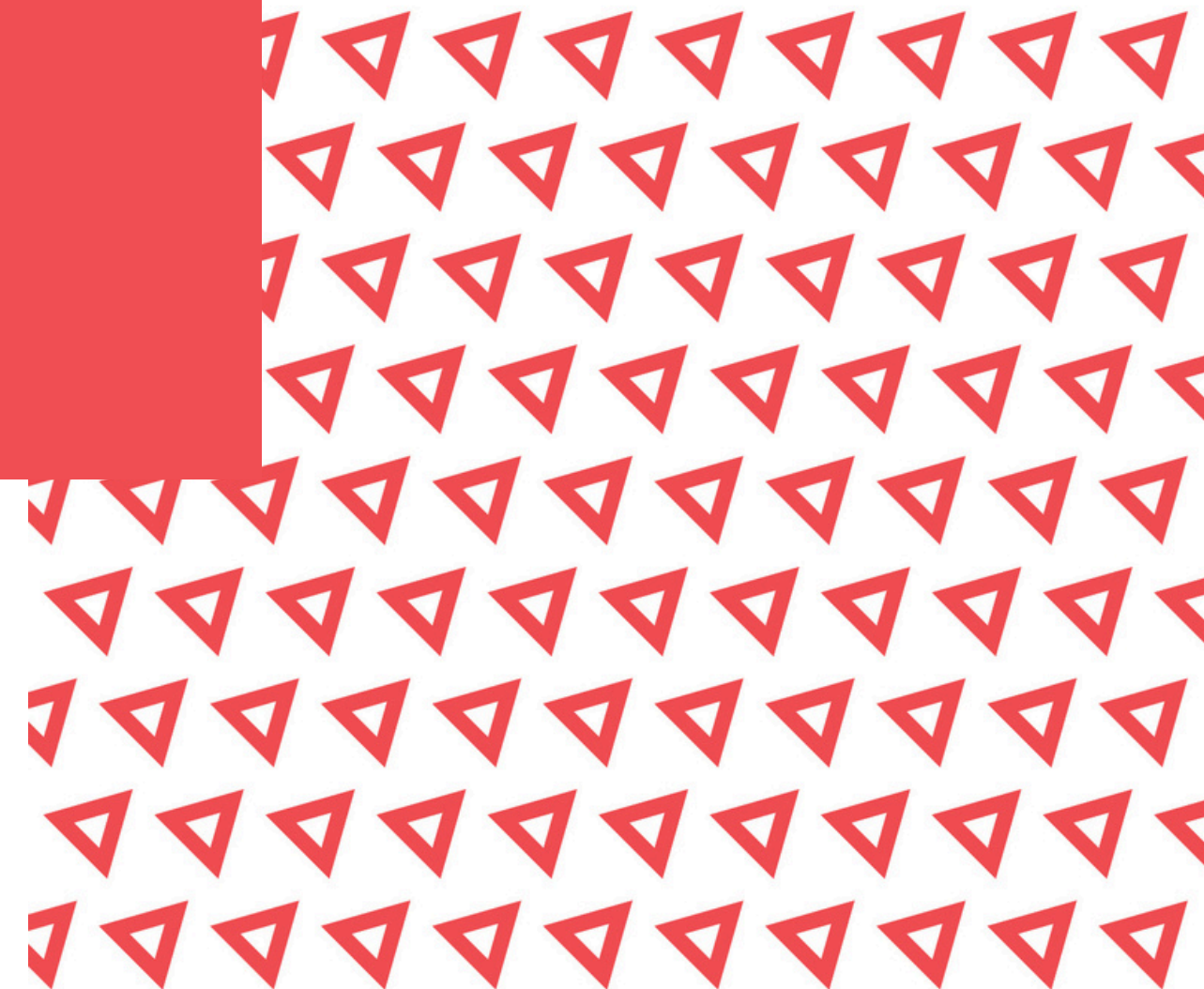


# Designing Resilient Assistive Technology Systems through Distributed Manufacturing and Local Production: Case studies from Nepal

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*Presenting at: 12th National Summit of Health and  
Population Scientists in Nepal (10 to 12 April 2026)*



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# Introduction



AT2030 tests ‘what works’ to improve access to life changing Assistive Technology for all.

## GDI Hub’s AT2030 Programme



**29m**

People reached

**35**

Countries



**£19.8m**

investment by UK Aid; will be matched 100% by GDI Hub and partners

**Innovation**

- New Tech
- New Ideas
- New Ventures
- New Models

## AT2030 Implementation and Impact

The AT2030 programme is made up of four clusters which run in parallel and are designed to test innovative approaches to enabling access to AT.



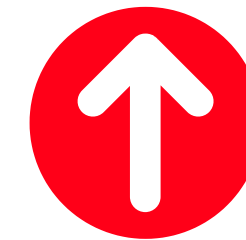
# Global supply chain vulnerability in healthcare



- 7.8/8.1 Magnitude EQ shook the entire nation
- Around 9000 deaths and 21000 injuries
- Earthquake followed by Economic blockades
- Shortage of critical medical items and essential supplies

## Lessons for me:

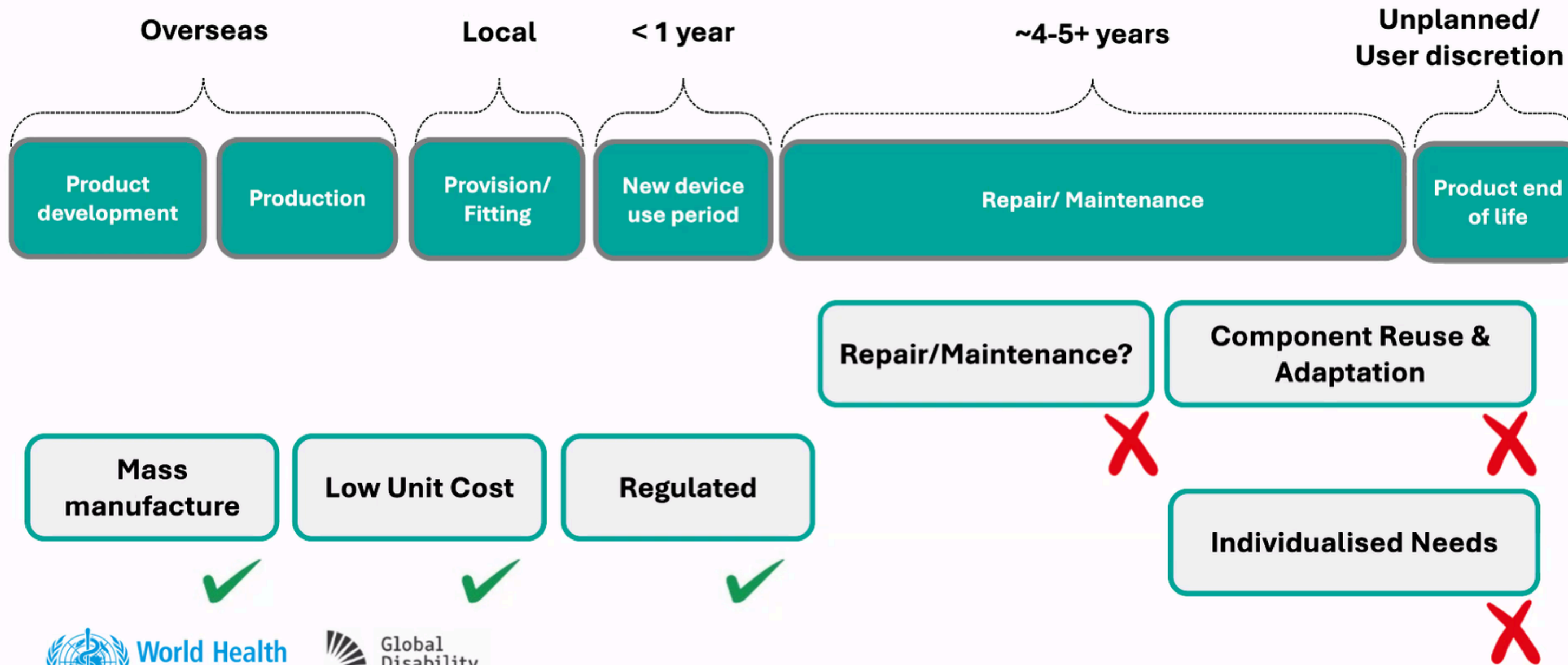
- Catastrophe comes in PACKAGE
- Earthquake > Landslides > **Logistical Disruptions** > Geo- political tensions
- Rise in incidence due to climate change effects



# Global supply chain vulnerability in healthcare



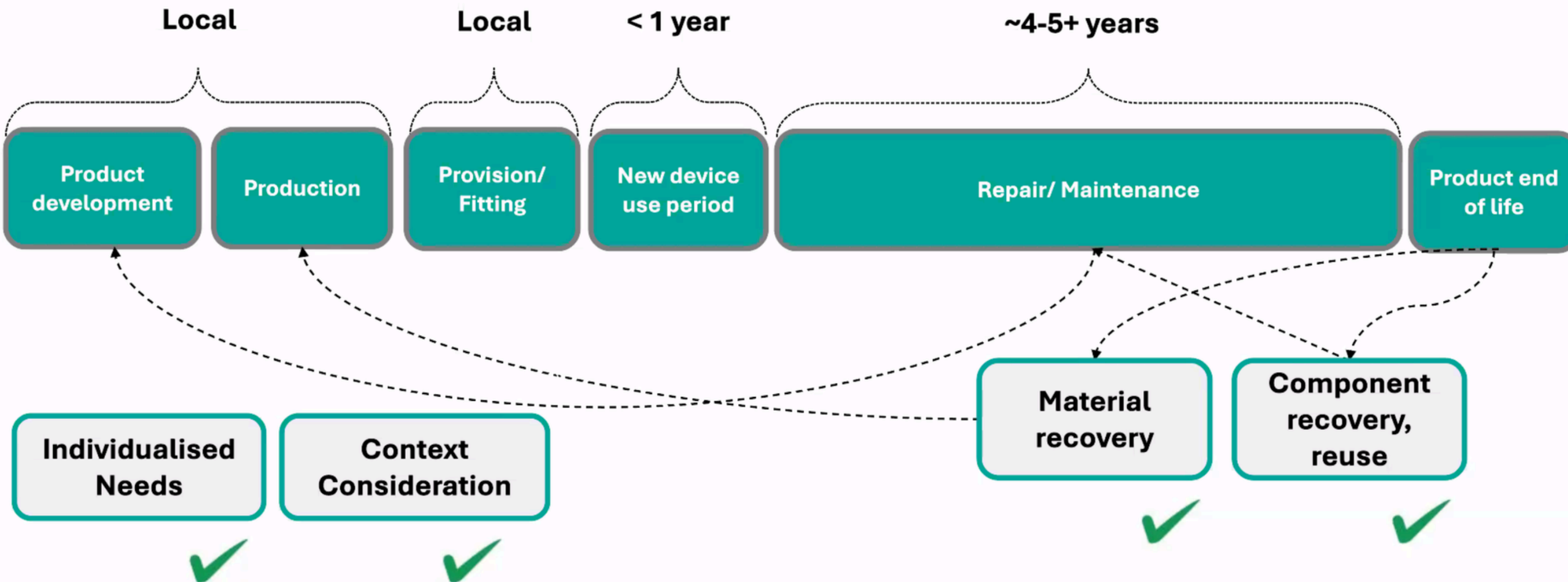
## Global AT value chains

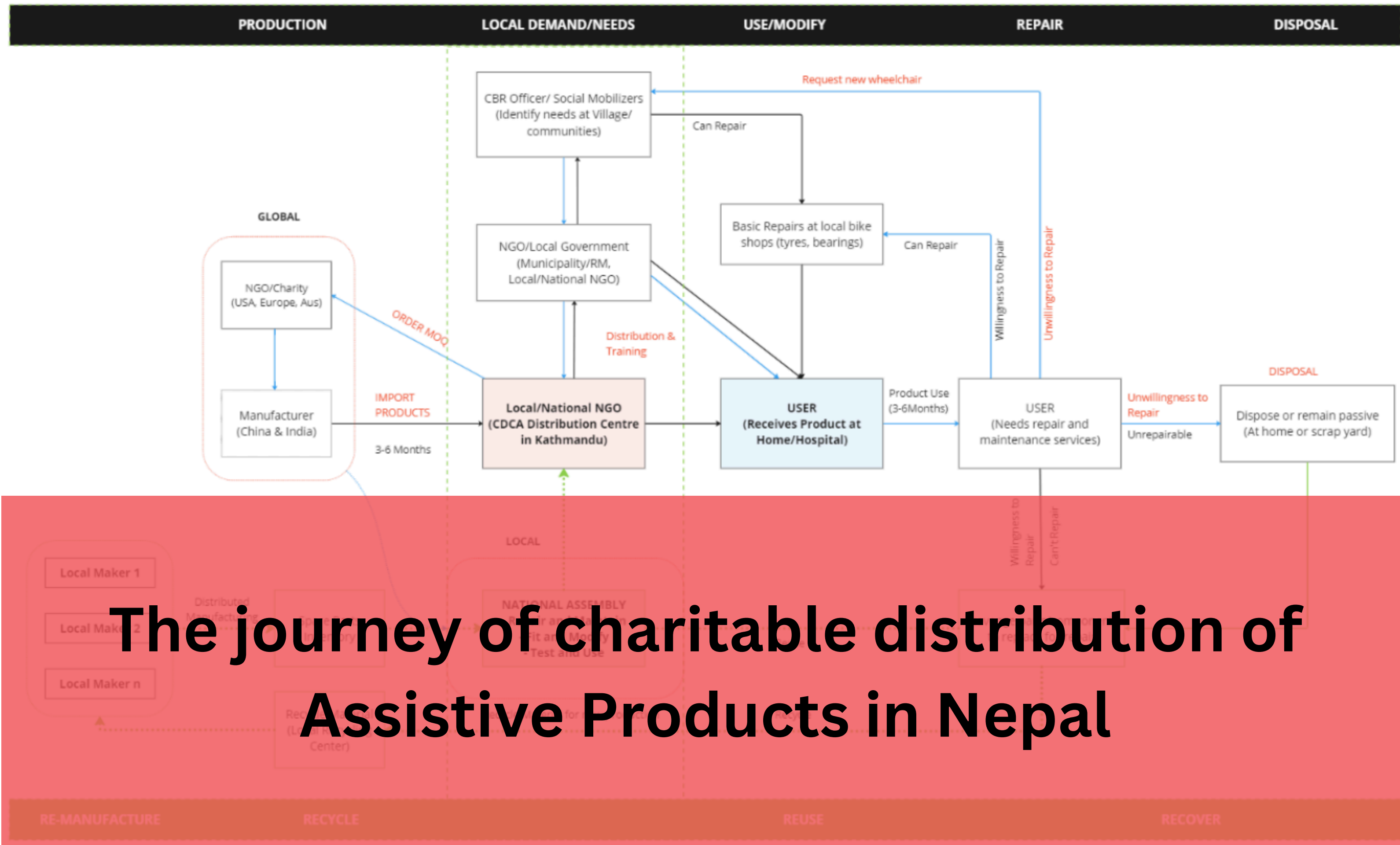


# Global supply chain vulnerability in healthcare



## Localised AT value chains





# The journey of charitable distribution of Assistive Products in Nepal

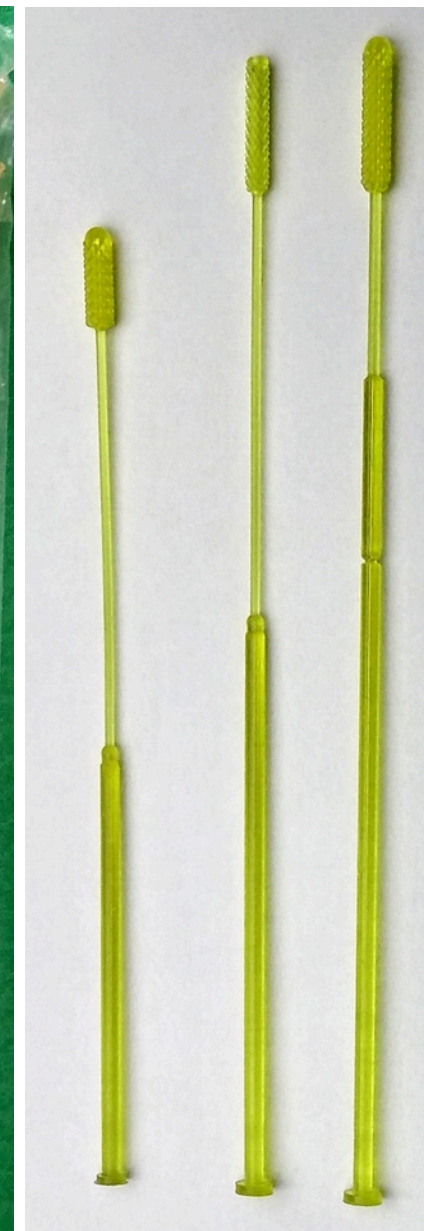
# Supply-chain disruption and COVIDaction LPLS



30000+ PPE production



NS Swab Sample Collection Kits

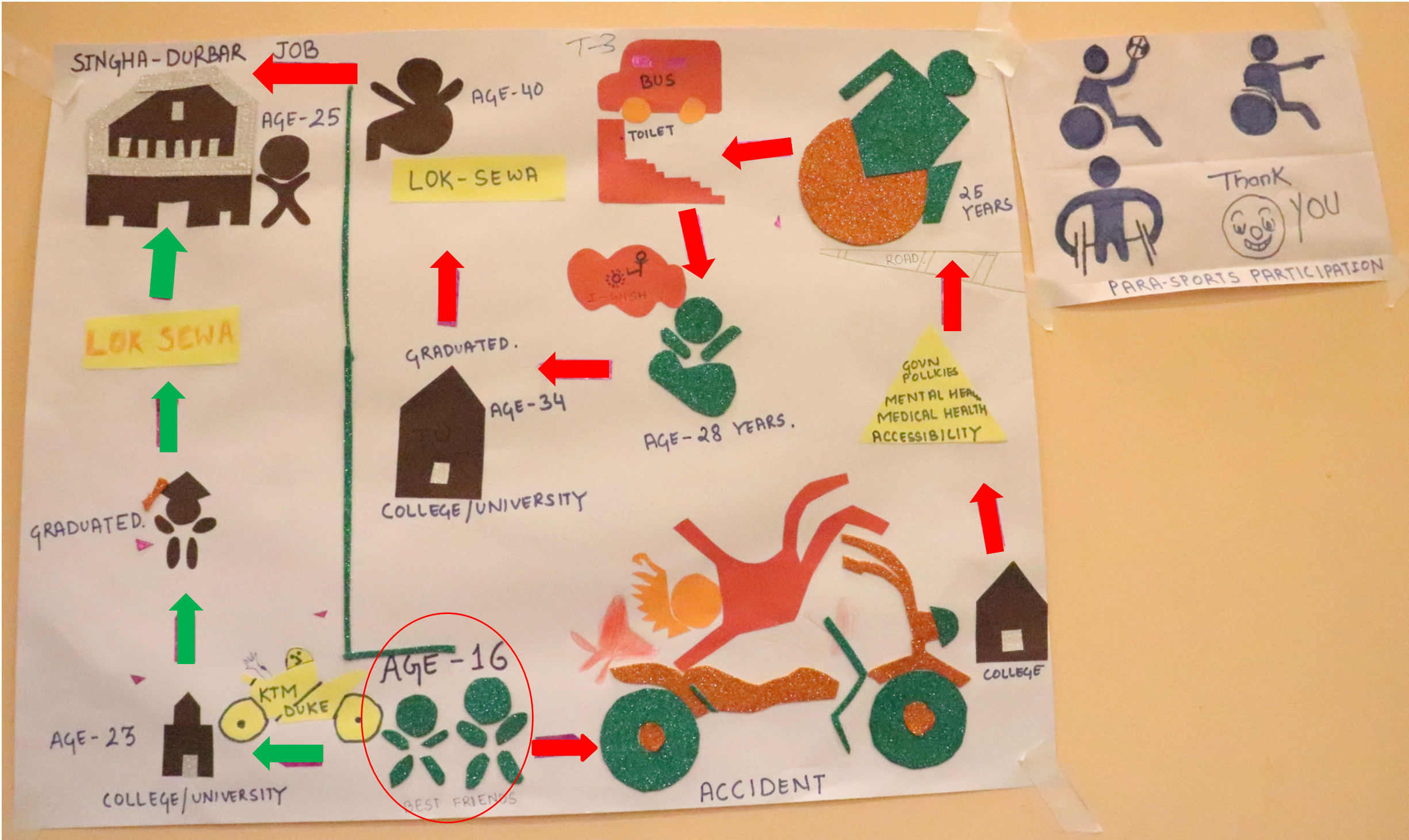


**Local Distributed Manufacturing was the approach for response.**

Link: <https://innovationaction.org/lpls/zener>



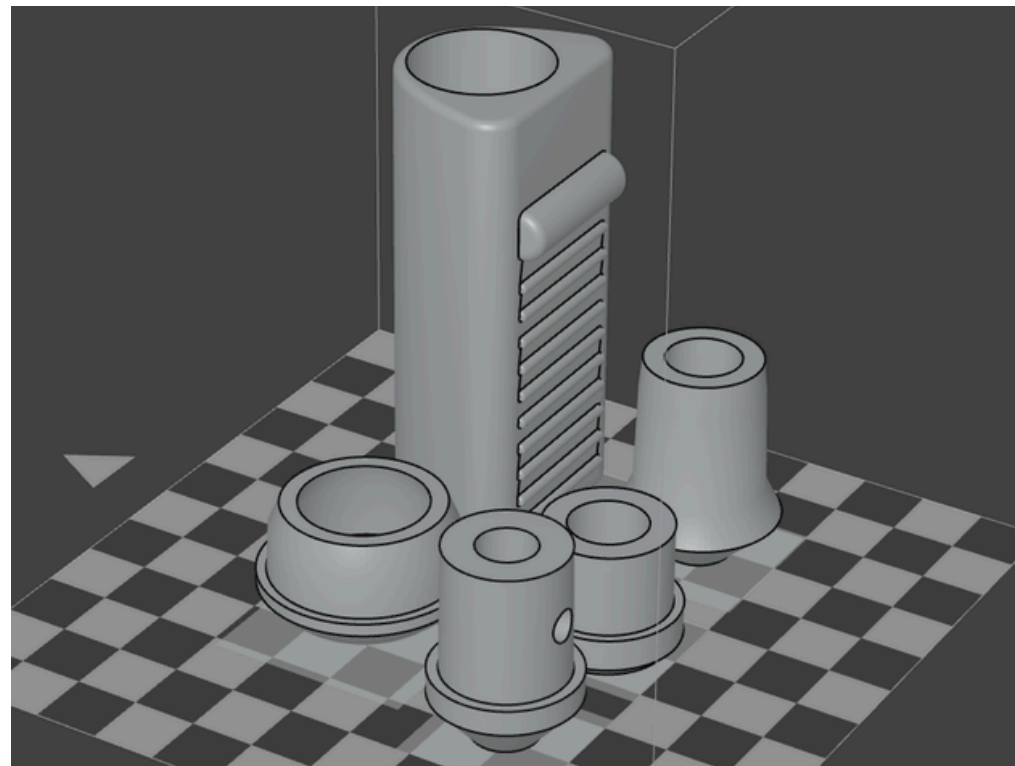
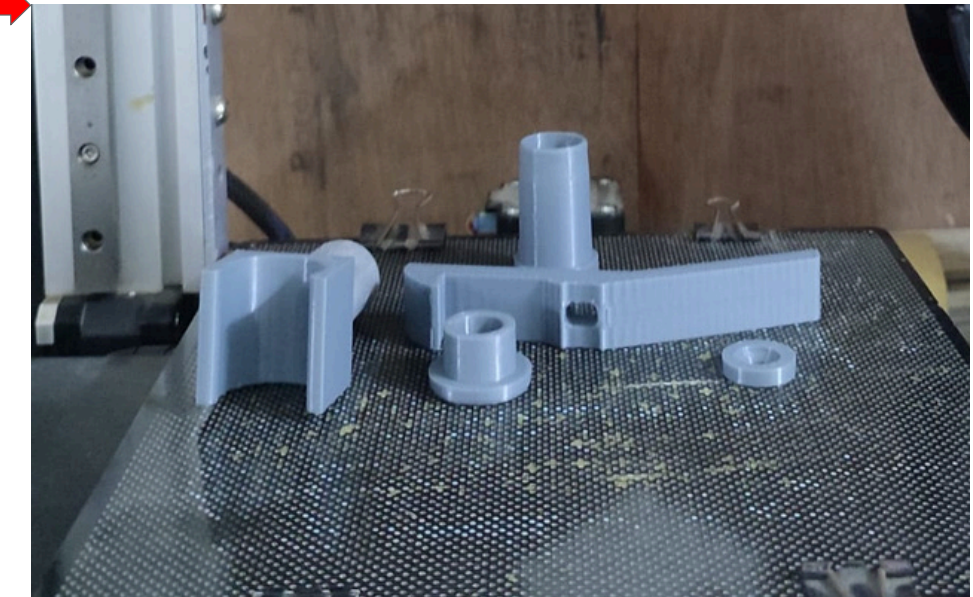
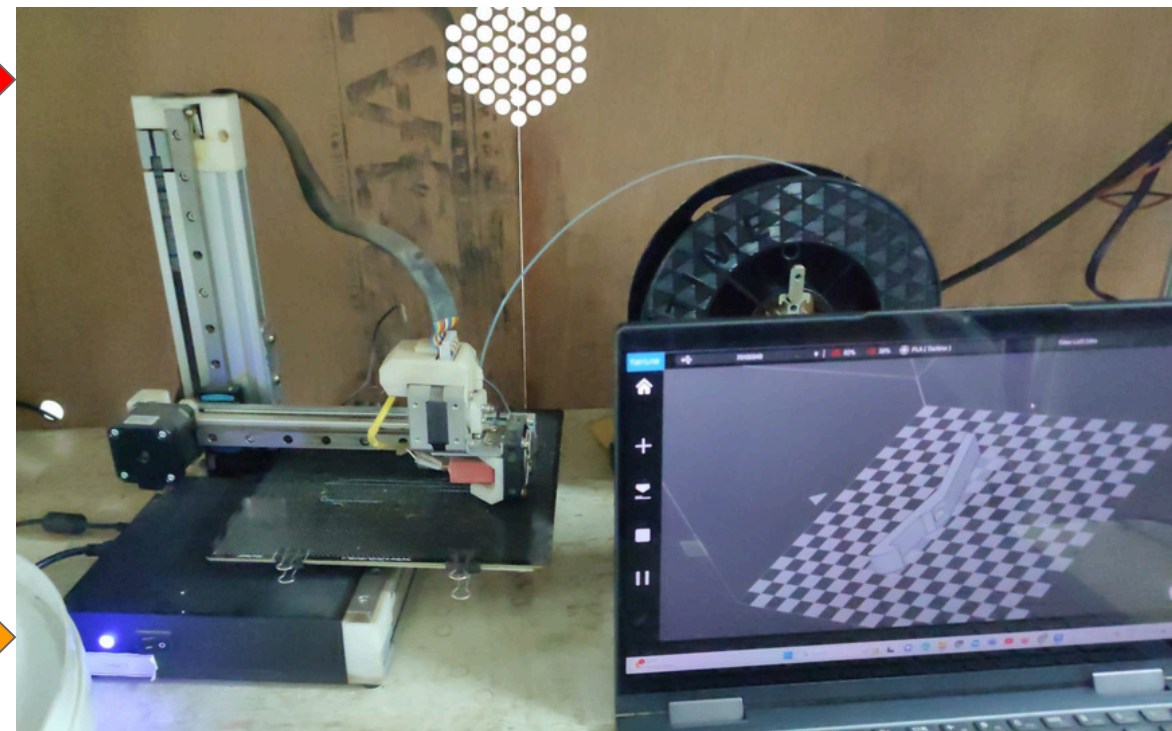
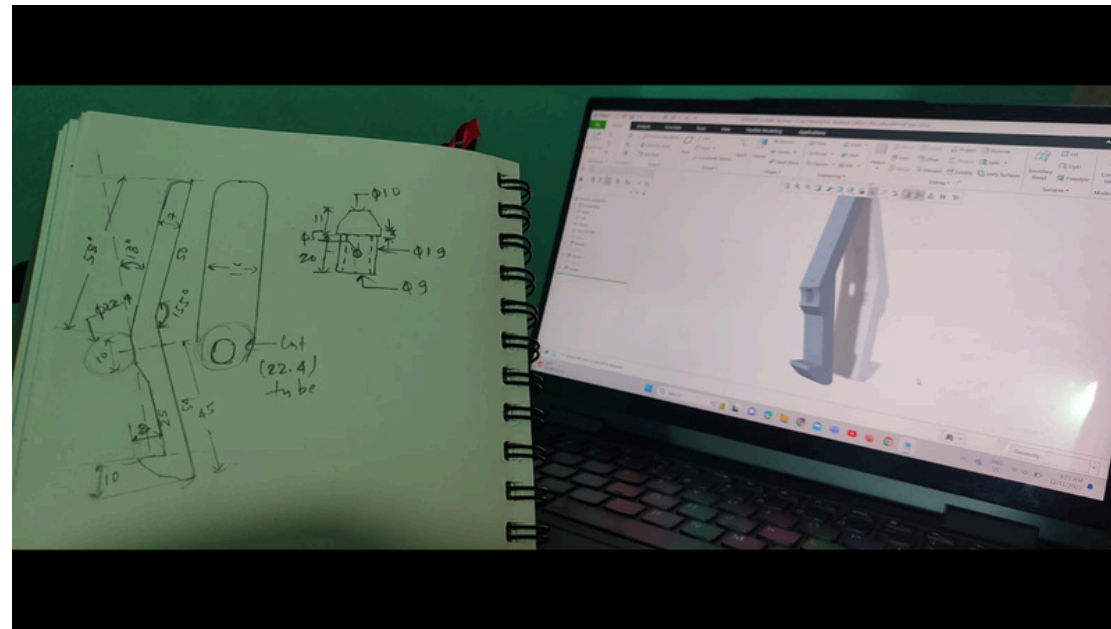
# Impact of Assistive Products on User's life



Rich Picture: Situation of Wheelchair/AT provision in Nepal  
Location: Kathmandu Workshop, April 2024



# Case Study: Wheelchair Spare Parts



# Case Study: Wheelchair Spare Parts

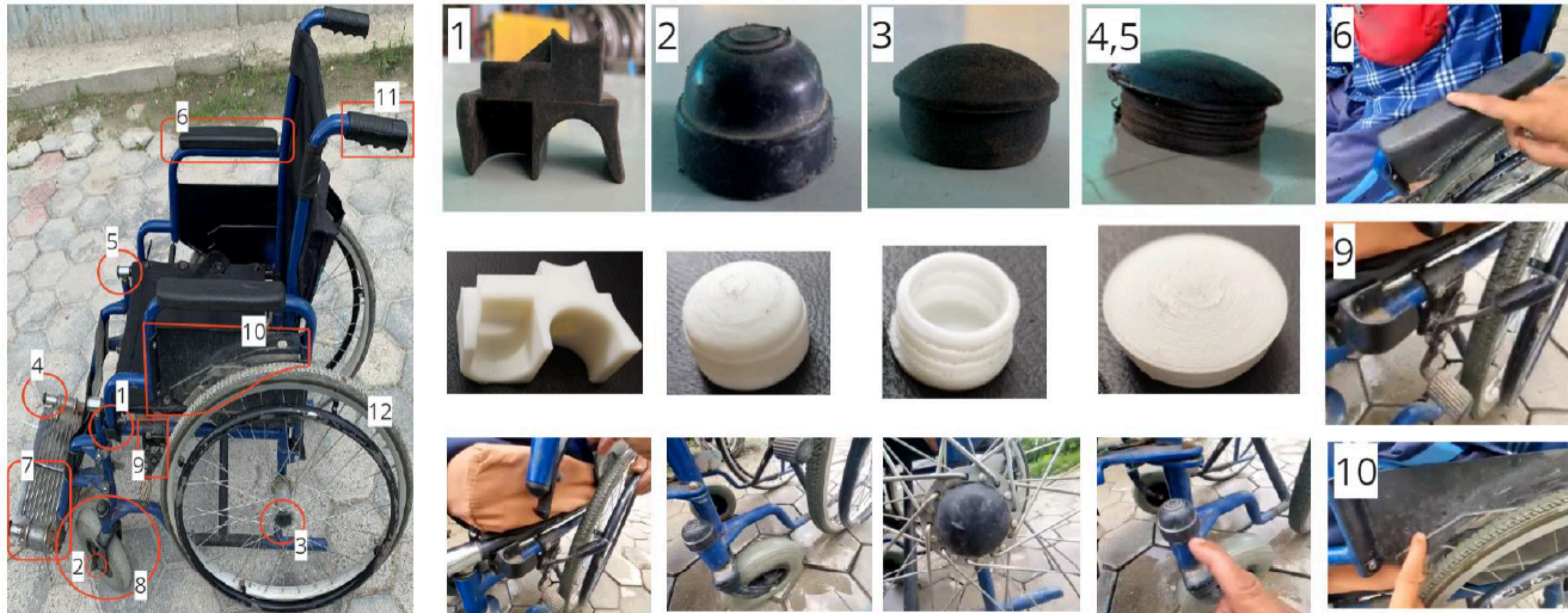


Figure 9 (1) Seat Clamp (2) Castor ring cap (3) Wheel cap (4) Ring cap A (5) Ring cap B (6) Armrest (7) Footrest (8) Caster wheel (9) Brake (10) Arm rest side panel (11) Push grip



# Case Study: Wheelchair Spare Parts



Figure 10 Wheelchair components (1) CAD model prepared for 3D printing (Upper) and original damaged seat clamp sample (Lower) (2) 3d printed ring cap



# Case Study: Transtibial Prosthetics



*It is estimated that by 2050 over 3.5 billion people would benefit from Assistive Technology, yet 90% will not have access.*

- WHO

*Assistive technology can revolutionize development, learning and participation: It's time children everywhere have access.*

- UNICEF

- A** Cosmetic Hand
- B** Partial Foot
- C** Transtibial Prosthetic



# Case Study: Transtibial Prosthetics

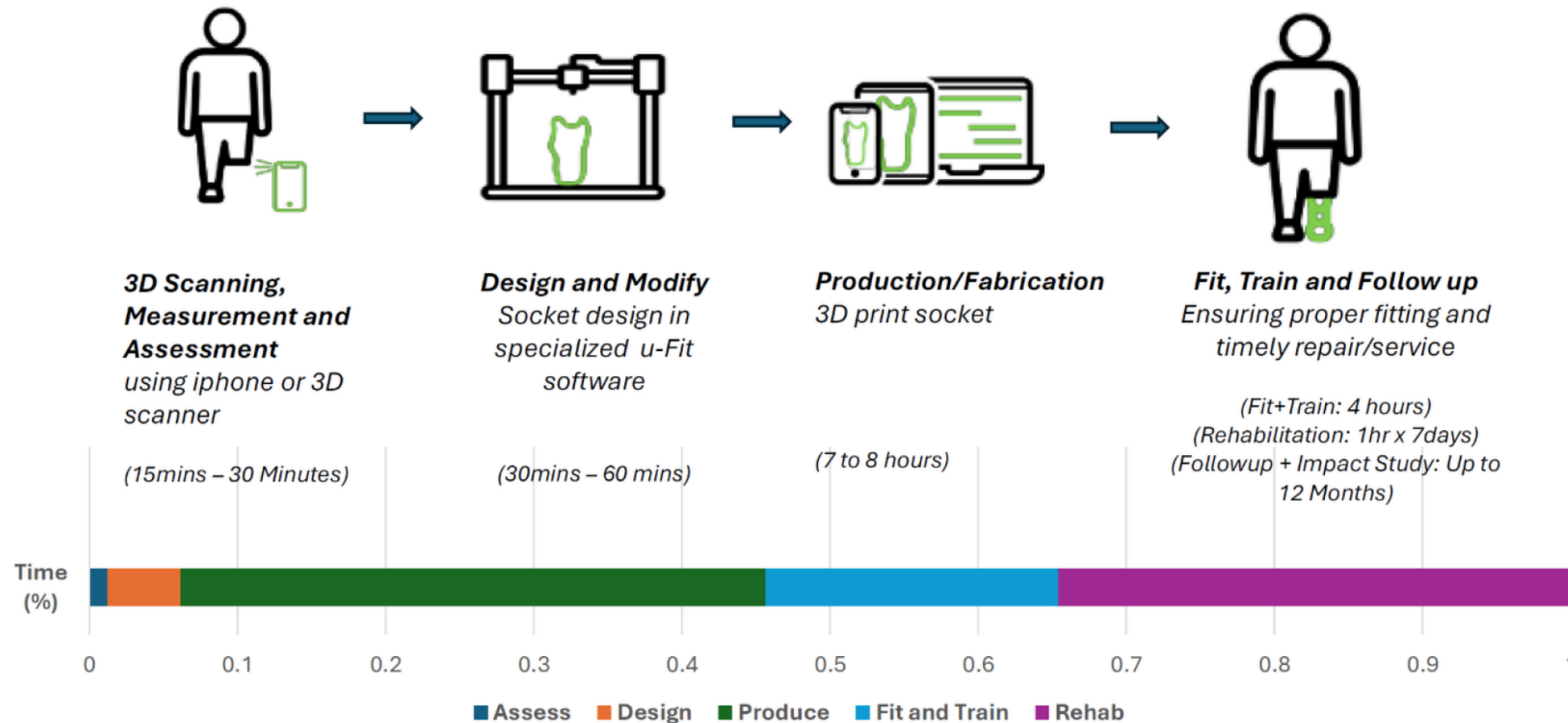


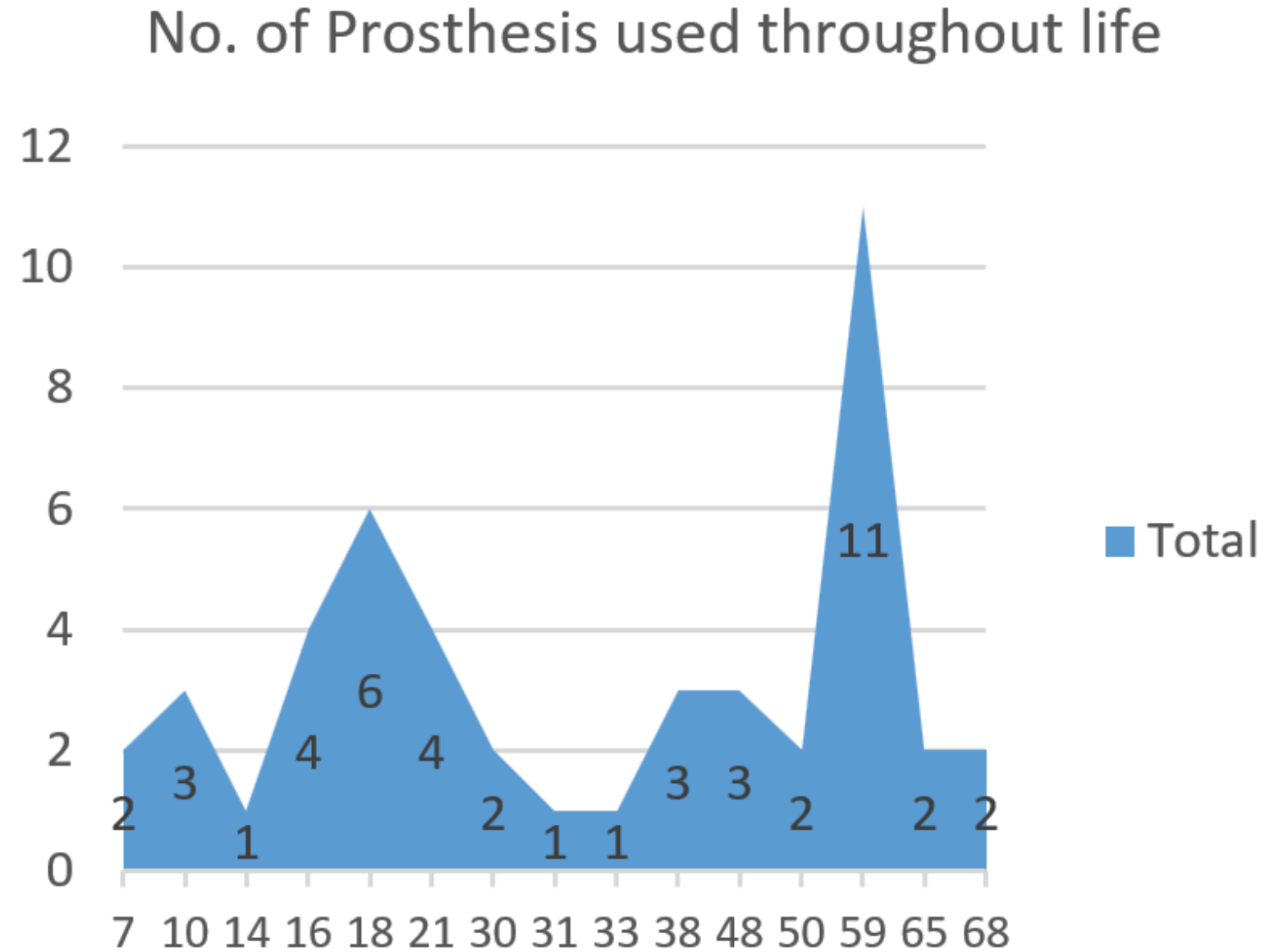
Figure 1. Digital workflow saves significant amount of time and cost in measurement & assessment and modify & fabrication stage with scanning and printing automation.



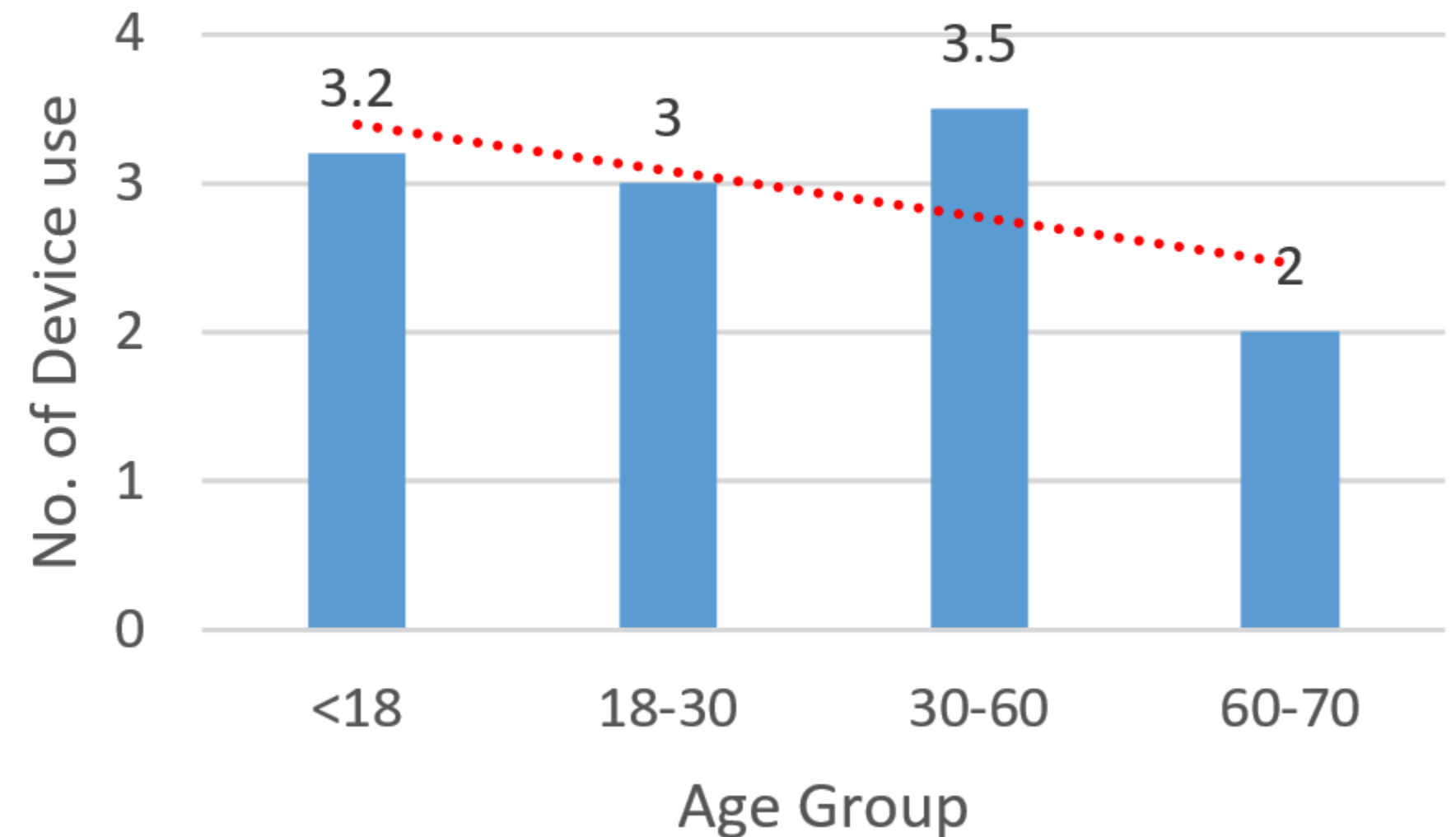
# Case Study: Transtibial Prosthetics



No. of Prosthesis



Avg. no. of Prosthesis used by Age group



Age



PRODUCTION

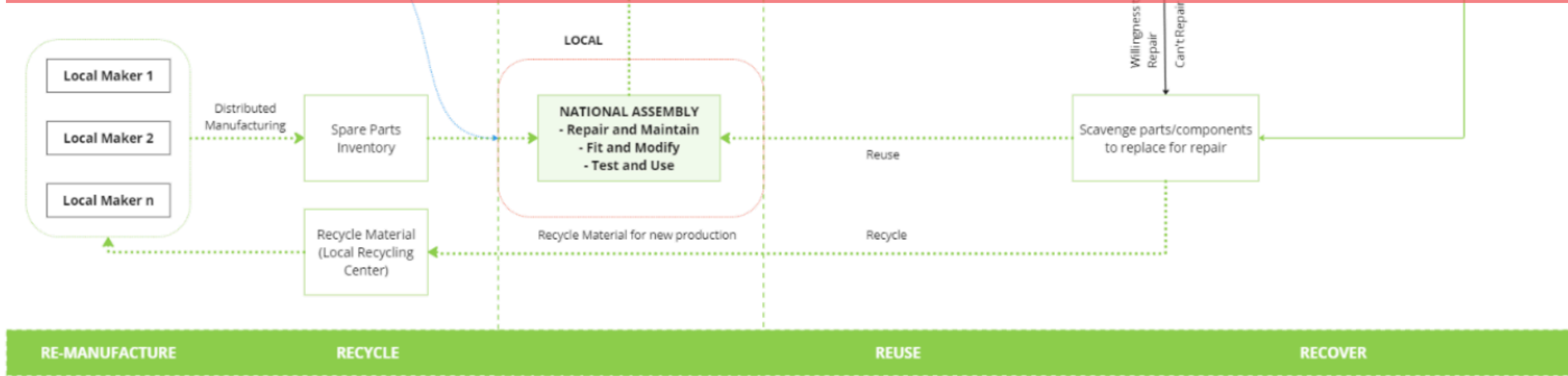
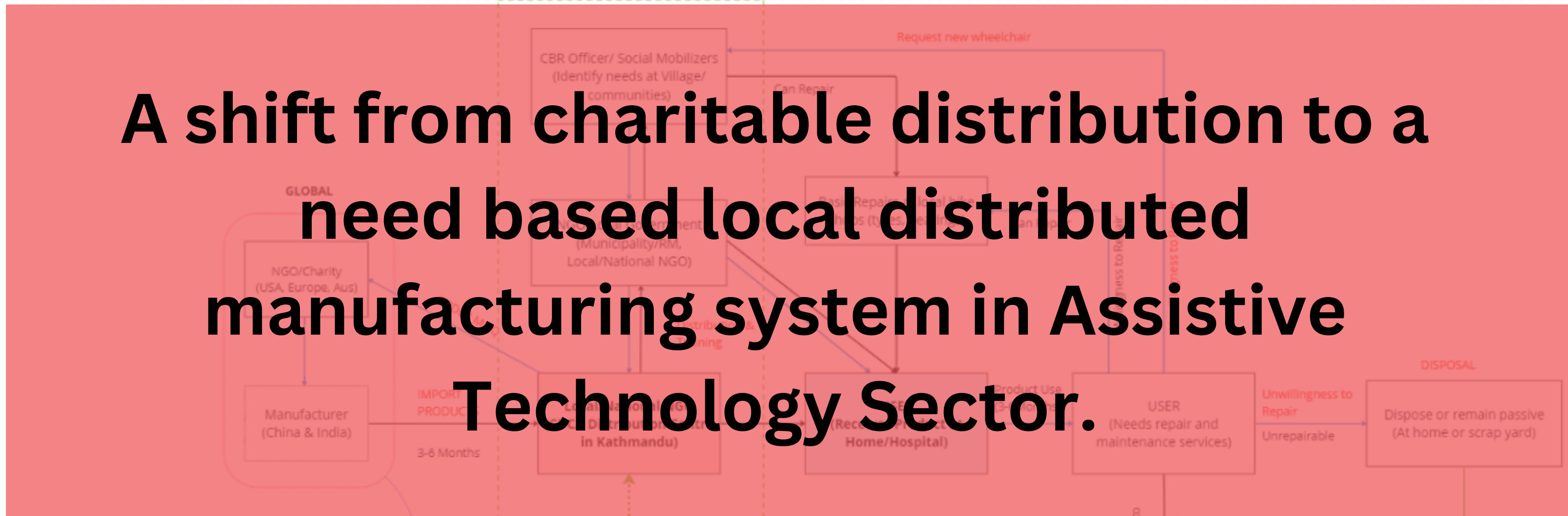
LOCAL DEMAND/NEEDS

USE/MODIFY

REPAIR

DISPOSAL

# A shift from charitable distribution to a need based local distributed manufacturing system in Assistive Technology Sector.



Flow of Products →

Flow of Information →

Local Manufacturing →



# Thank you!



# References



1. Thapa, R (2025). Nepal Wheelchair Provision Workshop Report | AT2030 Programme. [online] Available at: <https://at2030.org/nepal-wheelchair-provision-workshop-report/>.
2. Thapa, R (2025). Digital Prosthetics in Nepal (Project Report) | AT2030 Programme. [online] Available at: [https://at2030.org/static/at2030\\_core/outputs/ProjectReport\\_UNICEF\\_CDCA\\_Mar\\_D1\\_1\\_1.pdf](https://at2030.org/static/at2030_core/outputs/ProjectReport_UNICEF_CDCA_Mar_D1_1_1.pdf)

