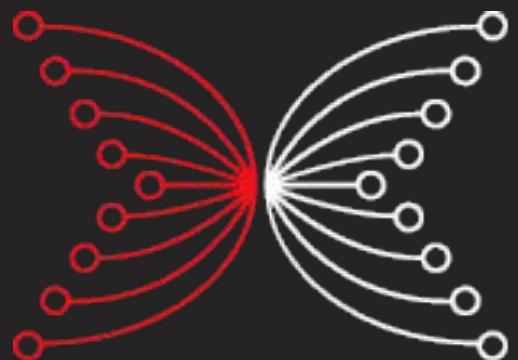




# Delving into Learning & Technology

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The Importance of Educative Initiatives



INPUT | OUTPUT



# Dr. Lars Brünjes

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- Director of Education at IOHK.
- PhD in pure mathematics from Regensburg University.
- Postdoc at Cambridge University (UK).
- Joined IOHK November 2016.

# Three months in Ethiopia...

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# IOHK & Education

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“

*Only the educated are free.*

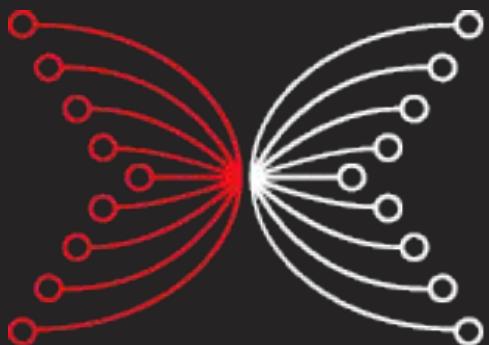
- by Henry Brooks Adams



# IOHK

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Providing financial services to the three billion people that don't have them.



- “Factory” for blockchain technology.
- Founded 2015 by Charles Hoskinson and Jeremy Wood.
- Company building Cardano.
- Distributed around the globe.
- Invested in functional programming (Haskell, Scala,...).
- **Research focused (peer-reviewed research, research centers, ...).**
- **No patents - everything Open Source.**



# Blockchain Adoption

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- Cryptocurrencies today are mostly used for speculation.
- For mass adoption, they must be *useful*.
- Enormous chance for developing countries.
- Developing countries are deeply sceptical of foreign “saviors”.
- People “on the ground” know best which problems to solve...
- ...but they need to understand the technology.



# How we enter a country

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- Offer a ten weeks course for free.
- Cooperate with governments and universities.
- Teach the best and brightest.
- Listen and learn!
- Employ graduates and make them work on problems they care about.

# Our Haskell Courses

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*If women are expected to do the same work as men, we must teach them the same things.*

- by Plato



# Course Curriculum

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- Eight weeks of Haskell.
- From first principles to advanced topics.
- Lectures, assignments, projects.
- Practical examples from blockchain domain.
- Since Ethiopia: Two weeks of *Plutus* and *Marlowe*.





# Haskell

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- First version created by committee in 1990.
- Purely functional & lazy.
- Explicit effects.
- Not mainstream.
- Popular in financial institutions.





# Plutus

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- Smart contract language for Cardano.
- Very similar to Haskell, implemented in Haskell.
- All off-chain and on-chain code in Haskell.



# Marlowe

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- DSL for Financial Contracts.
- Not Turing complete.
- It is easy to analyze Marlowe contracts.
- Implemented as a Plutus contract.

# 2017 - Athens, Greece

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- Seven students.
- Hired most of them.

# 2018 - Barbados

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- Ten students, most of them IOHK employees.
- Hired all external students.

# 2019 - Addis Ababa, Ethiopia

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- 22 students, 18 from Ethiopia, four from Uganda.
- All women.
- Making an offer to all of them.

# 2020 - Ulaanbaatar, Mongolia?

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# Impact

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*The first duty of a university is to teach wisdom, not a trade; character, not technicalities. We want a lot of engineers in the modern world, but we don't want a world of engineers.*

- by Winston Churchill

# Addis Ababa utility payments

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- Agreement with Ministry of Innovation of Technology.
- Digitalizing Addis Ababa utility payments.
- Local transport, water, electricity, taxes.

# Mongolia MOU

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- Signed MOU with Mongolian Blockchain Association and Mongolian Fintech Association.



# Thank you!

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*One's work may be finished  
someday, but one's  
education never.*

- by Alexandre Dumas