Conflict of Interest

We have no conflict
of interest to declare

FRIGO

An actively cooled, portable cold chain solution for resource limited settings

Alan de Lima Pereira, Eric Saldanha,
Mohit Nair, Louis Potter, Lindsay Bryson

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What technology has been disrupted in the last 50 years?

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1970s

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2020s

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1970s

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2020s

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1970s

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2020s

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1970s

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2020s

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What is the current problem?

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What did we want to do about it?

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Create a

portable coolbox

that can retain an

internal temperature of 2 to 8°C

continuously for

days, weeks, and months

only through

off-grid sources of energy

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Not only

address the unmet

needs of today

but

create the untapped

possibilities of tomorrow

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Why hasn’t someone done this already?

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Interviews and correspondence with

22 experts and field staff

from

9 organisations (including MSF)

to research

13 available products

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	AOV International Short Range Carrier	Arktek Passive Storage Device	Indigo Cooler	Isobar Cooler	Emvólio Cooler
Portable size and weight	✓	×	✓	✓	✓
4 week cold-life	×	✓	×	×	×
Low Cost	✓	×	–	–	–
Ice-pack independent	×	×	✓	✓	✓
Grid independent	×	✓	×	×	×
User independent	×	✓	×	×	×
Decentralised	✓	×	×	✓	×
Monitoring	×	×	✓	×	✓
Fail-safes	×	×	×	✓	✓




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How do we know what needs to be done?

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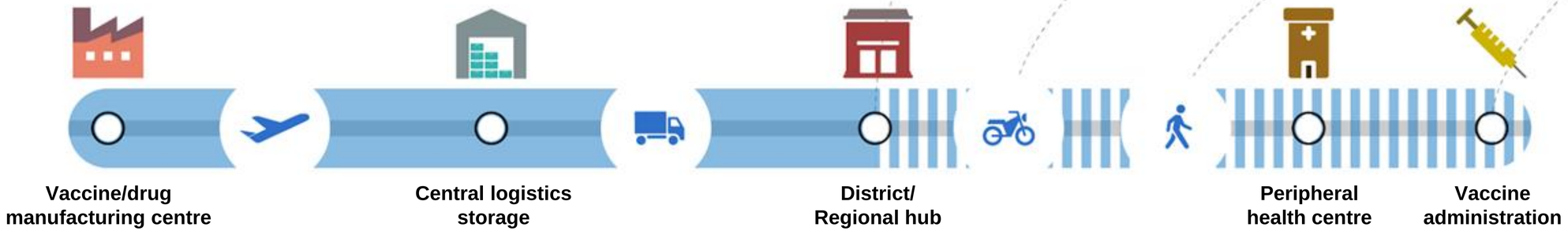
Semi-structured, in-depth interviews with

11 community health workers, experts and senior staff

to research

use-cases, usability, features, redundancies and unmet needs



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User preferences include being

➔**robust, simple to use, and easy to carry**

having a

➔**perpetual cold life utilizing no external power**

with the

➔**ability to track, monitor, and warn, about the condition of the contents**

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Did we do it?

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What have we achieved so far?

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Current ability to cool a

1 litre payload chamber to 2 to 8°C, in under 4 hours

and retain the cold life for

28 hours in +30°C ambient conditions

without the need of

grid electricity or any other external power source

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Where are we going from here?

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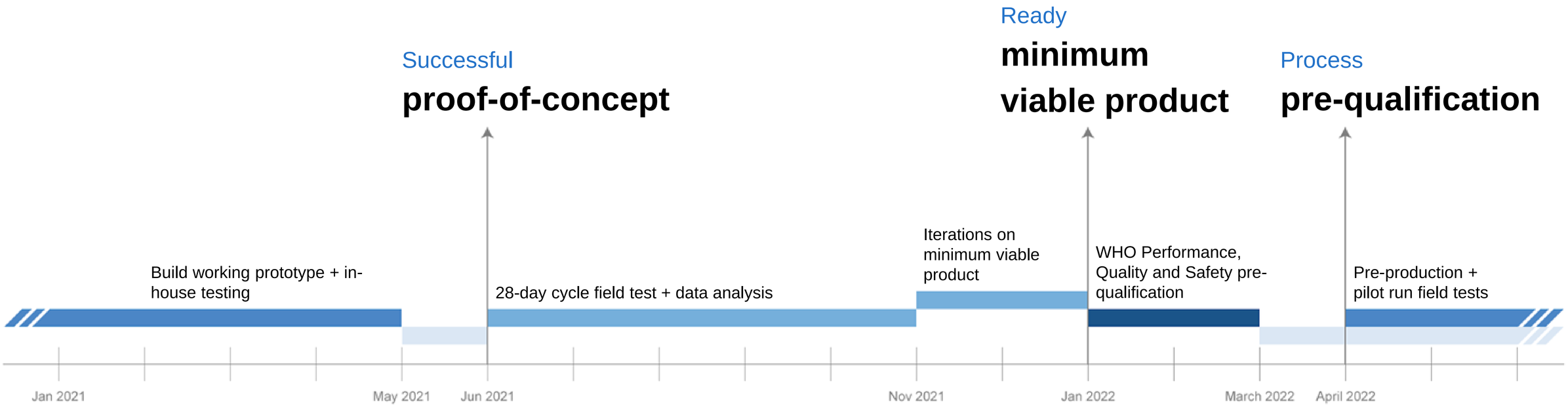

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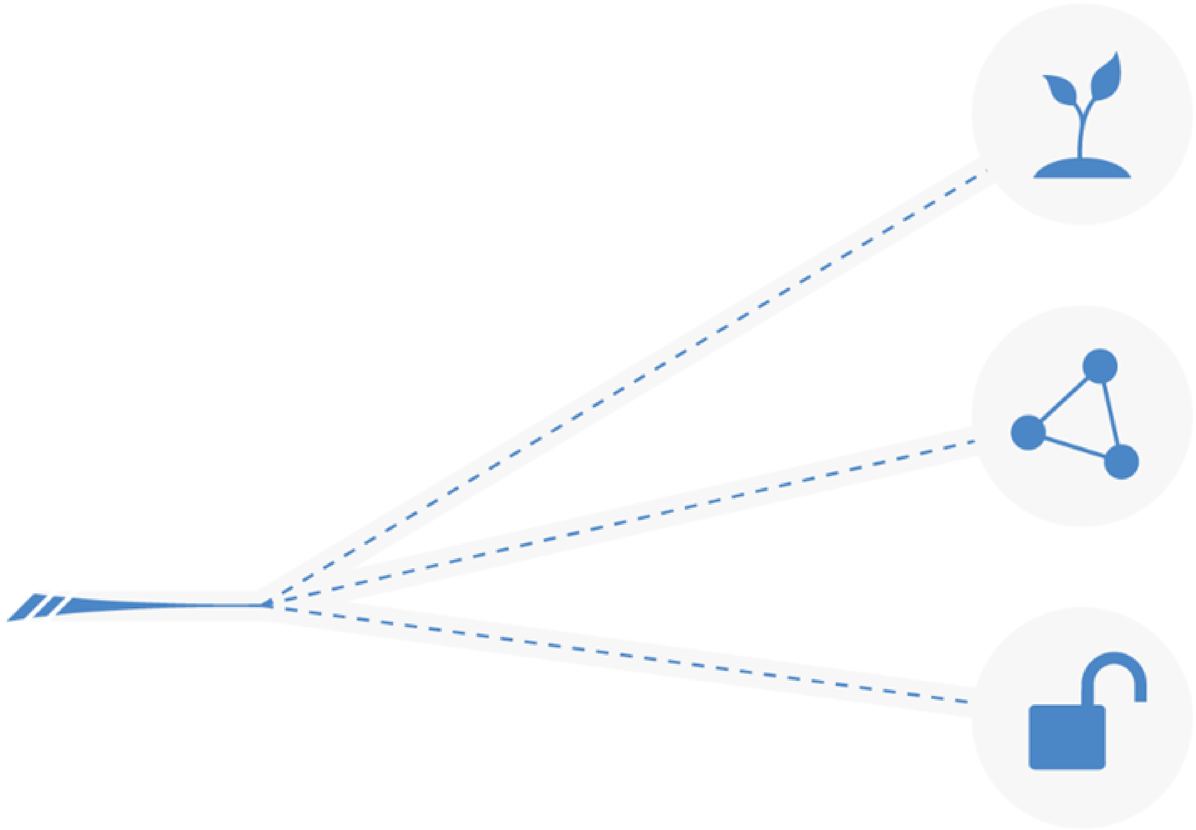

In-house development

within MSF

Commercialisation through

a startup with external partners

Creating a framework for

open source development

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But, what are the risks?

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Broader development of

thermostable vaccines

Overshadowing by

other methods of vaccine delivery

Market penetration of

competitor vaccine carriers

Minimal experience with

innovation and commercialisation

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Can we achieve this alone?

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Driven only through collaborative efforts by

➔**The medical teams in Central African Republic**

➔**MSF OCA Sapling Nursery**

➔**MSF Swedish Innovation Unit**

➔**Interview Respondents**

with constant support from advisors,

➔**Pete Masters**

➔**Erwan Piriou**

➔**Sean King**

➔**Charles Ssonko**

➔**Cesc Galban**

and with prototyping partners,

➔**Dr. Jagdish Chaturvedi and team**

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Thank you, and get in touch!

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