



User – Originated Design

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Founded by Ralf Hotchkiss in 1980 after his travels in Nicaragua working with local wheelchair users to design durable, useable wheelchairs.







This woman in India can't participate in family activities because her chair is inadequate

- Employment
- Evolving design
- User participation



Double amputee building wheelchairs in Nicaragua – circa 1995



Current Regional Producers

Indonesia – 2011 - 3000/month

Vietnam - 2008 - 300/month

South Africa - 2008 - 600/month

Mexico - 2009 – 100/month

Turkey - 2009 – 100/month

Georgia – 2011 – 100/month



2010 RoughRider®

Design is not abstract. It is both enabled and constricted by the environment in which it operates

- Human anatomy
- Different types of disabilities (even nominally the same can be very different)
- Different types of abilities
- Age (old, young, accommodating growth)
- High intelligence / capacity for assembly / repair
- Multi-lingual
- Literacy
- Culture – floor, religion, attitudes about disability
- Gender



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- Physical environment – city, countryside, paved, unpaved, curbs, indoor, outdoor, short distance, long distance, cars, physical access or the lack of it
- Climate – dry, rain, snow, heat, cold
- Economy – bottom of the pyramid, who is paying?
- Small scale or large scale manufacture – capital investment
- Shipping and distribution



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Design for Shipping



Green Pins - regional manufacturers. Whirlwind is setting up 7 new Wheelchair Provision and Assembly Centers. These will increase sales, improve service to users, inform product development, and will grow out of existing centers for development of the disability community

Measures of Success

- Acceptance in and penetration of market place
- As an agent of social change.
 - Design / innovation by itself can be a big impetus to change
 - Will provide backup to community during periods of social and political upheaval
 - Will empower power users as consumers.
- Change flows from new technology and innovation in combination with social movements.
- Examples



With media in tow, these riders organized to show city government how to make Cali accessible to everyone.



Testing the accessibility of the new public transit terminals is an eye opening experience for everyone, especially the transit project's lead architect (in the red wheelchair).

Local disability organization in Cali, Colombia organized new wheelchair riders to demand public transit access - 2006



Wheelchair Riders in Novosibirsk, Russia (Siberia) didn't want to demonstrate like Hare Krishnas or hand out leaflets like LDS Missionaries in front of the metro



Wheelchair Riders in Novosibirsk, Russia (Siberia) holding “ride the metro day” demonstration – 1996. They arranged for soldiers to help them up and down steps





The recycling movement was a huge success in that it created a mass consciousness of the need for recycling and paved the way for large-scale for-profit recycling to become an economic reality across America.

- Employment
- Communication
- Cohesive Community
- Collective action



Women wheelchair riders building wheelchairs in Uganda – circa 1998



Design Trade-offs
Who should make them?

St. Boniface Hospital in Fond
des Blancs, Haiti – 2010