



## The Scalability Strategy

**Title:** BeaconMatch Scalability & Global Localization: Universal Access Strategy

**Overview** For BeaconMatch to be an effective global health tool, it must work across diverse hardware, languages, and geographic contexts, from dense urban centers to uncharted rural zones.

**Global Accessibility Pillars** \* Hardware Agnostic Protocol: Optimized for Bluetooth 4.0 (BLE) and above, ensuring compatibility with "legacy" Android devices common in emerging markets.

- **Small Packet Size:** Data packets are stripped of heavy metadata, allowing them to be transmitted over weak or congested local frequencies.
- **The Pictogram Standard:** BeaconMatch utilizes a universal icon set (Medical, Water, Fire, Trapped) based on international ISO safety symbols to assist non-literate users or those speaking different dialects.
- **Dynamic Language Loading:** While the mesh remains text-light, the UI can toggle into any local language using pre-cached translation strings.

**Offline Reliability** \* **Seed Nodes:** Local clinics or "Block Captains" act as high-storage hubs where users can sync during "peace-time" to download compressed vector maps of their specific 5km–10km radius.

- **Dead Reckoning Logic:** In areas without map data, the app defaults to a "Grid View," using only the internal compass and relative distance to function in uncharted zones.

**Institutional Integration** \* **The Data Handover:** BeaconMatch acts as a "Front-End" for organizations like the WHO and UNDRR. When professional responders arrive with satellite-linked "Super-Nodes," the mesh automatically feeds them a "Need Heatmap" to prioritize the most affected zones immediately.