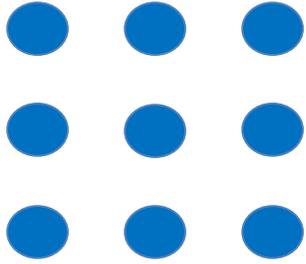


The Future of Economic Infrastructure



Norman Jacknis, Ph.D.
Senior Fellow
Intelligent Community Forum
IEDC Online Webinar
October 18, 2018



What Is The Intelligent Community Forum?

SMART21
COMMUNITIES OF THE YEAR

TOP7
INTELLIGENT
COMMUNITIES
OF THE YEAR

INTelligent
COMMUNITY OF THE YEAR

ICF GLOBAL SUMMIT 2019
New York June 11-13

Global Network

Of cities, metro areas and counties recognized as Intelligent Communities, collaborating on economic and social development



Think Tank

Studying how Intelligent Communities use ICT to build economic prosperity, solve social challenges and enrich their cultures



160 cities, metro
areas and counties
5 continents
Populations from
10,000 to 12 million

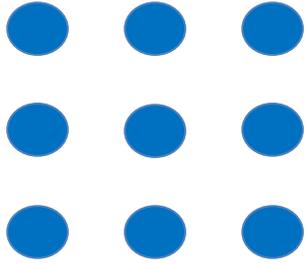
A Practical Approach

Our suggested starting point for communities is a workshop that does three things only:

- Provides the context and need for the infrastructure

- Provides real examples of its use (to encourage some creativity)

- Asks every group (or person) to identify a way that the community can get value from the infrastructure in the next 3-6 months – and then make them responsible for delivering on that potential



Why We Need Broadband Infrastructure

We Are Only In The Early Stages Of The Internet's Development

Not yet today, but by 2030 — A world of high quality visual communication and easy collaboration everywhere, enabling anyone anywhere to virtually meet anyone else anywhere else

Infrastructure Needs To Support High Quality Visual Communications Everywhere

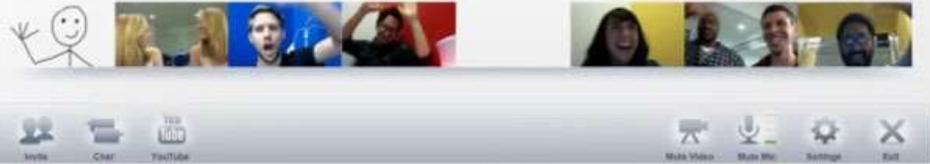
We process visual information 60,000 times faster than text

Only 7% of communication is about the text

38% is in the way that words are said and 55% is in facial expressions

Visual communication is especially critical in establishing trust between people







2 Participants

6:40



Dianne Ferguson

Lonnie Appel

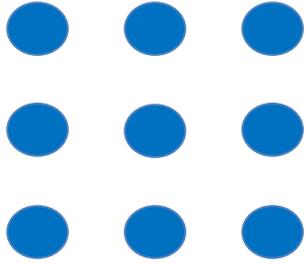


Zoom Participant ID: 75 Meeting ID: [redacted]

Total non-video participants: 4

Speaker View

Unmute Stop Video Invite Manage Participants 24 Share Screen Chat Record End Meeting



Building The Infrastructure

There Isn't Only One Way For A Person To Get From Point A To Point B



There Isn't Only One Way For A Person To Get Broadband

The Internet protocol doesn't care what the physical communications medium is, so you can combine different methods to provide broadband to different kinds of places

Fiber



Wi-Fi



Satellite



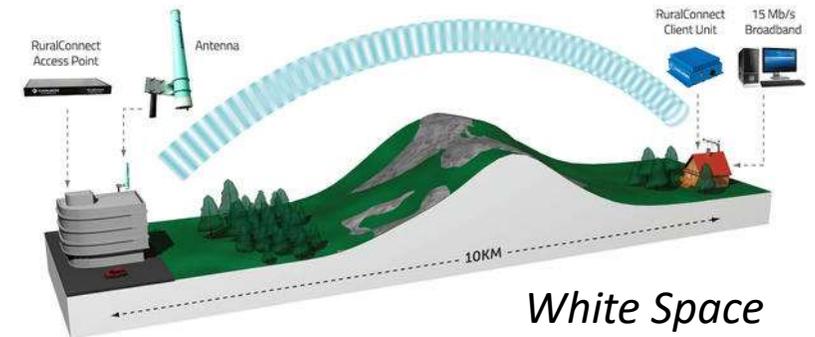
Free Space Optics



Fixed Wireless



Balloons



White Space

Find The Deployment And Operations Model That Works

A request for the major telecom and cable providers to build and operate the communications infrastructure

But there are options to build and/or operate it



\$80/month for a Gigabit connection (without packages and discounts)



Quitman, MS
Fiberhood Areas

Municipal Electric Utility As Internet Provider

Chattanooga, TN

“GIG City”

Lafayette, LA

LUS Fiber



BARN COMMUNITY PROJECTS - EMTELLE FIBREFLOW™



METRICS FOR THE UK ALTNET SECTOR

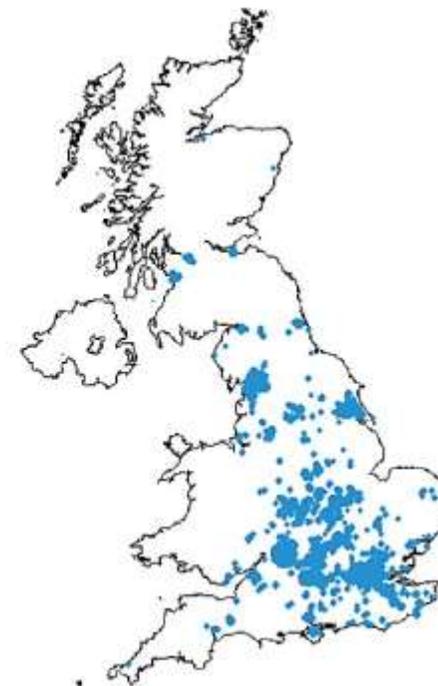
Estimates by Point Topic Ltd based on INCA survey data and Point Topic's own research

An overview of the UK's alternative network operator sector as of end-2017 and early 2018 including both fixed and wireless operators.

1 MILLION premises within reach of an **ultrafast** alternative broadband network today

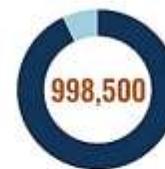


Current altnets superfast/ultrafast footprint



ESTIMATES FOR UK'S FIXED ALTNETS AT THE END OF 2017

Number of premises passed or addressed, majority uses ultrafast FTTP/H/B technology



207,539

21%

Live connections to **superfast/ultrafast** fixed networks provided by altnets

ESTIMATES FOR UK'S FIXED WIRELESS ACCESS (FWA) ALTNETS AT THE END OF 2017

UP TO 2 MILLION premises could be covered by **FWA** altnets



Live connections to **FWA** networks provided by altnets



2,000,000
FWA altnet coverage

100,500

CONTACT US

POINT.topic

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info@point-topic.com
www.point-topic.com

INCA

0330 113 2074
info@inca.coop
www.inca.coop

Mix And Match Purposes

The most successful broadband projects have usually combined more than one purpose

High speed communications

Healthcare

Education and libraries

Business development

Smart grid and management of other infrastructure

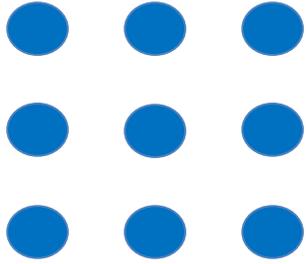
IP-based telephony

Etc.

This combination opens up more sources of funds

This combination means more people have a reason to use the broadband





The Economic Benefits Of Broadband Infrastructure

One Hundred Year Shift In The USA

Thousands of employees and percent of total

	Employment 1900	Employment 2000	Percent 1900	Percent 2000
Agriculture	11,680	3,281	43.5	2.4
Goods	7,252	25,710	27.0	18.8
Services	6,832	85,370	25.4	62.5
Government	1,094	22,131	4.1	16.2
Total	26,858	136,492	100.0	100.0

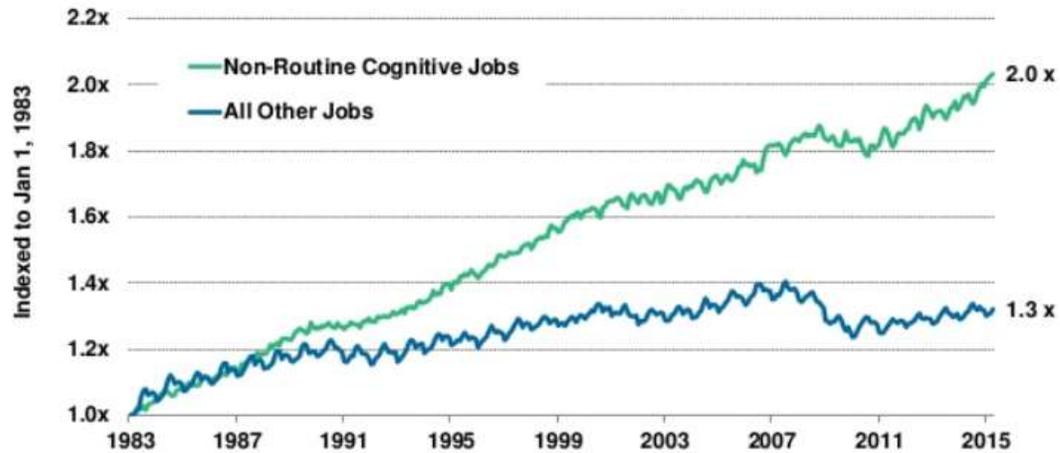


The Rise Of The Knowledge Economy

High-Skilled / Knowledge-Based Jobs Grew 2x Since 1983...
While Other Jobs Grew Just 1.3x

Non-Routine Cognitive Jobs = High-Skilled and Requires Flexibility, Creativity, Problem Solving

Non-Routine Cognitive Jobs vs. All Other Jobs Growth,
USA, 1983 – 2015 (Indexed to Jan 1, 1983)



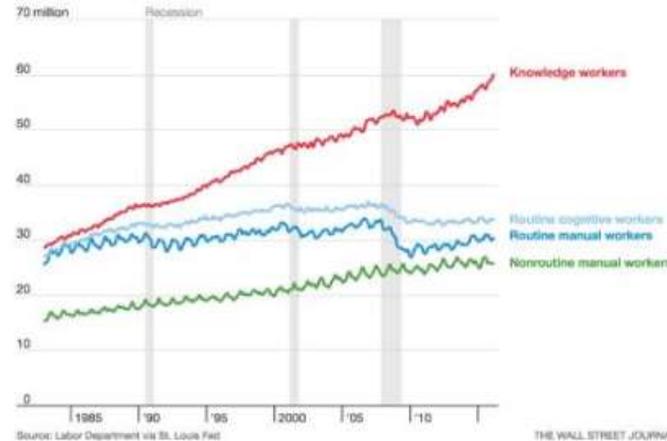
Source: US Census Bureau, Federal Reserve Bank of St. Louis, A15. Based on methods from Jaimovich and Siu, 2012; Stephen Roach, Senior Fellow and Economist at Yale University, 2015.
Note: Non-routine cognitive jobs include jobs like computer and mathematical, architecture and engineering, education and training, and healthcare occupations.
All other jobs (referred to as routine cognitive and manual occupations) include jobs like production, construction, administrative, and various other occupations.

99

Rise of the Knowledge Worker

The Rise of the Knowledge Worker

Workers are classified by whether their occupation is primarily cognitive or manual work, and whether or not the tasks are routine. Knowledge work is nonroutine cognitive work.

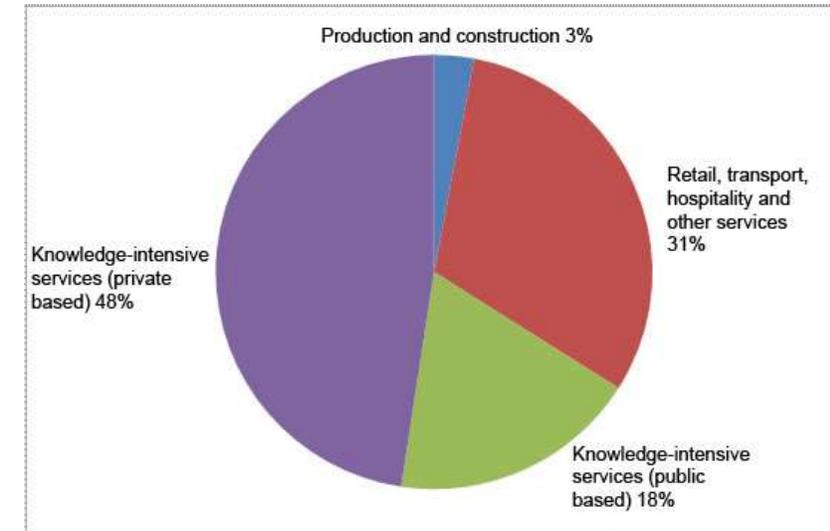


Source: Labor Department via St. Louis Fed

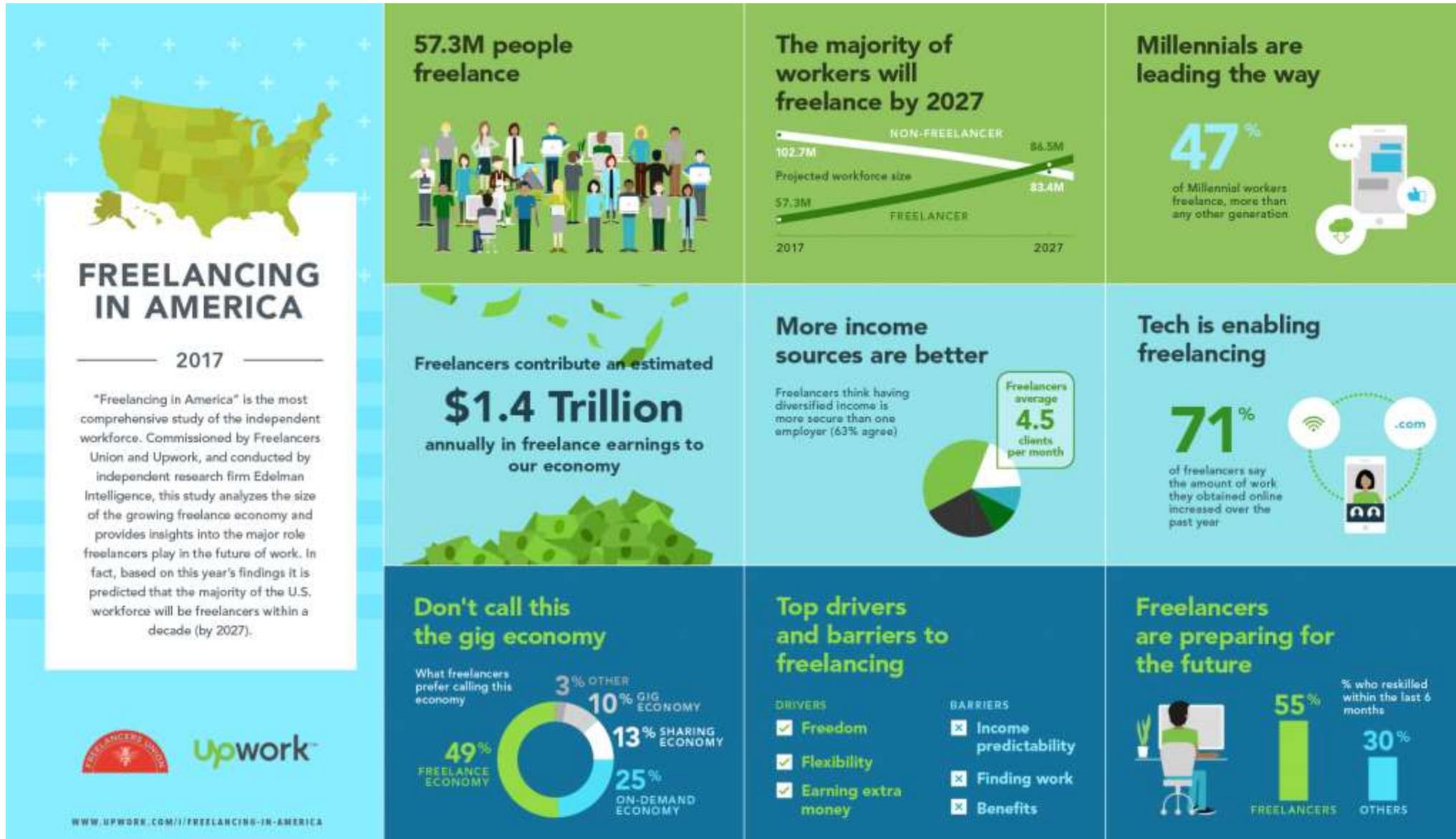
THE WALL STREET JOURNAL

#FutureOfWork

- Well over 60 million knowledge workers in the U.S. alone.
- You work with and employ knowledge workers.
- You are a knowledge worker.

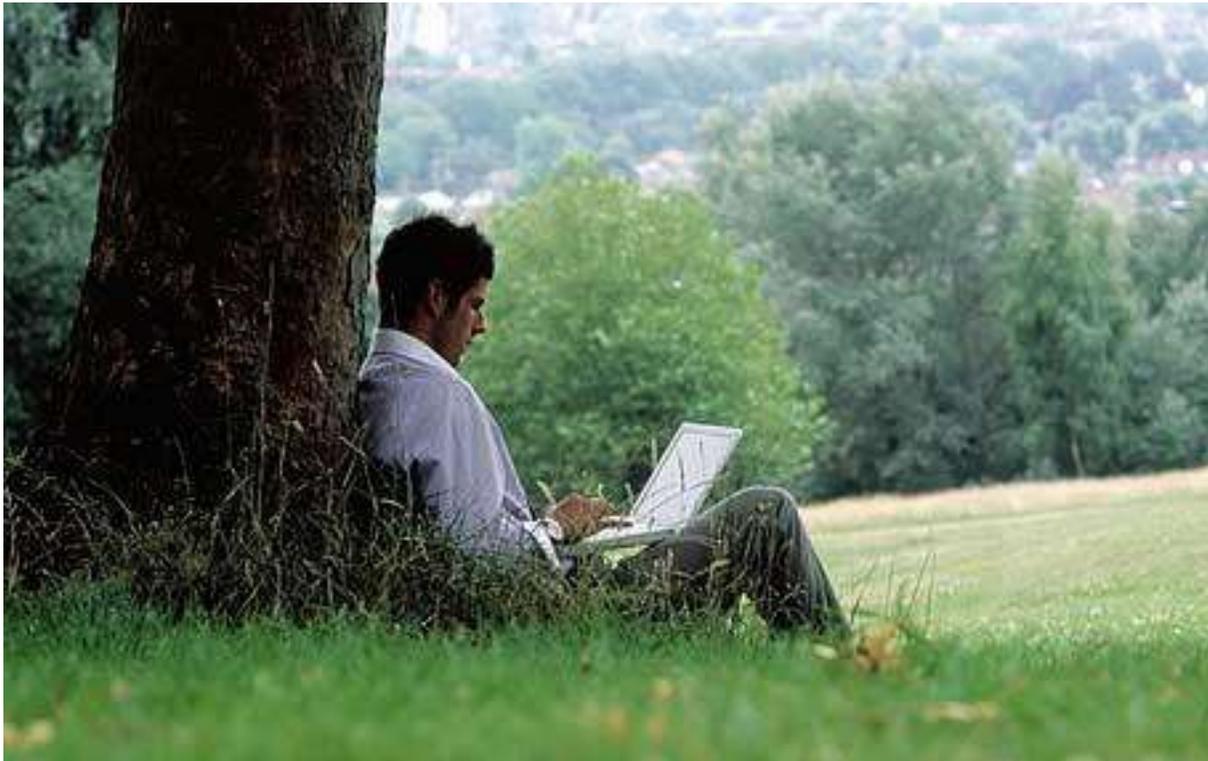


The Rise Of Independent Workers



These Trends Present A Key Question For Economic Strategy In Future Decades

When most people can work anywhere, where will they choose to live & work?



Broadband Has Had A Big Economic Impact

For every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent per year.

— Brookings Institution

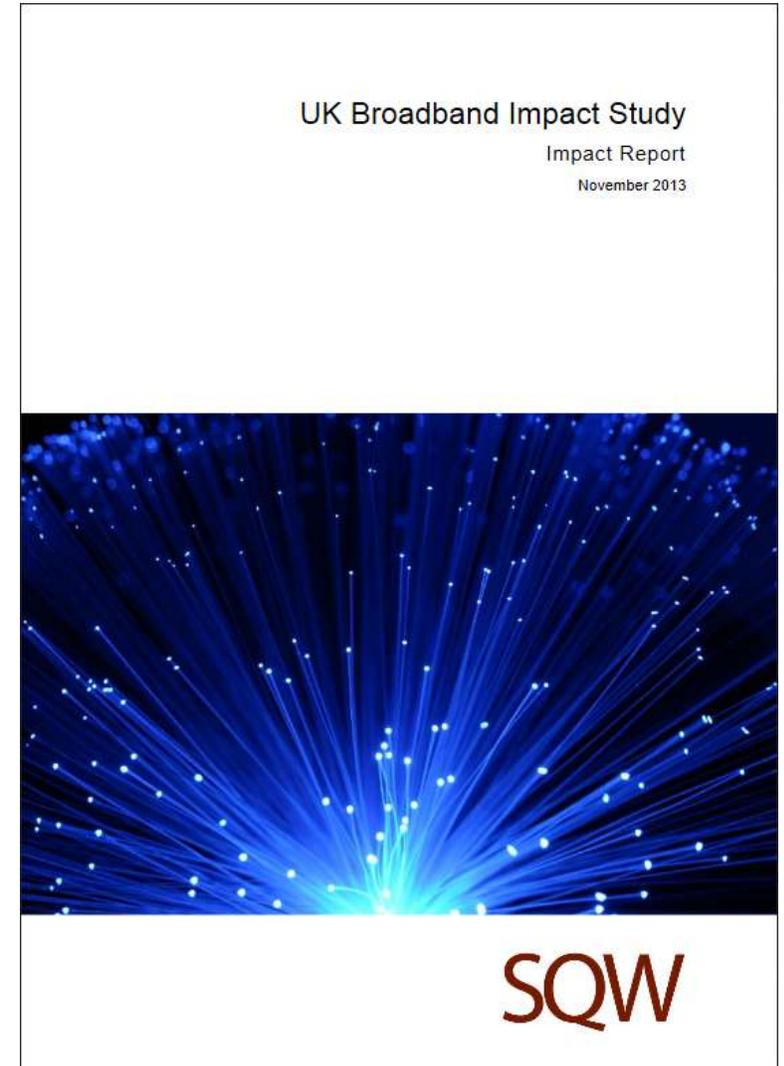
“The increase in local GDP is more than ten-fold the value of the investments in broadband infrastructure. “

— SNG

The Benefits of Broadband

From: [Department for Culture, Media & Sport](#)
Part of: [Broadband investment](#)
First published: 14 November 2013

For every £1 the government is investing in broadband, the UK economy will benefit by £20, an [expert report](#) published today reveals.



The Impact Is Not All Being Measured

Measuring the Benefits of Tech Tools

The New York Times

By EDUARDO PORTER

Published: April 30, 2013

“[GDP] almost inevitably misses some economic gains from new technologies.”

“these statistics do not tell the whole story. Because they miss much of what technology does for people’s well-being.”

“G.D.P. is not a measure of how much value is produced for consumers”

Connect Local Entrepreneurs To The Flow Of Capital

Capital is flowing more freely around the globe

Ensure your entrepreneurs are connected to these sources of funds and new forms of investment



Connect Entrepreneurs To Research At All The Great Universities

Many public leaders are trying to recreate Stanford, MIT, Princeton and the like in their areas

And they are trying to find some secret way of “commercializing” the research at their local universities

But no single university has a monopoly on knowledge

Much of the best university research from everywhere is available through the Internet

And many entrepreneurs already have the skills to commercialize research, as long as they can find that research

Even Connect Low-Tech Business To Global Economic Opportunities

Government of Nova Scotia



NOVA SCOTIA CANADA



Broadband for Rural Nova Scotia Economic and Rural Development and To

HIGH SPEED FOR BUSINESS | HIGH SPEED FOR FAMILIES AND STUDENTS | HIGH SPEED FOR COMMUNITIES

BROADBAND FOR **Connect to Compete**

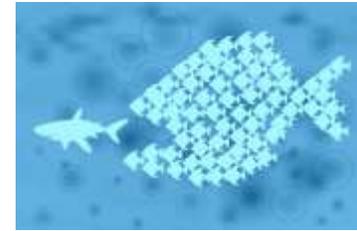


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A Virtual Metropolis To Match Global Metroplexes



The Virtual Metropolis

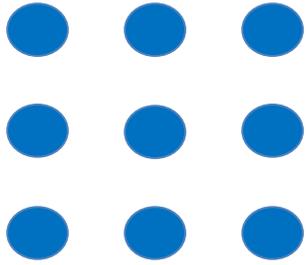
Home Register Me Requests Members/Groups Discuss/Read

HELPING YOU MAKE A LIVING WHERE YOU WANT TO MAKE A LIFE

Find people who can help you grow your business --
people from all over the world who also live in the countryside

Skills Country Search

Select by Skill Filter by Country



Broadband Infrastructure To Create Delightful Urban Experiences

Why Blend The Digital And The Physical?

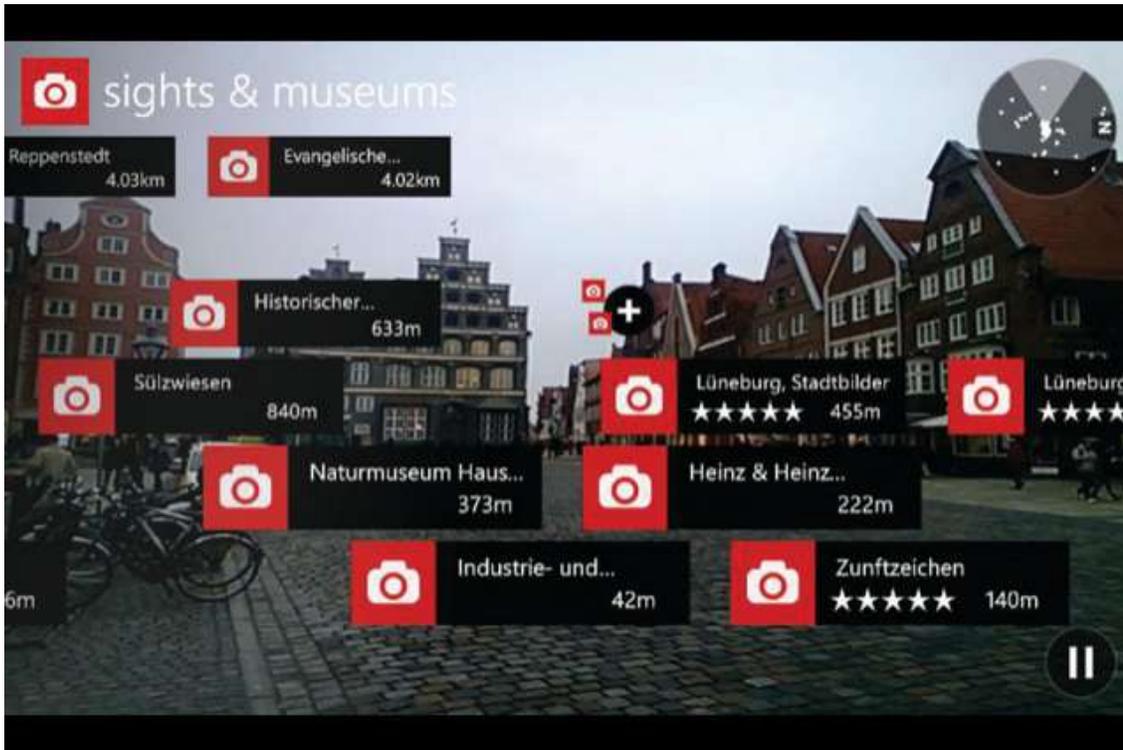
Create new destinations and experiences to enhance street life

Enable interaction with the physical environment to surprise and delight residents

Set a new standard for urban design

Entertain, engage, educate both residents and visitors

Augment Reality



Take A Concrete Library Wall







What Can Do You Do With An Old Building?



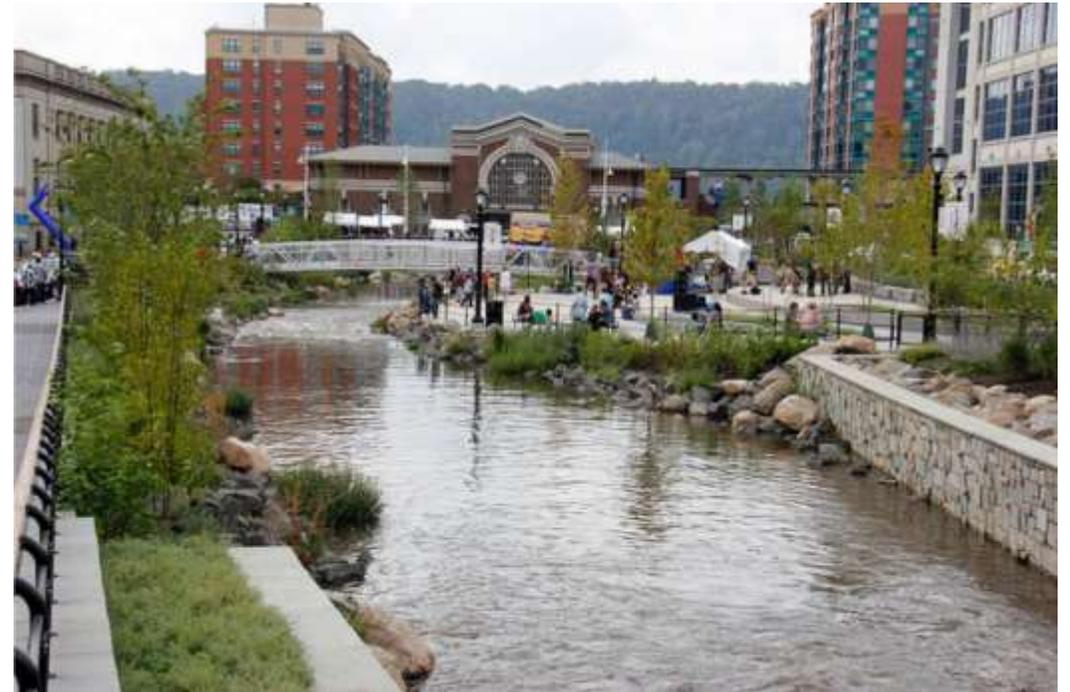
Even On The Ground



Show Another Location



Show And Compare Another Time



Help People Understand And Appreciate The History Of The Place

A HOME PAPER.

THE YONKERS STATESMAN.

HOME TRADE ADVOCATE.

PUBLISHED AT YONKERS, N. Y., ON FRIDAY, SEPTEMBER 1, 1916. VOL. XXXIII.—No. 10,052.

PRINTED IN YONKERS POST OFFICE AS SECOND CLASS MATTER. Largest County Circulation—Best Medium For Advertising.

YONKERS, N. Y., FRIDAY AFTERNOON, SEPTEMBER 1, 1916. PRICE ONE CENT

MARSHALL-MATHESON CO.

6 and 7 MAIN STREET TEL. 4230

PLANNING YOUR NEW FALL COSTUME?

Made-to-Order Suits require preliminary preparation. Those who are planning them now will find in this opportune showing a most comprehensive variety of materials. Weaves that are to be in favor this coming season; qualities that insure excellent wear, are the kind offered for your selection.

COME TOMORROW.

48-in. BLACK BROADCLOTH. Fashion has decreed that this desirable fabric shall again be popular for fall and winter wear. This quality is made to give excellent service, has a beautiful, rich finish, and priced at a yard... **\$1.25**

34-in. in Black and Navy at... **\$2.00**

42-in. PREMIER CLOTH, a Yd. **\$1.25**

A non-irresistible, all wool material for Women's and Misses Dresses, Waists, etc. Has a permanent lustrous finish, and is of medium weight; shown in a range of the most wanted colors.

30 and 34-in. PLAID CHEVROTS. Sublimed plaids and beautiful Roman stripes, such as these, are to be in vogue this fall for separate shirts and coats.

ABDICATION OF THE GREEK KING

Crown Prince George to Succeed Him, and Venizelos Will Return to Power.

RUSSIANS CAPTURE 15,790 MEN.

London, Sept. 1.—The abdication of King Constantine of Greece is reported by an official dispatch from the British press representative at Saloniki, who adds the king has abdicated in favor of Crown Prince George, and that former Premier Venizelos, leader of the party which favors intervention in the war by Greece with the Entente Allies, will be the power behind the throne. The correspondent regards it as uncertain whether the Entente Allies will see the assistance of Greece in the war.

The surrender of three times as many in Macedonia to a committee, the nature of which is not clearly indicated, is reported from Saloniki. Another dispatch says there has been fighting between the Greek regulars and volunteers organized to resist the Bulgarian invasion. French troops are reported to have intervened to prevent serious disturbances in the Saloniki region, where the existence of internal disorders, if not rebellion, is indicated.

The Huns' invasion of Hungary apparently is continuing without serious interruption. Official announcement is made at Bucharest that the important industrial center of Petrovarin in the rich and fertile center of Southern Transylvania and Tschungo-Vall has been occupied by Hungarians.

MAY RESCIND STRIKE ORDERS

Congress Expected to Pass Laws Satisfactory to R. R. Brotherhoods.

BILL WILL PROVIDE FOR 8-HOUR DAY

Washington, D. C., Sept. 1.—Measures which will result in rescinding orders for a railway strike next Monday may be passed by the House and Senate under special rule today, and within 24 hours may be on their way to reach President Wilson's signature.

Both Houses had under consideration virtually identical bills establishing an eight-hour day for trainmen in interstate rail way commerce and providing for creation of a Commission to study the effect, and President Wilson was on hand to press for their immediate passage. He set aside the meeting for a personal visit to the Capitol to tone the Administration's influence in behalf of his proposals.

Some opposition was looked for, particularly in the House, but it was believed by Congressional leaders this would be inconsequential to prevent passage. In the Senate there was pronounced feeling that the entire program proposed originally by the President should receive immediate consideration.

The House was to meet at 11 o'clock and vote finally on the Adamson bill—introduced yesterday with approval of the Administration—at 4:30 this afternoon. The Senate was to convene at 10 o'clock, to take on the bill on which the Interstate Com-

FIRE DESTROYS CELLULOID WORKS

Spectacular Blaze at Riverdale Avenue and Downing Street Yesterday Afternoon.

THE LOSS IS ESTIMATED AT \$50,000

Works Owned by the Schneider Manufacturing Company—Jefferson DeAngelo Owns the Building—Firemen Save Other Structures in the Neighborhood.

Starting in a small piece of celluloid on the second floor and spreading rapidly in sheets of that material, fire destroyed the plant of the Schneider Manufacturing Company, 909 Riverdale avenue, at the north-west corner of Downing street, yesterday afternoon. The brick building, which is owned by Jefferson DeAngelo, was gutted. The total loss is \$50,000.

For a time the fire threatened to destroy several frame apartment houses in Riverdale avenue and in Downing street. One of the buildings, a four-story frame structure occupied by eight families, and also and a few feet west of the manufacturing plant, was badly damaged. This structure is owned by Henry Meier.

Frame buildings on the east side of Riverdale avenue, owned by James W. Higgins and Henry Schultz, and one on the west side of that thoroughfare, owned by a Mrs. Wheeler, and located a short distance south from Downing street, were saved by heat from the burning structure.

The Schneider Company manufactures various articles of celluloid, such as toilet

To the Enrolled Republicans of Yonkers



Remind People This Is A Place Of Talented And Creative Residents



Ella Fitzgerald grew up and started singing in Yonkers

Enable People To Interact With And Create Their Own Experience





Bring The World To Small Town Shopping



Main Street stores can bring the world's wares into the store, virtually, without driving up inventory costs

Key Take-Aways

1. There isn't only one way to deploy broadband or to operate it.
2. Broadband infrastructure is necessary for residents to achieve their full potential in this century's global knowledge economy
3. Digital technology infrastructure can be blended with the physical aspects of a city to create new and delightful destinations that residents will appreciate and will attract visitors.

Why Think About The Future Today?

“A good hockey player plays where the puck is ... a great player plays where the puck will be.” — Wayne Gretzky

“If the rate of change on the outside exceeds the rate of change on the inside, the end is near.” — Jack Welch, former CEO, General Electric

***Laying a foundation for a flourishing future takes time;
There are important things to do today to start***



**Building the
community of
the 21st Century**

Thank You!

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Twitter: @NormanJacknis

