Beyond Tech Solutionism:

The Challenges of Unlocking Underserved Community Knowledge for Scale Social Impact

Kate Fleming, IDEMS

Photo credit: *Lucie Hazelgrove Planel, IDEMS Farmer Research Methods, AE Hub, Kenya*

1 Digital Agency Owner;
Launched & Scaled VC-Funded Tech

2 Helped Build a Pro Bono Legal
Anti-Human Trafficking Resource & Community

3 Founded horizontl (and Community
Nonprofit horizontl Collaborative)

4 Joined IDEMS

(FOSTA is the only exception to Section 230 of the U.S. Communications Decency Act, foundational internet legislation that exempts platforms from legal liability for user content.)

2018

FOSTA/SESTA

(aka "Allow States and Victims to Fight Online Sex Trafficking Act")

FOSTA/SESTA makes internet technology companies criminally liable for any user content that promotes or facilitates sex trafficking.

2018 - PRESENT

TECHNOLOGY THE HILL

Sex workers warn of unintended consequences in Section 230 fight

PayPal and Venmo are Shutting Out Sex Workers, Putting Lives and Livelihoods at Risk

ACLU

The Intercept_

Law Claiming to Fight Sex Trafficking Is Doing the Opposite — By Cracking Down on Sex Work

Sex workers say Wix is shutting down their websites

daily dot

COLUMBIA HUMAN RIGHTS LAW REVIEW

“FOSTA…has had a chilling effect on free speech, has created dangerous working conditions for sex workers, and has made it more difficult for police to find trafficked individuals.”

What's the real relationship between consensual sex work, sex trafficking and tech?

There are an estimated
40 million full-service sex workers globally,
with **70,000 – 100,000 workers** in the UK.

Estimates suggest that **90 - 95% are consensual adults**.

They are most often **poor** and from one or more marginalized groups (**migrant/refugee, LGBTQI+, disabled, single mothers**).

In the UK, full-service sex workers are **88% women**, with 74% citing the "need to pay household expenses and support their children."

The exchange of sexual services for money is **legal** for sex workers and clients in the UK.

11% of British men ages 16-74 (**2.3 million men**) have self-reported paying for sex in their lifetimes.

The majority of clients are **non-abusive good actors.**

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Sex work contributes from **£5 to £8 billion to the UK economy annually**, largely outside systems of financial participation.

But everyone seeks underground anonymity to protect themselves from:

- ✕ Shame, stigma & exclusion
- ✕ Unwanted intervention
- ✕ Punishment & criminalization

Employment-related deaths estimated at 204 per 100,000

Outdoor homicide rate 13x higher than general population

A majority of providers (50-75%) have experienced workplace sexual violence

Labor exploitation is the norm (extortionate fees, wage extraction, control, workplace abuse & harassment)

Trafficking and debt bondage are the most extreme forms of exploitation

An Accidental Intervention

Tech & the internet made sex work safer and less exploitative.

Under the cover of **default anonymity**:

- **Workers and clients connected** without fear of punishment or stigma
- **Workers gained independence** with tools for business and organizing
- **Work moved indoors** and away from the dangers of street work

"We estimate that the introduction of Craigslist's erotic services [2002-2010] led to a **17.4% reduction in the rate of [all] female homicide** [in the U.S.].

– "Craigslist's Effect on Violence Against Women", Scott Cunningham, et al. (2017)

But they weren't an intervention by design.

Under the cover of **default anonymity**:

- ✕ **Traffickers advertise** victims and stay ahead of police
- ✕ **Abusive and violent clients** offend with impunity
- ✕ **Plausible deniability** for platforms to profit

The Backlash

Legitimate Anti-Trafficking Concerns + **Moral Panic/ Anti-Sex Work Activists**

⬇

FOSTA/SESTA

(and similar regulation)

Legitimate Anti-Trafficking Concerns + **Moral Panic/ Anti-Sex Work Activists**

⬇

FOSTA/SESTA

(and similar regulation)

But tech isn't built to distinguish consent from exploitation.

It does know all about sex workers' behaviors and how to weaponize their data...

Mass data collection
for user profiling

Black-box algorithms
control access and experience

Authoritarian governance
unanswerable to users

...to force workers offline –and back into an exploitative underground economy.

Sex workers are:

(Sex workers are the canaries in the tech coalmine, revealing how big tech's unchecked collection and use of behavioral data, in conjunction with politically motivated policy, can be used to unaccountably control, censor and silence communities, individuals and ideas.)

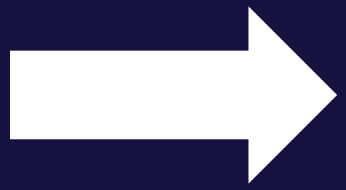
- ✕ Blocked and banned from essential platforms & services
- ✕ Associated with sex work in real ID-based data profiles
- ✕ Forced into new & pre-internet dependencies
- ✕ Excluded from digital (and financial) participation

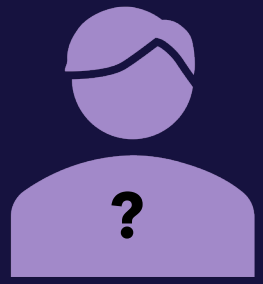
Yet the identification of traffickers and victims remains stubbornly low.

The Problem

Thanks to the anonymity needed for participation, sex work has an accountability problem:

SEX WORKER



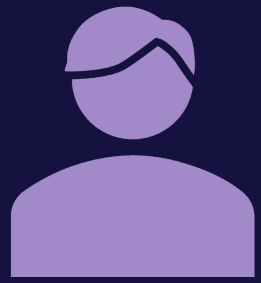


CLIENT

Is this client a good actor?
Or someone who's violent or abusive?

I can't reliably know.
(And I can't easily hold a bad client accountable.)

SEX WORKER



CLIENT

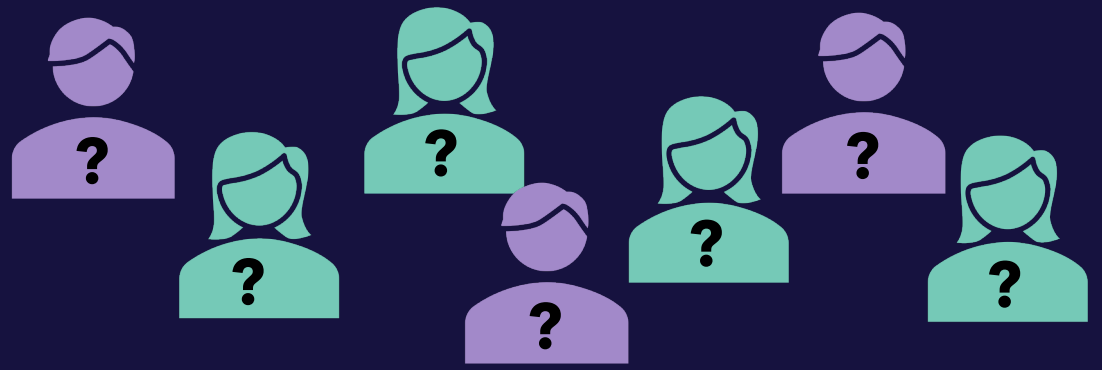
Is this worker a consenting adult?
Or someone who's trafficked or coerced?

I can't reliably know.
(And I don't have an easy way to share concerns.)

POLICE, TECH, NGOS

Is this a consensual worker who needs reliable access to services, resources and protections?
Is this a coerced victim who needs to be rescued?
Is this a violent or criminal client?

We don't know.



3 GOOD HEALTH AND WELL-BEING
5 GENDER EQUALITY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
17 PARTNERSHIPS FOR THE GOALS

horizontl

horizontl is an evidence-based intervention.

What's not working:
Unchecked Anonymity – Unaccountable Tech – Surveillance

What's needed:

Privacy

Identity & sex work-related data inaccessible to surveillance or exploitation

Access

Reliable access to community-serving, community-accountable digital solutions

Protections

Enforced standards for participation to protect against violence, abuse and exploitation

horizontl is a privacy-protecting
contracts & compliance platform

for **authorized sex workers and clients** (based on verification of gov't-issued ID & a consent/non-abusive check)

who meet–and maintain
–**community standards**

for **consensual, non-abusive participation** in full-service sex work.

The platform enables trusted, accountable private exchanges between sex workers and clients.

1

AUTHORIZED CONNECTION

P2P connection between credentialed users in a permission-only ecosystem

2

ENFORCEABLE CONTRACTS

P2P contract negotiation under universal standards and individual booking terms

3

DEPOSITS & PAYMENTS

(Future) Cryptographically protected P2P payments with real-time auditing

4

COMPLIANCE HISTORIES

Visible (on a need-to-know basis) in-horizontl contract compliance-based reputation

horizontl's foundations:
Private, protected real ID-based credentials.

- ✓ **Verified real ID**
- ✓ **Consensual**
- ✓ **No history of abuse**

horizontl-Authorized ID & Account

Users locally host their horizontl ID and personal data and permission access

Encrypted personal data exchange (P2P & with horizontl) with user permission only

Only encrypted, algorithmically hashed essential ID & contract data shared with horizontl

Nonessential data never collected or discarded upon confirmation of compliance

The horizontl user journey.

1 Discovery (Anywhere)

Worker shares @worker horizontl handle. Prospective client (@client) requests permission to connect on horizontl.

2 Vetting

@worker and @client verify each other's authorization & standing without exchanging personal data; @worker permissions client to proceed to P2P negotiation & contract.

3 Terms & Contract

@worker and @client negotiate contract under universal standards & individual terms in P2P privacy. Both confirm contract terms. Contract data shared with horizontl.

4 IRL Meeting (Anywhere)

Worker and client meet in person to fulfill contract terms.

4 Compliance & Reputation

@worker and @client close booking & confirm (or contest) contract compliance. With compliance, users maintain horizontl authorization and develop relevant in-horizontl reputation. Criminal, abusive, or violent users are deauthorized.

horizontl Collaborative

COMMMUNITY
NON-PROFIT

horizontl

STEWARD-OWNED,
MISSION-LOCKED FOR-PROFIT
TECH COMPANY

COMMUNITY
EDUCATION, ADAPTATION
& GOVERNANCE

TECH PRODUCT,
RESEARCH &
DEVELOPMENT

horizontl

COMMUNITY CO-DESIGNED &
GOVERNED LOCAL PRODUCT

- Head of Community
- Head of Privacy
- Sex worker organizations (EU, UK, Asia)
- Sex workers
- Pro bono legal team
- Anti-trafficking organizations
- Former Modern Slavery unit lead detective
- Public health researchers
- Social science researchers
- Labor/employment researchers
- Policymakers

horizontl needs to work variably & interoperably in global complexity to unlock community knowledge at scale for impact.

Variable at the community level (in compliance with baseline global standards):

- laws, policies
- cultural practices
- trusted organizations & relationships
- knowledge & responsibility holders
- local infrastructure
- device access
- digital literacy and practices
- data ownership & governance
- compliance & reputation standards
- complementary offline structures

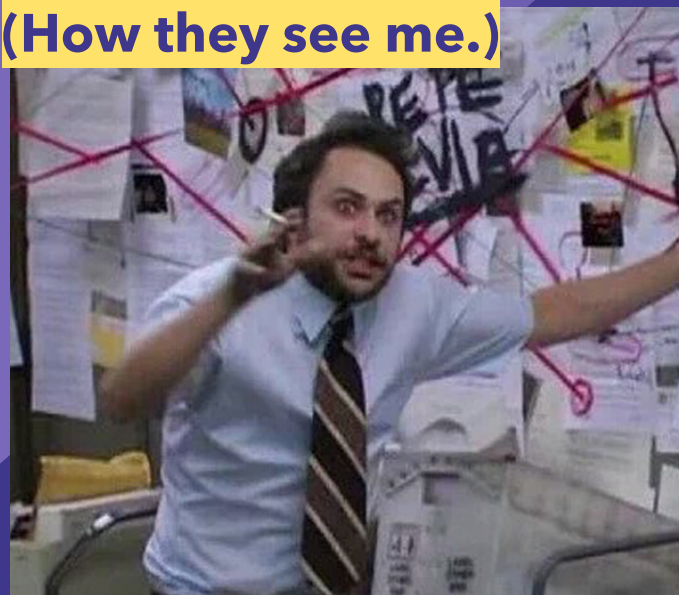
Community shifts from **consumers/beneficiaries** to **citizens/stakeholders**

It’s all at odds with normalized tech solutionism.

Existing funding, innovation models—and tech talent—focus on narrow problems, target high-value users, design & optimize for shareholder/ donor (not systemic) goals

Prototype
Fundraising
Build MVP
“Community” = Users
Productize
Optimize
Replicate at Scale

(How they see me.)



Sarah Meiklejohn
UCL, Google
Cryptography
& Security

Gabe Kaptchuk
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David Stern
IDEMS

Underserved communities globally are on the frontlines of experiencing the harmful consequences of un/under-addressed “grand challenge” problems.

Complex systemic problems that are impervious to simple, one-size-fits-all solutions

(e.g., PUBLIC HEALTH
FOOD SECURITY
CHILD ABUSE
ECONOMIC INEQUALITY
GENDER VIOLENCE
EDUCATION
CLIMATE CHANGE
DEMOCRACY
REFUGEE MIGRATION
BIODIVERSITY LOSS)

These same communities play an essential role in the success of expert-developed grand-challenge impact interventions at the local level.

Evidence-based systemic intervention programs developed by global research experts

\+ **Community adaptation** and customisation based on lived realities, local knowledge and best practices

\+ **Community trusted relationships** and networks to support program adoption and retention

\+ **Community sensemaking** of quantitative and qualitative data for iterative improvement and innovation

= **Expert-community "collective intelligence" iteration & innovation** for measurable, sustainable local impact.

Digital technology has the potential to cost-effectively unlock collective intelligence innovation at scale for unprecedented systemic impact.

There’s just one (very big) problem…

Addressing systemic challenges in and across low-resource communities at scale requires collaboration, adaptation and innovation in complexity.

SOCIAL COMPLEXITY

DIGITAL COMPLEXITY

ECONOMIC COMPLEXITY

EXPERTISE COMPLEXITY

But mainstream software solutions and products aren’t designed for complexity.

For-profit tech simplifies and homogenizes problems, markets and users—and focuses on serving valuable high-resource contexts.

Companies achieve scale through optimized replication, with product and business models designed for market control and customer lock-in.

Mainstream platforms & tools are:

Best-case

Closed

Profit-Centric

Proprietary

Expensive

Open-source software should offer a sustainable, cost-effective alternative for grand-challenge innovation but the landscape is:

Underfunded

Incomplete

Small-Scale/Niche

Under-Maintained

High Skill

Available technology makes it impossible to collaboratively, cost-effectively scale digital interventions for sustainable impact.

One-size-fits-all "silver-bullets" fail to account for complex reality; what works in one context doesn't in another

Solutions are **designed for/with a single community profile**; a single app can't adapt across variable contexts and communities

Flawed custom-built agency solutions, built with existing software and products, oversimplify the problem, community & user profiles

Siloed, constrained SaaS products are easy to use, but **don't allow for open collaboration, customization, adaptation**; don't work locally

Software for high-resource contexts is **unusable, exploitative, or prohibitively expensive** in low-resource environments

Low or no impact digital interventions, which researchers/funders attribute to flawed execution rather than limitations of technology

All digital interventions are **technologically, financially unsustainable**, requiring ongoing external funding for maintenance and innovation

Experts can't find/afford/train the scarce top talent to collaboratively innovate in complexity, are **never able to realize scale vision**

(Technology that works with and in service of positive human behaviors for real-world social impact and flourishing offline communities.)

So why isn't there more sociotechnical innovation for underserved community inclusion and collaboration across scale complexity for systemic impact?

There’s an impact mathematical science ~~gap~~ void.

Expert mathematical scientists can understand, make sense of and design for complexity.
But the best mathematical minds aren’t developed to work in impact innovation collaborations.

Top mathematical scientists choose between two innovation career paths:

Commercial. Company-serving R&D in “tech solutionism” culture

Academia/Government. Ivory-tower or lab state-of-the-field R/&D

Professional norms:

- ☑ siloed experts, work best alone or with other mathematicians
- ☑ most valuable when freed from “limiting” social practices and structures that impede “genius”
- ☑ success measured by context-constrained metrics that reward maths-based solutionism

The need (and opportunity): Expert impact-trained mathematical scientists

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Working as
Collaborative Partners

- ☑ **partnering disciplinary experts**
- ☑ **embedding in, extending positive social practices**
- ☑ **success measured by positive social outcomes**

The need (and opportunity): Expert impact-trained mathematical scientists

Working as
Collaborative Partners

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- ☑ embedding in, extending positive social practices
- ☑ success measured by positive social outcomes

in
Applied Impact Innovation R&D

- ☑ embedded in grand-challenge problem-solving networks
- ☑ collaborative human-centered innovation research & development
- ☑ in service of communities and impact

Theory of Change: Impact through Scalable Underserved Community Tech

Grand-Challenge Intervention Collaboration Unable to Scale Impact with Existing Tech:

Expert Researchers

Global & Local NGOs

Community Stakeholders

IDEMS

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Impact Mathematical Scientists

IDEMS

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1. Scalable Impact Intervention Innovation

2. Intervention-Agnostic Public Good Tech Innovation

3. Iterative & New Collective Innovation

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Theory of Change: Impact through Scalable Underserved Community Tech

Grand-Challenge Intervention Collaboration Unable to Scale Impact with Existing Tech:

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+

Impact Mathematical Scientists

→

Collapsing Impact Power Dynamics → Increasing Community Input/Ownership

1. Scalable Impact Intervention Innovation

2. Intervention-Agnostic Public Good Tech Innovation

3. Iterative & New Collective Innovation

IDEMS

Founded in 2018 by mathematical scientists,

IDEMS is a technology social enterprise collaboratively building an open, interoperable "collective intelligence" digital product suite to support underserved community inclusion and participation

in grand-challenge impact program development, iteration and innovation at scale across systemic complexity for exponential global impact.

The IDEMS Collaboratory model:
Pioneering expert interventions,
collaborative applied R&D,
clinical-trial rigour,
inclusive scaling,
measurable impact,
original innovation

Active IDEMS **Impact Innovation Collaboratories** currently address grand challenges in:

Public Health

UNIVERSITY OF OXFORD

World Health Organization

unicef

Agroecology

McKNIGHT FOUNDATION

The University of Reading

Education

THE UNIVERSITY of EDINBURGH

MASENO UNIVERSITY

Climate

WORLD METEOROLOGICAL ORGANIZATION

Met Office

UNDP

Biodiversity

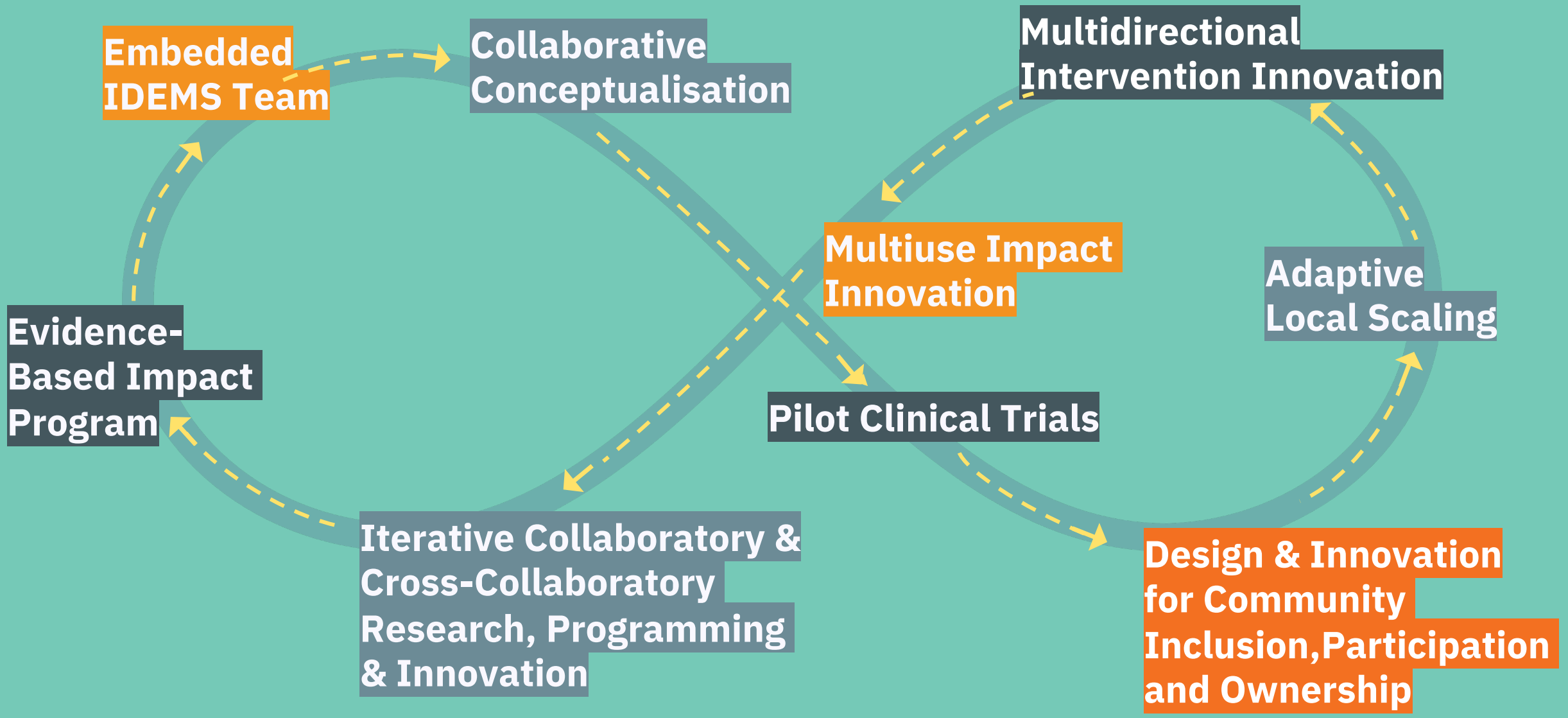
Berkeley UNIVERSITY OF CALIFORNIA

ENEA

TOPOS INSTITUTE

IDEMS

How an IDEMS Collaboratory works:



A Collaboratory in Depth

The Oxford-UNICEF Parenting Collaboratory

IDEMS

Expert Research Partner: The University of Oxford's Global Parenting Initiative (GPI)
Global Network/Implementation Partners: WHO, UNICEF, Parenting for Lifelong Health (PLH)
Collaboratory Launched: 2020, with funding from the LEGO Foundation

The Grand Challenge: Children at Risk Around the World

250 million children (43%) under the age of 5 in low- and middle-income countries are at risk of not reaching their full potential. It's estimated that as many as 1 billion children worldwide aged 2 to 17 have faced physical, sexual or emotional abuse or neglect within the last year.

Expert-Developed Intervention: An evidence-based playful parenting programme, designed to empower parents to nurture children's potential—and proven to prevent childhood sexual violence, abuse and neglect

Impact Innovation Problem: With a cost of ~$100/family and requiring significant local customization along with highly trained local facilitators, the intervention was prohibitively expensive and skilled to scale with human teams. But existing tech couldn't support essential offline-first functionality for low-resource contexts or the essential expert-community collaboration, adaptation, customization, and localization needed for impact.

UNIVERSITY OF OXFORD · World Health Organization · unicef · LEGO · IDEMS

The Parenting Collaboratory: Impact Innovation Leadership Team

Dr. Jamie Lachman
University of Oxford
Collaboratory Lead

Dr. Lucie Cluver
University of Oxford
Collaboratory Impact & Advocacy Lead

Dr. Chiara Facciolà
IDEMS
Chatbot R&D Lead

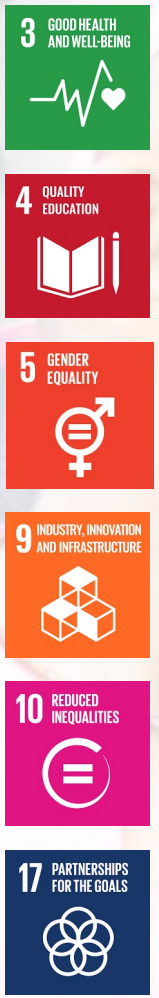
Dr. David Stern
IDEMS
Collaboratory Impact Technology Lead

Dr. Esmee te Winkel
IDEMS
Application R&D Lead

Laurie Markle
Parenting for Lifelong Health
Global Adoption Lead

IDEMS

The Parenting Collaboratory: Transformative IDEMS Product Innovation



The Priority Unsolved Digital Scaling Problems:

1

How to protect core expert-developed evidence base while allowing for country-level adaptation and version development by local stakeholders?

2

How can global experts, in collaboration with local teams, assess, learn from data; make shareable with other communities successful local adaption practices?

3

How to enable low-skill local ownership/take over *and* allow them to continue to benefit from an evolving, iterated expert intervention and innovation?

Core IDEMS Innovations:

OpenAppBuilder, OpenChatBuilder

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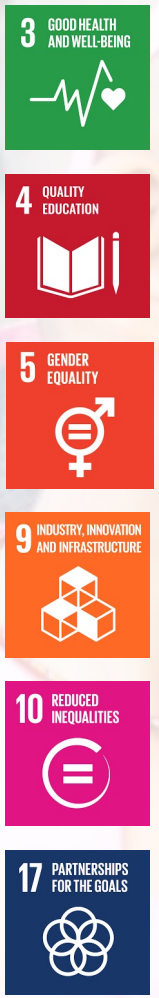
The Parenting Collaboratory: Intervention Innovation at a Glance



Intervention Innovation:

- ParentApp
- ParentText

Local Adaptations:

Philippines
Malaysia
South Africa
Jamaica
China
Mexico
Kuwait
Curacao
Sri Lanka
Tanzania
Uganda
Colombia
Thailand
Palestine
Afghanistan
Kenya
Ghana

Local Innovation:

- FacilitatorApp
- CrisisText
- ParentApp for Kids
- Parenting for Respectability
- ParentText Audio

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The Parenting Collaboratory: Impact Metrics at a Glance

First-of-its-kind scalable, cost-effective digital intervention that sustainably prevents sexual violence against children

6 Years
Collaborative Research, Development & Testing

14-Month Clustered Randomized Trial / **80 Communities** / **4800 Caregivers & Children**

$100 → $5.98/cost per family

92% user retention

57% retained reduction sexual violence against girls

11% reduction in child abuse

"We have done something which is a true breakthrough."

– Dr. Lucie Cluver

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