If not Now, When?
If not You, Who?

Julian Harty
Agile Pune Conference 2014

Contact me: julianharty@gmail.com

Rev: 21 Nov 2014
Keynote edition.

Global Context

World   6,843,522,711
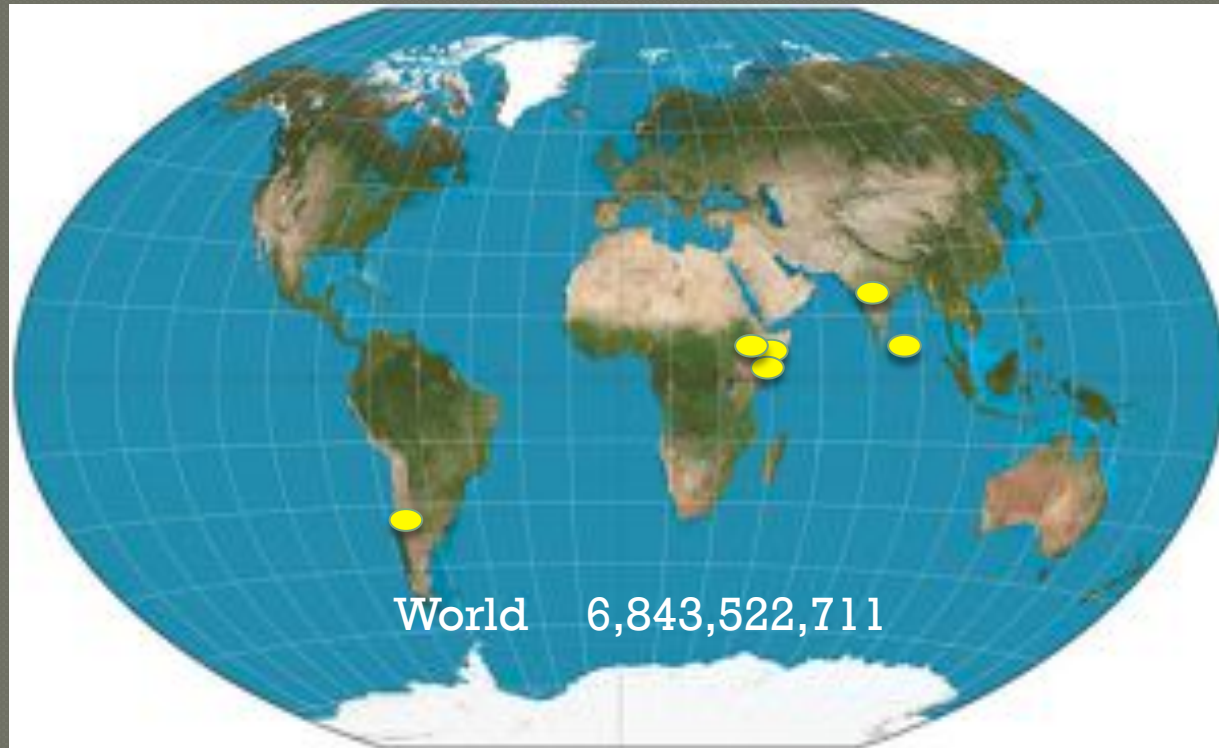
2	India	1,182,105,000[1]	30	Tanzania	43,187,823
32	Kenya	40,862,900	39	Uganda	31,784,600
55	Sri Lanka	20,653,000	61	Chile	17,094,270

[1] Includes data from Jammu and Kashmir (India-administered), Azad Kashmir (Pakistan-administered), and Aksai Chin (PRC-administered).

https://en.wikipedia.org/wiki/List_of_countries_by_population_in_2010

https://upload.wikimedia.org/wikipedia/commons/thumb/9/91/Winkel_triple_projection_SW.jpg/600px-Winkel_triple_projection_SW.jpg

An accidental project

- During a visit to Western Kenya Oct 2012
- Schools without classrooms, books, paper or electricity
- Many orphans (estimated 1/3)
- Many un(der) qualified teachers

- Excellent 3G coverage
- My Amazon Kindle

Necessary but not sufficient[1]

- Food
- School buildings
- Writing materials

My burning question:
"What happens after they leave school?"

[1] Also an Eli Goldratt book title

Overcoming inertia

"There are more important problems, and it won't work…"

Practitioners (teachers)

If an experienced expert tells you it can't be done, it probably can. If they tell you it can be done, it probably can.

Action precedes clarity

Known unknowns (One Order of Ignorance):
- Can we create accounts without credit cards?
- Would Amazon block the accounts?
- Could we obtain the curriculum contents?
- Could we power the devices?
- Would they be broken, stolen, or even used?
- What about reliability, desirability, etc? etc?

Five Orders of Ignorance – Philip Amour
http://www.corvusintl.com/CACM002-5OI.htm

Using existing foundations

Building on what I know
- 34 years working as an engineer with technology
- 24*7 Operations
- Global users
- Engineering systems that continue functioning, reliably even when the pieces aren't

A story on TCP/IP

One person, amongst many

Combining [with] the good work of others

Kiwix	KA-Lite	Apache/nginx

code

Wikipedia for Schools

Khan Academy

Hesperian

MedLine+

CK-12

Practical Answers

Great Books of the world

. . .

Wikipedia

RACHEL

content

open-source   open-content   loose-collaborations

Learning and evolving

- Agile concepts:
  - Monthly iterations
  - Retrospectives

- Start small & inexpensively

- Maximise learning through diversity (anti-fragile)

Start small, learn quickly, adapt & evolve

| Kindle project	
6 schools each with a Kindle	Feb 2013
7th school & more devices	Summer 2013
Zoombinis in Indian schools	July 2013
6 schools, pupils teach peers	Jan 2014
WorldReader contents	Feb 2014
11 schools with Kindles	July 2014

- 3G WiFi
- 'UPS' power for Raspberry Pi's
- Solar, Solar, Solar power
- Tablets + Raspberry Pi's

Active engagement

- I need their commitment & feedback

- Help them learn competencies

- Contributions in growth stage

Example Monthly Report
from School in Oyugis
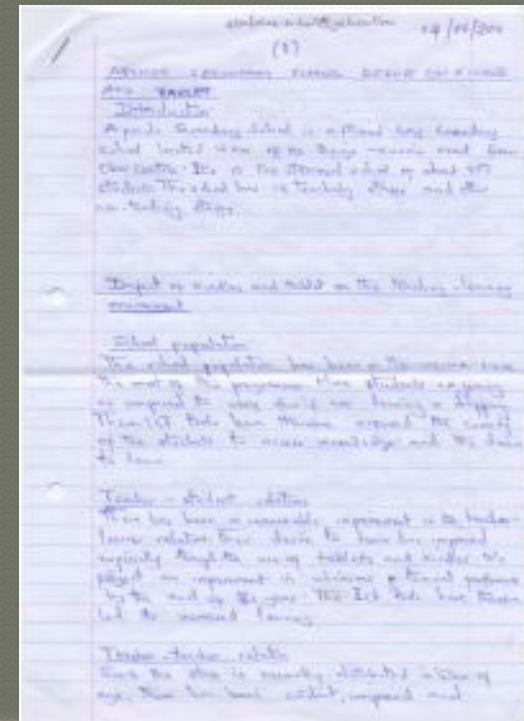
Snapshots of progress

Dadaab refugee camp

- Kenya
- 11 schools with Kindles
- 3 with Android Tablets + Raspberry Pi
- Dadaab has a Solar powered Pi

Snapshots of progress: Chile

Santiago
- Launched 9 tablets + Pi in OPTE School
- Worked with EnseñaChile (teach first)
- Met Ministry of Education

Punta Arenas
- 3 schools
- Met Regional Government

Computers

And other equipment

2014

150 Nexus 7's donated by Google
 60 Kenya
 15 Chile
 75 India
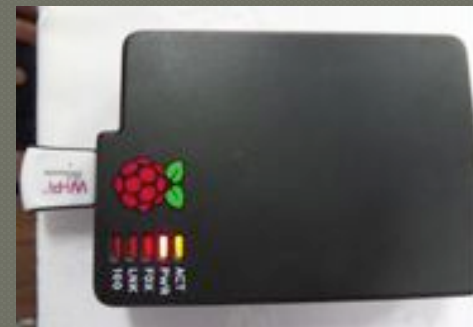
Android Tablets & Raspberry Pi's

Power

- Mobile Phone 'power packs'

- Solar Panels (3w to 7 w)

- 4-port USB chargers

- …?

Practical, scalable solutions

- Inexpensive off-the-shelf parts
- Open content & open source
- Test diverse alternatives
- Seek simplicity
- Measure, test, gather data & evidence…
- Collaborate & share

Cross-referencing (Sanity Checks)

- Ask professional teachers

- Discuss and publish

- Read extensively

Teaching the teachers

The software

And other stuff

There are code, text, & contents

- Code does stuff
- Text & other resources communicate
- Contents are the essence of what users need
  - Wikipedia
  - Videos
  - Exercises
  - eBooks
  - …
- All need to be of sufficient quality, relevant and understood

Screenshots

Application Home on Android tablets in Chile
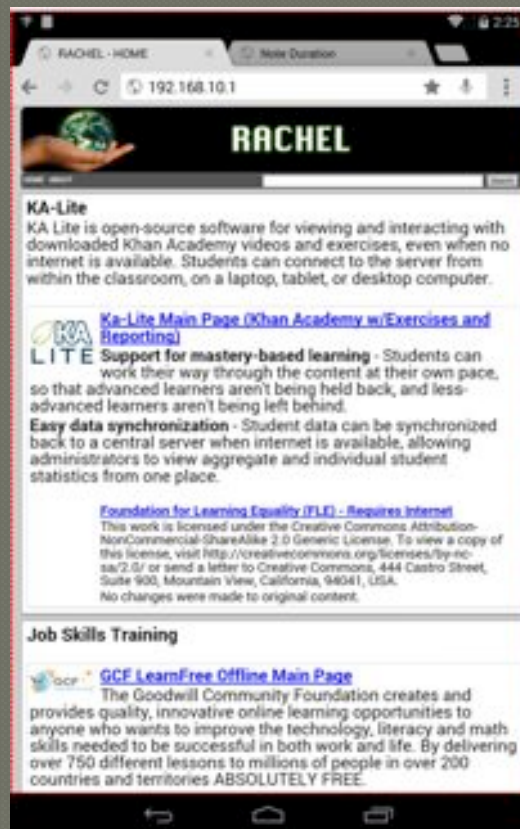
RACHEL homepage
viewed in Android
web browser

Case-studies

- Google Volunteer Days
  - KA-Lite automated tests for synchronisation

- Wikimedia Hackathon Zurich
  - Kiwix Android build fixes & much more

- Selenium Conference Bangalore
  - Finding bugs
  - Automated tests

SeleniumConf 2014++

Kiwix Bug-Fest @ Selenium Conference

- 118 bugs filed (60 already closed)
- Automation test suite

  https://github.com/Bug-Bash/selenium-kiwix

KA-Lite Translations fostered in 10 weeks

# Translations	Language
41	French
30	Hindi
359	Kannada
54	Polish
110	Swahili

```
 522
 +55
-----
 577
```

Examples

- Cigniti: 415 Telegu videos
  - Translated: 250
  - Created: 165

- Dharmavahini Foundation 6,000 videos

http://www.cigniti.com/blog/project-cignificance/

http://learntv.lk/

The Future

From several perspectives

Reaching the next billion

Commercial
- Facebook Zero & Internet.org
- Google Loon project

Not-For-profit
- Wikipedia Zero

http://www.wired.com/2014/06/google-balloons-year-later

Image from: http://www.google.com/loon/

THE WORLD'S MOST POPULOUS COUNTRIES

http://www.odt.org/Pictures/poplcart.jpg

You *can* help!

- Translations for the apps
  - Khan Academy Lite (ka-lite)
  - Kiwix
- Translate, localize & create materials
- Suggest apps, contents, etc.

- Productionize equipment, configurations & code
- Develop mobile apps

- Replicating [and improving] the work

KA-Lite Translations

Improve fitness-for-purpose

- Increase reliability
  - 1/3rd of SD-Cards catastrophically fail
- Reduce effects of failure
  - RACHEL on Android
  - Evaluate alternatives to Raspberry Pi's
- Scaling-up and Scaling-out
  - Pi's in parallel
  - Integrating into LAN's
  - Alternatives to Pi's
- Packaging & deployment of code & content

- Of ideas, practices code & materials

- Deploy similar nodes @ schools

- Provide feedback & evidence

Help move the bias from consumption to learning

- Lectures
- Videos
- Exercises
- Experimenting
- Creating
- Innovating & leading

If not now? When?
If not you? Who?

@ Agile Pune Conference

Q&A

julianharty@gmail.com

Helping to enable people to live better lives through appropriate use of [mobile] technologies

http://kusaidiamwalimu.org

https://github.com/julianharty/hfc-rachel/wiki

References & further reading

- ## The Rachel Project
  - http://rachel.worldpossible.org/
- ## Khan Academy Lite
  - https://learningequality.org/ka-lite/
- ## Khan Academy
  - https://www.khanacademy.org
- ## Kiwix
  - http://kiwix.org
- ## Raspberry Pi computer
  - http://www.raspberrypi.org
- ## Salman Khan's book:
  - The One World School House – education reimagined
- ## The Chennai Education Centre
  - http://www.tcec-kfi.org