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Global Disability Innovation Hub

AT2030

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Kathmandu, Nepal

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Local Systems Strengthening

AT2030 Programme In Nepal / at2030.org

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AT2030, funded by UK International Development, is testing ‘what works’ to enable access to life-changing assistive technology (AT) for all.

The AT2030 Local Systems Strengthening Project has the major focus of building local production capacities that address provision gaps that global supply chains currently leave.

This cannot be done in isolation though and requires systemic innovation and actions across the AT provision system to enable integration.

1. Early Community Building and System Mapping

120 Stakeholders Across 4 Provinces

Situational Analysis for Manual Wheelchair Provision

The Situational Analysis mapped how manual wheelchair provision works across Nepal and identified key gaps in access, supply, repair and maintenance. Interviews and provincial workshops created a shared understanding of the wider wheelchair ecosystem and identified priorities and opportunities for locally led innovation and more sustainable provision.

Enabling Fridays Community

A collaborative community bringing together people with disabilities, clinicians, engineers, makers and service providers to identify challenges, build relationships and co-create locally relevant assistive technology solutions. GDI material describes its mission around collectively building sustainable AT provision through infrastructure, evidence, standards and innovation.

Wheelchair Spare Parts Production Pilot

Testing a first local production pathway with 5 identified critical wheelchair spare parts, linking identified repair needs with local manufacturing and fabrication capability. The pilot explored how parts that are difficult or costly to source through existing supply chains can instead be produced in Kathmandu.

Kathmandu Manufacturing Capacity Mapping

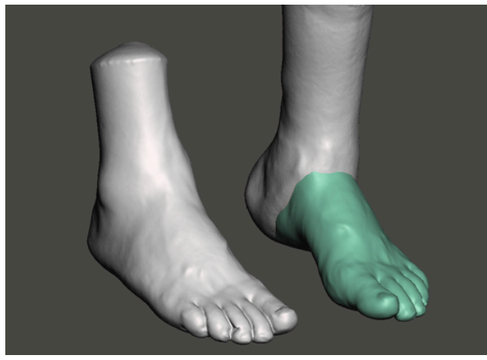
Mapping local manufacturing capabilities and connecting producers, service providers and innovators to better understand where products and components can be made locally. This builds on wider GDI work to make Nepal's AT ecosystem more visible and enable stronger collaboration and innovation pathways.

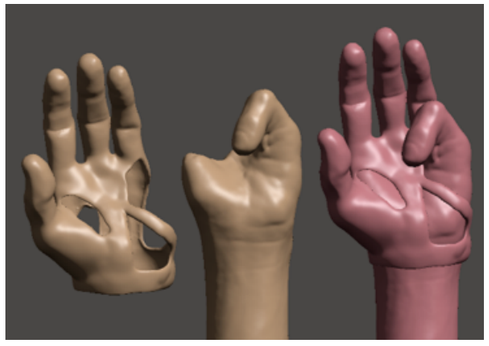
Innovation Partnership Building

Building multidisciplinary partnerships around real unmet needs, bringing together users, clinicians, OTs, researchers, engineers and local producers to move ideas from identified challenges towards practical solutions across two cases:

Co-Designing a Bespoke Partial Foot Prosthesis

Working with a man with a partial-foot amputation, the team combined 3D scanning, digital design and flexible 3D printing to create a personalised prosthesis based on a mirrored scan of his intact foot. Iterative co-design with the user, prosthetist, occupational therapist and engineers improved comfort, walking and natural appearance, while exploring a more efficient route to locally produced bespoke prosthetics. innovation pathways.





Co-Designing a Bespoke Partial Hand Prosthesis

Working with a young man with a partial-hand amputation, the team moved beyond conventional mechanical prosthetic designs to create a digitally fabricated hand tailored to him. Using scans of both hands and iterative co-design, the solution was developed to preserve and amplify his existing grip while providing the more natural appearance he wanted in Kathmandu.

2. Digital Fabrication of Prosthetics and Orthotics

a. UNICEF - AT2030 Prosthetics Components Project

Following the Jajarkot and Rukum earthquakes, the project delivered 75 customised prosthetic devices to 67 users in collaboration with CDCA, Limb Care Nepal, Ugani Prosthetics and LCDMS/EDCD, using digital workflows including 3D scanning, CAD and 3D printing to strengthen access to locally produced prosthetics.

i. P&O Technical Training

A five-day national training programme built digital fabrication skills among 17 NHPC registered prosthetists and orthotists from across Nepal, integrating digital scanning, design and production with established clinical P&O practice.

ii. Capacity Building in Kathmandu & Surkhet

The project established two operational digital prosthetics labs, at INF Shining Hospital in Surkhet and CDCA Nepal in Kathmandu, creating local infrastructure for continued prosthetic and orthotic production, fitting and support beyond the initial project.

b. Prosthetic Liner Production and Clinical Trials

In collaboration with INF Green Pastures Hospital in Pokhara, Operation Namaste and Kathmandu University Design Lab this work explores locally fabricated prosthetic and orthotic components (soft silicone liner, foot insole, TT/TF socket) to address gaps in rehabilitation services.





i. Transtibial Locking Silicone Liners for People Affected by Leprosy

Clinical research exploring locally manufactured silicone locking liners for people with transtibial limb difference affected by leprosy, alongside user education on liner use, care and residual-limb health.

ii. Transfemoral Prosthetic Liners Pilot Study

Extending the local manufactured prosthetics research into transfemoral provision, exploring how locally produced and personalised liner approaches can respond to more complex prosthetic needs.

iii. Liner Repair and Durability Studies

Studying how locally manufactured prosthetic liners wear, fail and can be repaired, helping shift attention from simply producing devices towards maintaining them throughout their usable life.

c. Digitally Fabricated Foot Insoles

Exploring digital design and fabrication approaches for personalised insoles, expanding the local-production pathway beyond prosthetic devices into other personalised orthotic products.

d.Implementation Science Framework

Drawing on implementation science, this work explores not only whether new technologies are clinically effective, but also how they can be successfully embedded within real-world clinical, service, and production systems. The aim is to support the translation of prosthetic and orthotic innovations from pilot studies into routine, sustainable rehabilitation practice, by addressing factors such as patient and workforce perceptions of the innovation, workforce capacity and training, supply chains and procurement considerations, rehabilitation and patient education needs, and mechanisms for follow-up and long-term support.



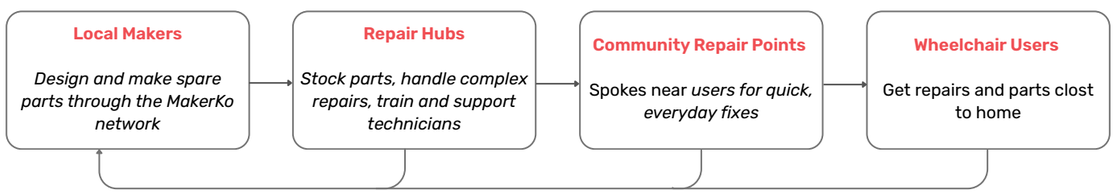
3. Wheelchair Repair & Spare Parts Production Infrastructure

a. Provincial Repair & Fabrication Hubs

Developing a distributed network of provincial hubs that can bring wheelchair repair, maintenance, spare-parts production and fabrication capacity closer to users.

b. Scaling-Up Spare Parts Production

Moving from prototypes towards distributed production of a wider set of wheelchair parts, linking local fabrication capability with repair services to reduce dependence on difficult-to-source imported components. The underlying repair research identifies spare-part scarcity, costs and inadequate repair facilities as key barriers.



Users, repairers/technicians and hub operators give feedback for local production of spare parts and essential components.

c. MakerKo Platform Development

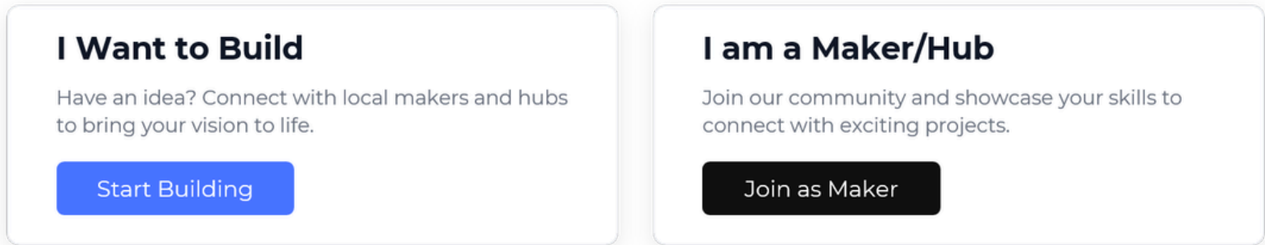
Developing a digital layer alongside the physical hub network, connecting producers, innovators, designers, service providers and customers and supporting more coordinated local production. The platform bring these actors together through a streamlined digital workflow.

MakerKo's dedicated AT extension help people with disabilities connect with AT suppliers and service providers, enabling AT access in Nepal.

Inclusive Platform for All

Platform users request for products and services while makers and innovators maintain their hub and fulfil orders.





MakerKo platform automatically guides from iterative design to prototypes and full-scale production.



4. Our Growing Community and Systemic Reach with RAEng Frontiers Programme

The Frontiers collaboration is helping extend the work from individual projects towards a wider assistive technology ecosystem, linking locally led innovations and partnerships around shared infrastructure, learning and routes to scale. The current programme explicitly frames the work around strengthening AT ecosystems in Nepal and other countries and moving innovation towards sustainable scale.



Bikash Wheelchair/Mobility AT Repair Centre
Establishing repair and maintenance hubs across all seven provinces, using local 3D printing and reclaimed materials to produce parts and customise mobility devices.

Inclusive P&O Unit in Karnali
Establising a locally operated prosthetics and orthotics unit using digital fabrication and training local technicians to imrpove access in remote Karnali Province.

Limb-Cycle
Combining AI-enabled socket design with recycled plastic 3D-printing materials to make customised prosthetic sockets more affordable and sustainable.

Care and Play
Co-designing locally made, play-based educational and therapy kits for children with autism and other neurodiverse needs.

Sustainable Wheelchair Provision Training
Developing Nepal’s first certified wheelchair provision training programme using WHO-designed and ISWP-accredited materials.

Assistive Technology for Spinal Injury
Co-designing and locally fabricating customised adaptive devices and therapy tools with people with spinal injuries and rehabilitation professionals.

Symbiotic Leadership in AT
Upskilling women leaders with lived experience of disability to lead inclusive design and assistive technology systems innovation.

Soft Sensors for Bionic Hands, Tunisia
Developing and validating affordable ultra-soft sensorised prosthetic hands combininng haptic sensing, low-cost.

MakerKo, Nepal & Bhutan
Developing community-driven digital platform connecting AT makers, service providers and users to improve access and support to locally led innovation.

Inclusive Co-design sprint, Vietnam
Bringing young people with and without disabilities together to co-design accessible digital learning solutions for AI education.