

# Innovating in India: Designing for Constraint, Computing for Inclusion (Keynote)

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## ABSTRACT

A fundamental tenet of user-centered design is that the needs, wants, limitations, and contexts of end users are central to the process of creating products and services that can be used and understood by the people who will use them. Most of the time these end users aren't all that different from the people designing the technology. But as the differences increase between designers and the people they're designing for, understanding and empathizing with users becomes harder and even more important. As we build software for people and communities with vastly diverse backgrounds, cultures, languages, and education, we need to stretch our ideas of what users want and need and how best to serve them.

The Technology for Emerging Markets (TEM) group at Microsoft Research India seeks to address the needs and aspirations of people in the developing world who are just beginning to use computing technologies and services as well as those for whom access to computing still remains largely out of reach. Much of this work can be described as designing for constraint: constraints in education, in infrastructure, in financial resources, in languages and in many other areas. In this talk, I will describe some work from our group that explores how we have tried to manage these constraints to create software and systems for people and communities often overlooked by technologists.

## Categories and Subject Descriptors

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## General Terms

Design, Experimentation, Human Factors

## Keywords

ICTD, India, Global Development

## SPEAKER SHORT BIOGRAPHY

Ed Cutrell manages the Technology for Emerging Markets (TEM) group at Microsoft Research India. TEM is a multidisciplinary group that strives to study, design, build, and evaluate technologies and systems that are useful for people living in underserved rural and urban communities. The goal of this work is to understand how people in the world's poor and developing communities interact with information technologies and to invent new ways for technology to meet their needs and aspirations. Ed has been working in the field of human-computer interaction (HCI) since 2000; he is trained in cognitive neuropsychology, with a PhD from the University of Oregon.

## FOR MORE INFORMATION

A description of many of our projects as well as a complete list of publications from the TEM group can be found at our website: <http://research.microsoft.com/en-us/groups/tem/>. Several projects have their own websites

## ACKNOWLEDGMENTS

Over the past nine years, the Technology for Emerging Markets Group has had more than 21 research staff, and more than 150 visiting researchers and interns. In addition, numerous people at MSR India and worldwide have contributed hugely to our research. The work in this talk would not have been possible without the potent alchemy of brilliant, dedicated people devoting their hearts, minds and effort to making the world a better place for everyone.

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