

National Wireless Research Institute Overview

presented by Sascha D. Meinrath

The National Wireless Research Institute (NWRI) facilitates the **research, development, and implementation of broadband technologies that expand digital inclusion**. NWRI builds affordable, universal, and ubiquitous wireless networks through partnerships with communities, researchers and industry. NWRI is committed to **creating innovative open technologies and studying the social and economic impacts of wireless broadband**, particularly in poor and/or rural communities. As an independent non-profit organization, NWRI **provides in-depth, objective research and analysis** for policy decision-makers and the general public.

National Wireless Research Institute – Priorities & Goals:

- Gathers top wireless researchers from across the US.
- Committed to open source and open architecture R&D to reduce the costs of wireless deployments.
- Creates partnerships with international NGOs and research groups.
- Implements real-world deployments in communities nation-wide.
- Builds bridges between community developers, entrepreneurs, and academia.
- Studies social and economic impacts of wireless networking technologies.
- Provides objective research results to policy and regulatory decision-makers.
- Benchmarks wireless technologies for consumers and the general public.
- Manages a not-for-profit umbrella for industry collaboration.

National Wireless Research Institute – Funding Requirements:

- \$26 million for first 5 years (start-up costs).
- Commitment to maximum of 33% overhead to lower the cost of conducting research.

National Wireless Research Institute – Initial Partners & Researchers & Support Organizations:

- Acorn Active Media Foundation
- Cooperative Association for Internet Data Analysis: KC Claffy, Director
- Cisco
- CUWiN Foundation
- Project on Public Policy and Advanced Communication Technology at UIUC (PACTLAB): Christian Sandvig, Director
- Wireless Networking Group at UIUC: Nitin Vaidya, Director

National Wireless Research Institute – Initial Technical, Social, and Policy Research Areas and Deliverables [originally published in The Journal of Community Informatics, (2005) Vol. 1, Issue 2, pp. 204-209]:

- Tests signal propagation characteristics across different frequencies, topologies, and network architectures and issue regularly reports on research findings.
- Tests effects of dynamic transmit power on signal propagation, temperature interference, network architecture, congestion, and node densities. Provide documentation on research findings.
- Gathers documentation of wireless networking implementation models, how-to resources, and guides.
- Identifies potential security issues and develops technical solutions.
- Develops open wireless technologies for implementation in communities across the country.
- Identifies major research already conducted and the literature being utilized in current regulatory and policy debates, and provides expert analysis of research claims and replicate experiments, as requested.
- Documents in-vivo effects of interference under current spectrum policies.
- Details actual and claimed spectrum usage and identifies efficient technical and regulatory solutions.
- Ascertains the pros and cons of existing spectrum rules and regulations.
- Estimates the cross-border and international impacts of existing regulatory structures, processes, and regulations of unlicensed and public use spectrum.
- Identifies and analyzes major components that support digital inclusion and provides empirically-based recommendations to help bridge the digital divide.
- Carries out an impact assessment of low-cost open source, open architecture software use and its affects in facilitating digital inclusion.