empathy and compassion that drives us to action, that we might make the necessary behavioural changes that will supercharge these systems.

**Cameron Burgess, Astrid Scholz, Arthur Wood & Audrey Selian**

San Francisco, CA | Portland, OR | Geneva, Switzerland

March 1, 2018



## 7.2 GET INVOLVED

A number of individuals and organisations have both declared their intent, and begun the process of collaborating on the design of an open, modular, decentralised, digital architecture for solving wicked problems.

Some of those organisations can be found referenced on the [Social Data Commons](#) website.

Others have been referenced on the WASH Market Network page, and still more will become visible over time as we continue to prototype this approach.

We are a long way from done, however. Like all humans, we are limited by both what and who we know, subject to our own confirmation bias, and patently unaware of what we don't know.

**We hold true to the notion that the smartest person in the room, is the room.**

And that, if anything, is the fundamental premise of this paper.

To that end, the following page summarises some of the issues we know we have yet to address, absent those we don't even know to consider. We need feedback, challenges, and hard questions. If you would like to contribute to this exploration, and explore how we can break down the silos to massively increase our impact, please [get in touch](#).

## ACKNOWLEDGEMENTS

This document has been informed by thousands of hours of experience, consultations and conversations over many decades.

We are particularly grateful to the following people who have been generous with their time and mindshare in reviewing and refining these ideas:

Sam Caplan - Fluxx  
 Alf Martin Johansen - Induct Software  
 Kevin Jones - Good Capital Project  
 Avary Kent - Conveners  
 Jean Russell - Holochain



## 7.3 FURTHER RESEARCH

### Legal structures

Issue: A legal form and jurisdiction for the central organising entity of a Market Network must be established prior to successful deployment of a scale model.

Opinion: There are likely to be three layers required, potentially a co-operative at the core, with a version of a mutual entity established for project coordination.

### Privacy, copyright, and data security

Issue: Individual platforms, sponsors and stakeholders have legally binding agreements with users and members.

Opinion: Liberate data, and return control of universal and common data to the individual via holochain

### Fragmented data

Issue: Inconsistent social sign on and data collection protocols create incoherent data sets that cannot be normalised.

Opinion: Agree to data standards; utilise personal and organisational holochain to provision all non-unique data

### Disagreement on data standards and protocols

Issue: Data collection, classification and storage protocols are inconsistent, and inhibit sharing, collaboration and scale.

Opinion: Key actors to declare and adopt standard taxonomies & data collection protocols, and lead by example.

### Lack of coherence in reporting & metrics

Issue: Given that there is no universal impact standard, it is almost impossible to measure individual, let alone collective impact

Opinion: Declare an impact standard, and then test this standard against the value proposition.

### Identity

Issue: Verifiable individual and organisational identities are necessary for the functioning of a market network

Opinion: While we are investigating the various options, it's clear that we need an identity solution that is apolitical, universal, and scalable.

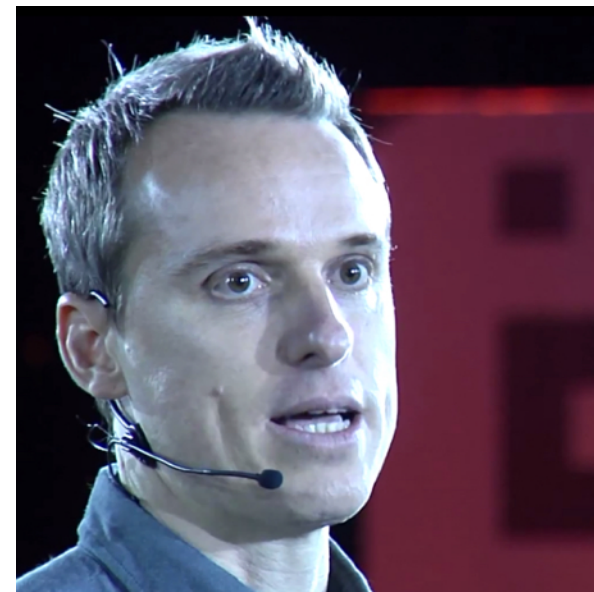
## 7.4 AUTHORS

As mentioned in the notes to this document, we are standing on the shoulders of giants, who in turn are standing on the shoulders of giants ... ad infinitum.

The co-authors of this document come from varied backgrounds in creating social impact. We are bullish on collaboration, and firmly believe that addressing the Sustainable Development Goals is one of the greatest challenges, and opportunities, of our time.

If you would like to explore the concepts we've discussed, or are seeking an interview with one of the authors, please get in touch with this document's lead author, [Cameron Burgess](#).

Alternatively, you can reach each of the authors through the links provided.



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**LET'S  
WORK  
BETTER  
*TOGETHER***