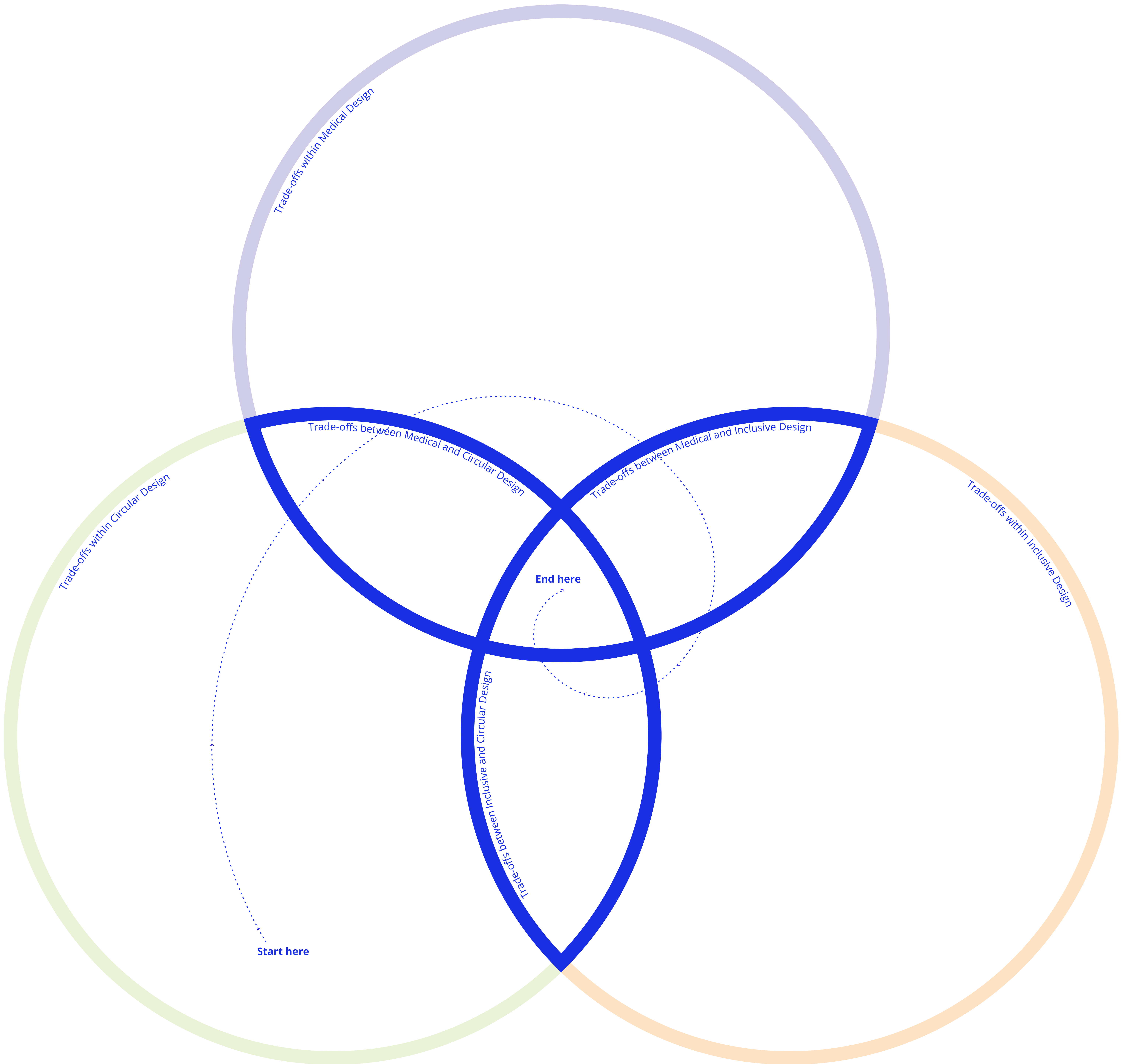


TRADE-OFFS CANVAS

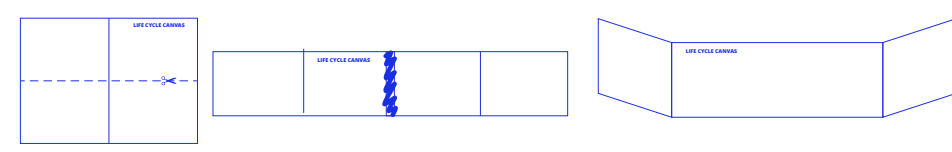
MEDICAL DESIGN
Designing medical devices and services that facilitate
effective, reliable and safe medical practices
for users and patients



CIRCULAR DESIGN
Designing products and services that strive for
a continuous life cycle and preserve the highest value of
materials for as long as possible with the aim to increase
material resource efficiency

INCLUSIVE DESIGN
Designing for **accessible** healthcare for the **majority**,
especially those who thus far have been excluded
from this basic need

preferred format: a0
cut, glue, and fold on the indicated lines



current/future **LIFE CYCLE CANVAS**
delete as appropriate

PRE-LIFETIME research & development extraction manufacturing assembly

LIFETIME & USE CYCLE(S) retail usage

Step 2: Life Cycle Mapping



fold here

Step 1: Lifetime & Use Cycle(s) Mapping



GLUE HERE

LIFETIME & USE CYCLE(S)

POST-LIFETIME waste

Step 1: Lifetime & Use Cycle(s) Mapping

fold here

Step 2: Life Cycle Mapping

ASSUMPTIONS & QUESTIONS CANVAS

1. EXPLORE the current medical device/service

2. EXPLORE its life cycle

3. EXPLORE the contextual factors affecting its life cycle

4. EXAMINE its inclusive opportunities

5. EXAMINE its circular opportunities

6. EXAMINE the balance

7. ENVISION its future life cycle

8. ENVISION the more inclusive and circular medical device/service

CONCLUSIONS & INSIGHTS CANVAS

1. EXPLORE the current medical device/service

2. EXPLORE its life cycle

3. EXPLORE the contextual factors affecting its life cycle

4. EXAMINE its inclusive opportunities

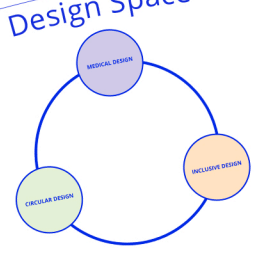
5. EXAMINE its circular opportunities

6. EXAMINE the balance

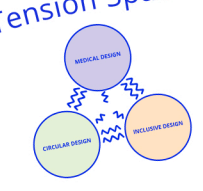
7. ENVISION its future life cycle

8. ENVISION the more inclusive and circular medical device/service

Design Space



Tension Space



- Part
- Step: level basic
- Step: level intermediate
- ⊙ Step: level expert
- ⊙ Step: optional
- - - Phase


When using the COEVOLVE approach, fold out this map, lay it on the ground and immerse yourself. Position yourself on the inside as well as on the outside of the map.

Are you ready to tackle our future challenges by taking multiple perspectives?

This map includes the COEVOLVE approach and accompanies you on your journey towards more inclusive and more circular medical practices.

This map guides you through the 'design', 'tension' and 'solution' space when combining Medical, Inclusive and Circular Design.

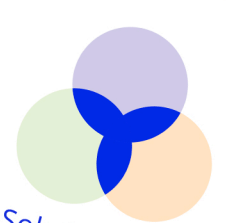
START HERE




COEVOLVE map

We have designed our way into this mess..

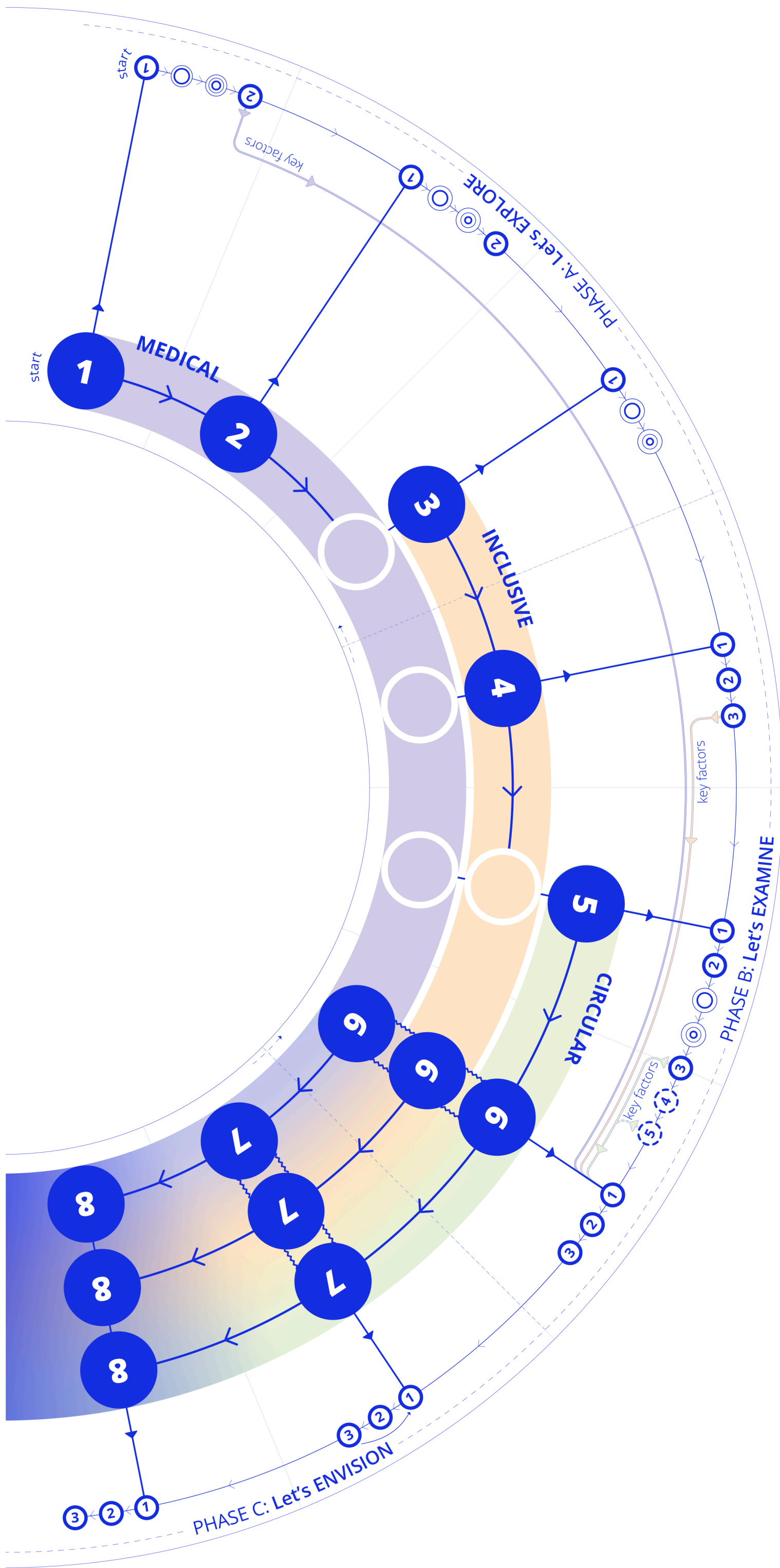
..but we can also design our way out of it!



Solution Space



a step in the right direction



INCLUSIVITY card deck
level intermediate



what about..

the
(un)availability of
cleaning supplies
(e.g. the use of
heavy chemicals
instead)?

INCLUSIVITY card deck
level intermediate



what about..

financial barriers
for the patient?

INCLUSIVITY card deck
level intermediate



what about..

the skills/level of
training of the
user?

INCLUSIVITY card deck
level intermediate



what about..

potential
concerns of the
patient/user?

INCLUSIVITY card deck
level intermediate



what about..

reusing due to
cost?

INCLUSIVITY card deck
level intermediate



what about..

parts or
components
getting lost?

INCLUSIVITY card deck
level intermediate



what about..

the skills/level of
training of the
people involved?

INCLUSIVITY card deck
level intermediate



what about..

the supply chain
for the necessary
consumables,
disposables, or
parts?

INCLUSIVITY card deck
level intermediate



what about..

the
(un)availability of
technicians?

INCLUSIVITY card deck
level intermediate



what about..

storage?

INCLUSIVITY card deck
level intermediate



what about..

the
(un)availability of
spare parts?

INCLUSIVITY card deck
level intermediate



what about..

the
(un)availability of
tools for repair
and maintenance?

INCLUSIVITY card deck
level intermediate



what about..

(eruptive) power
supply?

INCLUSIVITY card deck
level intermediate



what about..

humidity?

INCLUSIVITY card deck
level intermediate



what about..

dust?

INCLUSIVITY card deck
level intermediate



what about..

temperature?

INCLUSIVITY card deck
level intermediate



what about..

external
stakeholders?

INCLUSIVITY card deck
level intermediate



what about..

transport
conditions?

INCLUSIVITY card deck
level intermediate



what about..

the location of
stakeholders?

INCLUSIVITY card deck
level intermediate



what about..

import costs?

preferred format: a4

INCLUSIVITY card deck
level expert

⊙

what about..

the budget
of the location of
use?

INCLUSIVITY card deck
level expert

⊙

what about..

hospital waste
management?

INCLUSIVITY card deck
level expert

⊙

what about..

shame
(e.g. shame
around the usage
of a certain
medical
device/service)?

INCLUSIVITY card deck
level expert

⊙

what about..

literacy?

INCLUSIVITY card deck
level expert

⊙

what about..

service contracts?

INCLUSIVITY card deck
level expert

⊙

what about..

language?

INCLUSIVITY card deck
level expert

⊙

what about..

country-specific
medical
regulations and
policies?

INCLUSIVITY card deck
level expert

⊙

what about..

public mobility?

INCLUSIVITY card deck
level expert

⊙

what about..

different power
outlets?

INCLUSIVITY card deck
level expert

⊙

what about..

altitude?

INCLUSIVITY card deck
level expert



what about..

patient privacy?

INCLUSIVITY card deck
level expert



what about..

cultural barriers
for the
patient/users?

INCLUSIVITY card deck
level expert



what about..

a different
cleaning/
disinfection/
sterilization
technique
(e.g. boiling
water)?

INCLUSIVITY card deck
level expert



what about..

the
(un)availability of
water?

INCLUSIVITY card deck
level expert



what about..

the
(un)availability of
a manual?

INCLUSIVITY card deck
level expert



what about..

reporting a
device/service
failure?

INCLUSIVITY card deck
level expert



what about..

the breaking and
damaging of
accessories?

INCLUSIVITY card deck
level expert



what about..

the awareness of
cleaning and
sterilization
protocols?

INCLUSIVITY card deck
level expert



what about..

contact with the
medical
device/service
company
(e.g. for technical
assistance)?

INCLUSIVITY card deck
level expert



what about..

the total cost of
ownership
(i.e. direct and
indirect costs
of the
device/service)?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

hardware failure?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

recyclable/
recycled
materials?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

generic/
off-the-shelf parts
and components?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

reducing material
usage?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

the lifetime of the
device/service?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

reducing weight
and volume?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

connection of the
parts?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

the difficulty to
clean/disinfect/
sterilize?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

production
waste?

**CIRCULARITY card deck
level intermediate**

⊙

what about..

other production
techniques?

preferred format: a4

CIRCULARITY card deck
level intermediate



what about..

cleaner energy
resources?

CIRCULARITY card deck
level intermediate



what about..

minimizing
consumables/
disposables?

CIRCULARITY card deck
level intermediate



what about..

a mobile
platform?

CIRCULARITY card deck
level intermediate



what about..

reverse logistics?

CIRCULARITY card deck
level intermediate



what about..

difficult
maintenance
and repair?

CIRCULARITY card deck
level intermediate



what about..

a product-service-
system?

CIRCULARITY card deck
level intermediate



what about..

service contracts?

CIRCULARITY card deck
level intermediate



what about..

refurbishment or
remanufacturing?

CIRCULARITY card deck
level intermediate



what about..

modularity?

CIRCULARITY card deck
level intermediate



what about..

recycling of
materials?

CIRCULARITY card deck
level expert



what about..

minimizing
energy
consumption
during
production,
transport, and
logistics?

CIRCULARITY card deck
level expert



what about..

the costs of
recovering the
device/service?

CIRCULARITY card deck
level expert



what about..

the packaging?

CIRCULARITY card deck
level expert



what about..

the infrastructure
to recover
resources?

CIRCULARITY card deck
level expert



what about..

the circular
awareness of
stakeholders?

CIRCULARITY card deck
level expert



what about..

difficulties in
communication or
relationships
between
stakeholders?

CIRCULARITY card deck
level expert



what about..

(the dangers of)
incineration?

CIRCULARITY card deck
level expert



what about..

life cycle service?

CIRCULARITY card deck
level expert



what about..

sharing the use?

CIRCULARITY card deck
level expert



what about..

a fixed number
of use cycles?

CIRCULARITY card deck
level expert



what about..

software failure?

CIRCULARITY card deck
level expert



what about..

the
(un)availability of
components/
materials in the
context of use?

CIRCULARITY card deck
level expert



what about..

using only one
material?

CIRCULARITY card deck
level expert



what about..

the device/service
being outdated?

CIRCULARITY card deck
level expert



what about..

the introduction
of more efficient
technologies?

CIRCULARITY card deck
level expert



what about..

integrating
functions?

CIRCULARITY card deck
level expert



what about..

additives and
surface
treatments?

CIRCULARITY card deck
level expert



what about..

printing and
labeling?

CIRCULARITY card deck
level expert



what about..

hazardous
components?

CIRCULARITY card deck
level expert



what about..

hybrid devices
(e.g. critical &
non-critical)?

preferred format: a4

INCLUSIVITY card deck
level intermediate

◎

what about..

INCLUSIVITY card deck
level intermediate

◎

what about..

INCLUSIVITY card deck
level expert

◎

what about..

INCLUSIVITY card deck
level expert

◎

what about..

INCLUSIVITY card deck
level expert

◎

what about..

CIRCULARITY card deck
level intermediate

◎

what about..

CIRCULARITY card deck
level intermediate

◎

what about..

CIRCULARITY card deck
level expert

◎

what about..

CIRCULARITY card deck
level expert

◎

what about..

CIRCULARITY card deck
level expert

◎

what about..

preferred format: a4

INCLUSIVITY
card deck

INCLUSIVITY
card deck

INCLUSIVITY
card deck

INCLUSIVITY
card deck

INCLUSIVITY
card deck



COEVOLVE



COEVOLVE



COEVOLVE



COEVOLVE



COEVOLVE

INCLUSIVITY
card deck

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card deck

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card deck

INCLUSIVITY
card deck

INCLUSIVITY
card deck



COEVOLVE



COEVOLVE



COEVOLVE



COEVOLVE



COEVOLVE

preferred format: a4

CIRCULARITY
card deck

CIRCULARITY
card deck

CIRCULARITY
card deck

CIRCULARITY
card deck

CIRCULARITY
card deck



COEVOLVE



COEVOLVE



COEVOLVE



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COEVOLVE



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