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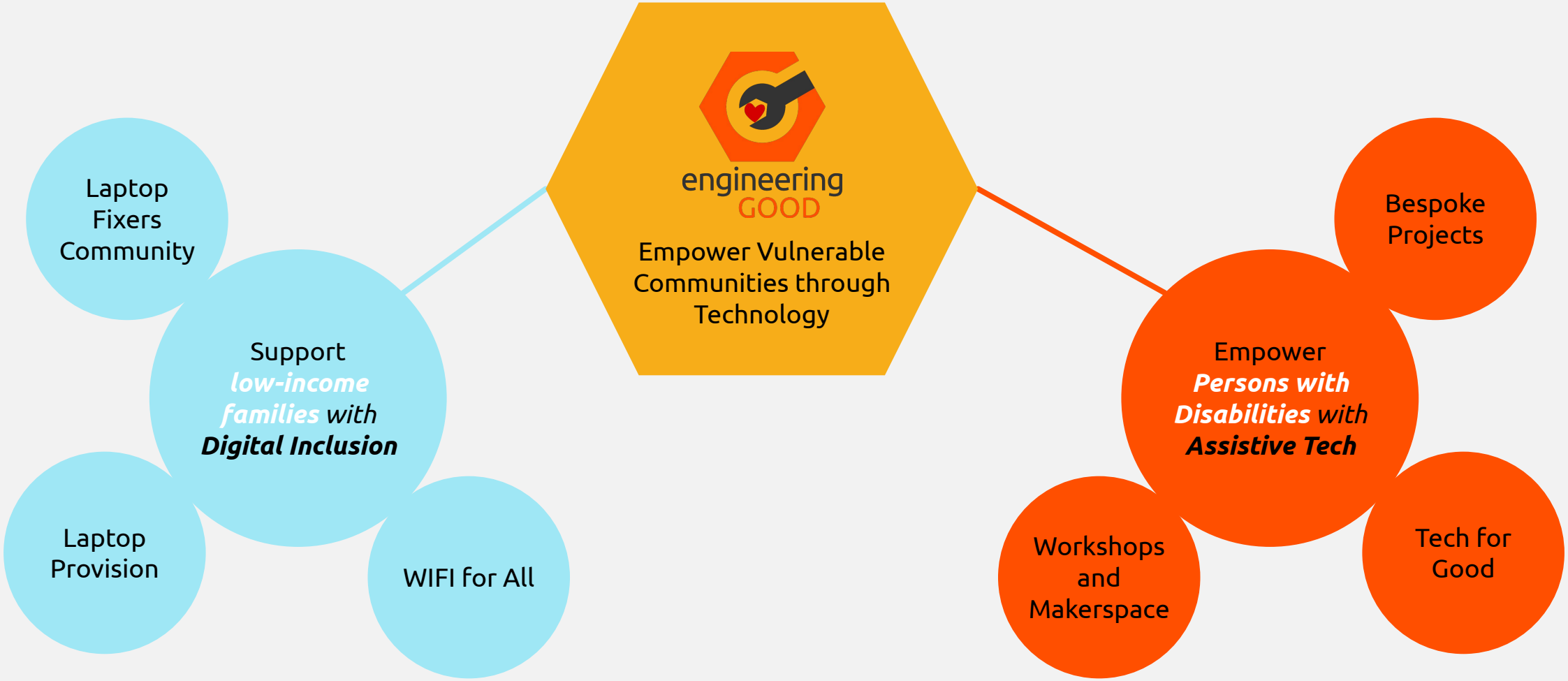
Supporting ***the Vulnerable*** through Technology

EG Programmes and Outcomes



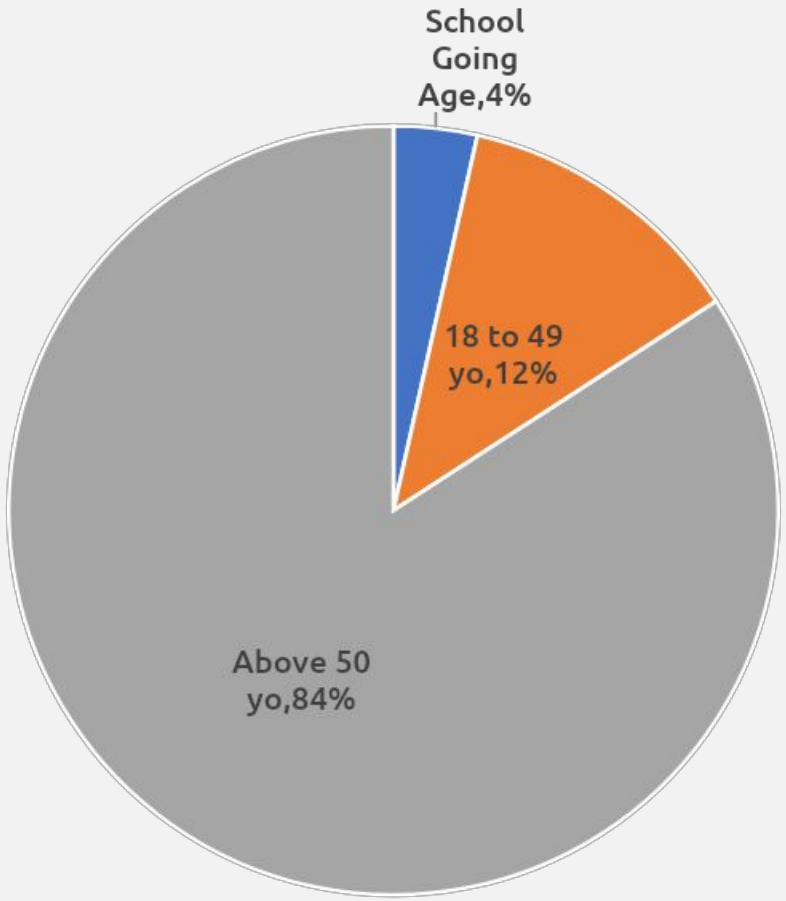
Engineering Good's philosophy is to encourage and empower inclusiveness for disadvantaged communities.

For people ***without*** disabilities, technology makes things ***easier***.

For people ***with*** disabilities, technology makes things ***possible***.

What You Should Know

PWDs in Singapore ~500,000



Some Challenges Faced by PWDs

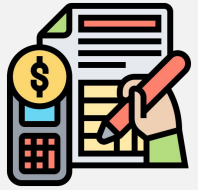
Abuse and Bullying

Education Pathways

Lack of Caregiver Support

Challenges at Work

Public Infrastructure



Housing & Financial Independence

Lack of Appropriate & Affordable Assistive Technology

Sports & Recreation

Social Inclusion & Stigma

https://www.msf.gov.sg/policies/Disabilities-and-Special-Needs/Documents/Enabling%20Masterplan%203%20%28revised%2013%20Jan%202017%29.pdf

Why You Should Care

Individual

- A life-changer – a first step in accessing education, work and employment, and better health and well-being.
- Dignity, self-confidence, and self-esteem.
- Access to employment or entrepreneurship, more qualified jobs, and higher incomes.
- Seniors need less support in a familiar environment.

Community

- Reduced care needs.
- Users' ability to contribute to family income and community development.
- Active participation of all members in reaching sustainability, leaving no one behind.
- Everyone benefits from enabling environments.

Society

- Labour participation of larger parts of the population.
- Active participation of older adults in community life, which can reduce frailty and loneliness, and delay the development of medical and social care needs.
- Attainment of social mobility boosts the overall economy and happiness of our society.
- Improve social cohesion and diversity in society.
- Reduced need for informal care and costs of formal care.

Area, Perimeter and Volume
Perimeter
Area
Perimeter of a rectangle
cop hopped over the flopped mop.
blew a dew which grew on
engineering GOOD
cpas
They will have problems with their hand functions - especially like grasping things,

What is EG doing about it

Bespoke Projects
EG work with partners and volunteers to develop user-centric technology solutions to address the problem statements.

This programme also serves as a incubator Tech for Good projects.

Impact potential of close to 500,000 PWDs.

Tech for Good
Using the challenges shared by our partners, EG organises this innovation challenge for passionate and creative youths, 15-25 years old, to develop innovative solutions for PWDs and their caregivers.

Impact potential of close to 500,000 PWDs.

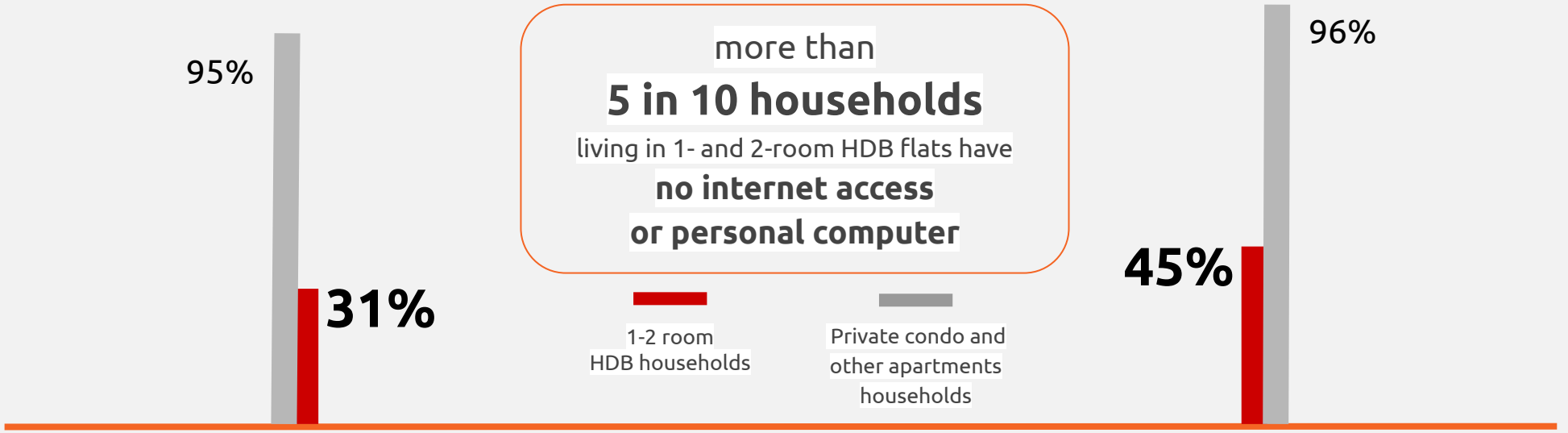
Workshop and Makerspace
The EG Makerspace is the R&D arm of Engineering Good. Its focus is on providing the knowledge, skills, and infrastructure to develop and "hack" new solutions and prototypes especially for Assistive Technology implementations.

For people
with the means,
technology
is a ***lifestyle choice***.

For people
without the means,
technology ***enables***
opportunities.

What You Should Know

Covid-19 Deepened the Digital Divide



Personal Computer Ownership

31% of 1-2 room HDB households
own a personal computer
VS
95% of households in private condo and other apartments own one or more personal computers

Internet Access

45% of 1-2 -room HDB households
have internet access
VS
96% of households in private condo and other apartments have internet access

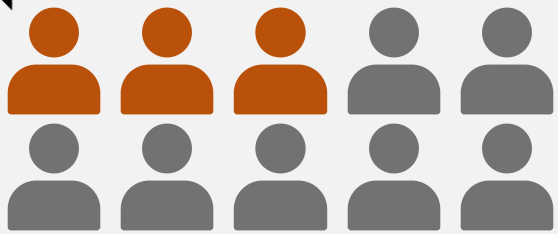
Source: COVID-19 has revealed a new disadvantaged group among us – digital outcasts (CNA May, 2020)

What You Should Know

After Two Years of Covid-19

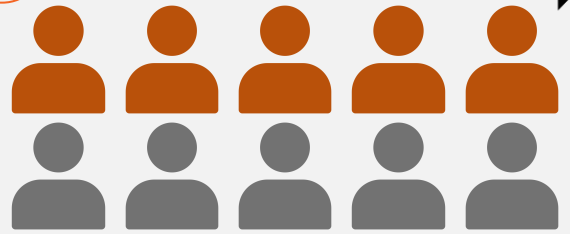
half or more
low-income families
still do NOT have
internet access or personal computer

"only 3 of us own learning devices"



the picture remains largely the same

"only 5 of us have WIFI at home"



Learning Device Ownership

Amongst 3,000 low-income families,
only ***3 in 10 own a learning device***
(computer, laptop or tablet)

WIFI Access at Home

Amongst 3,000 low-income families,
only ***5 in 10 have WIFI at home***

Source: Only 3 in 10 low-income families in rental flats have a computer or tablet: Study (ST 25 Apr, 2022)

Why You Should Care

Individual

- A life-changer – a first step in accessing education, work and employment, and better health and well-being.
- Access to employment, more qualified jobs, and higher incomes.
- Better access to knowledge and services found online.
- The ability to stay in touch with others via social and communication platforms.

Families

- Participation in digital economy with a greater variety of product and services.
- Better access to services, knowledge, healthcare, and government services.
- Active participation of all family members in reaching a better socio-economic status.
- The ability to stay in touch with family members via social and communication platforms.

Society

- Greater labour participation of the population.
- Greater development of society through participation in the digital economy.
- Increased productivity from the use of digital technologies.
- Attainment of social mobility boosts the overall economy and happiness of our society.
- Improve social cohesion and diversity in society.
- Access to new economies made possible through new and emerging technologies.

What is EG doing about it

Laptop Fixers Community
EG trains volunteers as laptop fixers to be deployed at estates around Singapore. This ensures that broken down devices are repaired for low-income families

This programme rolled out in May 2022 with the aim of least 4 estates having this service by end 2023 **impacting over 7,000 households.**

Computers Against COVID
EG collects donated devices, refurbishes them, and gives out to the disadvantaged.

As of Oct 2022, over 7**,000 laptops** have been given out. Potentially, **over 25,000 households still need laptops.**

Laptop Fixers Community

Empowering *low-income families with* ***Digital Inclusion***

Laptop Provision

WIFI for All

Early Stage Concept

WIFI for All
EG is working closely with govt agencies, corporate partners, as well as volunteers to develop solutions to ensure universal access to WIFI for all low-income households. **Potentially impacting at least over 30,000 low-income households.**

All slides hidden after this are for additional info on CAC and does not need to be used, UNLESS more details is needed…

“Hi, I am a single-mother with two children and two elderly parents to support.

We currently have one device at home, and are ineligible/lower in priority to get or loan a 2nd device from the school, but my children’s lessons are at the same time.

Because they are children, they are very slow to do their homework on the laptop, or they procrastinate, so taking turns has been difficult as I am not home to supervise.

Can you give my younger child a laptop?

“Can you help?”

“Hello, I have three children. Two of them have been taking lessons on their mobile phones.

I have just lost my job but I am ineligible to apply for family aid as my CHAS card colour is still green (highest of 3 grades), and only blue card holders are eligible (lowest grade).

However it will take 6 weeks to process my CHAS card downgrade, and my children need the laptops now.

* CHAS = community home assistance scheme, a low-wage assistance scheme in Singapore

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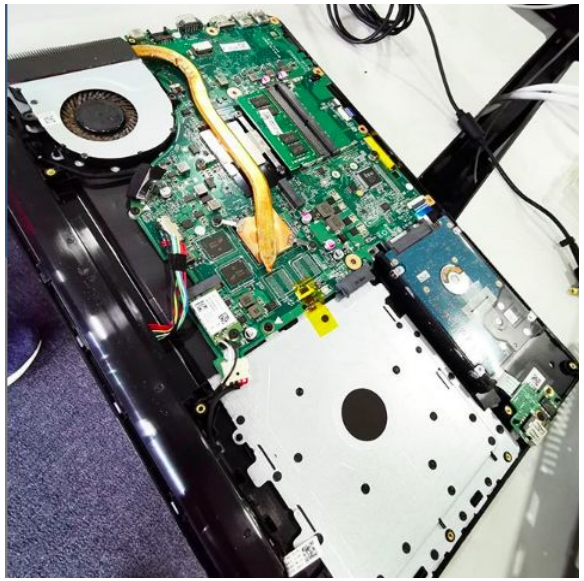
True accounts from beneficiaries’ requesting for laptops.

The Simple Idea

Collect old laptops that have been donated



Refurbish them

Give laptops to children from low-income families

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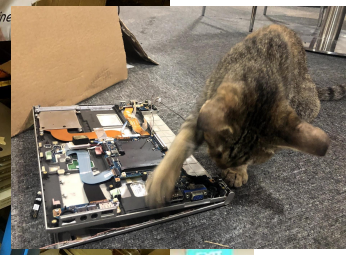
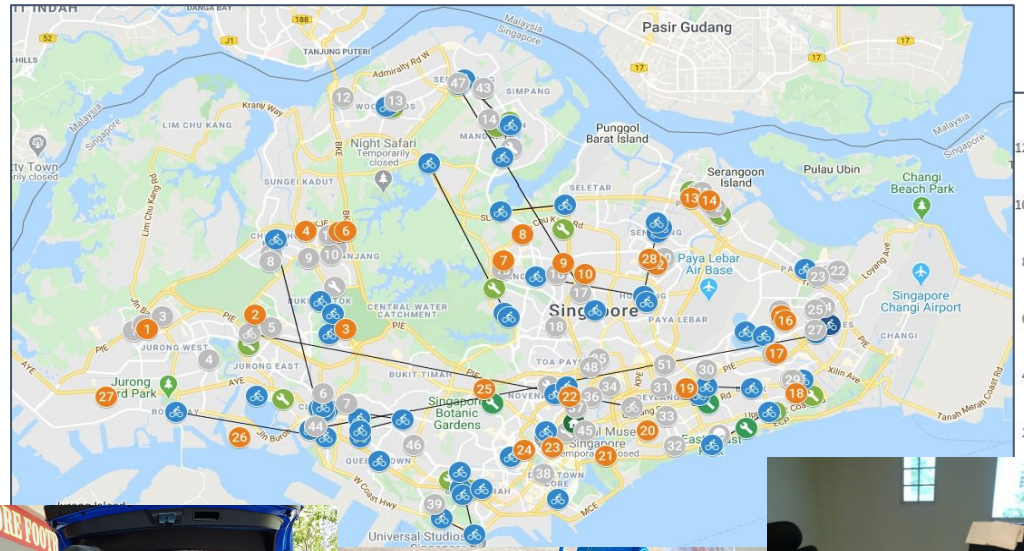
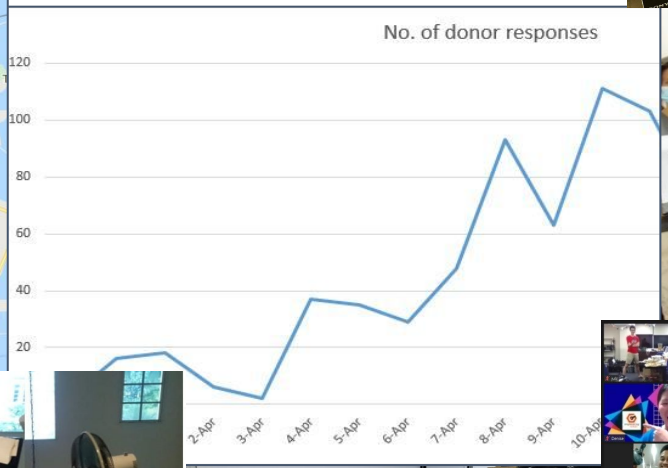
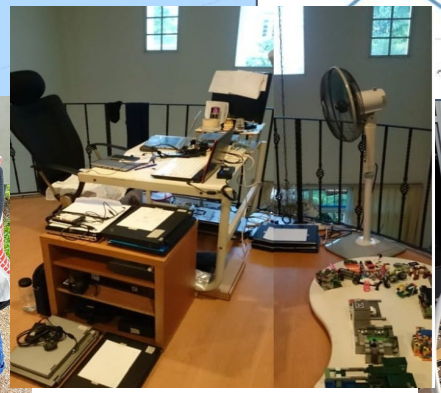
Simple Idea ≠ Simple Execution

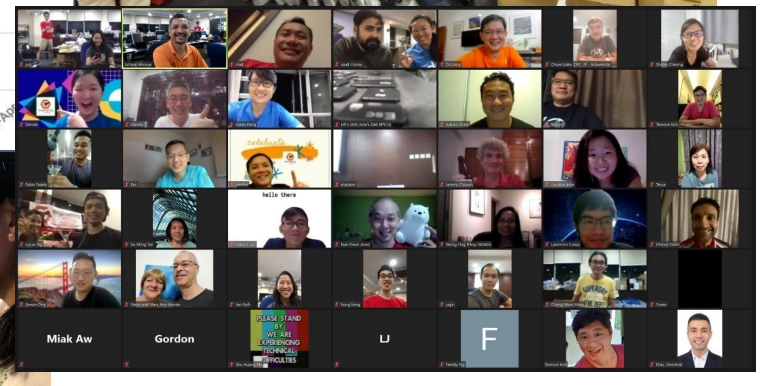
- Circuit Breaker measures = minimal face-to-face interactions
- Lack of resources to manage influx of laptop requests
- Volunteers showed up (virtually)!











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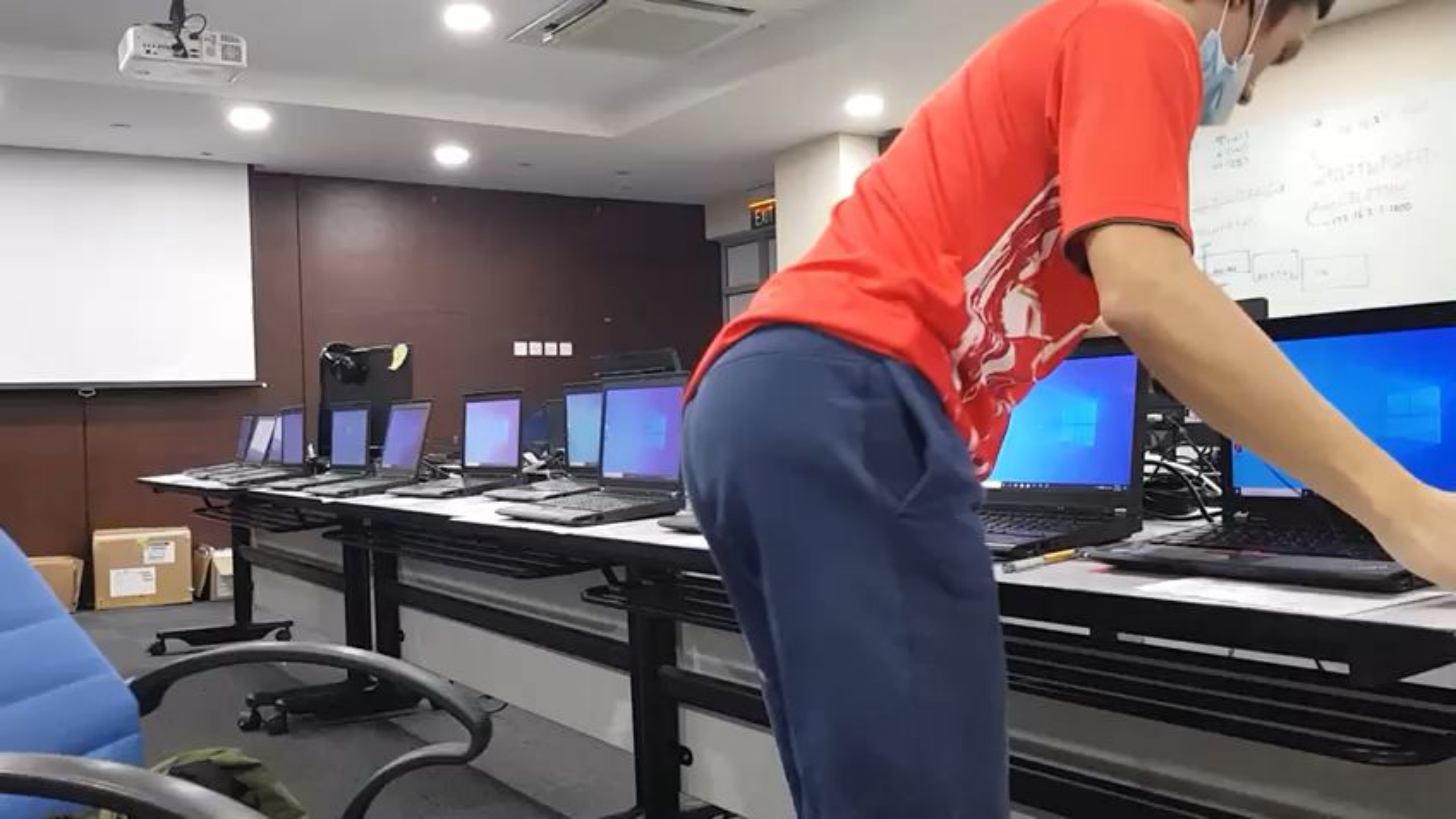
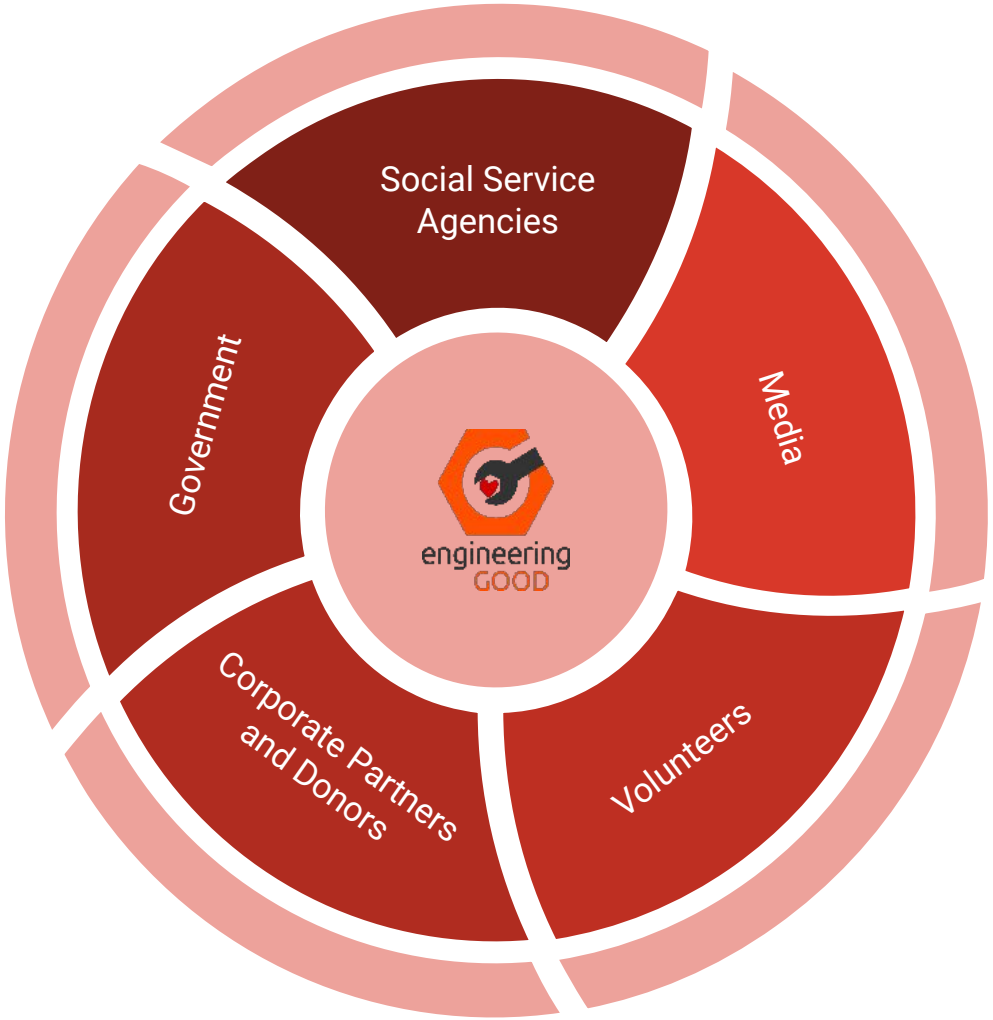
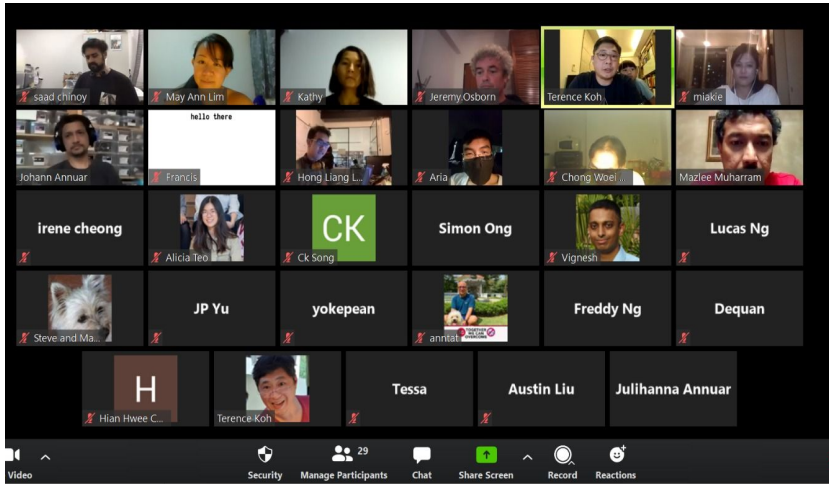
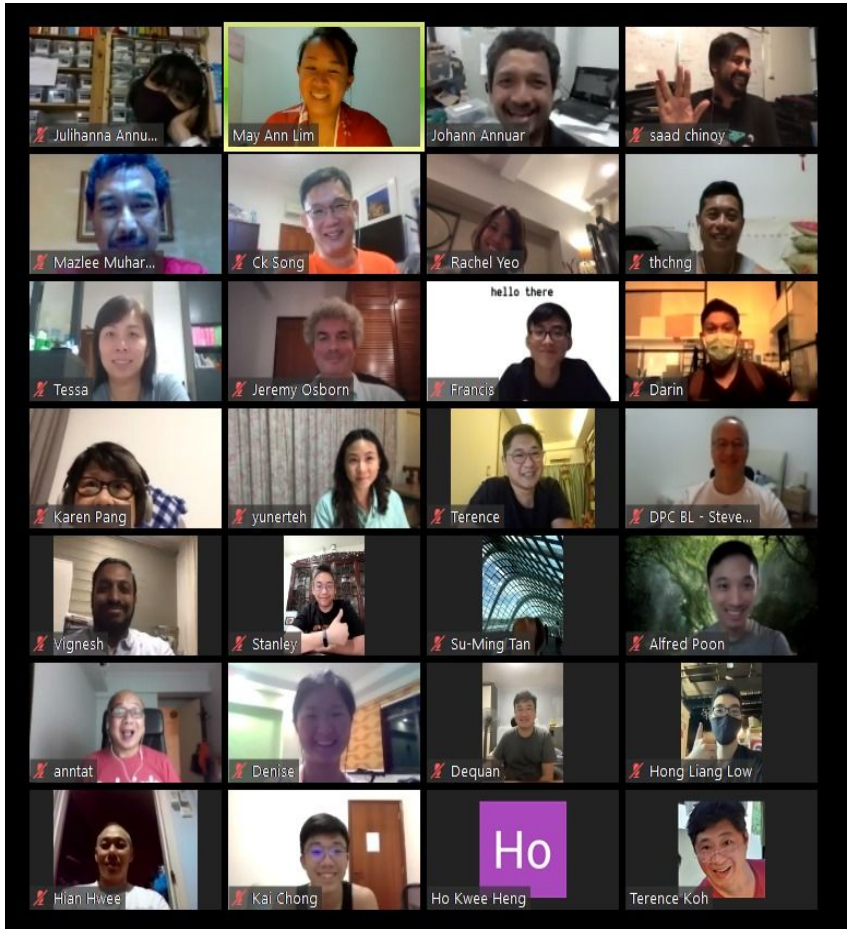


It takes a Village… and the whole Kampung chipped in…







200+

VOLUNTEERS

- **Multi-Racial**
- **Multi-National**
- **Multi-Generation**
- **Multi-Social Class**

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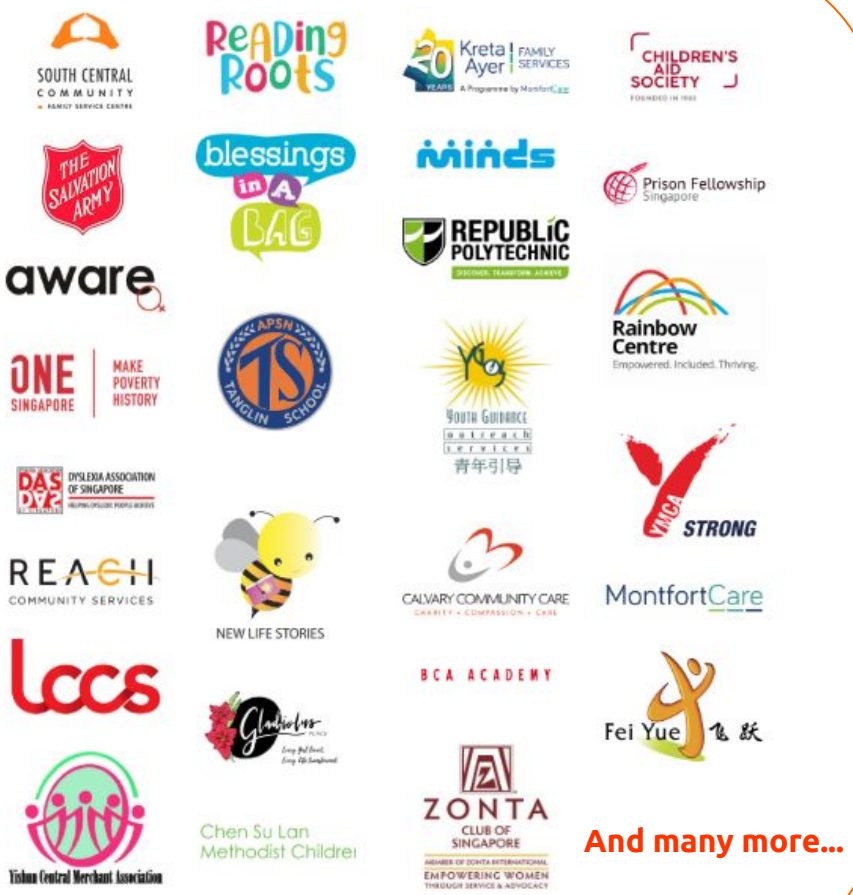
Social Service Agencies



And many more...

Partners

And many more...

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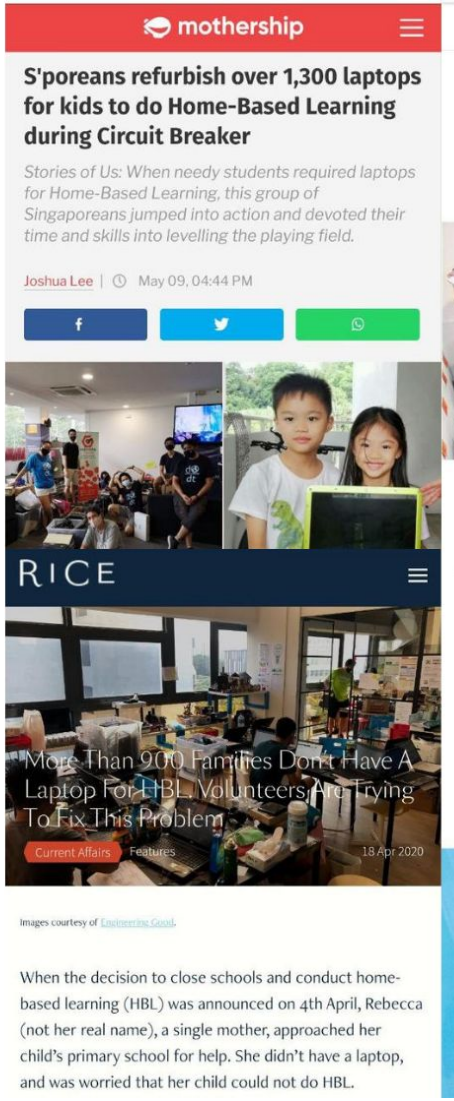
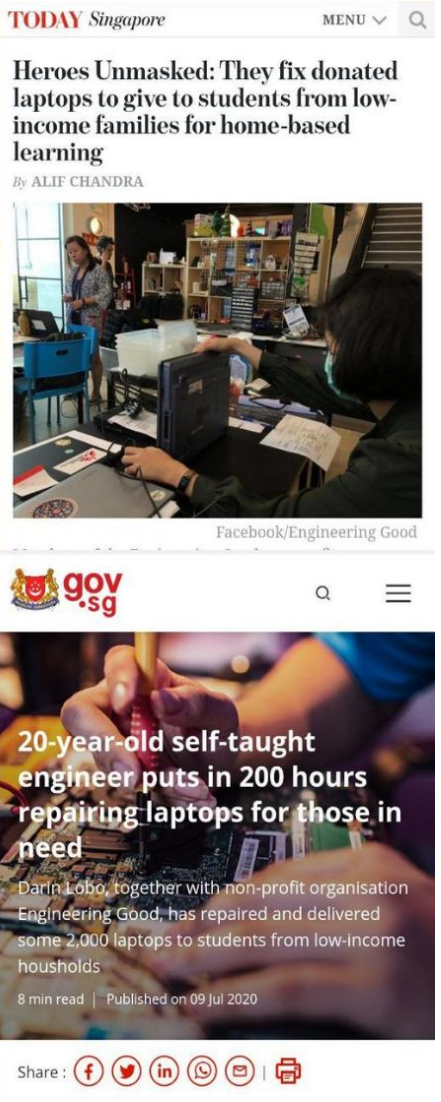
Featured in over 20 media platforms

cna · mediacorp · THE STRAITS TIMES · zaobao · kiss92FM · gov.sg · asia one · Goody Feed · GOVTECH SINGAPORE · RICE · URBAN JOURNEY · mothership.sg · TODAY · WAYD

And many more...





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EG: The Road Ahead

2022 to 2023

Invest deeply in the communities to develop and implement solutions and programmes.

- Push on with CAC
- Roll out and expand LFC
- Develop well-designed AT Solutions
- Improve T4G awareness and quality of projects

2024 to 2025

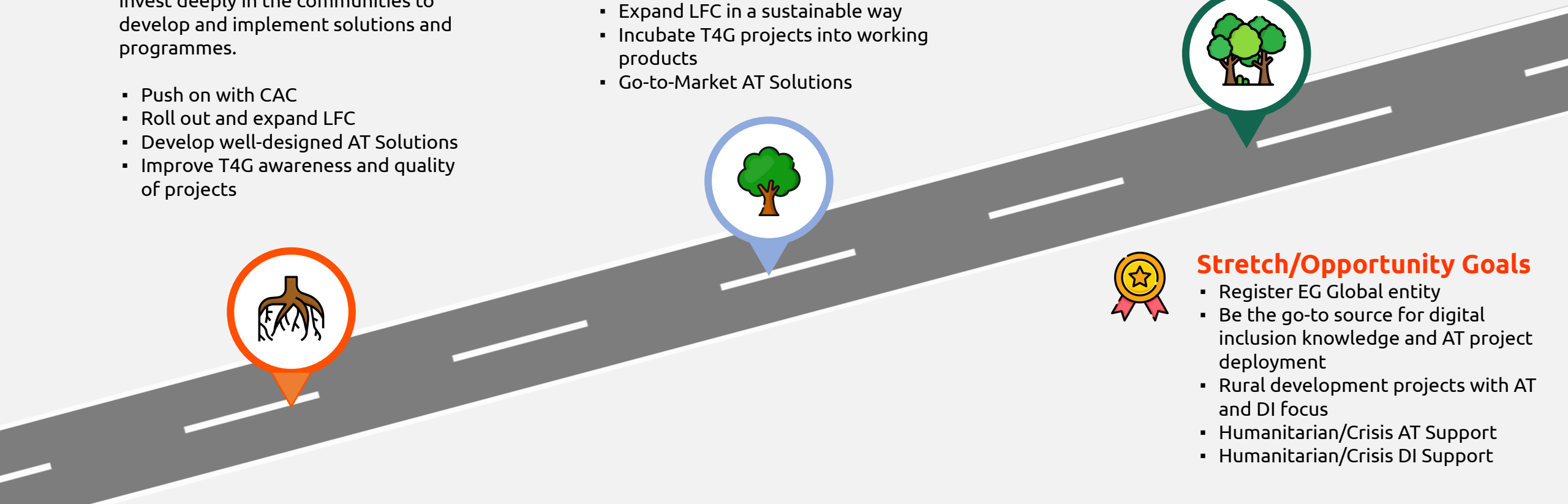
Expand the reach of EG's work by creating momentum outside of EG itself.

- Push on with CAC and advocate for universal digital access
- Expand LFC in a sustainable way
- Incubate T4G projects into working products
- Go-to-Market AT Solutions

2026 to 2027

Export the impact of EG beyond Singapore.

- Develop CAC in ASEAN
- LFC to be community-run with EG
- Support a view of creating other ABCD programmes
- Curate an ASEAN AT collective
- Recruit overseas T4G teams or host overseas edition



Stretch/Opportunity Goals

- Register EG Global entity
- Be the go-to source for digital inclusion knowledge and AT project deployment
- Rural development projects with AT and DI focus
- Humanitarian/Crisis AT Support
- Humanitarian/Crisis DI Support

500+ assistive devices built and given out

~200
Social Service Agencies supported

100+
Corporate Partners

100+ prototypes created
15 new AT devices created and used by PWDs

Refurbished and distributed
~7,000+ laptops

or $2,450,000 economic value created
(a refurbished laptop costs averagely $450)

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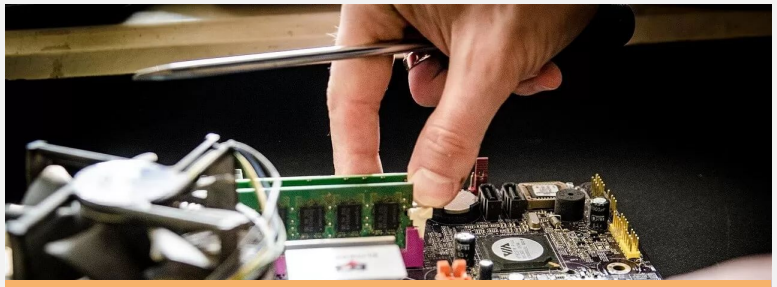
Impact by the Numbers
Since 2020

>11k
Collected Laptops

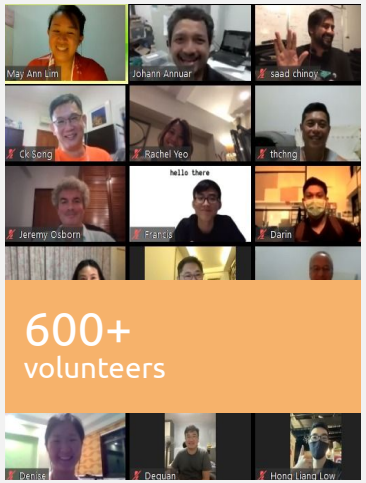
or 3,6431,000 kgs of carbon footprint saved
(a laptop generates averagely 331kgs of carbon)



500+ desktops refurbished and distributed
or $225,000 economic value created

300+
Donors and Co

30,000+
volunteer hours
or $1,200,000
economic value



600+
volunteers

1 Cat Executive Officer recruited

YOU

&

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Let’s engineer a better future, ***together***.

Contact us at

contactus@engineeringgood.org

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- 900+ assistive devices built and given out
- 200+ community partners and charities supported
- ~7,000 laptops refurbished and distributed
  - $350 x 7k = $2,450,000 economic value created
- 500+ desktops refurbished and distributed
  - $450 x 500 = $225,000 economic value created
- ~11k laptops saved from the landfill or 3,6431,000 kgs of carbon footprint
- 1 cat adopted
- ~300,000 volunteers hours
  - or 300,000 x $40 = $12,000,000 of economic value
  - https://independentsector.org/resource/value-of-volunteer-time/
- 100+ prototypes created
  - T4G (30+5+40+30+many iterations and other projects)
- 15 new assistive devices created and deploy with PWDs
  - 10 Bespoke, 5 switches and trackball

References

- https://cityofgood.sg/wp-content/uploads/2020/10/NVPC-PWD-Issue-Deck.pdf
- https://apps.who.int/iris/handle/10665/354357
- https://inclusivedocs.com/what-is-digital-inclusion-and-why-is-it-important/
- AR 2021 https://drive.google.com/file/d/1TpWlzV-h2oA6g-qxWPpjUEWpg8AUIszd/view
- AR 2020 https://drive.google.com/file/d/1o5oRSqeYdG0TSf6CGKHW7sfFdX3xDW2C/view