Global Research, Education and Innovation in Assistive Technology (GREAT) Summit

GRрид - A Model for Development of Assistive Devices in Developing Countries

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Indian Institute of Technology Madras, Chennai, India

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GS 79

Why aren't there more innovations in assistive technologies from developing countries?
The cost of research and development of quality products for a market that has limited purchasing power is a significant hurdle. The TTK Center for Rehabilitation Research and Device Development (R2D2) presents a viable model involving academia, government / private funding, industry and users to develop functional and affordable assistive devices.

Assistive Devices in India

Two extremes of products are prevalent in the country:
1. Exorbitantly priced imported products - may not always work effectively because of lifestyle & environment
2. Low cost obsolete technology - rejected easily because of lack of functionality

Challenges of Developing Quality Assistive Devices in India

<table>
<thead>
<tr>
<th>Low Purchasing Power</th>
<th>Donation Market</th>
<th>Users Do Not Demand</th>
</tr>
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<tbody>
<tr>
<td>With disability, people lose earning potential and independence. Many are unemployed and cannot afford even the basic devices needed.</td>
<td>Most devices are donated by charitable organizations, which work with the objective of maximizing the number of people they reach out to. Consequently, they prefer buying lower cost solutions over quality products.</td>
<td>Most potential users are not rehabilitated and are unaware of the benefits of using a quality device. They do not demand it.</td>
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There is a need for functional and affordable solutions for local needs to improve employability and quality of life of people with disability. A viable model is required in a situation where no buyer - neither individual nor organization - is ready to bear the cost of development.

The GRID Model

**Grant**

Through government, private CSR, foundations

Bear the cost of development

Genuine interest to create impact

**Research**

Nodal academic institution

Apply scientific methods and use appropriate technology to create need-based functional designs

Development with focus on function, not bottom-line

**Industry**

Partner with established manufacturing capability / expertise

Ability to manufacture new product line at low costs

Established channels to deliver timely service

**Dissemination**

Partner to reach out to users for extensive trials

Has access to individuals, organizations who can buy

Has "fitting, training and servicing" infrastructure

Case 1: Standing Wheelchair

<table>
<thead>
<tr>
<th>Grant</th>
<th>Research</th>
<th>Industry</th>
<th>Dissemination</th>
</tr>
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<tbody>
<tr>
<td>Wellcome Trust</td>
<td>IIT Madras</td>
<td>Phoenix Medical</td>
<td>APD</td>
</tr>
<tr>
<td>Charitable foundation</td>
<td>5 Design Iterations</td>
<td>25+ Years, ISO Certified</td>
<td>130 User Trials</td>
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Case 2: Indoor & Outdoor Mobility Solution

<table>
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<th>Industry</th>
<th>Dissemination</th>
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</thead>
<tbody>
<tr>
<td>MHRD, ICMR, TTK</td>
<td>IIT Madras</td>
<td>NeoMotion</td>
<td>Spinal Foundation</td>
</tr>
<tr>
<td>Private CSR, Government</td>
<td>2 Design Iterations</td>
<td>Assistive Device Startup</td>
<td>150 User Trials</td>
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