

# Sharing Experimenting

... a call to action

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**zipcar.**<sup>®</sup>  
wheels when you want them

# Drivers of the Sharing Economy

technology

environmental concerns

community

economics

Based on Latitude & Shareable 2010 Study

infrequent use   OR  
high burden of ownership

# THE NEW DIMENSIONS OF SHARING

Latitude & Shareable 2010 Study

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## LIFE-CYCLE

### SYNCHRONOUS

A cyclical system of access where members rent or borrow goods, then return them to the central pool for other members to access.

NETFLIX

### ASYNCHRONOUS

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eBay

### COLLABORATIVE

Simultaneous collaboration to achieve a shared goal; involves joining resources like money, time or specialized knowledge.



CITIZEN SPACE  
A New Place to Work.

## COMMUNITY DESIGN

### CENTRALIZED

Shareable assets are owned by a single entity which provides access to members; in a centralized model, all members are renters/ borrowers.

zipcar

### PEER-TO-PEER

Members pool their own assets to share amongst other members. The member collective is comprised of both owners/lenders and renters/borrowers.

freecycle

## PARTICIPANTS' IDEAS FOR NEW SHARING MODELS

### KNOWLEDGE (multilateral sharing)

"Community college 2.0: provide some sort of structure that lets people let other people know what they know and what they want to learn. If you can get enough people together, everyone is both student and teacher."

—Male study participant, 29, Salt Lake City, UT, USA

### SKILLS AND SERVICES (micro-funding)

"... a sort of bounty hunting service for open source projects, where people in need would invest into certain features/fixes with (smaller amounts of) money. Bounties would therefore accumulate and developers would profit by providing solutions."

—Male study participant, 24, Ljubljana, Slovenia

### MATERIAL ITEMS (multilateral bartering)

"... person A needs something that person B has, and person B needs something that person C has, and person C needs something that person A has—except that this service would be free, completely based on bartering."

—Female study participant, 56, Ithaca, NY

### COMPOSITE MODEL

"I'll walk your dog while you're away; you water my plants; I'll give you baby toys I don't need anymore; you loan me your lawn mower. I think this kind of interaction is part of community ties and support networks that used to develop naturally and spontaneously and need some encouragement now."

—Female study participant, 38, Providence, RI, USA

## CURRENCY

### TRADITIONAL

Money

\$\$\$

### ALTERNATIVE

Knowledge

Skills & Services

Material items

Time

Reputation & Social Reach



## 20TH CENTURY

CREDIT

+

ADVERTISING

+

INDIVIDUAL  
OWNERSHIP

=

**HYPER  
CONSUMPTION**

## 21ST CENTURY

REPUTATION

+

COMMUNITY

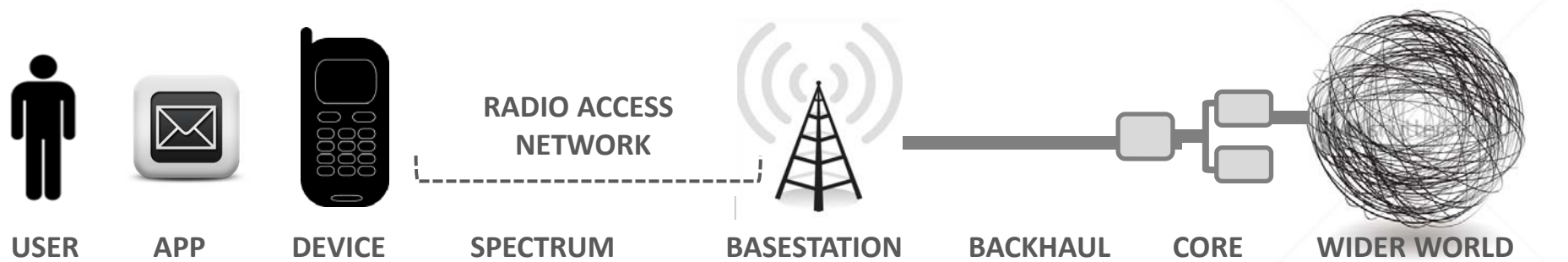
+

SHARED  
ACCESS

=

**COLLABORATIVE  
CONSUMPTION**

the telecoms world?





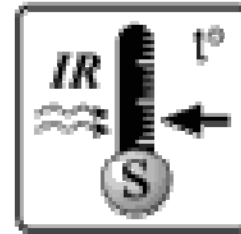


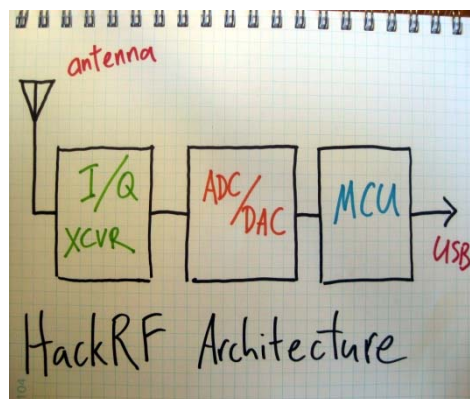
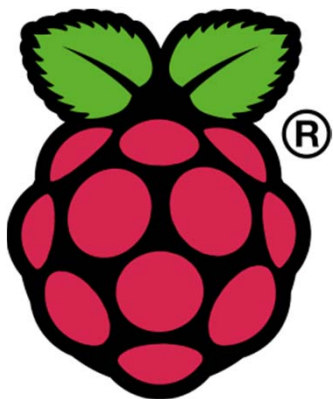
App Store



Android Market

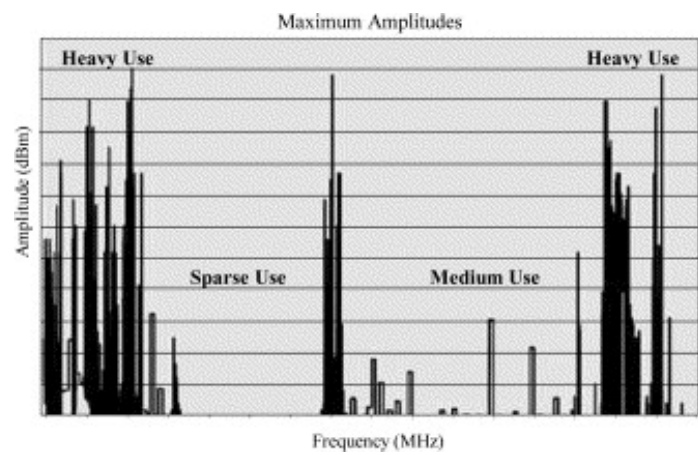








HOMELESS  
**HOTSPOTS**

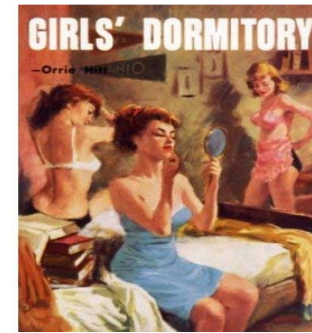




exclusive



exclusive sharing



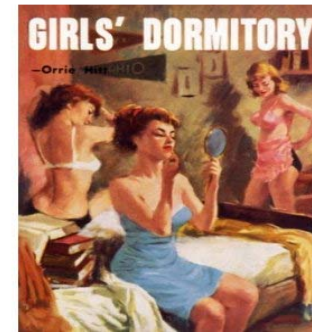
non-exclusive  
sharing



exclusive



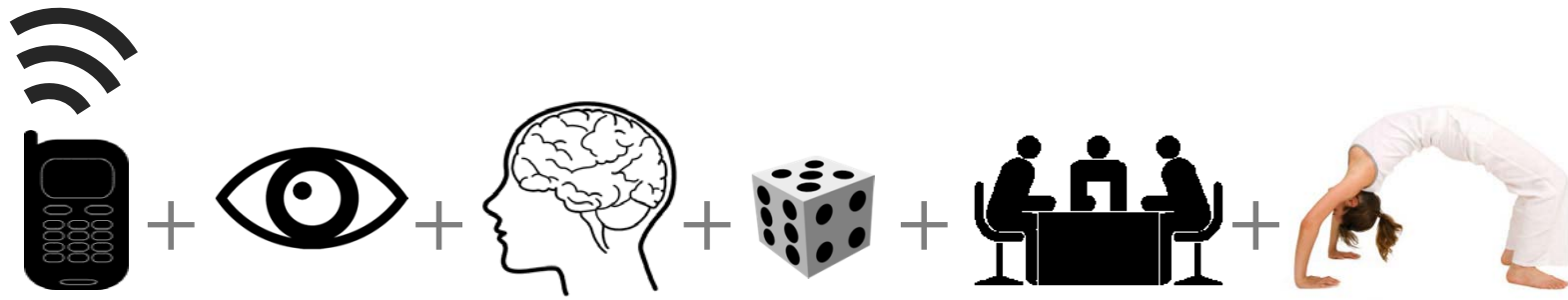
exclusive sharing



non-exclusive  
sharing

+

authorisation for  
sharing







COINCIDENCES OF NEED

# ALL SORTS OF NEW RESOURCES



PEOPLE/PERSONALITIES /MULTIPLE IDENTITIES/ MULTIPLE SIMS

CONTENT/APPS

SMARTS / DECISION MAKERS

BASESTATIONS /ACCESS POINTS/FEMTOS  
SENSORS / RADIO ACCESS NETWORKS

SPECTRUM / SPECTRUM DATABASES  
SPECTRUM BROKERS

CLOUD RESOURCES

PAYMENT SYSTEMS / AUCTION SYSTEMS  
REPUTATION MECHANISMS / BUSINESS MODELS

POWER SOURCES

NON SPECIALIST PLANNING TOOLS

COINCIDENCES OF NEEDS /COMPLIANCE MECHANISMS

networks of  
the future will be  
**performed**  
into  
existence



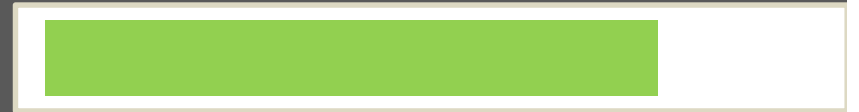
# **Networks Without Borders**

**Ideas developed with Luiz DaSilva/Tim Forde/Jacek Kilbida**

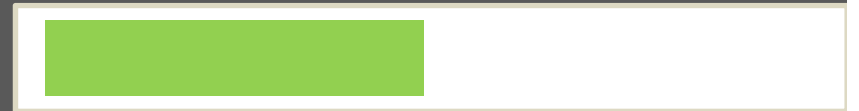


# Drivers of the Sharing Economy

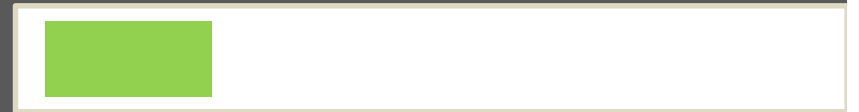
technology



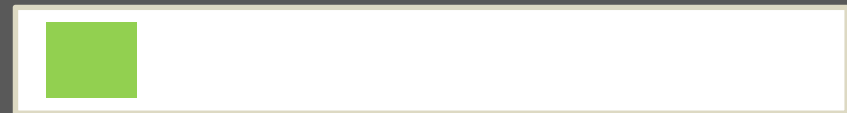
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+ + +



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Reputation & Social Reach





experimentation and trialling  
needs to significantly shift  
gear ....

# Cognitive Radio: Ten Years of Experimentation and Development

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*Przemyslaw Pawelczak, University of California, Los Angeles*

*Keith Nolan and Linda Doyle, University of Dublin, Trinity College*

*Ser Wah Oh, Institute for Infocomm Research*

*Danijela Cabric, University of California, Los Angeles*

## ABSTRACT

The year 2009 marked the 10th anniversary of Mitola and Maguire Jr. introducing the concept of cognitive radio. This prompted an outpouring of research work related to CR, including the publication of more than 30 special issue scientific journals and more than 60 dedicated conferences and workshops. Although the theoretical research is blooming, with many interesting results presented, hardware and system development for CR is progressing at a slower pace. We provide synopses of the commonly used platforms and testbeds, examine what has been achieved in the last decade of experimentation and trials relating to CR, and draw several perhaps surprising conclusions. This analysis will enable the research community to focus on the key technologies to enable CR in the future.

## INTRODUCTION

learned from them, and if any trends from the analysis of functionalities provided by these platforms can be identified. This article answers these questions.

This article has three main sections and contributions. First, we present a primer on the common systems being used for CR research and development. The following section focuses on overviews of the key events in recent years that have helped progress the field of CR and DSA technologies. We then present insights gained from these experiences and look ahead at how the community can grow in the coming years. We conclude in the final section.

## CR IMPLEMENTATION: PLATFORMS AND SYSTEMS

We briefly review the most popular existing hardware and software radio systems, dividing these platforms into two headings. First, we deal with reconfigurable software/hardware systems,

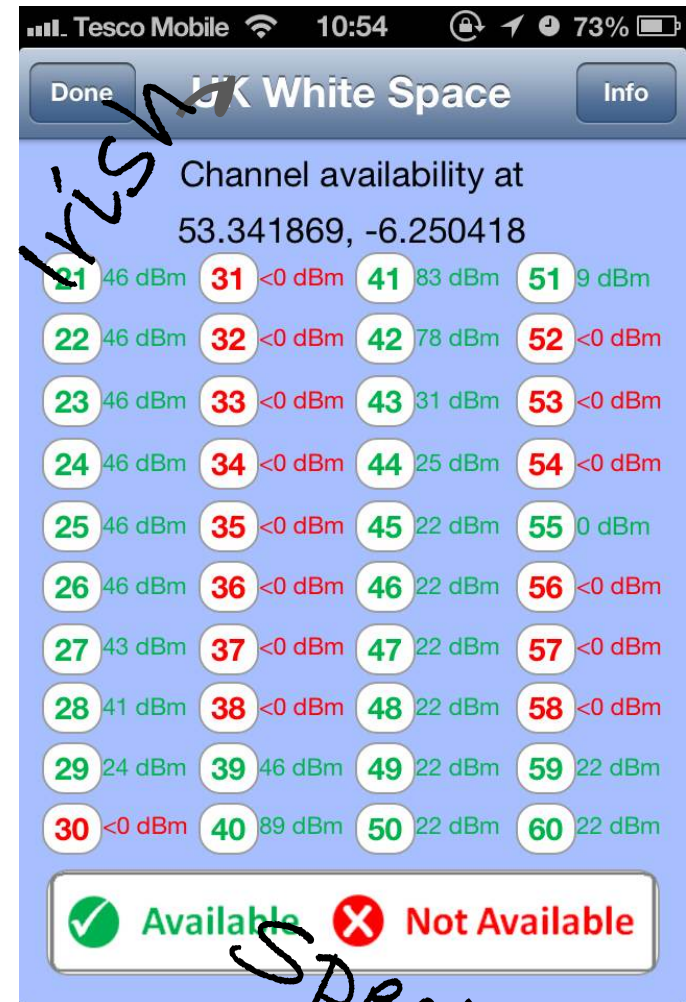
**Here's one I prepared  
earlier ...**



Cambridge White Spaces Consortium

Cambridge TV White Spaces Trial

A Summary of the Technical Findings



*Spectrum  
bridge*





3.5 GHz

**but not just this band**

A black and white close-up photograph of Brad Pitt. He has long, dark hair and a goatee. He is looking directly at the camera with a serious expression. The word "INEVITABLE" is superimposed in large, white, bold, sans-serif capital letters with a black outline across the bottom of the image.

**INEVITABLE**

**‘The new status symbol isn’t what you own-it’s what you’re smart enough not to own’**

Lynn Jurich