



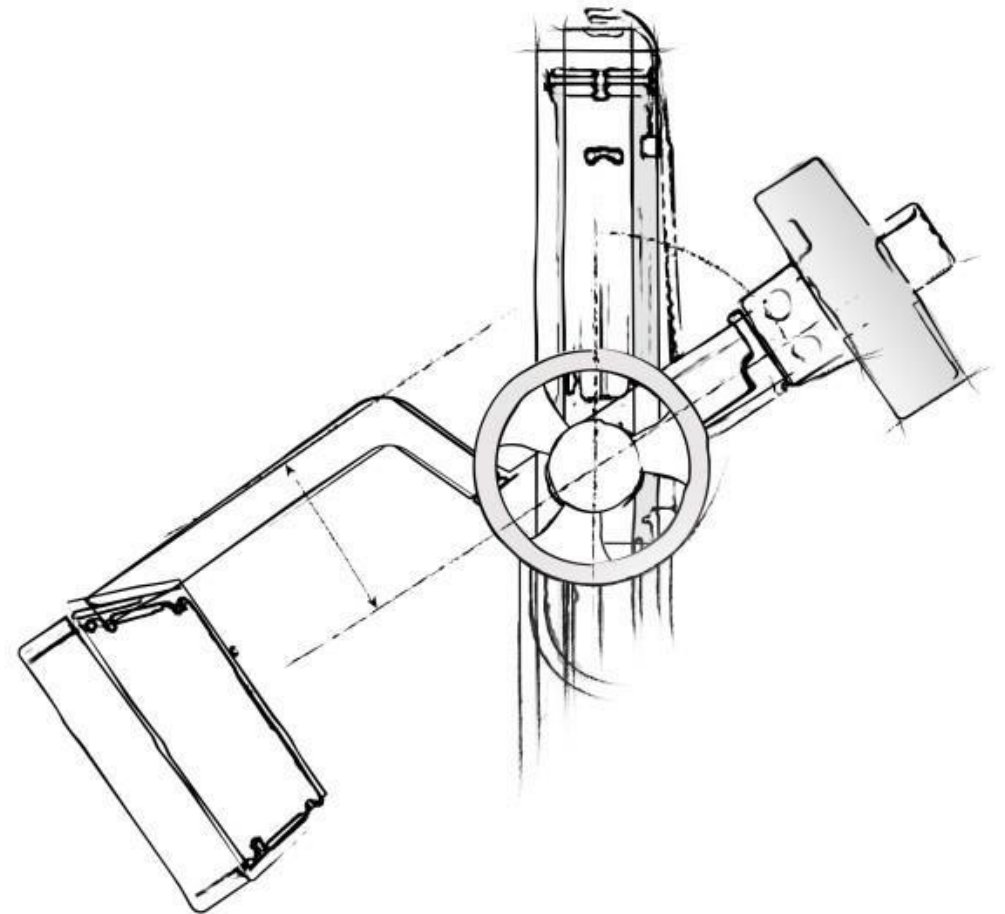
A radiology system adapted to emerging countries

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CODEV Cooperation &  
Development Center

EssentialTech program  
<http://essentialtech.epfl.ch>

November 7th, 2016



An x-ray system adapted to emerging countries



Digital



Low-cost (total cost)



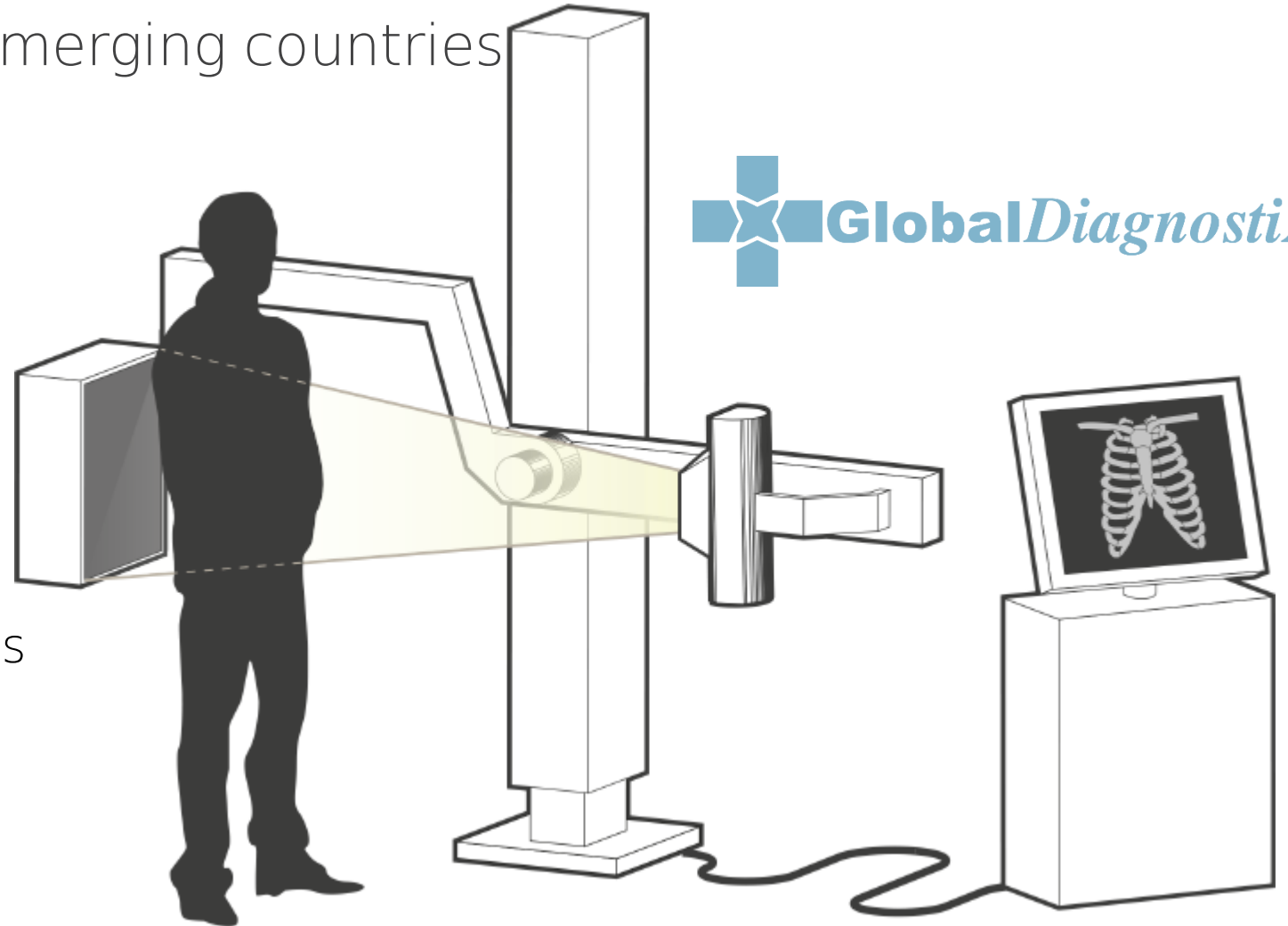
Ultra-robust



Withstand tropical climates



Easy to use



Project launched in 2011

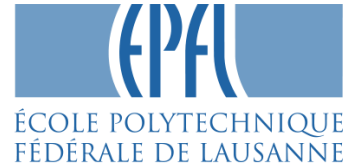
8 institutions

20 laboratories

40 involved persons

Multidisciplinary

- Engineering
- Health
- Design
- Anthropology



Close collaboration with

Cameroon



Start-up creation





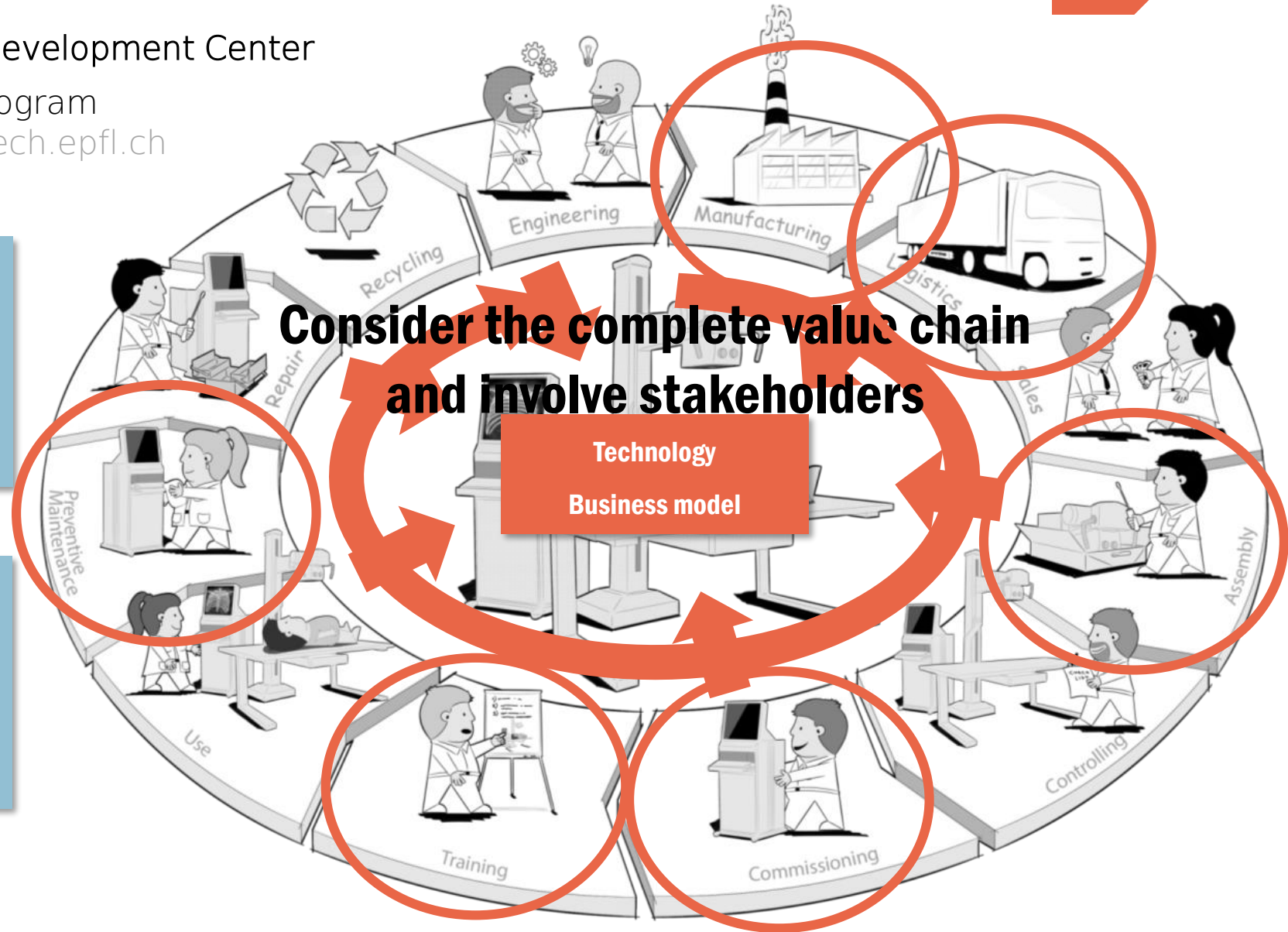
Our approach



Cooperation & Development Center  
EssentialTech program  
<http://essentialtech.epfl.ch>

Appropriate technologies  
Entrepreneurial solutions

Optimize the total cost of ownership

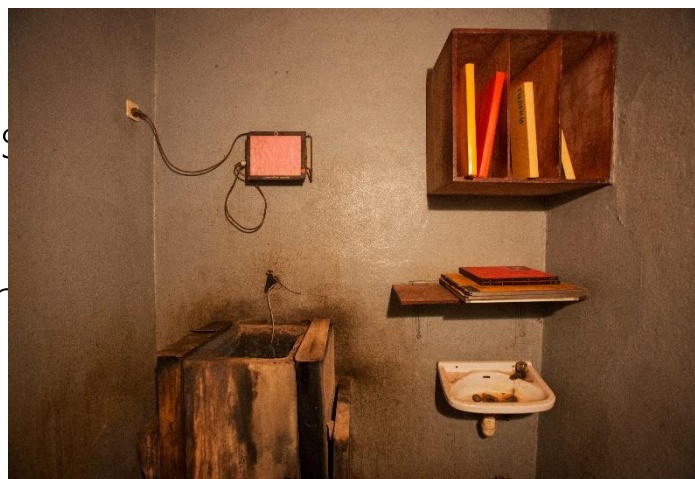


# 2010

CONTEXT STUDIES

# 2012

- Identify and understand the needs
- Initiate partnership with the South
- Define high-level requirements
- Replicate missions (Africa – Asia)

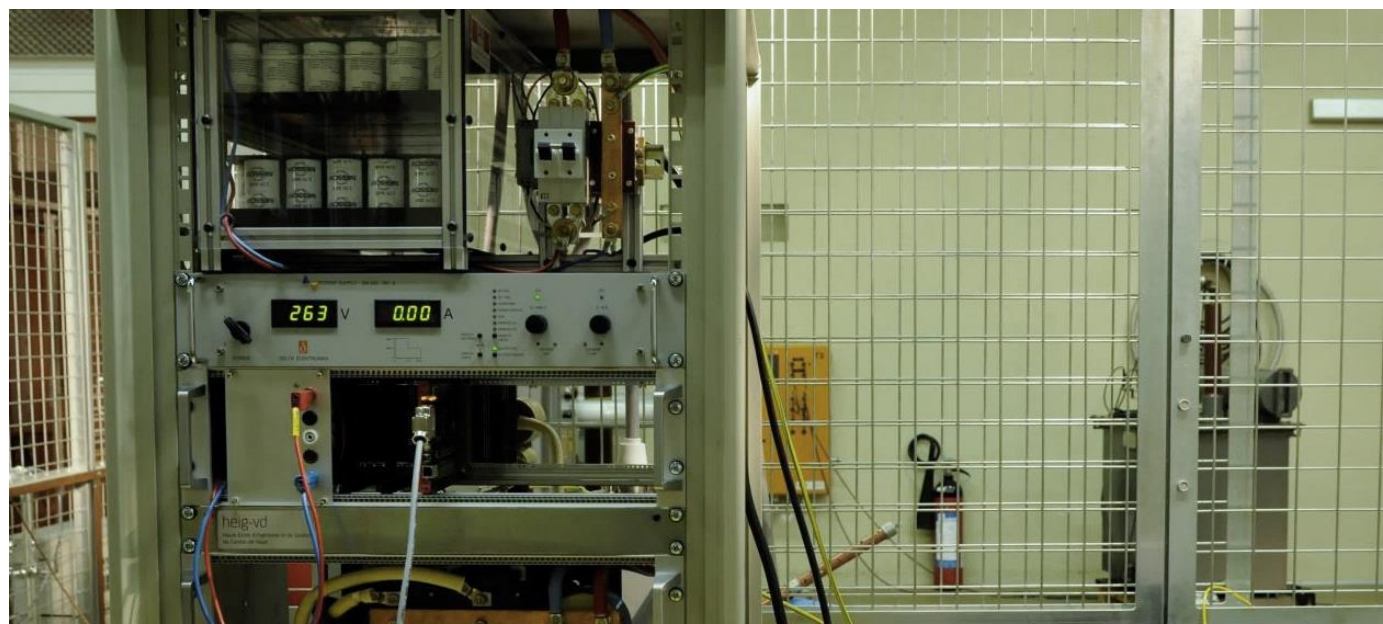


# 2012

**PHASE 1: Demonstrate feasibility**

# 2015

- Fundraising
- Research alliance of partners
- Research and development



- Manage strong fluctuation of electricity network
- Intelligent energy storage
- Powered with solar panels (DC input)

# 2012

**PHASE 1: Demonstrate feasibility**

# 2015

- Fundraising
- Research alliance of partners
- Research and development



- Fully mechanical controls
- Easy to use and ergonomics
- Shocks prevention mechanism



# 2012

**PHASE 1: Demonstrate feasibility**

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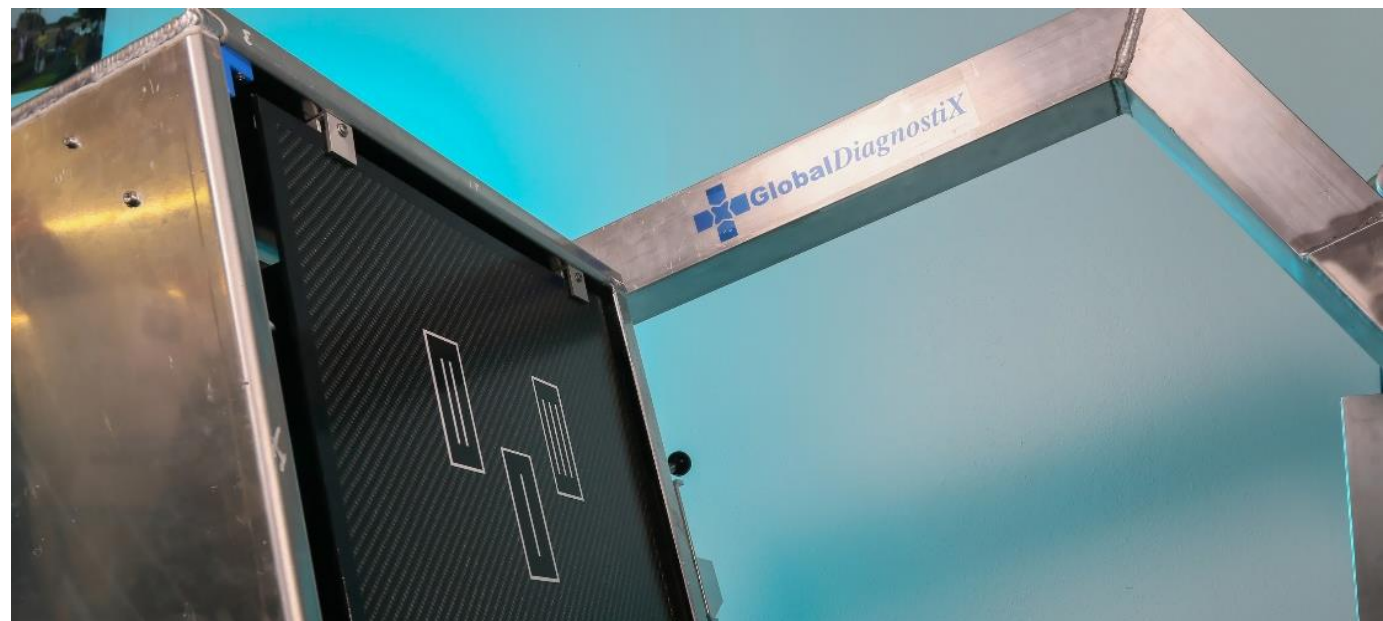
- All-in-one software solution
- Intuitive user interface
- Tele-services (teleradiology, tele-monitoring, etc.)

# 2012

**PHASE 1: Demonstrate feasibility**

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- Fundraising
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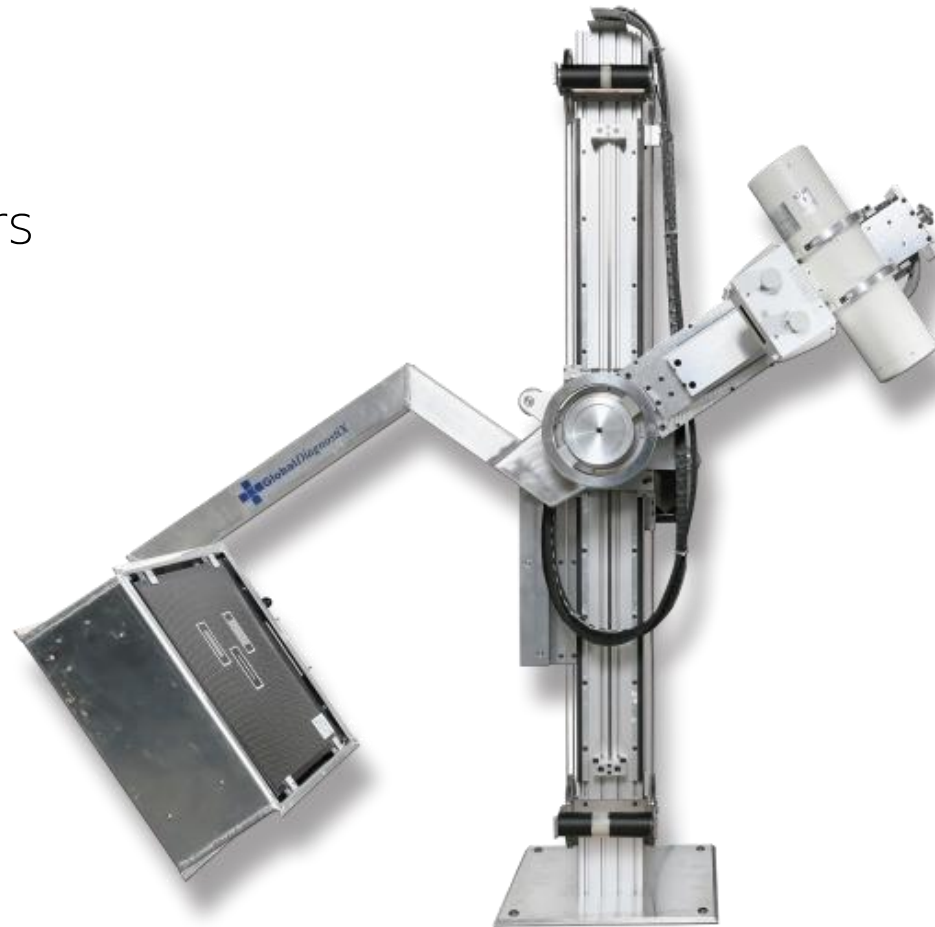
- Costs reduction
- Modular design for maintenance
- Robust design for harsh environment

# 2012

**PHASE 1: Demonstrate feasibility**

# 2015

- Fundraising
- Research alliance of partners
- Research and development
- Business model
- Functional prototype



2016

**PHASE 2: Reliability and technology transfer**

2018

Fundraising / Investors

Research and development

Optimize cost / performance / durability

Technology transfer

Industrialization / Certification

- Clearly identify and understand the need
- Work with locals, strong collaboration with South required
- Lean development (fast prototyping, user centric design)
- Consider the complete value chain in your design by involving all stakeholders
- Continuous work on the business model & deployment strategy



**Thank you**

*“At EPFL they have a remarkable program called EssentialTech. There they develop technology specifically for low-income countries, such as simplified X-ray machines. That is truly visionary.”*

**Adriana Velazquez Berumen**  
*Coordinator Diagnostic Imaging  
and Medical Devices at  
World Health Organization*