

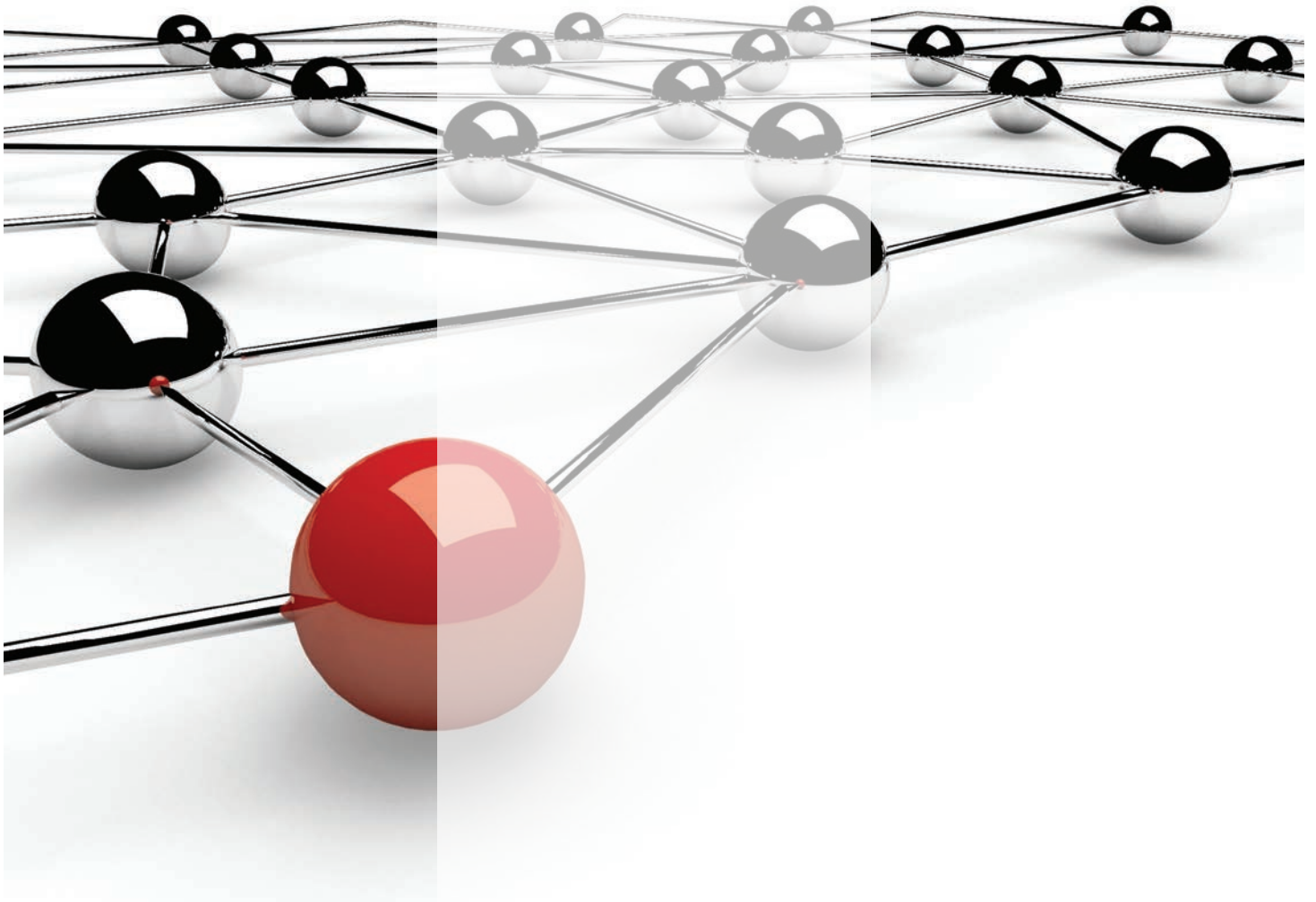


COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

Young Global Leaders: Guide to Influencing Complex Systems

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Preface



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Leaders

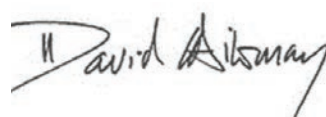
Humanity faces challenges of a scope that extends beyond the reach and mandate of nations, organizations or agreements; challenges that are interconnected, pervasive and highly complex.

I am pleased to share this report, which documents the work of the Forum of Young Global Leaders (YGLs) in structuring a set of dialogues to unpack and explore some of the world's most pressing issues, in order to find specific interventions that business leaders and policy-makers can adopt to have an outsized, positive impact on the state of the world.

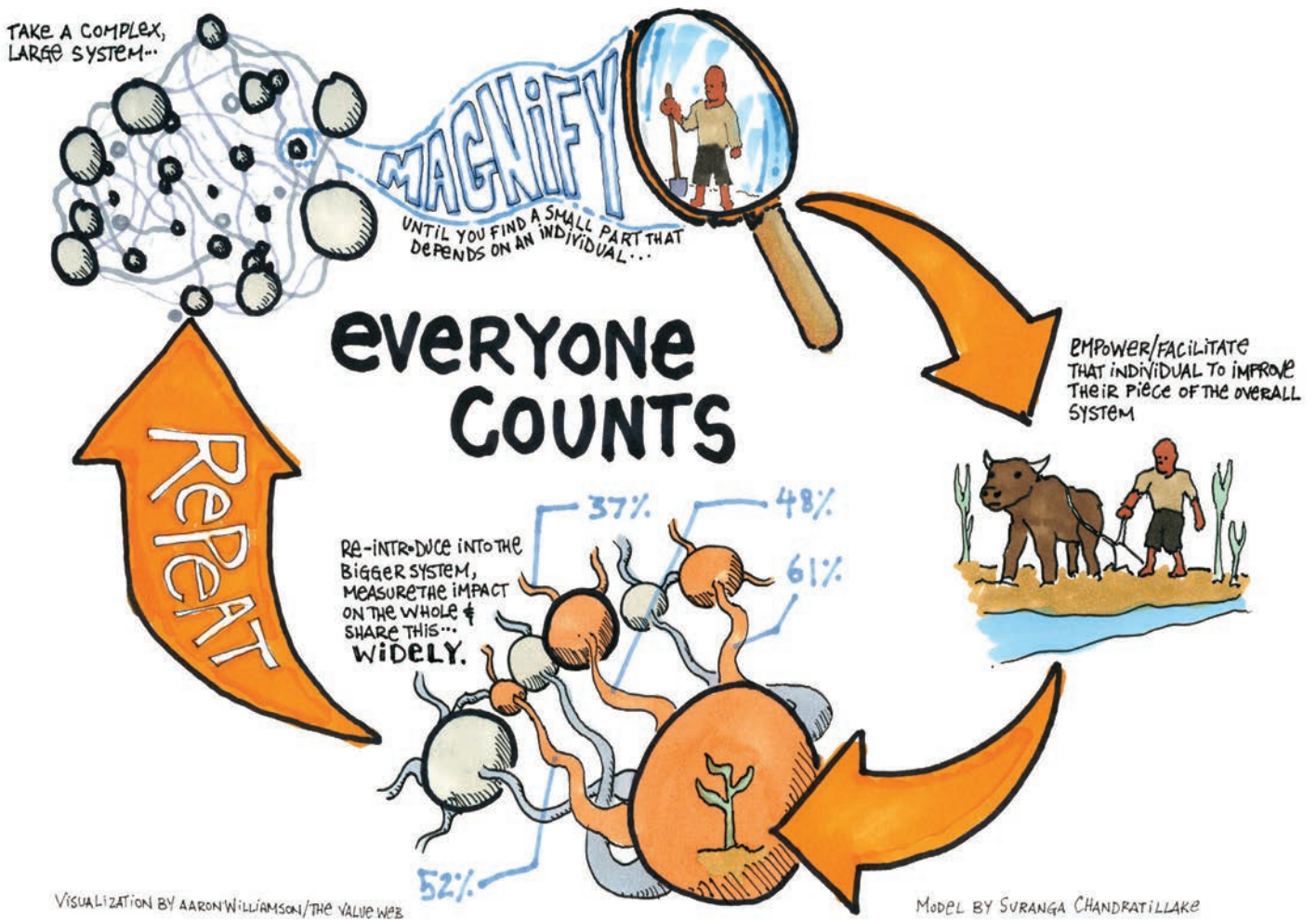
Throughout the course of this initiative, more than 400 YGLs, from business, government, academia, civil society and arts & culture, explored topics ranging across financial services, energy, natural resources, technology and social innovation. The passion and intensity with which they attacked the problems reaffirmed for me the importance and value of holding cross-disciplinary, multi-jurisdictional dialogue to address these issues.

Furthermore, the case studies included in this report show that this remarkable community of people, working individually or on teams, have already begun to tackle complex and pernicious issues such as poverty, hunger and homelessness head-on.

As was so often identified through the efforts of YGLs during this initiative, today's problems are beyond the scope of any single organization. As yet, there is no body with the power or mandate to effectively tackle problems that cut across borders, such as labour mobility, ocean governance and climate change. We are entering an era that will necessitate unprecedented collaboration. To this end, I am extremely proud of the Young Global Leader community, which represents a prototype platform for collaboration and international community-building. I believe this platform represents the future for effective cooperation. Dialogue, mutual understanding, relationships and coordination of efforts will form the human operating system on which tomorrow's solutions will run.



Complex Systems: Introduction





Leadership in an Interconnected World

Today's leaders act within yesterday's decision-making structures, but in an age where we are increasingly aware of, and challenged by, the interconnected nature of our world. Decision-making happens at local, national and organizational levels, but the effects are truly global. Further, the local context in which they are making decisions is influenced by global, and often seemingly unrelated, factors. Conflict can create artificial scarcity, viral outbreak can disrupt export flows, and one jurisdiction's policy can have ripple effects through globally connected markets.

Leaders must tackle this paradox of local control with global impacts by developing a global mindset that understands the dual nature of decisions. They must make national decisions, but in a global context.

A global context, however, suggests an element that confounds both the ability of leaders to accurately identify problems and their sources, but also what, exactly, the consequences of their actions might be. That element is complexity.

Education, finance, economics, health, natural resources and energy all form a complex, ever-shifting web of interdependent elements, which foil efforts to understand them in their totality at the national and global level.

A system is complex when it is made up of "a population of diverse agents, all of which are connected, with behaviours and actions that are interdependent, and that exhibit adaptation" (Scott Page). The many participants in a market; the strategies and policies of nations; bacteria and their hosts; and the factors that lead to the development of a single child – all of these represent examples of complex systems, all the more so when one considers that the examples themselves would not exist independently of each other.

To address complexity, leaders need new tools and skill sets to identify the interconnected causes of issues, and generate narratives that can convey the complexity they see in a robust but understandable way. They also need the sophistication to understand not only the immediate effects of their actions, but also the second and third order effects. As MIT's John Sterman says, "there are no side effects, only effects".



As leaders, we must also understand our own position and agency within these complex systems. The YGL community represents a slice of the interrelated systems in the world with its diverse membership being drawn from a broad spectrum of professions, industries and geographies.

The Influencing Complex Systems Initiative began as a way of giving YGLs a set of tools and a language for exploring issues within the context of complex systems, allowing them to tap into their collective knowledge as a community to understand what are often local problems in a more global context.

The initiative acknowledged several guiding principles in its design:

- Complex issues are best explored by assembling those who have knowledge of the disparate parts of the system.
- Exploring complexity requires tools that support connected, non-linear narratives.
- By creating clarity on issues in their global context, individual leaders can align their actions within a globally relevant framework.

The Influencing Complex Systems Initiative





The Forum of Young Global Leaders began the Influencing Complex Systems Initiative in late 2011 by engaging a team of 20 YGLs to act as System Champions, spearheading inquiries into 10 system areas. To give the initiative an entry-point into complexity, 10 areas of inquiry were identified:

1. Education
2. Energy
3. Goods and Trade
4. Financial Services
5. Health
6. International Affairs & Governance
7. Labour & Talent Mobility
8. Natural Resources
9. Rule of Law
10. Technology and Innovation

While these areas do not represent the totality of society's makeup, they do provide a foundational glimpse into the institutions and issues that comprise the global order.

In each of these areas, the System Champions laid out the purpose of the system – a guiding “optimal function” representing the intent – which they then used to inform the collection of issues within those systems; namely, situations in which the desired function of, for example, the financial system was being impeded or degraded, as well as the initial mapping of the causes of such issues.



YGLs at the Annual Meeting in Davos-Klosters 2012

Using the work of the System Champions as a starting point, 150 YGLs gathered in Davos for a one-day workshop to unpack the issues to arrive at a more nuanced, systemic view of their causes.

Validating the input of the System Champions, YGLs prioritized issues before selecting two issues per system (20 in total) to model using techniques drawn from Systems Dynamics and Causal Loop Diagramming. These diagrams helped YGLs to create rich narratives around each of the issues, and to identify some of the feedback that reinforces problems and creates resistance to attempts at intervention.

Identifying Intervention Points – YGL Annual Summit in Puerto Vallarta

Using the mapped issues developed in Davos for context, YGLs broke into the 10 areas of inquiry once more to discuss where high points of leverage could be found within these systems to identify where the most effective interventions could be made.

This Report – Highlights of Dialogues on Complexity

This report represents the highlights of these intense dialogues on the complex, “wicked” problems facing the world today. It represents a sampling of views from brief, heated debates on what issues should concern us most, what factors influence them, and how we might best begin to address them.

The report is intended to offer the insights of the groups that have participated in the initiative to date and to share the process used as a model for other leaders to explore complex systems.

Going Forward

The data collected informally during these first dialogues has been entered into a custom online tool developed by Seed Media Group to create a common platform to both continue the conversation and to help visualize the connections.

By creating a collaborative space for the continued adding of elements and connections to the frameworks created during the initiative, this platform will allow Forum communities to see connections across the many parts of the global agenda.

<http://seedvisualization.com/complex-systems/wef>

Complex Systems: Executive Summary

The Influencing Complex Systems Initiative engaged 20 System Champions and hundreds of YGLs from dozens of countries to identify various critical issues facing the world today. These issues were explored in-depth using a collaborative system mapping process, while collectively generating detailed recommendations for high-impact systemic interventions around the world.

Beginning with the lead up to the 2012 World Economic Forum Annual Meeting in Davos-Klosters, System Champions identified issues within 10 system areas, which were then revised and comprehensively explored by 150 fellow YGLs during the meeting.

Continuing their work in Puerto Vallarta, Mexico, 250 YGLs discussed specific interventions within each of the system areas during the 2012 Young Global Leaders Annual Summit.

Full descriptions of the issues explored are contained within the following report, together with rationales for the identified interventions.

YGLs also explored practical strategies to intervene in particular complex challenges by participating in a community-wide systemic “pain points” conversation, bringing the diverse experience of the group to bear on issues in the public, private, and non-profit arenas.



Complex Systems: Tools

Think In Systems

Leaders are increasingly faced with problems resulting from complex interactions as interconnections become a dominant feature of social, political and economic landscapes.

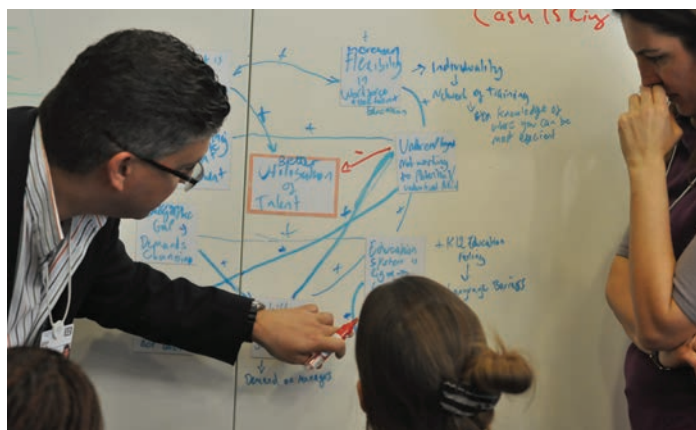
Decision-makers, in this environment, must move beyond a strictly linear “cause-effect” view of the world; not only in their evaluation of the strategic landscape, but also in considering the effects of their decisions. Thinking of outcomes as an aggregate effect of a set of interrelated actors in a system leads to a more robust framework for choosing a course of action. Thinking of the “feedback” effects in the system allows one to predict what some of the delayed effects of an action might be.

While an event might be simple, people’s reactions to it are complex. By identifying actors, specifying the nature of their relationships, and considering other factors that might influence the nature of their reactions, overlapping leverage points can be identified and the types of feedback that will exist start to emerge.

Focus

It is easy to expand the scope of view on a system so wide that the result is overwhelming; if you simply reproduce complexity you are no further along than when you started. Philosophically everything is connected, however, this particular insight will not help solve the problem at hand.

Stay focused on the particular “situation of interest” or problem, and look at it systemically, rather than trying to map the whole system to locate the problem within it. Set some boundaries; be explicit about what is being considered, and what is not.



From Symptoms, Identify Causes

By allowing for a widening circle of first, second and third order effects as we examine issues, what might at first seem like a cause, could, in fact, be a symptom of something else. Common methods employed in management consulting – such as asking “Five Whys” or employing fishbone diagrams – capture elements of the move to identify root causes, but tend to reinforce highly linear relationships (“a” is caused by “b”, which is caused by “c”, and so on).

Make it Visible, Tangible and Movable

To overcome our own limitations in juggling a multiplicity of connected variables, mapping effects is most easily done using visible and movable elements, such as sticky notes. By putting each actor or element on an individual, movable piece, we allow ourselves to dynamically cluster connected factors related to an issue – whether or not they form a linear cause/effect chain.

Look for Vicious Circles, Virtuous Cycles and Balancing Loops

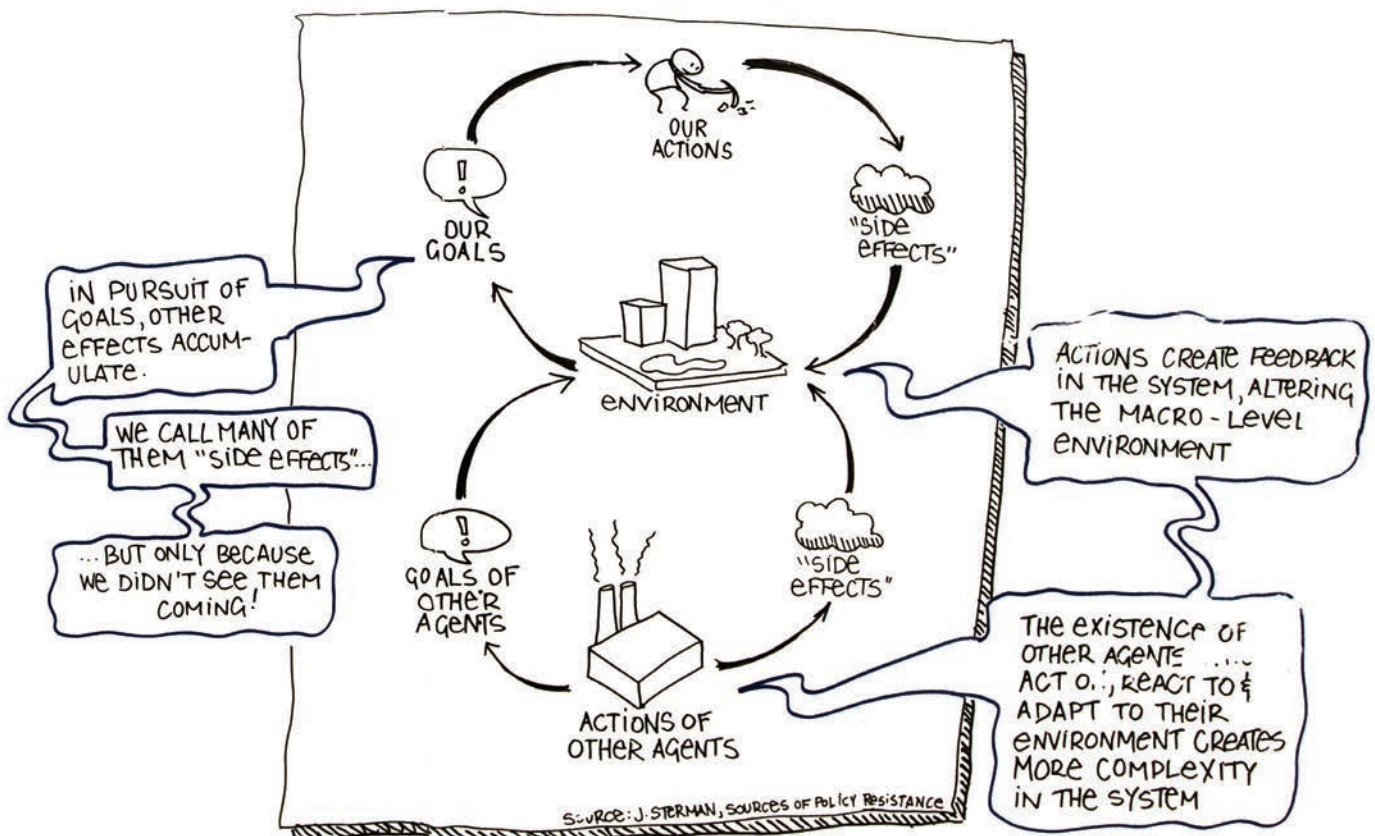
Causal Loop Diagrams are used to explore relationships between elements in a system that – by forming cycles – either balance or reinforce each other. Classic “archetypal” examples of these loops, such as the one pictured here, demonstrate how a series of factors can create vicious circles or can have a balancing effect. As you consider the feedbacks that flow between factors you are considering, look for clusters that may lead to an intensification of effects. Consider also time delays – not all effects are immediate, and while short-term effects may be desirable, the delayed secondary effects could be entirely different.

Choose Your Intervention Point

By exploring several levels of effects and influences, patterns should begin to emerge that indicate areas of leverage (many connections converging on one point) or root causes, which spin a situation out of balance. By creating a broader, non-linear picture of your situation of interest, a more nuanced approach to intervention can be plotted.

Tell a Story

Models are only as useful as the stories they allow you to tell. Many mistakenly treat the model as an end in itself, as though the creation of a diagram will solve the problem. Good models facilitate a more nuanced, compelling mode of storytelling, allowing leaders to convey a more fulsome picture to their collaborators. Every model represents a point of view, but creating a visual can support a narrative about a complex situation.



Case Study: Homelessness

Ending Homelessness by Tracing Root Causes

Valerie Keller uncovered a system failure when she saw an elderly homeless woman in a wheelchair on the street and wondered, “How can such a rich country tolerate having such poor citizens on the street?” System failures do not just happen. Systems are designed and led by people, so what we really have is a leadership failure.

Valerie’s motto is “start anywhere, go anywhere”. But it helps to start at the root cause by asking a simple question: “Why is there chronic homelessness?” Homelessness is a symptom of many other failures. She tried to directly address the problem by opening shelters, but quickly realized that this type of direct intervention was not striking at the cause, but only addressing symptoms.

Moving from this type of intervention at the “end point” of a set of processes, Valerie Keller’s group realized that looking systemically, a solution could be found not just by creating something new, but by stitching together related but disconnected services, mixing policy changes on funding with the construction of affordable housing, making rent subsidies available and wrapping it all up in supportive services.

In the context of uncoordinated local, state and federal interventions, the best intervention was to create strategic, coordinated case management to stitch services together in a way that allowed the homeless to regain control of their lives and achieve a measure of dignity in the process.

Identify Root Causes

Building homeless shelters remove homeless people from the streets; the visible symptom of deeper issues is thus removed. But what got them there? Valerie’s team explored the pathways to ending up on the street, be it either chronic homelessness or family homelessness, then examined the “day in the life” of the homeless in their interactions with various services.

The homeless often encounter the justice system as a result of street life, and thus go through a highly costly system of incarceration which further stigmatizes them upon release, adding additional barriers to employment, reinforcing their alienation and dependence. When sick, their lack of insurance lands them in hospital emergency rooms, which offer the most costly care while being ill-equipped to address the health issues associated with homelessness that brought the individual in the first place.

In all of these interactions, not having a home is a cause, and thus comprehensively addressing the factors which prevent individuals from getting and keeping housing will improve their lives significantly and keep them from repeatedly defaulting to high cost public services.

Take the Pain Away from the System

Interventions must take the pain away from the system. In this case, the community did not realize the social and economic costs that homelessness actually entail. If the shelters went away and hundreds of thousands of homeless showed up in the public squares and jails and hospitals, then there would be awareness.

How do you capitalize on those hidden costs? It is important to have conversations with the different stakeholders around dollars and cents. To do that, Valerie and her colleagues tracked the costs of homeless people as they cycled from shelter to jail to hospitals and back.

All you need to do is stitch together the know-how and act. Once the hospital administrator, the insurance payers and the sheriff are on your team, they can provide the data you need. It helps to arm them with a story to go along with it. In this case, a homeless person in jail takes up a cot that could house a criminal. Someone in a hospital bed uses resources a highly ill person needs.



Steal Solutions, Ask Who and Forward the Collective Interest

A person somewhere thinks about these issues every day. Most interventions that work have been tried and proven somewhere else. The coalition that Valerie worked with found a model from New York City that showed that focusing on housing, rent subsidies and support services worked to “add dignity and fulfillment and address poverty”. These services needed a “glue” in order to make them work effectively, and this was done through case management; supporting individuals in accessing the right mix of services.

Do not ask how, ask who. Find out who is at the core at your intervention points and who has the power and who has the pain point and then add them to the coalition.

Exclude “substitutes and slowdowns”. If a powerful person has a vested interest in the status quo and will block progress, do not include them. Build networks of networks and include only the people who will help you forward the collective interest. By the way, using catchy slogans like this helps people remember what you say.

Communicate, Ask Questions and Look for Network Nodes

Communicate everything you are doing to meet your coalition partners’ need. Righteousness and demonization of the other does not work. And be specific. Tell them what they can do, how to do it and by when to make things work. Tell them what they cannot do. (You cannot just give a homeless person a house and tell them to get a job).

Keep asking the childlike questions. How do we get the capital to flow? Who has it? Who has control over the capital? Who makes the decisions that need to be made? How do we get to them?

Find co-founders who have deep relationships. Keep the egos out of it. A flat, open coalition that is owned by everyone will succeed. Look for people who are network nodes.

Other Lessons Learned

- Structure – it is more important to have passion than platform.
- Stick and stay.
- Watch out for people out for cash, credit and control.
 - Look for a hook, or something that you can use to shift the way people think about your issue.
 - Build in learnings and adaptation. Create the right structures for ongoing, iterative system and adaptation.
 - Do not reach for the low-hanging fruit. Sometimes the high fruit has the momentum to make the biggest shift and then to flow downhill.
 - Build in resiliency. People in networks leave. Build systems.

Influencing Complex Systems – A Systemic Overview

Michael Drexler

Looking at the 10 system areas that the YGLs explored, some common threads readily come to mind. This section provides a reflection across the various systems.



Commonalities Among Systems

The first observation is that all of the 20 loop diagrams (two for each system area) contain potentially destabilizing positive feedback loops. Put another way, everything the exercise looked at has the potential to “blow up”. For those who thought that these dangers were confined to only a few parts of the world (or of the financial system), this is a wake-up call. The YGL effort shows that in today’s interconnected and complex world, there is no inherently safe system.

In addition to having at least one point of systemic weakness, all of the loop diagrams show strong multiplier nodes, which often involve the media, education/thought paradigms or data sources. These multipliers in many cases sit in the positive feedback loop and thereby potentially are the key to making systems more stable. This becomes even more relevant as many multipliers are common across systems, and connecting the technical silos within them can go a great deal towards stabilizing several systems. Improving the connection and leverage of experts between “lay media” (e.g. daily news) and “specialist media” (e.g. financial publications) is an interesting opportunity in this context.

Most systems the YGLs looked at show misaligned incentives that contribute to dysfunctionality or potential instability. These misalignments are often of a temporal (short-term vs. long-term) or scope (local vs. national vs. global) nature. As a result, researching and designing appropriate incentive systems is a “meta intervention” that has high potential to improve several systems from a stability perspective.

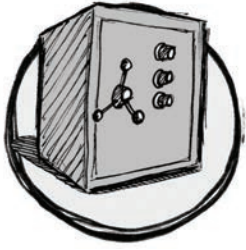
It is also clear that the connectivity within systems is replicated at a higher level – almost all of the systems examined connect with each other. While the YGLs focused on mapping interventions in each system, many will have effects and dependencies on another system or systems. An intervention to appropriately value natural resources, for example, will need at least collaboration, if not a reinforcing intervention, from financial services.

Commonalities Among Interventions

In addition to some of the “meta interventions” included in this report, several areas of commonality appear when looking across the interventions suggested by the System Champions. There is a strong bias to improve transparency and share best practice via exchange platforms. Technology plays a strong natural role in this, given the global and dispersed nature of many of the systems. The YGLs believe that without such shared platforms, the inherent instabilities and misaligned incentives will pull the systems towards dysfunction.

Another related theme is to invoke “wisdom of crowds” and improve the availability of data to measure the output of systems. Without such objective measurements, the YGLs believe already fragile systems can too easily be manipulated to serve special interest groups, with bad consequences for long-term stability.

In some cases YGLs suggest “targeted surgery” with immediate effect to attack obvious distortions and to drive progress. The interventions against distortive subsidies, or for stronger representation of emerging economic powers, speak to this among many others. The answer to system stability for the YGLs requires removing the worst distortions first before the “softer” measures can be given a chance to stabilize the system. One without the other will not work.



Financial Services

If the other systems represent the many elements and functions of the body, then the financial system is the lifeblood that animates them. Negative financial moments, such as the Great Depression, have the capacity to inflict tremendous harm and suffering. Thus, disruptions in the functioning of the financial system can have serious and tangible results throughout society. Without jobs, there is no hope, and as has been seen with the "Occupy movement" and the Arab Spring, hopelessness about the future can fuel massive change.

The YGLs believe the complexity of the financial system and its intricacies mean that very few people actually understand how it works, making trust and transparency issues of critical importance. Without trust, the system breaks down.

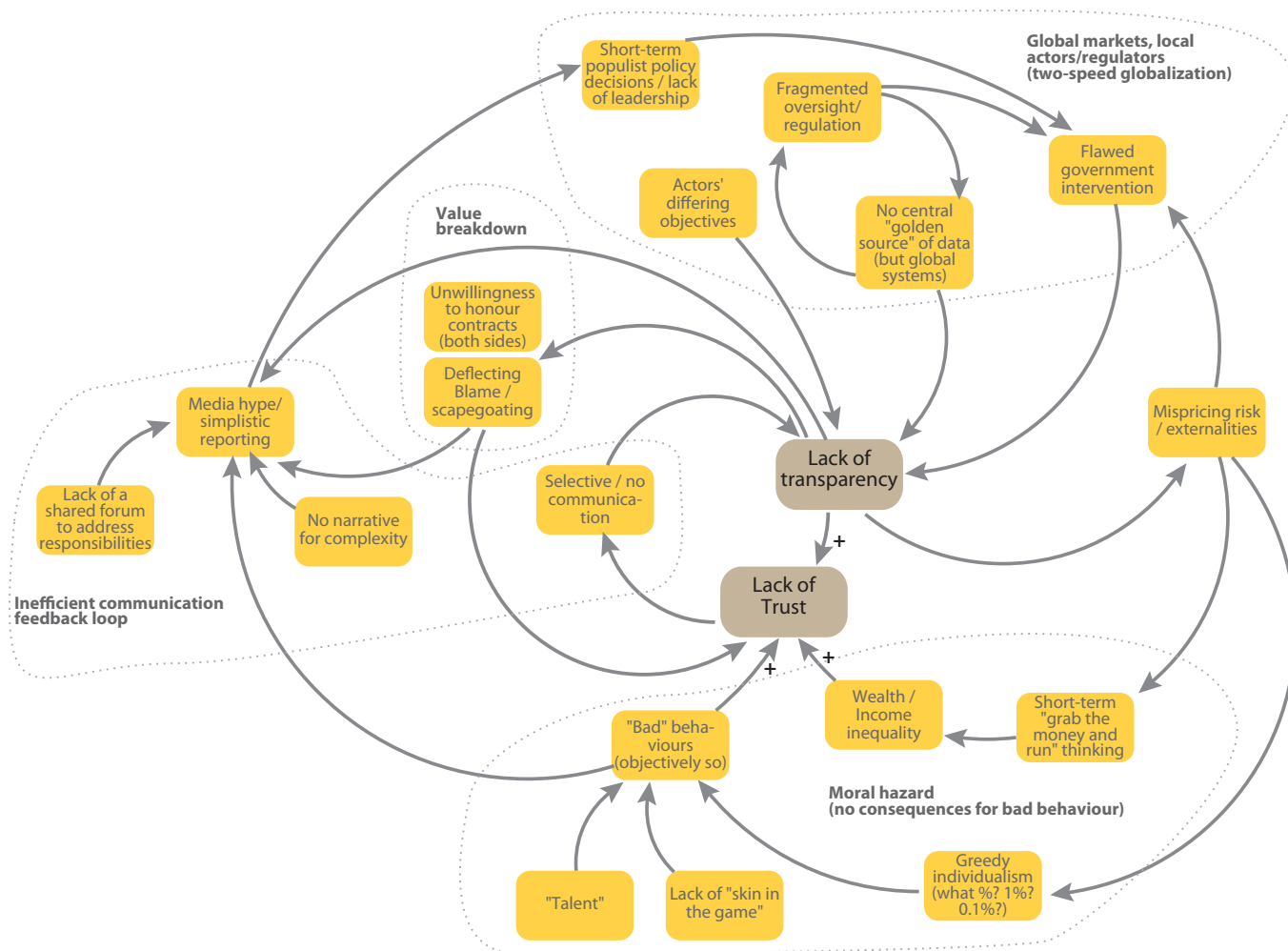
In the view of this group, the purpose of the financial system is to facilitate economic transactions among individuals and businesses both instantaneously (e.g. to trade) and over time (e.g. to provide for income in retirement, or buy a house that can only be fully paid for later in life). It also exists to direct capital flows to their "optimal" destination (e.g. savings into investments).

Issues

Given this purpose for the system, the group chose to explore the following two issues, which they felt were hampering the effective function of the system: lack of trust and transparency and Imbalances in putting capital to "productive/optimal" use.



Issue 1: Lack of Transparency and Trust in the Financial System



Model Explanation

At the heart of this issue lies a vicious cycle – lack of transparency leads to lack of trust. As institutions feel they are on the defensive, they communicate selectively or not at all – further decreasing transparency and thereby trust.

Two other systems directly contribute to this inefficient feedback loop – a breakdown of values and moral hazard. The former can be seen where both parties refuse to honour contracts (e.g. bankers who are mis-selling mortgages, or homeowners who walk away from properties that are in negative equity), or find scapegoats (e.g. “speculators”) rather than taking responsibility for improving affairs. Moral hazard creates objectively bad behaviours that further fan the flames.

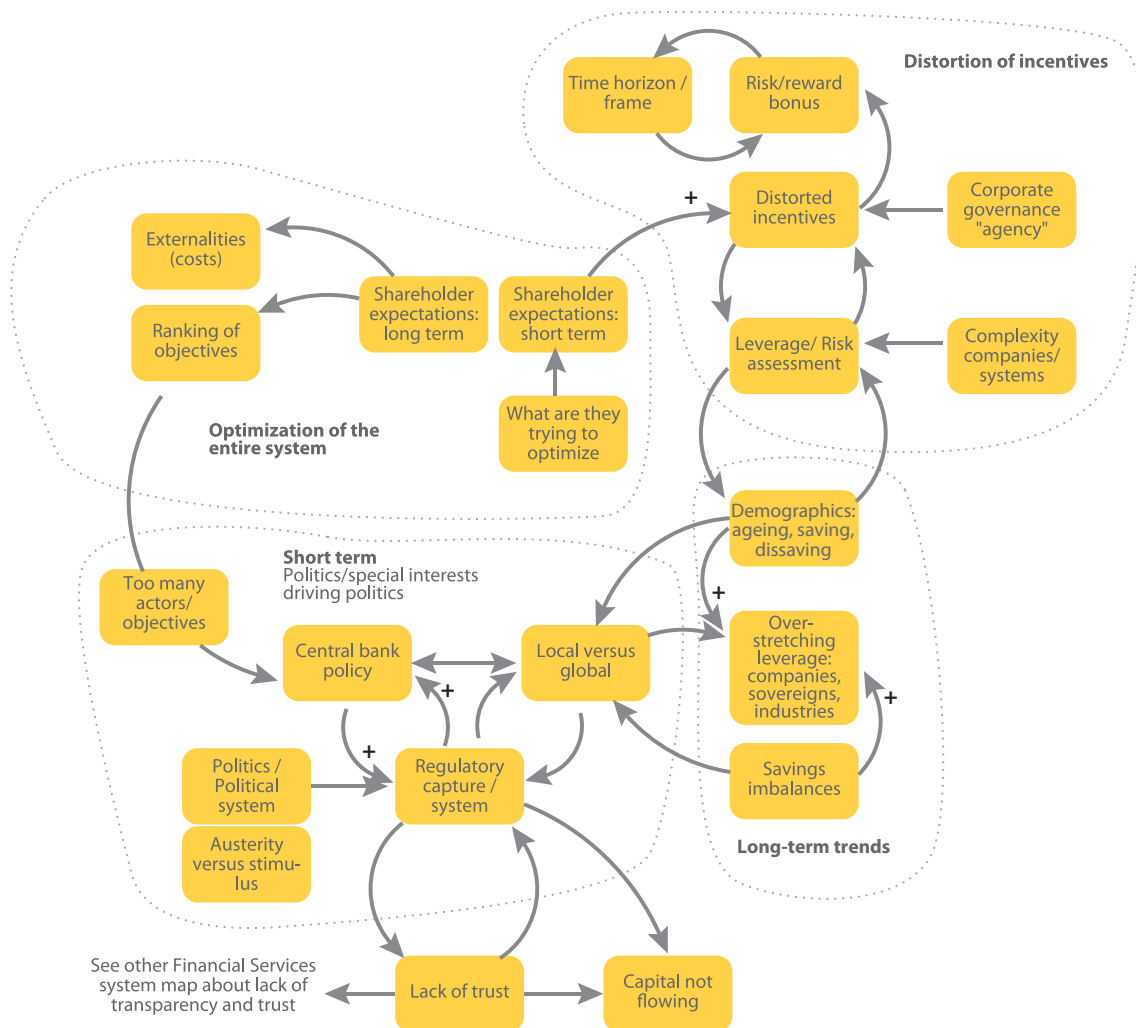
A two-speed world, in which markets are global, but many actors and regulators act locally, introduces further complexity and destabilization to the system. Part of this is driven by technological challenges (e.g. the absence of a data repository on derivatives trade meant regulators could not see the system’s connectedness in the 2008 crisis), difficult to solve as they may be. However, technology alone will not be the panacea – human behaviour and psychology affects many modules of that two-speed world.

Three nodes are particularly crucial when looking at this system, and may offer the potential to effect stabilization:

- First, the mispricing of risk and externalities affects markets and actors as well as incentives and moral hazard. This mispricing is fundamentally driven by a lack of transparency (or data), but also by outdated models and pricing mechanisms. Improving either can make a stabilizing difference to the system.
- Second, even more prominent is the role that media plays as a feedback multiplier, connecting behaviours, values and markets and ultimately affecting trust through many complex pathways. Of course, simply asking the media to report only “good news” (whatever that may be) is completely unrealistic. But financial education, more transparency by actors, and better narratives for complexity together could help nudge the system toward more constructive information flows.
- Third, the role of incentives becomes clear when examining the weighty influence bad behaviours have on trust. They naturally affect trust directly, but also (through the multiplication factor of media) have “unintended consequences” throughout the whole financial system, which is particularly pernicious in a system as complex as this.

The issue loop diagram shows clearly that when it comes to restoring trust in the financial system, no easy answer will do and a true multistakeholder effort is needed to get the system back on track. It also shows the limits of simple analogies with other industries that operate in a less complex environment.

Issue 2: Imbalances in Putting Capital to “Productive/Optimal” Use



Model Explanation

Shareholders, or more broadly investors, and their expectations are central to the allocation of capital. A mismatch between their short-term and long-term expectations drives divergent incentives and systemic complexity. Partly, this is driven by norms for what is desirable to optimize. In this, while agencies (e.g. pension funds) act for us in markets, we are not as powerless as we seem – but we lack a common language to unite our interests. Emerging trends such as responsible investing, for example as advocated by the United Nations-backed Principles for Responsible Investment Initiative (PRI), are examples of what can be achieved.

However, the more common mechanism is for distorted short-term incentives to interact with long-term trends in a destabilizing manner and create fault lines, such as capital imbalances and dissaving, which often contribute to excessive leverage. All of these fault lines can build up to catastrophic levels due to the lack of a feedback loop back to investors who could otherwise take corrective action. This is very evident in the loop diagram pictured. The design of such a feedback loop would be helpful to stabilize the system and allocate capital more efficiently, but a lot of work would be necessary, sometimes against the interests of entrenched actors, including:

- Financial (and more broadly economic) education for investors and small shareholders
- Dramatically increased transparency about investments and incentive mechanisms (see previous issue on the complexity of this)

- A narrative that translates long-term trends into sensible short-term choices

Things get even more complicated for investors’ long-term expectations. They need to rank capital allocation objectives while taking into account externality costs – a complicated task that often leads to a proliferation of objectives and special-interest actors. This feeds into a system making short-term decisions by balancing often-competing variables (local vs. global, austerity vs. stimulus, inflation vs. deflation, regulation vs. free market, voters vs. special interests). Such systems are inherently unstable and difficult to balance – and this one is in addition often captured by some of its actors, for example “revolving door” between regulators and the financial sector that existed for a large part of the last decades.

Not too surprisingly, trust in parts of this system gets easily lost (see previous issue) and capital stops flowing completely as investors pull back their funds. Unblocking this is far from trivial, and recent events in Europe are a good example of the difficulties involved. As with the previous sub-system, a good narrative to translate long-term expectations into short-term metrics and behaviours is key.

While it may be tempting to declare a set of “optimal variables” for investors, this will not solve the problem – investors as a group are too heterogeneous. To incentivize one group over the other will lead to further distortions and fault lines building up. Some of these lessons can be seen in recent stimuli directed at specific parts of the economy that, while well intentioned, have failed to deliver in many cases.

Interventions

Intervention – Representing End Customers

Explanation: Qualified representatives of end customers (e.g. retail clients and small and medium size enterprises) should be appointed to key nodes of the financial system (e.g., central banks and regulators). They should be empowered in the sense of carrying a vote, and in some appropriate instances, even a veto. Financial firms could take the first step by appointing appropriate board members or setting up board committees where they have not already done so.

This would mirror a set-up in German corporate governance, where workers' representatives occupy seats on the corporate board to ensure interests beyond shareholders are represented. The details of this could be worked out between regulators and appropriate stakeholder organizations representing end customers. In particular, given the complexity of the role, it will be important that such representatives are financially literate and qualified rather than statistically "representative".

Rationale: This measure would ensure that the ultimate beneficiaries of the financial system have a clear voice. It would make it harder for financial firms to engage in purely self-referential activities, which have been identified as a key contributor to the recent financial crisis. In addition, it would likely restore trust in the financial system by involving end customers in a meaningful way in the industry.

Intervention – Global Regulatory Clearinghouse

Explanation: Create a monitoring unit to track capital flows (including fees) throughout the financial system and keep a log of regulatory arbitrage across jurisdictions. The unit would intervene in real time through national regulators where it found violation of existing rules. It would furthermore aggregate the information on a periodic basis and determine where flows and/or arbitrage become systemic and then ask national regulators to close loopholes accordingly. In this way, it would mirror the IT security industry, where hackers are regularly employed to find weaknesses in the existing system. The monitoring unit should operate under the auspices of the Financial Stability Board.

Rationale: Rather than demonizing and trying to regulate away arbitrage, which we believe nearly impossible given human nature, this measure seeks to use it in a systemically stabilizing way. While the mandatory disclosure of fees and transactions without a doubt increases the burden on market participants, we feel that the benefits for systemic stability far outweigh the costs. We leave it to interested parties to explore whether regulators could make allowances (e.g. around capital buffers) for firms that fully comply with such a reporting regime, as their increased transparency should make them less prone to failure.

Intervention – Build Simplicity to Gain Trust

Explanation: This intervention calls for increased simplicity in the financial system by exploring two avenues. First, by increasing the education of stakeholders – particularly politicians, clients and to some extent regulators. Financial literacy will be a key lever in this effort, as might the creation of a "plain language" standard for financial accounts similar to the UK's Crystal Mark. Second, simplify and modularize financial business models where possible. While we would not go as far as advocating a new Glass-Steagall Act or narrow banking, we do ask financial institutions to review legacy business models and simplify them into well-defined modules where possible. Regulators should play a strong role in suggesting to financial institutions how their units can be modularised to make them particularly resilient to failure.

Rationale: In line with the intervention, our rationale is two-fold. First, trust can only be regained where a majority of relevant parties understand the functioning of the financial system and can therefore validate claims of its benign nature and usefulness. Second, it is a key insight from complex systems theory that stable systems have a well modularized nature, allowing the system to isolate and contain a failing node. The financial system is no different, and while we acknowledge some benefits of integrated business models, we are clear that their risks need to be contained more thoroughly than has been the case in the past.



Education

The role of education in global systems is central and critical – linking to many of the other systems explored where human action is a dominant factor, but bringing with it the essential elements of development and progress. The working groups identified the overarching purpose of the education system to be *the actualization of opportunities and fulfillment of the human species*.

But the same size does not fit all, and the groups felt that this was the approach taken in many education systems, with related issues of quality, access, equity and fairness.

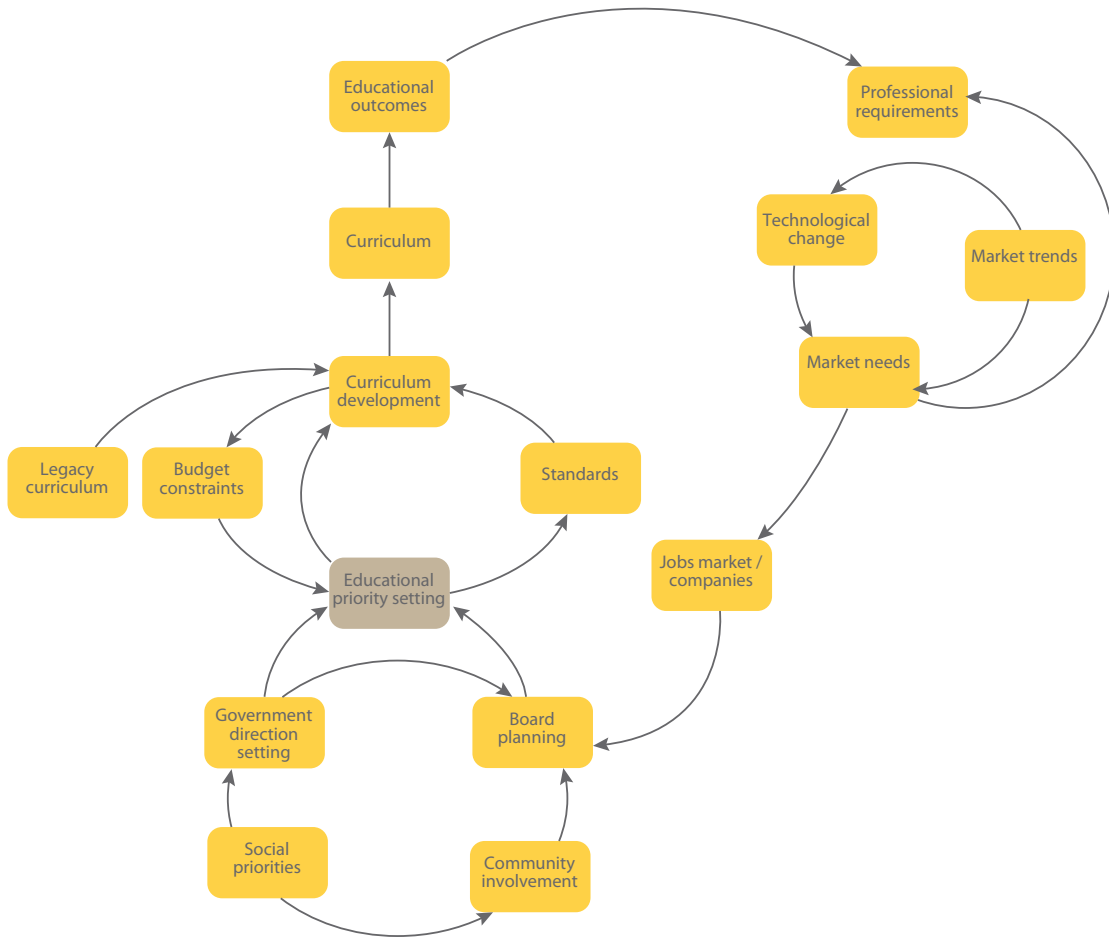
A common thread through the discussions was the lack of feedback mechanisms or a design feedback cycle (build, measure, fix, repeat) to make the system more robust. In addition and the cost and benefits are not evenly distributed.

Issues

Two specific issues were mapped by the groups: the needs of the economy and society are not adequately translated into education outcomes; and education is not approached as a strategic investment for society.



Issue 1: Needs of the Economy and Society are Not Adequately Translated into Educational Outcomes



Model Explanation

Tensions exist in how the public believes that educational resources ought to be allocated and the current way that education investments are decided. No strategy, consensus or process is in place for deciding collectively how to invest.

A business contingent believes that education must better prepare young people for business by targeting the skills that the corporate world finds in short supply.

The fulfilment contingent finds that key soft skills are missing from the educational system, such as problem solving, teamwork and empathy, and that resources must target these.

A win/win may be achievable. It is plausible that soft skills may lead to the kinds of personal fulfilment that encourages social entrepreneurship, which directly feeds business development.

Another significant type of tension that exists within education is that of unequal access. Many people are excluded from the kind of education that they, businesses and society need.

Interventions

Intervention – Celebrating and Sharing Excellence in Teachers

Explanation: Create high-profile awards, with accompanying rewards and recognition through wider media, and exemplify high quality teaching both to celebrate pedagogical excellence and strengthen the attractiveness of the teaching profession. This will need to be augmented by platforms for connecting teachers across jurisdictions to share practices and elevate leading practitioners and their approaches. On local levels, leverage involvement in these platforms, which can be virtual or community based, award “buddy” practitioners (or educators working in concert with one another to impart skills), and create mentoring programmes for new teachers.

Rationale: A lack of cultural and societal recognition of the importance of teachers has led to a downward spiral in terms of performance, de-prioritization of funding and stigma, which has made the attraction, retention, improvement and development of practitioners increasingly difficult. As a result, quality continues to suffer as “the best and brightest” either leave, or avoid the profession altogether.

Intervention – Develop Autonomous and Accountable Local School Leadership

Explanation: First, set clear and high benchmarks and guidelines for the eligibility criteria for this key position across schools. This will ensure the calibre of talent is consistently high. Second, work with stakeholders (government and regulators, parents, students, unions, etc.) to get buy-in and broad agreement on the parameters of success, as well as accountability measures and goals of administrators. Third, equip them with a level of autonomy that increases their odds of success in delivering their set goals and measures of accountability. This intervention alone should make a tangible impact in terms of overall teaching quality if it is clearly established.

Rationale: The administrator as a local school/institutional level is effectively the equivalent of a Chief Executive Officer for a company. His/her role in most instances is not effective as a result of a lack of accountability and/or lack of autonomy, which results in poor quality of administration. Consequently, this has potential harmful effects on the quality of teachers and infrastructure, as well as student learning.

Case Study: Deworm the World

Improving the Quality of Education through Better Health

Pursue a Proven Intervention

Emboldened by the desire to improve the quality of education in the developing world, a group of YGLs including Kristin Forbes, Michael Kremer and Esther Duflo, sought a meaningful and practical solution. The mandate they established was ambitious: to recommend a course of action that was unique, effective and carried negligible cost. All economists familiar with rigorous research, their results-driven quest for a solution led them to an atypical place: worms.

While deworming children may not be immediately associated with classroom performance, in fact, they are directly correlated. Compelling research demonstrated that children infected with worms were less likely to attend school, less able to focus and learn, and less likely to become productive adults. One study revealed that children who were persistently infected with worms were on track to be 13% less literate and earn 43% less as adults.

With a proven intervention in hand, the group sought to bring the solution to those at need: the more than 400 million school-aged children infected and 600 million at risk of infection. Today, Deworm the World coordinates with organizations and governments in various countries to successfully deworm children and build upon its initial, proven intervention concept.

Consider the Cost

Initially, the group sought to bring its solution to bear by raising awareness and influencing policy-makers with respect to the worm challenge. Dispensing deworming information evolved into a scaled intervention. Recognizing the veritable power of deworming in schools – and the potential for reaching children en masse – the YGLs shifted their focus to using classrooms as vehicles for change.

At the centre of Deworm the World's approach was a desire to isolate a cost-effective solution. The classroom approach afforded the group to adhere to that criterion. Treatment costs were kept at less than US\$ 0.50 per child per year, while impact was measured in terms of health and education outcomes.

In further pursuit of a cost-effective approach, the YGLs determined the geographic areas where worms were most prevalent, leading them to initially focus on southern Africa. This allowed for the most “bang for the buck” in reaching higher percentages of infected children early in the intervention process.

Today, deworming children has been proven to be one of the most cost-effective ways of improving the quality of education. Since the 2007 implementation of the programme, the group has benefited from more efficient treatment strategies and decreases in drug costs.

Play to your Strengths

The original Deworm the World team consisted of university economists adept at identifying a verifiable solution. To bring that solution to scale, an assembly of complementary skills was needed. Lawyers, fundraisers and project managers – gathered from a variety of backgrounds and sectors – were recruited to make the operation a successful one.

The initial group acknowledged their particular skill set relative to intervening in a complex network of actors and institutions and gathered the necessary corresponding personnel. Recognizing that the solution was a sustainable one, the team recruited a director to run the organization on a full-time basis. To date, Deworm the World has helped treat 37 million children across 27 countries.





Energy

Energy is the enabling force behind vast swaths of human productive activity, allowing humanity to move beyond the immediate constraints of human power or local conditions. But increasingly discussions about energy production and distribution take place within the context of constraints, and the discussions as a part of this initiative followed this trend.

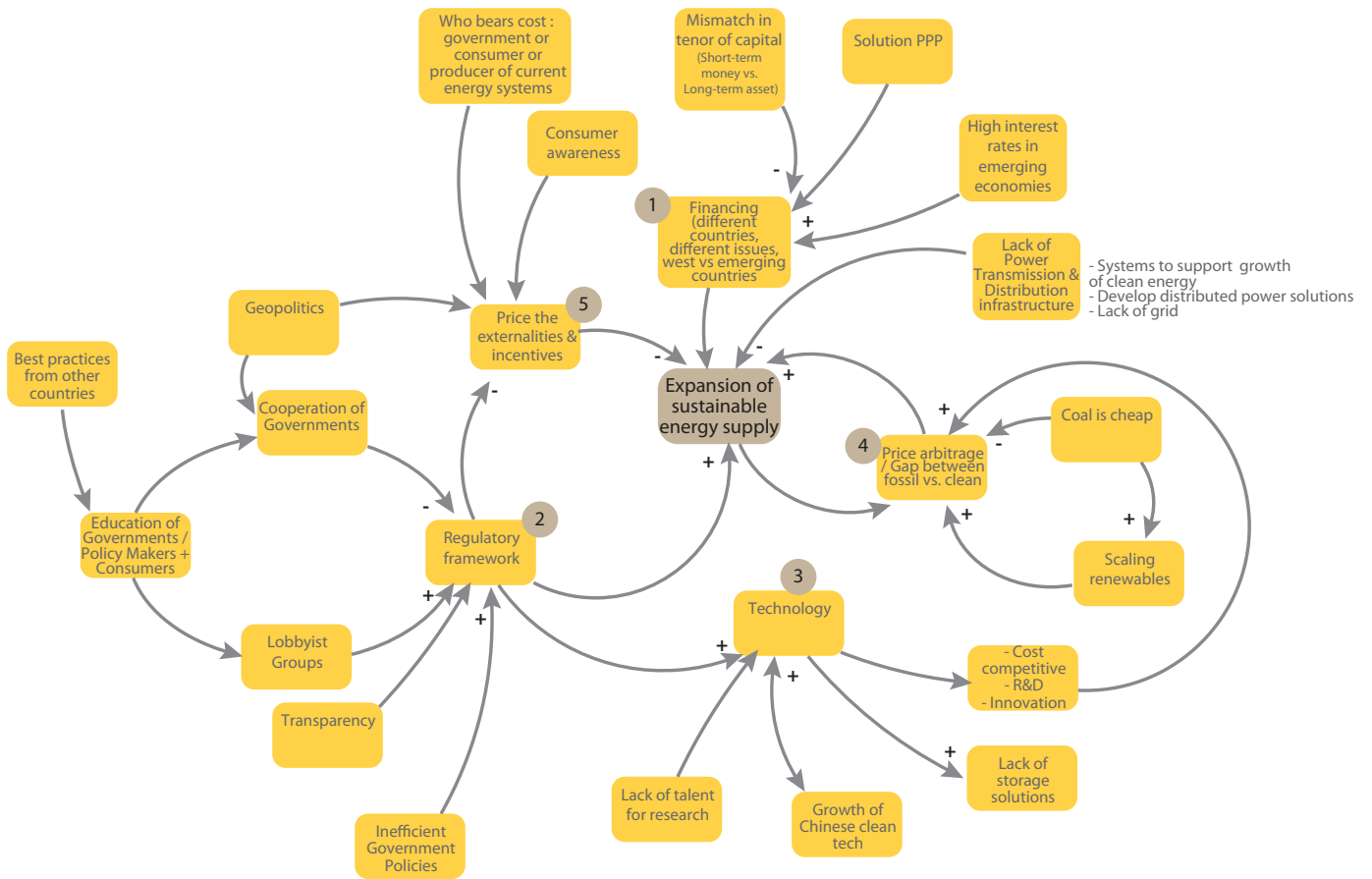
The groups defined the purpose of the energy system as *providing access and availability of affordable energy services to facilitate sustainable human development and a quality standard of living.*

Issues

The two areas of inquiry during this initiative were: the lack of supply of sustainable energy, and efficiency is not prioritized as the first energy resource.



Issue 1: The Lack of Supply of Sustainable Energy



Model Explanation

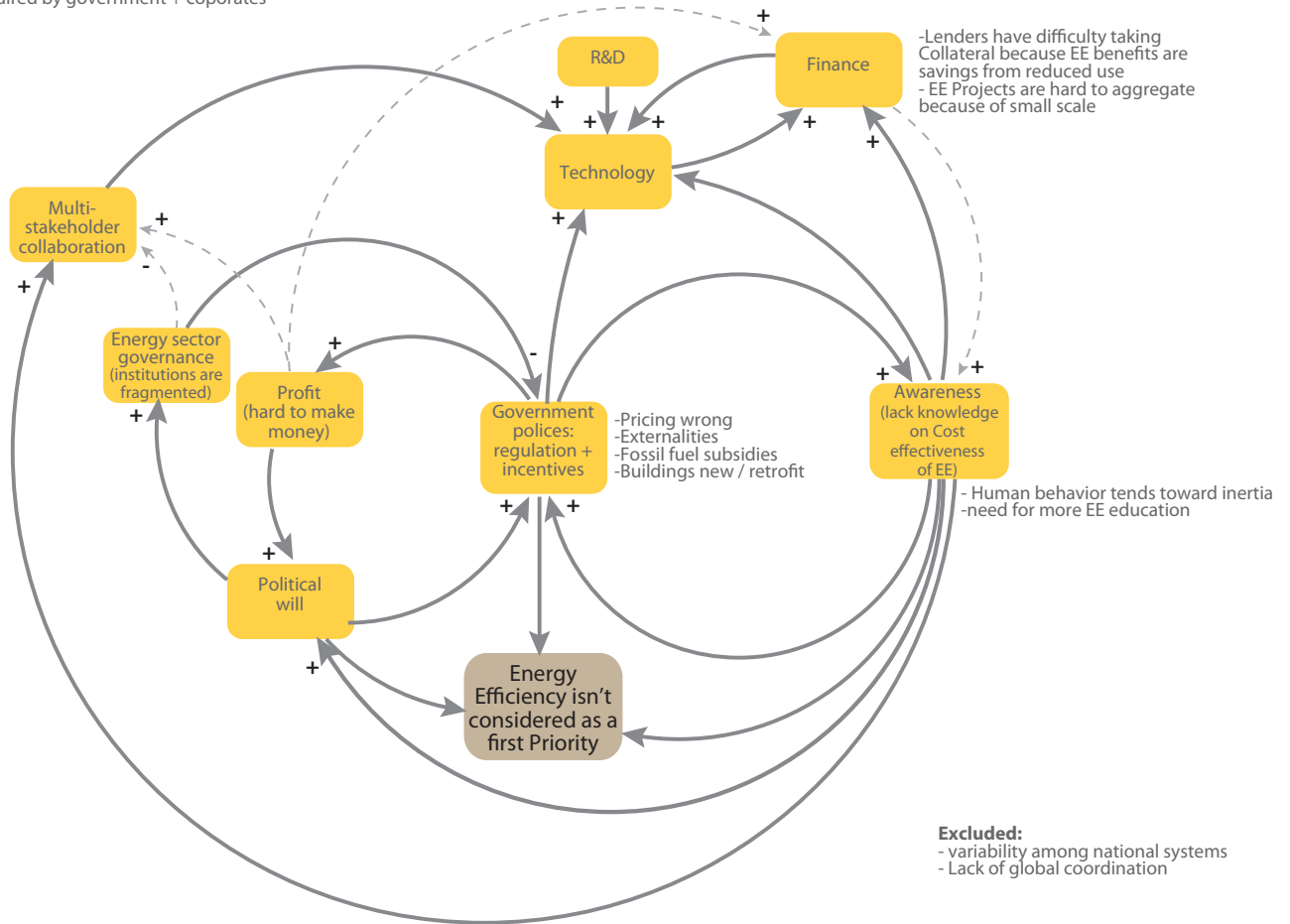
Supplying clean and sustainable energy to the world is a task that will become increasingly harder as the world's population surpasses 7 billion. Big issues stand between where we are now and where we need to be. Financing clean energy is a long-term proposition that has short-term high costs and a long recovery for an uncertain ROI. Who should optimally bear these costs? Producers? Consumers? Governments?

The incentives are skewed against financing clean energy because fossil fuels are artificially cheap. Externalities are not priced and fossil fuels are subsidized to the tune of US\$ 409 billion in 2011.

Educating policy-makers to create regulatory frameworks, subsidies and incentives that reward investment in clean energy and change the dynamics away from fossil fuels is costly. It is also an uphill battle to climb over the legions of lobbyists who are intent on maintaining the status quo.

Issue 2: Energy Efficiency is Not Prioritized as The First Energy Resource

EE= Demand side management + Supply side management
 = required by government + coporates



Model Explanation

Today we already have the technology to reduce emissions by increasing efficiency. What is stopping us includes lack of political will, insufficient incentives, old-fashioned regulations and a lack of effective enforcement. Most notable is that there is still no price on carbon, which together with fossil fuel subsidies makes coal cheaper than any other option.

The governance of the worldwide energy sector is fragmented. There are too many different institutions making decisions and enforcement strategies. These 20th century institutions are set in their ways and do not include the diverse stakeholders needed to devise a new way forward. Data from these groups are inconsistently available. No information is available, for instance, on the ROI of different efficiency strategies. Plus, the projects that address efficiency tend to be small and long term, so it is difficult to finance them upfront, primarily because ROIs are uncertain.

Interventions

Intervention – Removing Fossil Fuel Subsidies

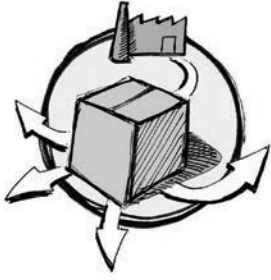
Explanation: Remove subsidies for fossil fuel and use the savings to foster renewable energies. This can be achieved by revising policies mainly at the national level.

Rationale: Worldwide fossil fuel is subsidized with hundreds of billions US dollars. These subsidies hinder renewable energies from becoming competitive compared to fossil fuel. Removing those subsidies and transferring them to renewable energies will help foster the transition process towards a cleaner energy system.

Intervention – Setting Energy Efficiency Standards

Explanation: Set ambitious energy efficiency targets and standards in different sectors, for example lighting, buildings, appliance, transport and other sectors. Reach quick achievements with an effective enforcement system and increase standards over time. Create international benchmarks for standards to guide policy formulation for specific standards at national level.

Rationale: Today, many energy efficiency measures are financially viable but are not implemented due to several non-financial barriers. Experience shows that compulsory standards can be an effective instrument to implement energy efficiency measures on a large scale, for example, bans of incandescent light bulbs.



Goods and Trade

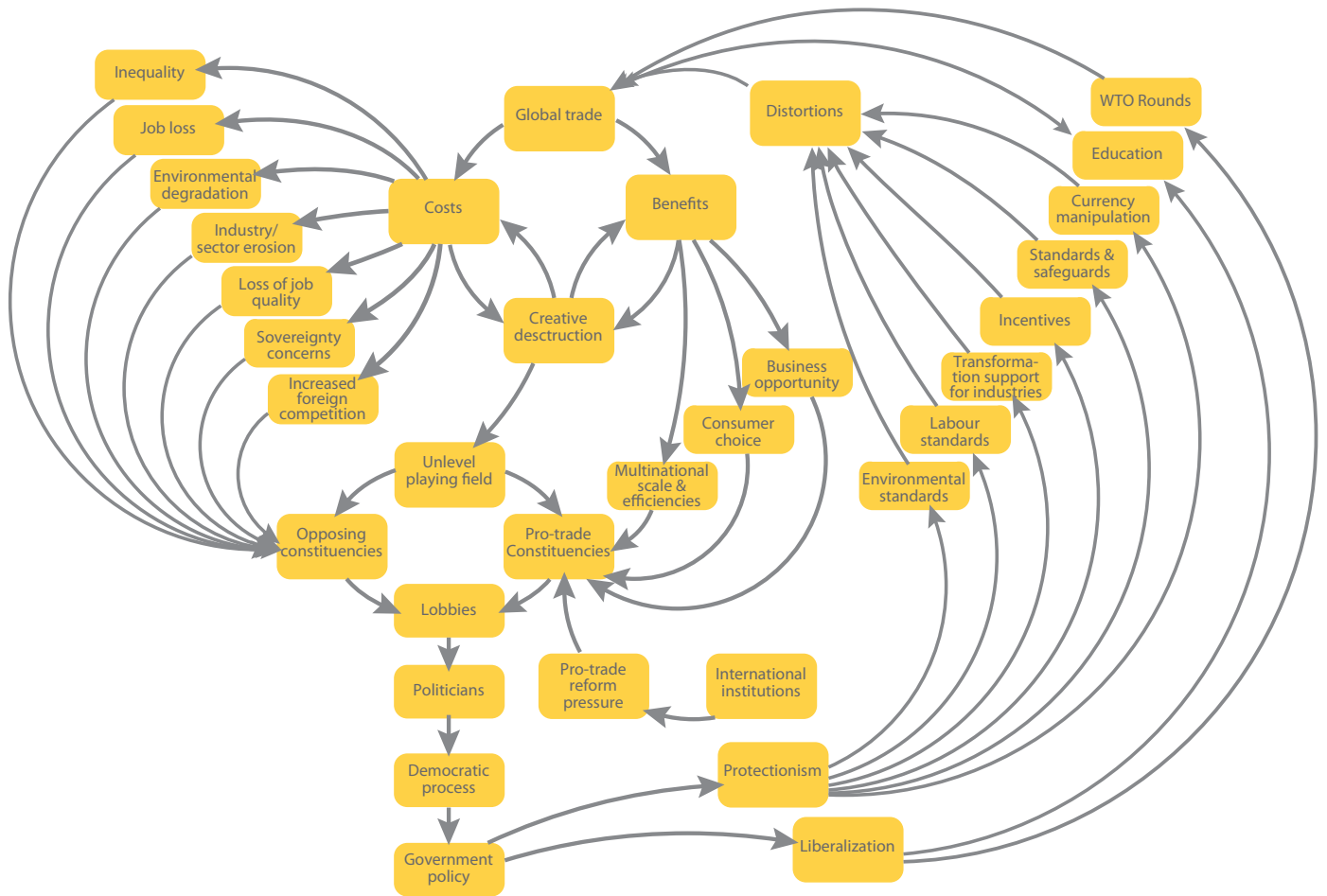
The exchange and flow of goods between countries represents the lifeblood of global economic activity, providing the necessities of life to citizens across the planet and forming the basis for wealth creation. Considering the purpose of modern regimes governing the flow of goods and trade, this group considered – as their starting point – the purpose of the interrelated systems of goods and trade to be *the reduction of poverty and the increasing of global welfare through the reduction of barriers to trade.*

Issues

The two avenues of exploration pursued by this group were: trade barriers and subsidies; and vested interests in rich countries (subsidized industries) and poor countries (state capitalism).



Issue 1: Trade Barriers and Subsidies



Model Explanation

Trade increases global welfare through efficient allocation of resources. At the same time, trade creates winners and losers. Interest groups sceptical of the benefits of free trade, such as labour unions, farmers and NGOs, advocate trade barriers and subsidies or call for higher labour standards and environmental regulations. Other interest groups, including multinational corporations and other exporters, seek to counter these demands by lobbying for free trade. Many of our institutions responsible for global economic governance, like the World Trade Organization (WTO), the World Bank and the International Monetary Fund (IMF), were built after World War II. Their inflexible structures rarely allow them to adapt to the changing global economic environment. They lack the clout to enforce pro-trade reforms or influence national governments.

Interventions

Intervention – Encourage Transparency of the Supply Chain to the Consumer by Harnessing the Power of Technology

Explanation: Technological solutions could consist of consumers using their mobile phone to scan the bar codes of products, thereby having access to extensive information: the carbon footprint of the product, international warranties, materials used, fair trade status of all the companies involved in making the product throughout the supply chain, etc. Consumers could also easily scan the “rules of origin” information and thereby understand where the various parts of the product have been made and where the value has been added. This last element would have the additional benefit of curtailing protectionism as it would become more visible for the consumer how extensive trade in intermediate goods is today and how protectionism against one country inevitably harms the other countries that rely on inputs made in other countries.

Rationale: Ultimately, this “bottom up” intervention aims to empower consumers by encouraging transparency through technology and rewards companies with proven track records of responding best to consumer concerns. Many of the problems underlying global supply chains could be solved through market mechanisms. If the value chain were made transparent, end consumers would be able to make choices that conform more closely to their preferences.

Intervention – Close “minilateral” Trade Deals within the WTO among Coalitions of the Willing

Explanation: Instead of pursuing genuine multilateralism, and thereby risking holdouts, deadlocks, vetoes and agreements reflecting the lowest common denominator, the WTO should increasingly allow for, and actively encourage, plurilateral agreements among a selected number of trading nations that are willing to agree to further liberalization. Other nations could later join the agreements, yet would not be able to holdup progress and thus stymie welfare-generating trade deals.

For instance, as long as 80% of the world trade is covered by any given trade agreement, the WTO could provide an umbrella for the agreement, including its dispute settlement mechanism. This way, the WTO would not encourage excessive fragmentation of trade policy but would allow for more flexibility and enable more trade to be liberalized as a result.

Rationale: Governments are still crucial in keeping borders open. The WTO has not lost its relevance, yet the institution needs to be retooled. The Doha Round of trade negotiations has lasted for over a decade, which shows the inevitability of finding other paths to further liberalize world trade. The big trade deals relying on the principle of “single undertaking” (i.e. “nothing is agreed until everything is agreed”) have become unsustainable in the midst of a more contested negotiation agenda consisting of a large number of increasingly heterogeneous countries.





Health

With rising deficits, shrinking budgets, and ageing populations, healthcare in wealthy countries has become a highly contentious issue. Issues of funding for terminal care or preventative medicine loom large, yet health issues differ dramatically between developed and developing countries, and even between wealthy and poor citizens in the same country. Each year 7.5 million children die from malnutrition and preventable diseases, while more than 1 billion people lack access to health care systems altogether.

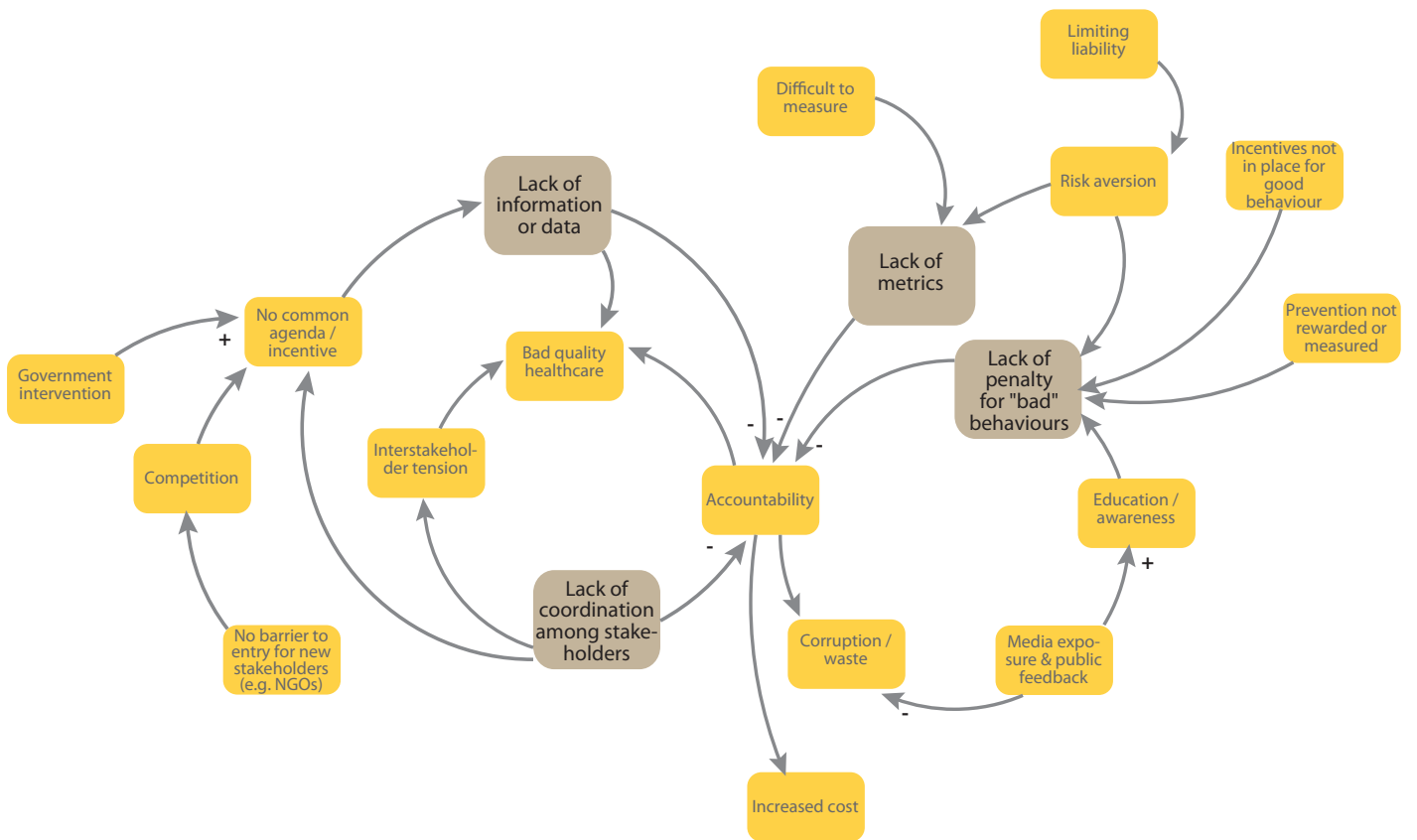
With these kinds of challenges and limitations in mind, the group saw the aim of health systems as providing quality healthcare services and standards for people at large at an affordable price, in a resource constrained system.

Issues

The two specific issues explored by the group were: lack of access to quality healthcare and lack of accountability.



Issue 2: Lack of Accountability



Model Explanation

In healthcare there is currently no penalty for bad behaviour and no incentive for good behaviour. Part of the reason that prevention is not rewarded is that it is difficult to measure, as little data exist. This lack of quality information means that no one knows which good health behaviours lead to good outcomes and what they cost or how much they save. Coordination among stakeholders is lacking and there are no incentives to encourage collaboration.

Interventions

Intervention – Standards Responsibilities for Different Jobs/Providers in the Health Industry

Explanation: Create an international framework that details the basic roles and responsibilities of each type of provider within the healthcare system. This would enable standardized discussions across international boundaries and allow for more coordinated planning and implementation.

Rationale: Based on the inputs from various individuals over many months, the group has concluded that a common unifying theme across this system that is upstream enough to capture some of the challenges would be to clarify the roles and responsibilities of the providers of care within the system. Different cultures and regions use a variety of provider types that may or may not be part of systems in other parts of the world. Establishing not only roles and responsibilities, but also a title framework would allow for clarity and a better understanding of the resources that already exist and can be better leveraged or coordinated.

Intervention – A movement for Living Dignity Wills and a Health Literacy Campaign

Explanation: Educate patients about their healthcare options and create legally binding directives in the form of living wills to guide healthcare providers.

Rationale: On the user/customer/patient side of the system, there is general consensus that much of the waste can be attributed either to the lack of education or lack of clear directives related to healthcare decision-making. Much like any other directive (organ donation, etc.) a living will can provide not only individual preferences and guidance, but also clear decision-making authority in the event of illness or incapacitation. It is currently unknown how many individuals worldwide possess a living will, but most estimates suggest the number to be less than 5%. This would bring about cost savings, better care and a more focused provision of expenditure.

Case Study: Embrace

Using Design Thinking to Tackle Complex Problem

Framing the Problem

Jane Chen first came across her challenge as a part of Stanford Design School's Design For Extreme Affordability class. The focus for her team's project was provided by an NGO that had partnered with the programme to design an incubator that costs less than 1% of the cost of a standard incubator. The intent was to address the needs of women giving birth to premature babies in developing countries who do not have proper access to premature infant care. Roughly 20 million premature babies are born each year and 450 die each hour.

Framing the problem is a critical first step in the design process, ensuring that the end product accurately addresses the right issue, and is applicable to the needs of the user.

It was not until her team visited Nepal that they got their framing right; it was there that they saw incubators lying empty in the hospitals, with many infants being born in rural or home settings. Jane had her "aha" moment, seeing that the challenge was not hospitals needing cheaper equipment, but that the equipment was inappropriate for the context where it was needed.

From this experience, Jane and her team set out their design criteria; the final product needed to demonstrate extreme affordability, had to be usable in a rural or home setting, and had to function without a constant supply of electricity.

Understanding End Users and Their Context

With their criteria in place and prototype designs in hand, Jane set out to understand the end users. The principles of user centred design focus on the applicability of a product to the specific needs of its users, addressing their issues simply and intuitively.

By interviewing hundreds of doctors and women, they came to understand the specific parameters around end use that could mean the difference between something that would be used and useful, or misunderstood and left on a shelf.

Many women in rural India, for example, distrust Western medicine, with a tendency to cut any recommended number or dosage in half. As a result, the team changed the numeric values on the incubator's temperature gauge to a "rainbow" scale, which would display green for the optimal temperature.

Pricing and business models also needed to reflect local usage patterns, with potential buyers and users being everyone from individual women with very little money to profitable private clinics. Further, through interviews, they identified that with the doctor/patient ratio being as high as it is, doctors represented a bottleneck in the system. Their product, then, needed to be easy enough for a mother to use without a doctor.

Applying Design Thinking

Once they had clear design criteria and a nuanced understanding of their end users, Jane's team went through multiple prototypes and iterations to find a design that satisfied all of the identified needs. Working from the model of a baby-sized sleeping bag, the challenge was then a matter of finding specific materials and techniques to operate in the expected circumstances.

The design played on the traditional habit of swaddling children, which was a more accessible starting point for mothers, as opposed to the industry standard "glass box" approach, which was considered to not be "mother friendly".

From there, they identified appropriate materials – such as a thermally stable wax that could be heated to exactly the right temperature – and refined their design.

Finding Models that Support Scale

Design and adaptability were also needed on the business-model side. With a product designed for impact, and to address a specific issue, scale and accessibility were necessary requirements for their business model.

While they identified a need for a non-profit approach – as there were so many “base of the pyramid” users who could not afford the full price – they also recognized the limitations of the model in terms of scale and the extreme time demands of fundraising.

They pushed accessibility through cheap rental models, but also spun off a for-profit arm that would license the technology from the non-profit to manufacture and distribute the product to those customers, such as clinics, that could afford to pay for it. This in turn helped to capitalize the non-profit arm, making it more sustainable as it focused on accessibility.

Today, the Embrace baby incubator is being sold primarily in India with pilots in Somalia, China, and Zambia. To date, approximately 2,000 babies have been helped by Embrace.



Case Study: Table for Two

Building Support Structures and Business Models to Scale Ideas

Concept Ideation and Piloting

The year was 2007, and the Table for Two concept – which had been developed by YGL founders James Kondo, Nobu Domae and Moto Furukawa – had gone through a pilot phase, with one pilot project having been successfully implemented at a corporate cafeteria in Japan.

The concept was simple, elegant and compelling. The founders had identified a fundamental imbalance in food distribution, with harmful effects on both ends of the spectrum. In the developed world, 1 billion people were in a condition of over-nutrition, leading to obesity and other serious health effects. The developing world, on the opposite end of the scale, had 1 billion people suffering from malnutrition and hunger. By connecting the two at the intersection point – the meal – the founders saw the opportunity to connect the problem to the benefit of those at both ends of the spectrum.

And so the Table for Two meal was born: a diner in the developed world bought a certified, nutritious meal, which would help fund a meal for someone in the developing world.

The difficulty, however, was that the initiative was relying on the efforts of YGLs dedicating their own spare time and money to keep the programme moving forward, which resulted in the stall at the pilot phase.

Getting Dedicated Management

The group quickly realized that with its dependence on voluntary work, the model was neither sustainable, nor scalable. Two things needed to happen; a formal organization needed to be set up to support the initiative, and the model needed to adapt to drive enough volume to support that organization.

This was done by hiring a professional manager and establishing an office, initially funded by the YGLs themselves. With dedicated management in place, Table for Two could begin focusing on moving beyond the pilot phase.

Challenging the Business Model

This was an inflection point for Table for Two. To evolve and to create the volume necessary to carry the organization into a sustainable pattern, some core assumptions needed to be challenged. First, while the elegance and simplicity of the model – a “shared” meal in corporate cafeterias – was conceptually attractive, it hid a weakness. There were simply not enough cafeterias to support a significant upscaling of the organization. By moving away from just meals, and more broadly to food through multiple distribution channels, Table for Two was able to create a brand that supported the original intent, without being structurally limited to the original idea. Branded vending machines, food in convenience stores and packaged goods soon came to account for a 50% of revenues.

The organizational setup and diversification of channels allowed for significant growth of participating partner organizations, as well as an expansion on the opposite end of operations. Table for Two is now supporting meal programmes in schools in five countries, while at the same time becoming self-sustaining and no longer in need of supporting donations.





International Affairs and Governance

The world today faces issues that transcend the authority of individual nations, testing the fragile global institutions that were built in and for another era. These institutions are frequently challenged by the diverse citizens who now demand a voice beyond those that were the “victors of the moment”, calling for a new social contract designed by and for a more global and connected society. Global warming, resource wars, simmering regional conflicts, trade agreements and financial regulation all demand inclusive global and regional coordination, which is beyond the means of today’s institutions.

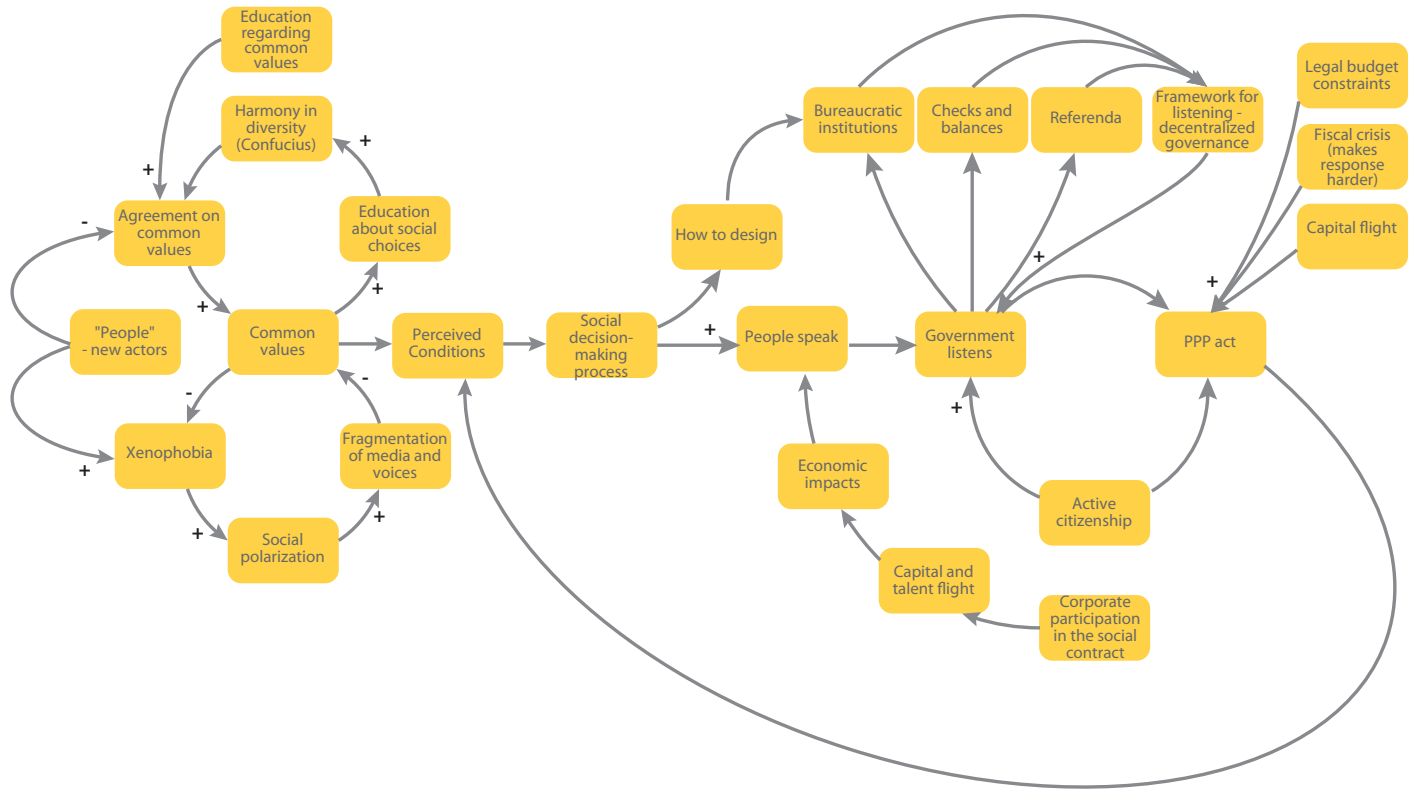
The International Affairs and Governance group identified the purpose of these new global frameworks as being *the creation of institutions and systems through which the interests of different populations and individuals are negotiated and peace and security is promoted.*

Issues

The issues mapped by the group were: lack of a generally accepted global governance framework and the broken social contract between “the governed”/citizens and governments



Issue 2: Broken Social Contract between “the Governed”/Citizens and Governments



Model Explanation

Designing an effective decision-making process between the people and their governments requires a new level of education for the citizenry so they understand the choices available and how to make them. The process needs to be designed to incorporate new actors who reflect the changing demographics across the world.

Governments will listen to the people, but they need to hear a unified voice. Technology can make that messaging easier or more complicated. Any new model will require governments to change in response to the peoples' will, even if it means eroding their own power. In this era of instant and widespread messaging, it will be important to separate the speech from citizens from that of nefarious entities trying to destabilize the balance of power.

Interventions

Intervention – Fair Representation of International Organizations

Explanation: International affairs and governance necessitates the reinforcement of common global values, a merit-based system of representation (especially for heads of international organizations), and strengthened flow of trade, capital, information and people, from which interdependence will grow.

Rationale: International organizations cannot be legitimate if they are not representative, do not have common values, and are not merit-based. Interdependence unites us.

Intervention – Enhance Accountability of Governments at National Level

Explanation: While international affairs and governance deals with the transnational, the nation-state is still paramount. Sovereignty reigns, but this does not mean that what happens within borders should remain within borders. Measures such as access to information, participatory decision-making, electoral reform and independent oversight mechanisms are cornerstones of good governance.

Rationale: International organizations' legitimacy depends on member states' legitimacy, achievable through increased transparency and participation.

Intervention – Reinforce Education about the System of Government/Governance

Explanation: Despite globalization, too little is known about international affairs and governance generally. Sensitization and transparency are needed to improve accountability of any given system, both at the national and the international level. Without knowledge of the system, how can the system be governed effectively?

Rationale: International affairs and governance require not just the consent of the governed to be legitimate, but first and foremost their knowledge and awareness.

Intervention – Leverage the Potential of the G20

Explanation: The G20 has much to offer by way of improving international affairs and governance, but too often the emphasis is on the G8. There is tremendous potential for greater G20 involvement not just in terms of resources brought to the table, but also in terms of representation. However, there must also be commitment from the G20 to effective governance of global institutions and to new ideas.

Rationale: Leveraging the potential of the G20 is about power diffusion for increasing the legitimacy of any system of international affairs and governance. However, this must be done with institutional effectiveness and openness to new ideas.

Intervention – Reform of International Organizations by Increasing New Powers' Representation and Adopting Real Enforcement Mechanisms

Explanation: As mentioned with respect to the G20 and the international system, increasing representation of "new" powers is about leveraging their potential. Doing so gives them more "skin in the game" and assures their buy-in. At the same time, we must "get real" about the need for enforcement mechanisms. With power comes responsibility.

Rationale: International organizations cannot be legitimate if they are unrepresentative of new powers, but these new powers must recognize their roles and responsibilities if they are to be seen as legitimate representatives of a new world order.



Labour and Talent Mobility

Labour shortages in one country can be mirrored by wrenching unemployment in another; education, arbitrage, migration and exploitation. As economies globalize, so too do the forces pulling and repelling labour. But some in this group asked if the rapid shift to a knowledge economy in this global context was leading us away from capitalism and into a new era of “talentism”. The preparation, education, attraction and application of this talent has the potential to tilt other systems since it is a meritocracy – it has no age, no gender or passport – with talent multiplying and attracting more talent.

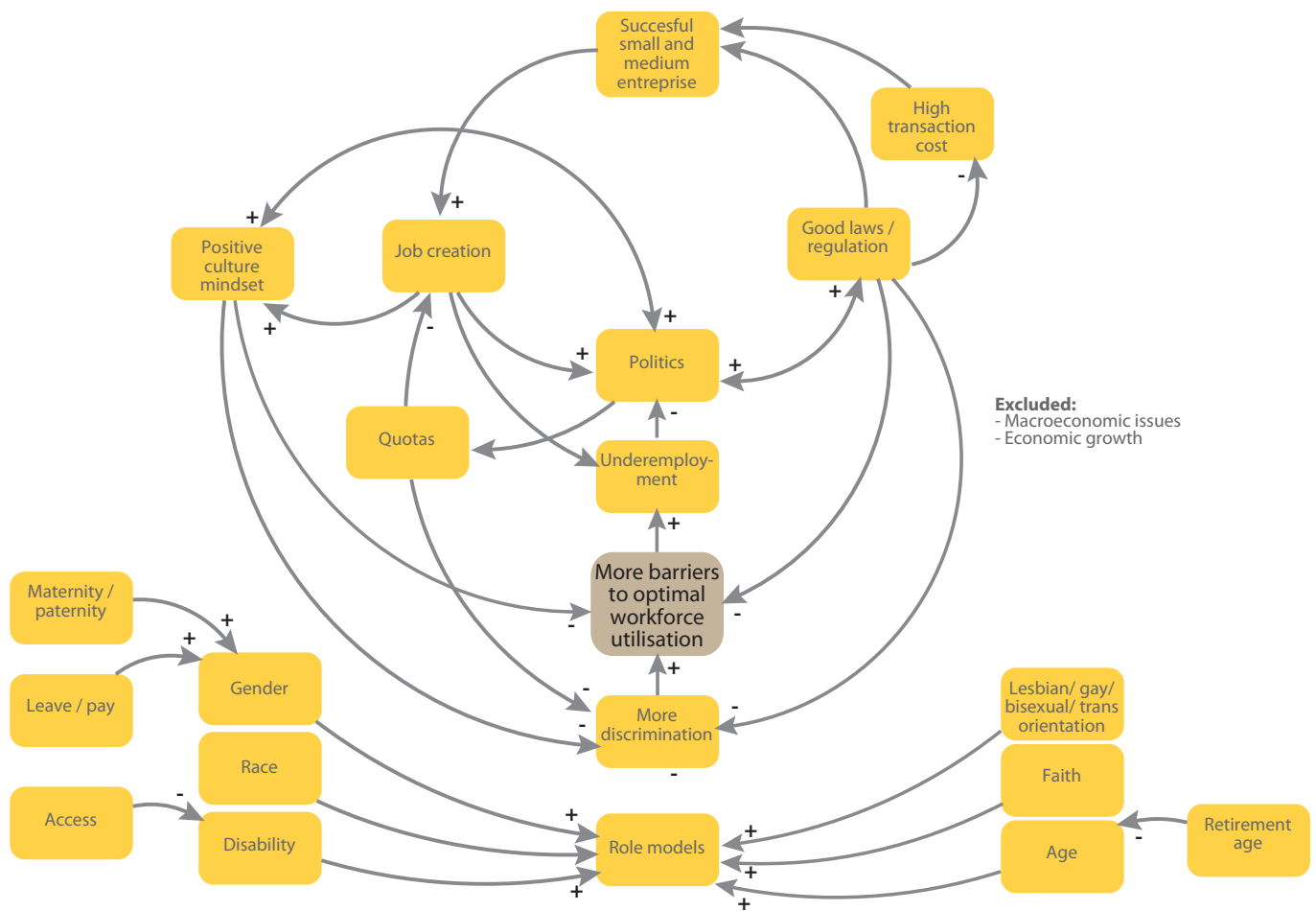
The Labour and Talent Mobility group saw the ideal aim of efforts in this area as *assessing new ways that could increase the efficiency of the global workforce.*

Issues

With this end in mind, the group looked to address the following issues: the existence of labour/talent barriers/inefficiencies leading to suboptimal workforce utilization; and talent and opportunity are not efficiently matched.



Issue 1: Existence of Labour/Talent Barriers/Inefficiencies Leading to Suboptimal Workforce Utilization



Model Explanation

The world is moving from capitalism to talentism; from cash is king to talent is king. This shift has the potential to lead to greater flexibility in the workforce. If we unleash the talent in the world, innovation and productivity will dramatically increase.

The educational system is preparing workers for the 20th century, not the 21st. Technology is one way to raise the talent level of the world. Once people have access to the kind of education that enables them to realize their talents, other systems will reverberate with the implications. It is exciting to imagine a world driven by talent, as it has no age, no gender or passport.

Interventions

Intervention – YGL-led Mentoring and Global Internship Programme Designed Specifically to Foster Entrepreneurship

Explanation: Leaders could pool their institutional and personal resources to implement a global mentoring and internship programme. Each leader solicits applications and provides mentoring/internships. A small coordinating group selects the target youth among applicants and matched applicants and providers.

Rationale: It is an intervention suited for leaders as it does not depend heavily on support from outside sources. Those who lead/manage or have senior positions in institutions can run such a mentoring and internship programme. As well, those with access to viable communities, regardless of their organizational affiliation, could implement more informal mentoring methods.

Intervention – Advocacy and Sharing Best Practices Worldwide, Building on the World Economic Forum Report, “Talent Mobility Good Practices – Collaboration at the Core of Driving Economic Growth”

Explanation: Leaders put the report to work by taking it to corporations, NGOs, politicians and civil servants around the world through personal visits and “pitches”.

Rationale: The World Economic Forum report on talent mobility is a useful product that can be implemented by many governments and corporates worldwide. However, it can have veritable traction by being presented to the people who can benefit most from it. Committed leaders, using their global network, can make this happen.





Natural Resources

Resources underpin all of the global economy, generating either directly or indirectly the health and wealth of nations. But in the current paradigm, with resources being consumed at an increasing scale and pace, decisions on how they are used are being made via short-term cycles of business planning and elections.

Shortages of resources have the capacity to impact our living systems in cataclysmic ways. For instance, we are very near to running out of known phosphor, which provides fertilizer for our food.

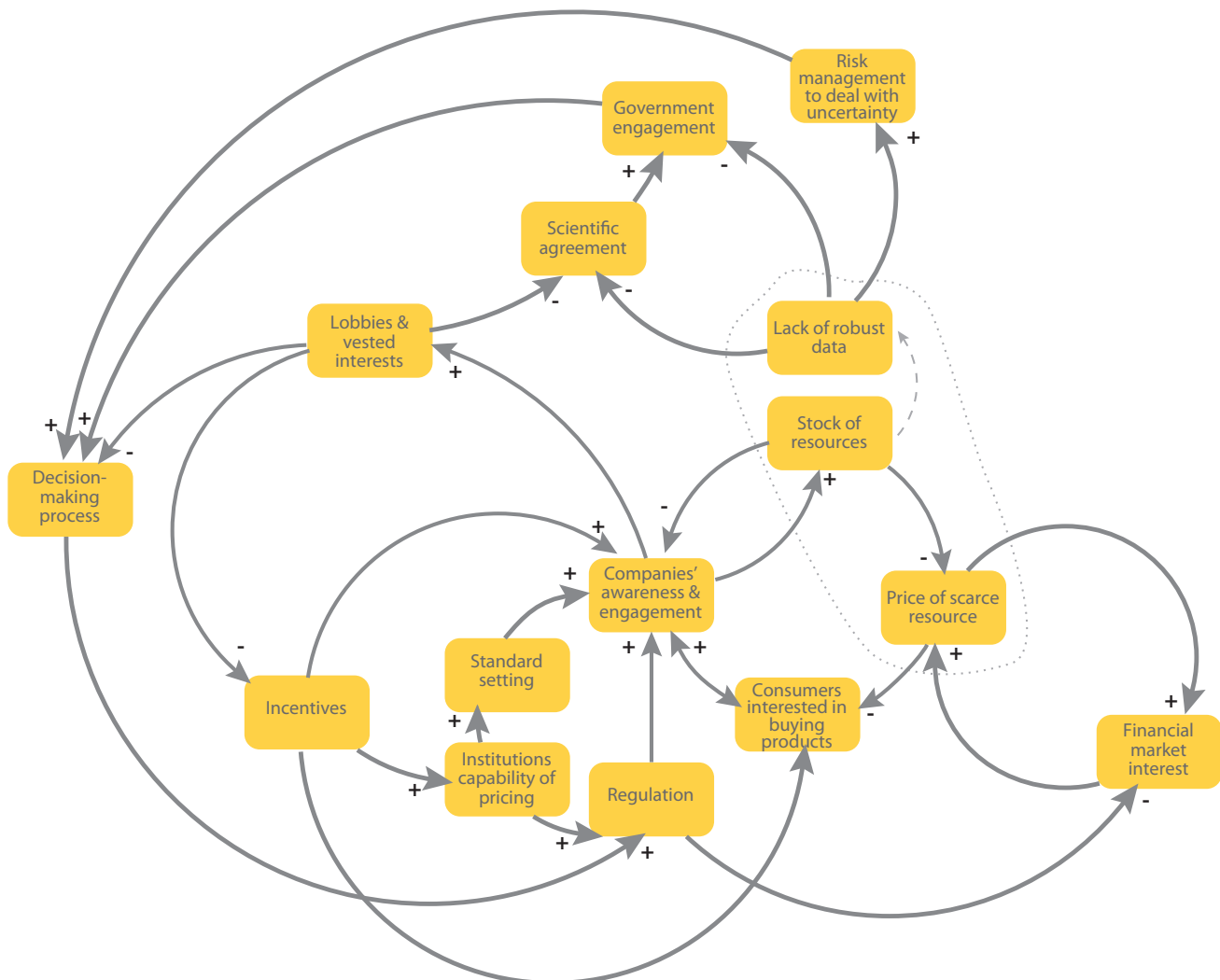
The challenge, then, and the purpose of human efforts at stewardship is to *determine how to assure that we meet the resource needs of present generations without compromising the resource needs of future generations and the integrity of the natural world.*

Issues

In their attempts to address these challenges, the group examined the following issues: population and economic growth lead to resource demands that outpace sustainable supply of natural resources; and the need for improved valuation of natural resources to inform decision-making, governance and align incentives.



Issue 2: Need for Improved Valuation of Natural Resources to Inform Decision-Making, Governance and Align Incentives



Model Explanation

Sustainable use decisions are not intelligently made. These decisions are not priced to reflect scarcity and incentives mask their actual price. Markets are not a reliable source of information on price. They are inclined toward bubbles and short-termism that inflates and deflates the prices to turn a fast buck. If there were global data that told the real story of whether resources are abundant or in short supply, perhaps markets could respond more rationally, but data are piecemeal and unreliable.

The inertia of business and consumers to price resources accurately also plays a big role. It is in their best interest to keep the prices artificially low. Companies have been willing to go only so far to engage their consumers on pricing.

New models of partnership are being tested. Civil society, policy-makers and scientists are beginning to act in concert to educate the individual and institutions about the need for a socially agreed price for scarce resources. However, any strong regulatory and enforcement of these prices will fall to the state, which will continue to be a barrier to equitable outcomes. There is a strong role for all the actors to play: scientists to provide and drive good data; institutions to set reasonable regulations and enforcement; companies to educate their customers on pricing; and consumers to be willing to change behaviour and pay the real price for resources.

Interventions

Intervention – Stimulate Innovation on Better Use of Natural Resources by Creating New Incentives

Explanation: Industry and government should improve efficient use of natural resources by engaging private entrepreneurs with programmes that have attractive monetary incentives and awards that incentivize and protect creativity.

Rationale: Traditional industrial systems where power sits with business and government are missing innovation opportunities by thoughtful entrepreneurs. If individual entrepreneurs were given more incentives to innovate, scaled by business and protected by policy, more natural resource efficiency could be captured from the “bottom up”.

Intervention – Properly Value Natural Resources

Explanation: Governments should tax the use of natural resources appropriately and eliminate subsidies that perpetuate resource waste

Rationale: Lack of proper resource valuation, government subsidies and entrenched special interests motivated by short-term gains have created a system where the true cost of natural resources is not accounted for or paid by industry. Therefore, the true cost of natural resource overconsumption and waste is externalized, felt by people downstream, often with health problems and economic losses. That is, those who pollute do not pay. Internalizing the cost of resource use will incentivize businesses to innovate and become more efficient in the use of resources, wasting and polluting less, thereby reducing most environmental impacts.



Case Study: Fish Banks

Linking Conservation and Economic Development

Shift Thinking from the Present to the Future

Addressing the issue of overexploitation of marine life requires original thinking. Having witnessed the multitude of attempts at conserving natural ecosystems, Enric Sala, Kristin Rechberger and fellow YGLs in the Fish Banks Task Force aim for a new wave of thinking, linking conservation and economic development.

The depletion of marine life is a complex issue. There are numerous stakeholders, often with conflicting views, both protecting and exploiting the marine ecosystem. Further complicating potential intervention, the “exploiters” focus on near-term gain. With that challenge in mind, the Fish Banks initiative endeavours to shift thinking of these parties in a profound manner: away from immediate yet unsustainable gain and toward a long-term – and more sustainable – view.

Focus on Incentives

Encouraging citizens to discount the present with the prospect of gaining in the future requires significant effort. Consider the case of a fishing community that depends upon a steady supply of marine life to make a living, but which is overexploiting a declining resource. Convincing them to protect parts of the ocean so that they can catch more elsewhere involves new thinking.

The solution is to clarify the incentives involved in allowing the ocean to restore itself. In the case of “fish banks”, the abundance and size of marine species increases spectacularly inside no-take areas. Benefits also occur through fish spillover from the fish banks into the adjacent areas, which enhances local fisheries. Further, the increase in marine life inside the fish banks attracts tourism, thus encouraging diversification of the economic landscape as entrepreneurs seek new commercial opportunities.

Thinking of fish banks as business opportunities instead of “sacrifices” is made possible through smart financing, which allow fish banks to pay for themselves and still turn a profit. This convinces fishers to not discount the future, because they will not incur in any short-term losses to gain future benefits.

Map the Relationships

Understanding the complicated nature of the fish banks solution requires identifying the various parties involved and their interactions. Fishers, politicians, tourists, consumers, business operators and conservationists all play roles in the complex web of the fish banks scenario. To make sense of the intricacies, the Fish Banks Task Force took time to – literally – map the various actors and their interactions. While the final array of arrows and nodes could be interpreted as dizzying, it was key for understanding who was involved and why. Mapping the network provided a simplified starting point towards meaningful action.

Ensure the Language is Correct

The work of the Fish Banks Task Force demonstrates that words matter. The significance of the language that was employed – especially the concept of “fish banks” instead of “marine protected areas” – helped broaden the case from one focused strictly on conservation to a viable business model. That language has helped secure the support of local communities and their elected officials, as well as entrepreneurs and business owners. The underlying message and the communication of that careful wording was so resonant that the *Harvard Business Review* featured the fish banks case as one of its 2012 “List of Audacious Ideas for Solving the World’s Problems” – and has made all the difference.





Rule of Law

The trust that allows societies and markets to function, which enables businesses to form and for wealth to be created, springs from the rule of law. Where the rule of law breaks down and rights are abused, war and illegitimate forms of government may take hold.

But, as this group discussed, those who make laws must understand how to make good laws, which need to be supported through appropriate enforcement mechanisms.

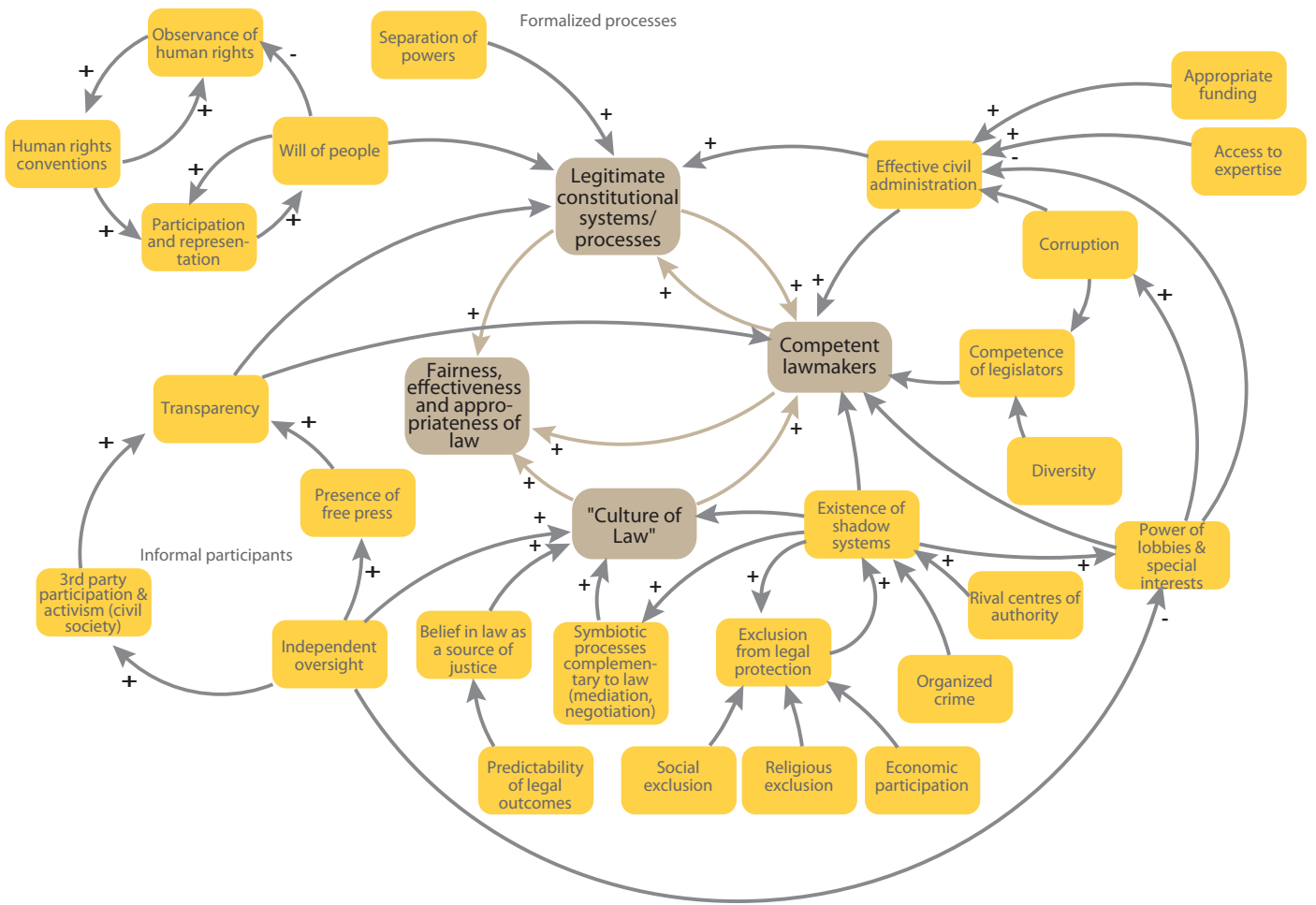
The group identified the principal aim of the rule of law as *ensuring rights, duties, security and equality before the law as a means to enable productive human, social and economic development.*

Issues

The two issues explored by the group were: the lack of fair, equitable laws and ineffective access, administration and enforcement of the law.



Issue 1: Lack of Fair, Equitable Laws

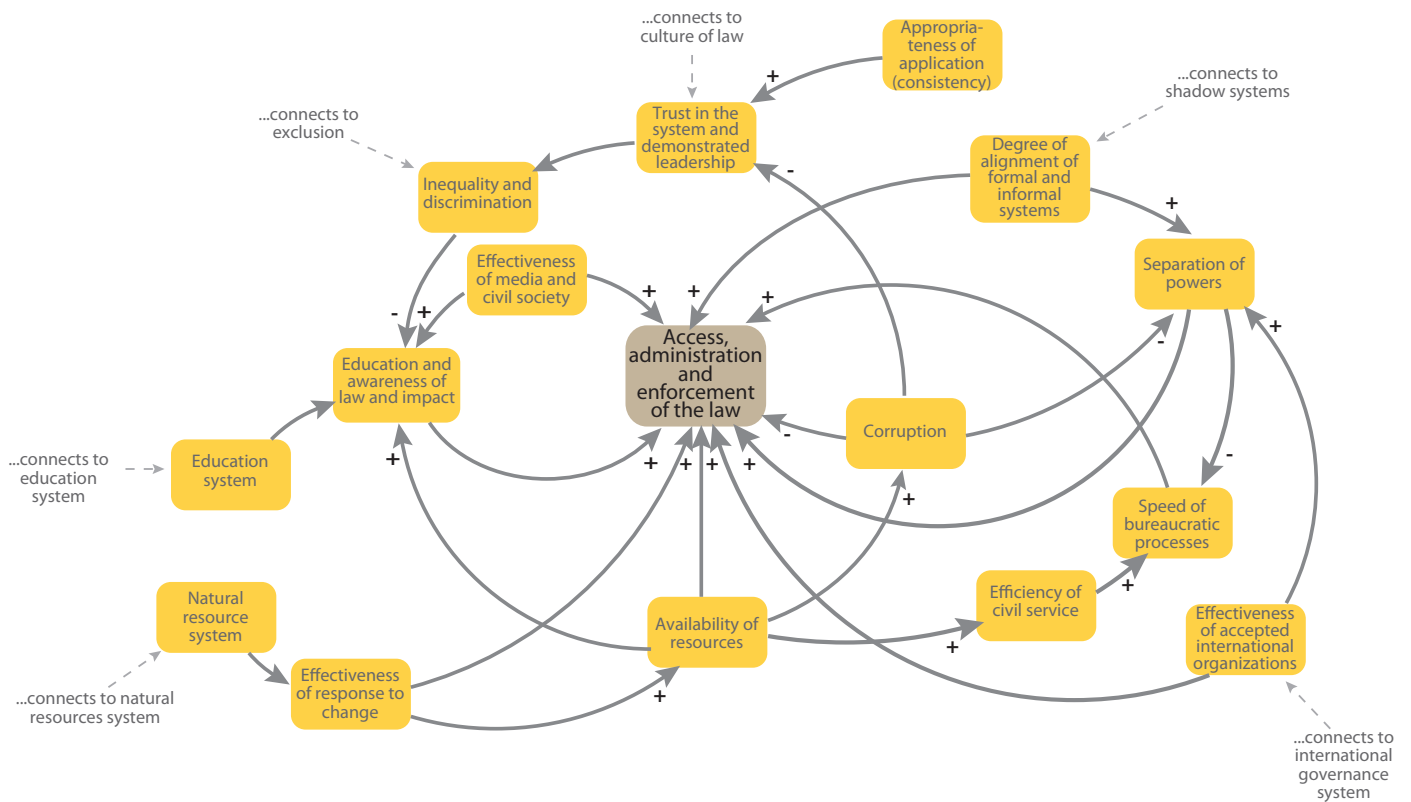


Model Explanation

Too often, laws are written by legislators who are not “up to the task”. Good laws must be supported by a culture of law in which citizens and experts participate in lawmaking. When this is absent, laws that do get enacted are often overly driven by special interests reinforced by short election cycles.

Lawmakers can be influenced to create strong laws and enforcement, but there are agents agitating both positively and negatively to influence them. The media, civil society and the international society attempt independent oversight as well as introduce systems supportive of law, like mediation and negotiation. At the same time, shadow systems, such as organized crime and warlords, circumvent the rule of law and function as rival centres of authority. Laws also lack legitimacy when they exclude key groups such as minorities and other persecuted classes.

Issue 2: Ineffective Access, Administration and Enforcement of the Law



Model Explanation

We have all heard of wildly outdated laws that stay on the books because no process exists to update them and make them fit for today's purpose. It is rare to update laws based on scientific research. Lawmaking is complicated and legalistic, which scares away people who are often not educated on how to make good law. It is even more complicated to create international law. There are no real global citizens to promote international laws and once they are created, they are often enforced at the national level, which leads to a system misalignment.

Interventions

Intervention – Transparent Non-Political Judicial Appointments to Address Corruption from the Top

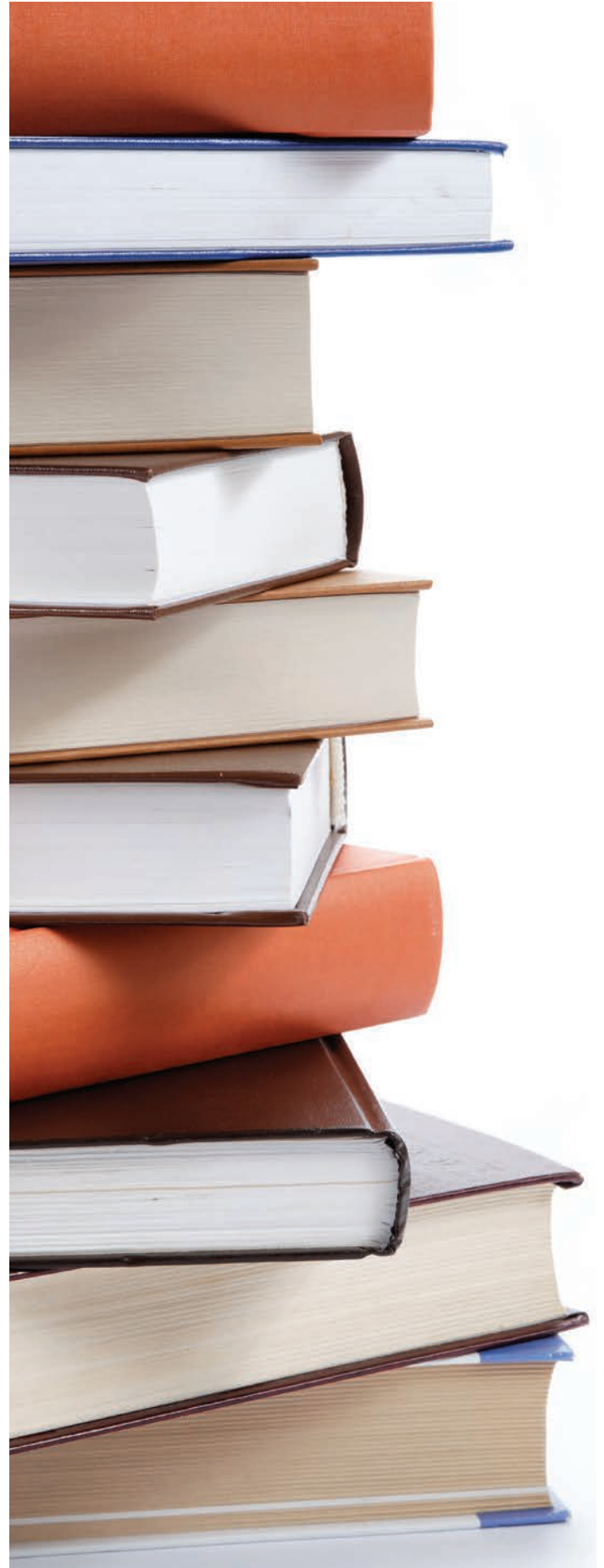
Explanation: One of the key lynchpins for creating a strong rule of law system is having a reliable, apolitical judiciary. In many countries, the appointment of judges is cloaked in secrecy and there is little understanding of the process. By publishing judicial openings, sharing the curriculum vitae of those being interviewed for the positions, and using the “top grading” methodology, the public will have greater faith in the judiciary and it will become harder to stack courts with political appointments.

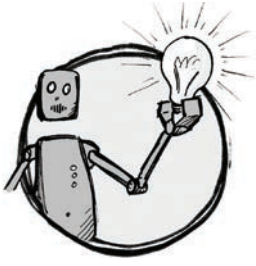
Rationale: Transparency of appointments is the single most effective intervention that can be made to strengthen the role of the judiciary.

Intervention – Use Social Media for Citizen-to-Citizen Reporting of Crime and Corruption

Explanation: In recent years there have been advances in the ability for the public to cheaply, rapidly and anonymously share information on a wide scale using social media. In some places, like India, this has been used to expose the day-to-day examples of petty corruption that plague the poor. An excellent example is www.ipaidabribe.com. A broader application of this principle will generate public pressure by naming and shaming, provide more information to those strengthening the rule of law, and will provide some measure of relief and support to victims.

Rationale: Petty corruption does not thrive when easily exposed.





Technology and Innovation

Whether it is a matter of developing sustainable energy sources, figuring out how to feed the next billion or solving humanity's problems – large and small – technology and innovation lie at the heart of our ability to imagine and create new possible futures. Yet as every CEO knows, innovation is not easily sustained, and in an increasingly competitive global economy, countries and companies alike look to innovation as the source for tomorrow's economic strength.

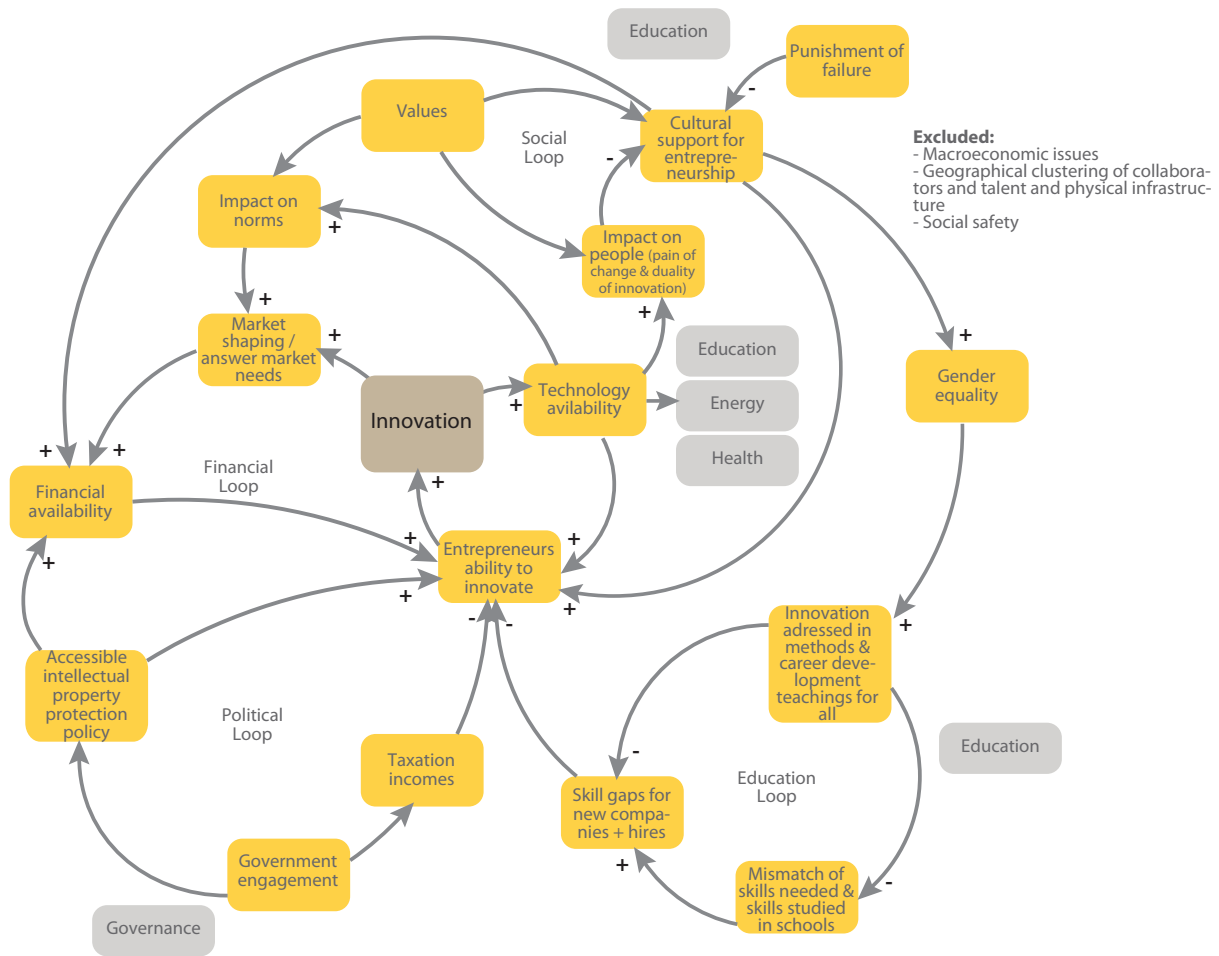
The group saw technology and innovation as a way of meeting the evolving needs and various goals of humanity in a repeatable manner through the use of applied knowledge.

Issue

In this pursuit, the issue they explored was: cultures do not support human capital for innovation.



Issue 1: Cultures Do Not Support Human Capital for Innovation



Model Explanation

Technology often begins as a disrupter, but it quickly becomes part of the status quo. The outcomes of a disruptive technology create fear in some citizens, while energizing others. It is hard to know at the outset who will win and who will lose. Those people who have a higher tolerance for risk tend to be less fearful. The economic flow from technology often goes to those in power. The education system cannot keep up with technological change and tends to reinforce the status quo when what is needed is to drive talent to create radical and disruptive change.

Interventions

Intervention – Bringing Clarity and a Focus on Growth to Intellectual Property Policy

Explanation: Create the base through education and changes in law and open licensing where appropriate to stoke entrepreneurship. We need to invest in the education of lawyers, policy-makers, and the public around the world, particularly in developing economies, on how intellectual property (IP) works, and how it can create value for all stakeholders, both for consumers and producers. In particular, it should focus on the rise of IP created by collaborative efforts, such as open source-licensed software and creative commons licenses. A focus for this investment needs to be at the local level, in particular helping judges and other participants in the legal system raise their level of sophistication with IP policy and law.

Rationale: IP law and policy is complex, and only getting more complicated with the rise of networks, economic/business models based on shared resources, and a growing divergence of national laws and court precedents. As an instrument of change and economic growth, IP is only as effective as its comprehension by the populations it serves, and enforcement by local court systems. More education about IP, particularly around the different ways value is created for different stakeholders, is important, as is harmonization of laws and terminology.

Intervention – Create a Nationwide Business Environment that Supports Entrepreneurship

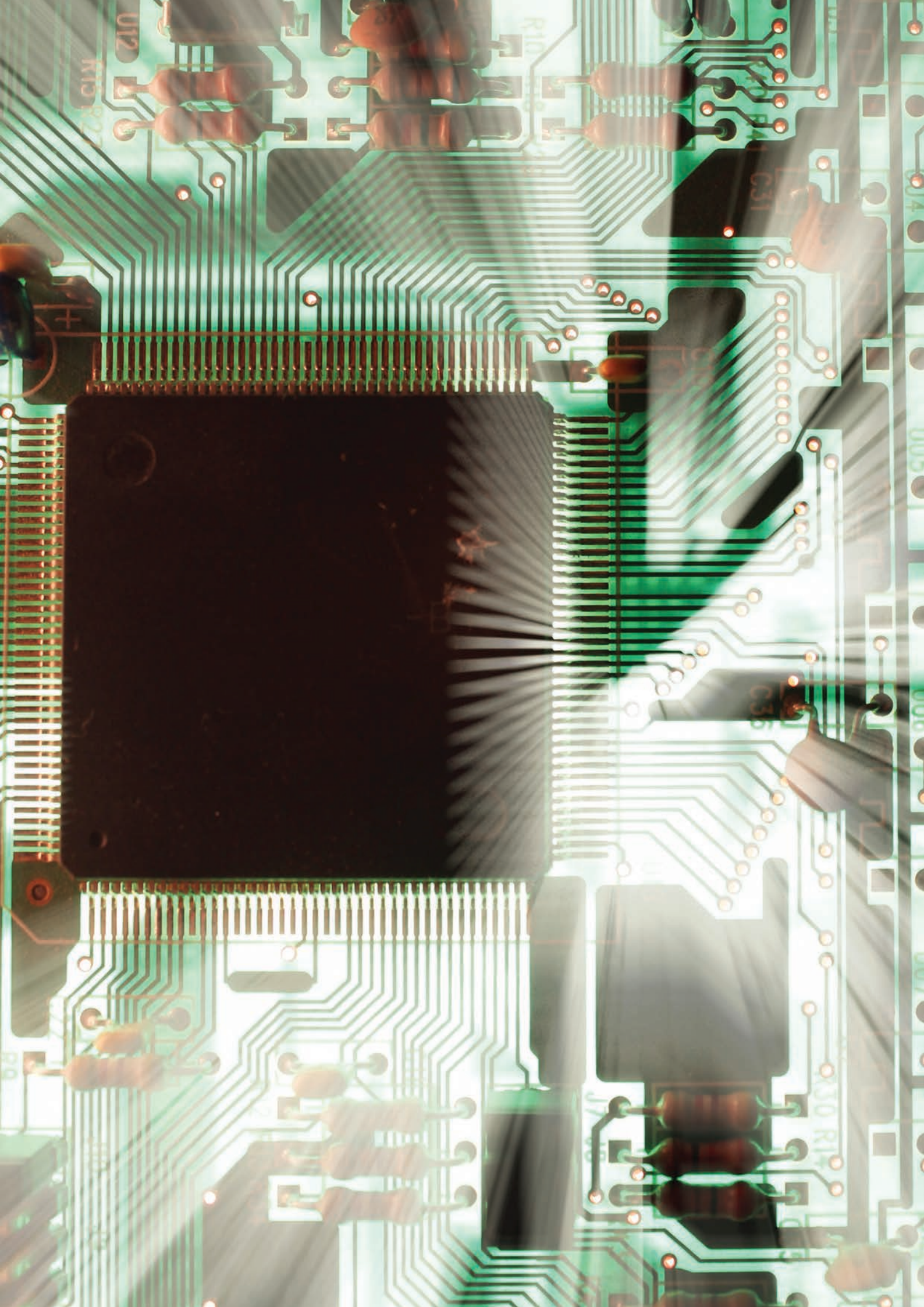
Explanation: Analyse the steps required to go through the stages of launching a company – from vision, to incorporation, seed financing, recruitment and launch, growth, and to an exit – and systematically address the government/policy bottlenecks that keep entrepreneurs from being able to climb from one step to the next. This could include making it easier to start and stop a business venture and hire/fire employees as well as fostering a celebration of “noble business failure” as a valuable learning experience rather than a black mark against future prospects.

Rationale: Economic growth is entirely dependent upon the creation of new, innovative, often disruptive commercial entities. In Silicon Valley and other hotspots of innovation and entrepreneurship, certain cultural factors and the business environment combine to create a great engine for start-ups and growth. The business factors include the ease of starting and shutting down business operations, and easy access to capital through in-person networks. The cultural factors include a high tolerance for failure (an entrepreneur who has tried and failed admirably is considered more experienced and trustworthy than an untested entrepreneur); a vibrant interaction between top-tier colleges and industry; and a priority placed on novelty – “think different”. These are some ways in which entrepreneurs in the tech industry climb from step to step. An effective national policy for fostering innovation would look at whether these, or other factors, could help entrepreneurs create sustainable economic growth.

Intervention – Creating an Education Innovation Ecosystem

Explanation: Creating a “Wikipedia” and/or an open-source educational model database to crowd-source curricula, so that teachers can freely access a verity of curricula for teaching. Introduce gamification, or gaming in education, to increase the “funness” of education in order to engage a wider audience of youths in education. Also celebrate role models of innovation and technology to children, just as there are actors and athletes who inspire children into acting and sports, so that the youth get excited about the technology and innovation domain.

Rationale: Currently, a vast majority of curriculum used in the formal educational system are “patented” or controlled, limiting the opportunity for teachers to employ innovative and effective teaching methods. There is also a growing concern that the traditional testing/exams methods to quantify and assess learning do not necessarily capture the innovative capacity of children. This is because it merely focuses on memorization and replication of the stored knowledge. There is also a necessity for adopting innovative teaching methodologies (such as the use of gaming) as well as highlighting role models (an example would be to use comic book characters) in the educational scene, to create a self-reinforcing innovation ecosystem



Case Study: Human Trafficking and Technology

Making Sense of Complexity through a Structured Framework

YGL danah boyd and a team of researchers approached the ambiguity – and enormity – of the challenge of commercial sexual exploitation of children (CSEC) in the United States through a structured approach. To better understand the underlying facets of this form of human trafficking in the United States and move towards concerted action, 15 key elements of the challenge were identified and are outlined below.

A core lesson gleaned from the human trafficking study experience is that a complex system requires elemental, stepped parsing to inspire activity. To think big, one must also think small.



Key Facets of Human Trafficking (CSEC)

There are 15 notable facets of the human trafficking ecosystem that have been reshaped as a result of technology. Many of them are intertwined, but not all of the facets that we outline here are relevant to all trafficking cases. There are inevitably parts of the ecosystem that we have not included.

1. Prevention and Education
2. Recruitment and Abduction of Victims
3. Transit, Housing and Everyday Control of Victims by “Pimps”
4. Retention of Victims by “Pimps”
5. Advertising and Selling of Victims
6. Searching for and Purchasing Victims by “Johns”
7. Money Exchange, Money Laundering
8. Underground Partnerships and Organized Crime Syndicates
9. Identification and Reporting of Victims and Perpetrators
10. Investigation of Illegal Activities
11. Rehabilitation and Recovery for Survivors
12. Prosecution of Perpetrators
13. Rehabilitation for and Control of Perpetrators
14. Political and Policy Activities
15. Anti-Trafficking Partnerships

For a complete description of the various elements of the human trafficking ecosystem, as well as the underlying issues regarding the role of technology, please see Appendix A.

Appendix A

The following material represents an excerpt from a framework document created by the team at Microsoft Research. A more complete version of the report can be found via: <http://research.microsoft.com/en-us/collaboration/focus/education/hframework-2011.pdf>

Human Trafficking and Technology: A framework for understanding the role of technology in the commercial sexual exploitation of children in the US

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Introduction

Networked technologies – including the Internet, mobile phones and social media – alter how information flows and how people communicate. There is little doubt that technology is increasingly playing a role in the practices and processes surrounding human trafficking: the illegal trade of people for commercial sexual exploitation, forced labour and other forms of modern-day slavery.

Human trafficking has many facets to it and technology's role varies as a result. Yet, little is known about costs and benefits of technology's role. We do not know if there are more human trafficking victims as a result of technology, nor do we know if law enforcement can identify perpetrators better as a result of the traces that they leave. One thing that we do know is that technology makes many aspects of human trafficking more visible and more traceable, for better and for worse. Focusing on whether technology is good or bad misses the point; it is here to stay, and it is imperative that we understand the role that it is playing. More importantly, we need to develop innovative ways of using technology to address the horrors of human trafficking.

To date, there is little empirical research into the role that technology plays in human trafficking. As a result, new interventions and policies are being driven by intuition, speculation and extrapolation from highly publicized incidents. To move towards a more coherent and grounded approach to addressing the role of technology, it is important to begin untangling technology's role in different facets of the human trafficking ecosystem.

To narrow the scope of the discussion, this framework document focuses on one aspect of human trafficking: the commercial sexual

exploitation of those under the age of 18 that results from US-based demand. We acknowledge that human trafficking is a global problem, that victims are of all ages, and that sexual victimization is part of a broader ecosystem of victimization, including issues of migration, labour trafficking and organized crime. However, we have chosen to narrow the scope of this endeavour for pragmatic purposes. That said, we do not mean to suggest that our efforts to narrow the scope provide clear boundaries or categories. More often than not, it is impossible to separate sex trafficking from labour trafficking and the organized crime networks that are visible in the United States often extend beyond US borders. Furthermore, not all children experience commercial sexual exploitation in the same manner. There are serious differences between foreign-born eight-year-olds who have been abducted and are sold in the United States by “pimps” and 16-year-olds who advertise their own sexual services and claim the identity of prostitute. Thus, it is important to recognize that the commercial sexual exploitation of children as a result of US-based demand is by no means a homogenous dynamic.

Addressing the domain of sex work is complicated, in part because of disagreements about what is meant by consent. One way of understanding different dynamics underlying sex work is by segmenting sex work into three categories: choice, circumstance and coercion. Reasonable people disagree about whether or not vulnerable or marginalized populations – including women – can truly choose to participate in sex work. We are not going to resolve those debates. That said, when talking about children, we are intentionally signalling that even children who perceive themselves to be entering into sex work out of their own volition are being commercially sexually exploited. Still, it is important to recognize that the kinds of interventions needed to help those who are coerced are quite different than what is needed to support those who engage in sex work as a result of circumstance or choice.

For want of better words, we are using the language of “pimps” and “johns” to identify different categories of perpetrators because these terms are used by victims and survivors. “Pimps” refer to individuals who profit by sexually exploiting others. Some pimps offer protection, while others physically control their victims. Pimps often help find “johns.” “Johns” refers to those who pay to sexually exploit victims. Both pimps and johns are also classified as perpetrators.

Although most perpetrators are presumed to be men and most victims are presumed to be girls, the gendered nature of human trafficking is messy. Many boys are victimized and some cases suggest that women are sometimes pimps (or, more commonly, are referred to as “madams”) and johns. More research is needed to understand the gendered dynamics of the human trafficking ecosystem.

The framework that we are offering in this document is intended to elucidate different facets of the human trafficking ecosystem in order to provide some sense for what we currently know about technology's role in each. For each of the key facets that we have listed, it is imperative to question how technology reconfigures what is known and what is unknown. Fears and anxieties emerge out of concern that things will get worse as a result of technology. Yet, new opportunities also present themselves. Before we wholeheartedly dismiss—or embrace—technology, it's important to understand how the challenges and opportunities are entangled.

This is a draft framework; feedback is welcome and encouraged.

Key Facets of Human Trafficking

There are 15 notable facets of the human trafficking ecosystem that have been reshaped as a result of technology. Many of them are intertwined, but not all of the facets that we outline here are relevant to all trafficking cases. There are inevitably parts of the ecosystem that we have not included.

1. Prevention and Education
2. Recruitment and Abduction of Victims
3. Transit, Housing, and Everyday Control of Victims by Pimps
4. Retention of Victims by Pimps
5. Advertising and Selling of Victims
6. Searching for and Purchasing Victims by Johns
7. Money Exchange, Money Laundering
8. Underground Partnerships and Organized Crime Syndicates
9. Identification and Reporting of Victims and Perpetrators
10. Investigation of Illegal Activities
11. Rehabilitation and Recovery for Survivors
12. Prosecution of Perpetrators
13. Rehabilitation for and Control of Perpetrators
14. Political and Policy Activities
15. Anti-Trafficking Partnerships

What follows are brief descriptions of each aspect of the human trafficking ecosystem, along with a set of potential issues to address regarding the role of technology. Neither the description nor the issues are detailed or exhaustive. They are intended to provide a high-level overview and open up possibilities for further investigation.

Prevention and Education

Current prevention work and education initiatives leverage broadcast media, both to communicate with potential victims and to help educate the public about issues related to human trafficking, for example the use of public safety announcements (PSAs) on television and online, smartphone applications, and interactive tools such as the International Centre for Missing & Exploited Children's Guide to Online Safety. In-school education initiatives are especially challenging. Social media introduces new opportunities to reach out to potential victims, potential "pimps" and "johns," and the public writ large, for example reaching youth at risk before "pimps" can reach them. Even traditional PSAs can take on new life when they are spread through social network sites.

Technology does not hinder prevention or education initiatives, but innovative prevention and education organizations can leverage technology to reach new audiences.

Recruiting and Abduction of Victims

Many child victims enter into human trafficking through abduction, social coercion, blackmail or similar threats. Vulnerable populations are often targeted. The recruitment process may take years of grooming. Evidence suggests that social media is sometimes used by perpetrators to identify potential victims. Communications platforms can be used for grooming, coercion or other forms of deceit, for example a "modelling agency" that recruits as a front for a perpetrator. Online content may be used for blackmail. Victims can be threatened with online exposure if they do not comply.

Technology adds new dimensions and points of contact to the recruiting process, especially when vulnerable populations can be more easily identified and targeted. This also introduces new questions for intervention. If perpetrators can identify vulnerable populations, can anti-trafficking agencies also identify those in need? How visible is the recruitment process? Are there ways to identify when children and teenagers are being groomed?

Transit, Housing, and Everyday Control of Victims by Pimps

The transit, housing, and everyday control of victims often involve significant amounts of coordination between different perpetrators. When new identities are constructed or when victims are drugged, this often involves coordination between other criminal factions. Little is known about how these perpetrators share information or coordinate among themselves, but it is likely that some of their activities leave digital traces. Patterns in credit card transactions, mobile phone calls, GPS patterns, plane tickets, apartment rentals, and other activities may create new opportunities. Yet, it is also important to acknowledge that criminals work diligently to make these activities untraceable.

Technology is more of a burden for perpetrators in this process precisely because so much effort is put into leaving no traces. New data mining opportunities are presented, but these introduce serious economic and privacy-related concerns.

Retention of Victims by Pimps

Trafficking victims are retained through ongoing fear, shaming, intimidation, physical abuse and blackmail. The constant movement of victims also makes them easier to retain as they are constantly in new and unfamiliar surroundings. The removal of passports keeps victims compliant for fear of prosecution and also removes any proof the victim has of her/his true identity. Technological blackmail – such as the threat of releasing nude videos or photos to loved ones or the threat of using such photos to expose the individual if the act is illegal – serves as a critical mechanism of control. Victims are also often forbidden from using the Internet or mobile phones. In some cases, pimps allow access, but only under strict supervision.

Technology restrictions are often a mechanism of control by limiting victims' access to information and communication with outsiders. This creates complications during recovery because access restrictions are cognitively connected to pimps' efforts to control victims.

Advertising and Selling of Victims

Technology is often used to advertise and coordinate the sale of victims. Pimps often coordinate the sale of victims, but it is also important to recognize that victims can and do market themselves to potential buyers (sometimes under the control of pimps). All major online services – as well as more niche services and underground services (e.g. the "dark net") – are employed in this process. Sometimes, the selling of trafficking victims is mixed with other forms of sex work advertisements such as escort services. Yet, much of what takes place online is highly encoded, like the sale of an expensive teddy bear. Advertisements use code words, which johns often learn from online forums for "hobbyists", for example, 200 roses as a code for price, "new in town" as a code for someone who is underage. Likewise, cell phones are employed to coordinate sales.

Technology notoriously shifts the advertising/selling process from the street corner to the digital domain, altering the risks involved in this process. The physical and legal risks that victims face online differ. New issues like child pornography and interstate commerce emerge. Yet, there are also many more traces of perpetrators and victims when their interactions happen through mediating technologies. Traces of such practices can create new risks for

both perpetrators and victims, particularly because these traces are often not ephemeral. There is also less risk for those who want to identify victims than there is when physicality is involved, but it is also harder to go from identification to intervention. There is more data generated which can be used later by law enforcement.

(Note: when it comes to the role of technology, this is probably the most complicated process and the one that is most fraught.)

Searching for and Purchasing Victims by Johns

Just as technology is a site for advertising victimization, it is also where johns look to find victims. They can browse victims online without their victims knowing that they are being browsed. By purchasing online, johns often remain invisible to law enforcement agencies, which have not yet developed sophisticated digital Knowing where to look online is both simpler and harder than learning where to find victims on the streets. There are also parallels. Finding a victim online requires a form of social capital: knowing where to go and what to ask. The sales process can also differ when johns pay upfront.

Technology notoriously shifts the searching and purchasing processes from the street corner to the digital domain, altering the risks involved in this process. While johns are more visible to their victims in physical environments, they leave more traces when the process goes digital. There are also new legal risks, including the risks associated with child pornography and interstate commerce. There is less risk for those who want to identify johns, but it is also harder to go from identification to legal action.

Money Exchange, Money Laundering

Human trafficking is a profitable enterprise, often intertwined with other organized crime businesses, including drug trafficking and money laundering. Cash transactions are much harder to trace than transactions that occur through digital means. Credit card transactions from “late night nail salons” connect disparate transactions and form patterns. When exchanges take place online, they sometimes involve digital monetary services, like PayPal. The exchange of non-monetary digital items of value (e.g. status points in video games) can also occur. Additionally, alternative payment markets (e.g. Bitcoin) can be used for payments.

It may be easier to exchange money as a result of technology, but the opportunities to trace digital exchanges of money or identify transaction patterns are also extremely great. Banks like J.P. Morgan have begun to find ways of tracing human trafficking money.

Underground Partnerships and Organized Crime Syndicates

Criminal syndicates often involve large networks of people who communicate both in-person and online. A host of different illegal practices, including bribery and violence, are used to keep illicit activities hidden. Both pimps and johns learn about techniques through the Internet and use the Internet to communicate with one another to learn techniques for the illicit trade. Johns also communicate to one another through online forums, using encoded messages to rate the services they receive from victims and to help each other engage in these illegal activities. Johns and pimps can repurpose technology in unexpected ways, such as using gaming technologies like Xbox Live, Sony Online Entertainment, or World of Warcraft to communicate “in game”, or by leveraging Skype and other video services to make brief video connections and coordinate online, which is more difficult to trace than mobile phone use. Video services can also be used to broadcast illicit acts, which viewers pay to watch. Single accounts can be used by multiple people, which make identification more difficult.

Technology provides a new mode through which underground partnerships can be formed and organized crimes can be coordinated. Yet, these interactions leave traces, which can also be identified. Data mining innovation introduces new opportunities. Balancing privacy and criminal tracking remains an issue.

Identification and Reporting of Victims and Perpetrators

To intervene, it is often necessary to identify victims and perpetrators. This is typically done by –or by involving – law enforcement, but various non-profits and average citizens can also be involved, for example through tip lines and hotlines. Visibility is key to identifying victims and perpetrators. It is important to recognize that many who see these illegal and horrible actions taking place often fail to report them, either out of fear of reprisal or a belief that reporting will do no good. Technology companies have a unique role to play in this domain because they often have data that can help identify those who are being victimized.

Technology changes what is visible and what is not, altering the identification process. There are new opportunities for thinking about anonymous reporting and getting the public involved in the identification processes, particularly given that they do not have to be in physical harm. Given the issue of digital traces, there are also opportunities to engage new partners, including technology companies and financial institutions, to coordinate with law enforcement. Digital forensics and electronic evidence provide new opportunities, but also new challenges. Finally, there are countless opportunities for computer scientists interested in developing innovative identification procedures on the large data available.

Investigation of Illegal Activities

Although changes are underway, many states have laws that outlaw prostitution, prompting law enforcement to arrest human trafficking victims. Johns and pimps have historically been less visible to law enforcement because of the dynamics on the street where victims are often found. Technology changes this, both because perpetrators leave traces and because it is possible to set up digital honey traps where perpetrators reveal themselves to law enforcement officers. Technology allows law enforcement officers to more rapidly collect data, but it also increases the amount of data that they must manage.

The wide availability of digital data is both a blessing and a curse. It can help law enforcement investigate criminal activities, but there is often too much for law enforcement to manage. This creates new opportunities for thinking about how to manage data traces at scale. Legal issues surrounding the collection of data – especially with respect to honey traps – also raise serious concerns.

Rehabilitation and Recovery for Survivors

Rehabilitation programmes for survivors often ban communication between those who were victimized and their perpetrators, particularly given that victims often hold allegiance to their pimps. “Running away” is a huge concern. Heavily monitoring and controlling survivors’ freedoms, access to information and communication are common parts of the early recovery process. Thus, technology is often barred during this period. When repatriation is involved, there are often unique challenges. As survivors recover, they may shift to focus on school, work, and other everyday activities, which often require the use of technology.

Technology connects people to information and other people. When there is a need to break connections, technology can get in the way. Yet, technology can also be used to forge new connections and introduce new information. Banning technology may make initial sense, but because technology use is important to school and workplace advancement, it’s crucial to help survivors find ways to

use technology to their advantage, while not putting themselves at further risk.

Prosecution of Perpetrators

The prosecution process often relies heavily on testimonies of victims. Given the increase of data traces, technology introduces new types of evidence for the prosecution process. Yet, judges are often ill equipped to analyse electronic documentation of abuse. There are also serious questions about the validity of such evidentiary material.

Technology introduces new forms of evidence, but judges often know little about how to use this data. There are new opportunities to explore how technology can be used as a part of the prosecution process, particularly.

Rehabilitation for and Control of Perpetrators

Rehabilitating perpetrators is fraught and it is unclear whether or not such initiatives work. “John Schools” are sometimes used to keep first time offenders from repeat offenses. The schools raise awareness about trafficking and forced prostitution. In rare cases, johns also enter voluntary treatment at rehabilitation centres. Some states use online sex offender registries, which can be as detailed as providing a photo of the individual and even the location of her/his home. Many online services ban registered sex offenders from participating on their site. Public announcements through technology are sometimes used as a form of public shaming and a way to inform communities that a sex offender is living in their neighbourhood. One common form of punishment is also to restrict access to technology. Jails often ban – or heavily curtail – the use of technology. Technologies like GPS bracelets are often used to track the movements of perpetrators.

Technology can be used as a source of information for perpetrators and also as a tool for public shaming. It can allow perpetrators to maintain communication lines with their victims, putting them in violation of their rehabilitation process without necessarily making their violations visible. It can also be used as a mechanism of surveillance that allows the State to regulate the movements of a convicted perpetrator.

Political and Policy Activities

Political organizations and policy-makers are paying special attention to how technology is being used in human trafficking. Technology also complicates various political issues, most notably by complicating jurisdiction. Concerns about privacy, anonymity and third party liability also emerge. Given that technology is often “new” and because it often makes practices more visible, technology often plays a central role of regulatory interventions, even when it does not make sense.

Most policy initiatives focus on how technology is used in victimization, rather than how technology can or should be used in identification, intervention, and prosecution. There is little assessment about the effectiveness of policies that focus on technology. In short: do they address the problem or do they simply make it less visible?

Anti-Trafficking Partnerships

Many anti-trafficking organizations express a desire to share information with one another, with survivors, and to allow survivors to connect with each other. Information sharing among anti-trafficking actors could lead to better rehabilitation and preventative practices as information is shared quickly online. Anti-trafficking organizations sometimes work collaboratively and have expressed a desire to be able to more easily communicate with possible collaborators,

although not all organizations are happy to cooperate with all other organizations. In particular, collaborations between law enforcement agencies and non-profits are often fraught. Anti-trafficking sites are often active in social media and blogging in order to gain support and spread information.

Technology provides new opportunities for partners to communicate and coordinate. There are unique opportunities to build tools that engender new partnerships. While there are plenty of technological opportunities here, they are often stymied by political disagreements between various anti-trafficking groups.

Conclusion

This framework is by no means complete. Its purpose is primarily to begin to untangle some of the different facets of the human trafficking ecosystem in which technology can or does play a role. Much more work is needed to better understand the different facets introduced here, how technology is or can be employed, and where opportunities and pitfalls exist. We hope that in collaboration with scholars and the anti-trafficking community we can collectively work to better understand the dynamics presented here so as to help those who are exploited and victimized.

We welcome your feedback on this framework. If you are researching the intersection of technology and human trafficking, please reach out to us. You can contact us at httech@microsoft.com

This framework document was created as a background document for a Request for Research Proposals. To learn more, visit: <http://research.microsoft.com/en-us/collaboration/focus/education/human-trafficking-rfp.aspx>

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