

RURAL ACCESSIBILITY TO HIGHER EDUCATION THROUGH TECHNOLOGY AND THE INTERNET: *A COMPARISON OF THE UNITED STATES AND UNITED KINGDOM*

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ISSUE: KNOWLEDGE ECONOMY

The proliferation of technology in higher education continues to reinvent how knowledge is created, consumed and generated.

- Global enrollment 200m students
- Projected 400m students by 2030 (Altbach)
- 2020- 40% of the global workforce will be knowledge workers with a need for tertiary education (Daniel, Kanwar & Uvalic-Tumbric)
- Worlds top 200 Universities are in the U.S. or U.K.
- Competing in a saturated marketplace
- Competitive market-driven system and revenue funding stream that views students as a commodity
 - Equitable, Affordable, Accessible?

“

WE HAVE ENTERED AN ERA OF VIRTUAL EDUCATION WHERE 30% OF ALL COLLEGE STUDENTS NOW LEARN ONLINE-COMPARED TO LESS THAN 10% IN 2002.

”

-Cantwell & Kauppinen, 2014

United States is currently on a path to produce 11 million fewer certificates and degrees than our economy requires by 2025. During this same time period 50% of all students working on degrees drop out.

-NMC Horizon Report (2016)

THEORETICAL FRAMEWORK

Globalization, broadly defined as foreseeable global economic and technological advances have caused countries to adopt new practices to meet the needs of a knowledge economy.

Academic capitalism has encapsulated higher education as a public good to private good where funding streams are changing, students are seen as consumers and as sources for profits (Altbach, 2016).

DISTANCE EDUCATION

- Neo millennials
- Changing student demographic
- Increased internet accessibility
- Rapid increase in information technology and adoption

RESEARCH QUESTIONS

1. Who does *Mizzou Online* and *Scotland Open University* serve through distance education?
2. Does distance education provide accessibility for rural students to obtain higher education certifications or degrees?
3. Is there a digital divide that prevents unequal accessibility for rural students from participating in distance education programs?

METHODS: COMPARISON CASE STUDY

- US Distance Education Trends

- Mizzou Online



Mizzou Online
University of Missouri

- UK Distance Education Trends

- Scotland (Open University)



The Open
University

- Rural Vs Urban Broadband Access

UNITED STATES

UNITED KINGDOM

Online Student Profile	<p>45% married, with dependents, financially independent undergraduates and 26% financially dependent undergraduates</p> <p>52% graduate students not married with dependents</p> <p>32% graduate students who exclusively obtained their degree online (2016).</p>	<p>Over 75% of OU students work full or part-time with 31% that are under age 25. OU states that 23% of the UK undergraduate students live in the 25% most deprived areas in the UK and more than 22,000 people with disabilities enrolled in 2015/16.</p> <p>60% female students</p> <p>Age range= 25-35</p>
Distance Education Growth	<p>2002- 1.6m took courses</p> <p>2014- 6m took courses</p> <p>4% growth rate</p>	<p>Open University- 1969-24,000 students; 2m last 50 years</p>
Took One Online Course	<p>2012- 7.4m undergraduates</p> <p>1.3m graduates</p> <p>1 in 4 students</p>	<p>175,00 current students (7,500 int.)</p> <p>2016- 180 doctoral degrees awarded</p> <p>Largest producer of law students</p>
Public- exclusively online students	<p>84% are instate</p> <p>1 in 7 students</p>	<p>60% of students are funded through Government</p>
Private- exclusively online students	<p>75% are outstate</p>	
Source:	<p>Poulin & Stout, 2016</p> <p>National Center for Educational Statistics</p>	<p>Source: the Open University, 2017</p>

MIZZOU ONLINE

SCOTLAND OU

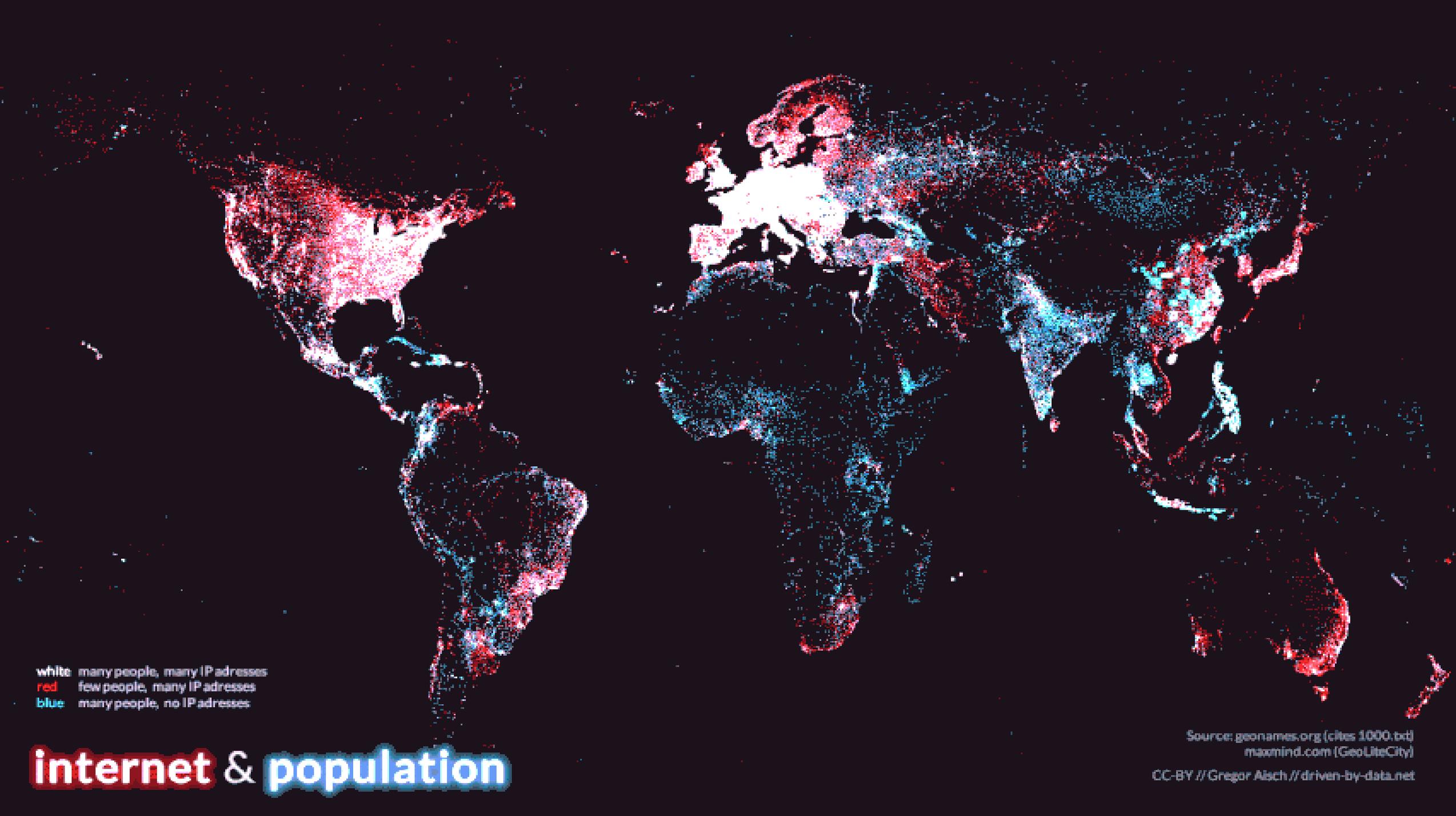
Geography Population	69,000 sq. m 6m people 1.5 m rural	31,000 sq. m 5.3 m people 1m rural
Rural Defined	Census Bureau Office of Budget and Management Classification (Metro Central, Metro Outlying, Micro Central, Micro Outlying, Not Metro)	Scottish Government Urban Rural Classification (settlement size, accessibility, drive time) Less than 3,000 rural 3,000-10,000 small towns
Distance Education Growth	31% growth over past 5 years 24 m revenue share 65% in-state (85% Natl)	Scottish Highlands and Islands OU 29 % stay 78% leave (16-24 not working professionals)
Program	101 online degree and cert. programs 928 classes online 790 graduates 3, 643 distance education students	70 miles to the nearest study center with tutorial guidance and testing centers Variety of subjects and degree levels
Student Profile	Avg. age 24 57% Female; 43% male 45% took one class as a current campus student 16,400 took at least one class	62 students (2011) Older, working females OU urban (age 29 peak) OU rural (age 44 peak)
Serve	Urban- suburban counties Internet access, high speed Home to post-secondary institutions	20% geographically remote
Source:	USDA-ERS CIA Fact book Mizzou Online 2017	NRS CIA Fact book Macintyre and Macdonald (2011)



IS THERE A DIGITAL DIVIDE?

A digital divide exists between those that have access to the internet and other digital communications and those who don't either by income inequality or spatial (often these two are interconnected).





white many people, many IP addresses
red few people, many IP addresses
blue many people, no IP addresses

internet & population

Source: geonames.org (cities 1000.txt)
maxmind.com (GeoLiteCity)

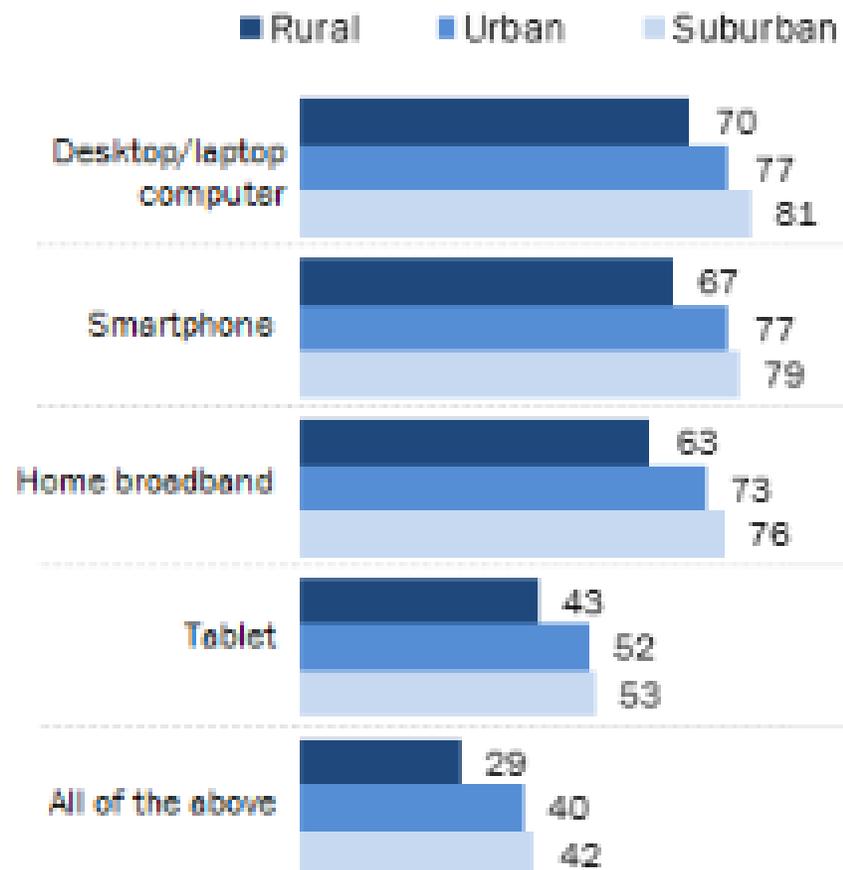
CC-BY // Gregor Alsch // driven-by-data.net

FCC DEFINITION

The Federal Communications Commission's definition for internet access speed is 25 Mbps for download and 3 Mbps for upload as the minimum required for residential access service level benchmark. The FCC estimates that 10% of all Americans or 34 million people lack access to this benchmark service level with 39% or 23 million living in rural populations vs. only 4% being urban (FCC, 2016).

Majority of rural Americans have home broadband, but digital divide remains

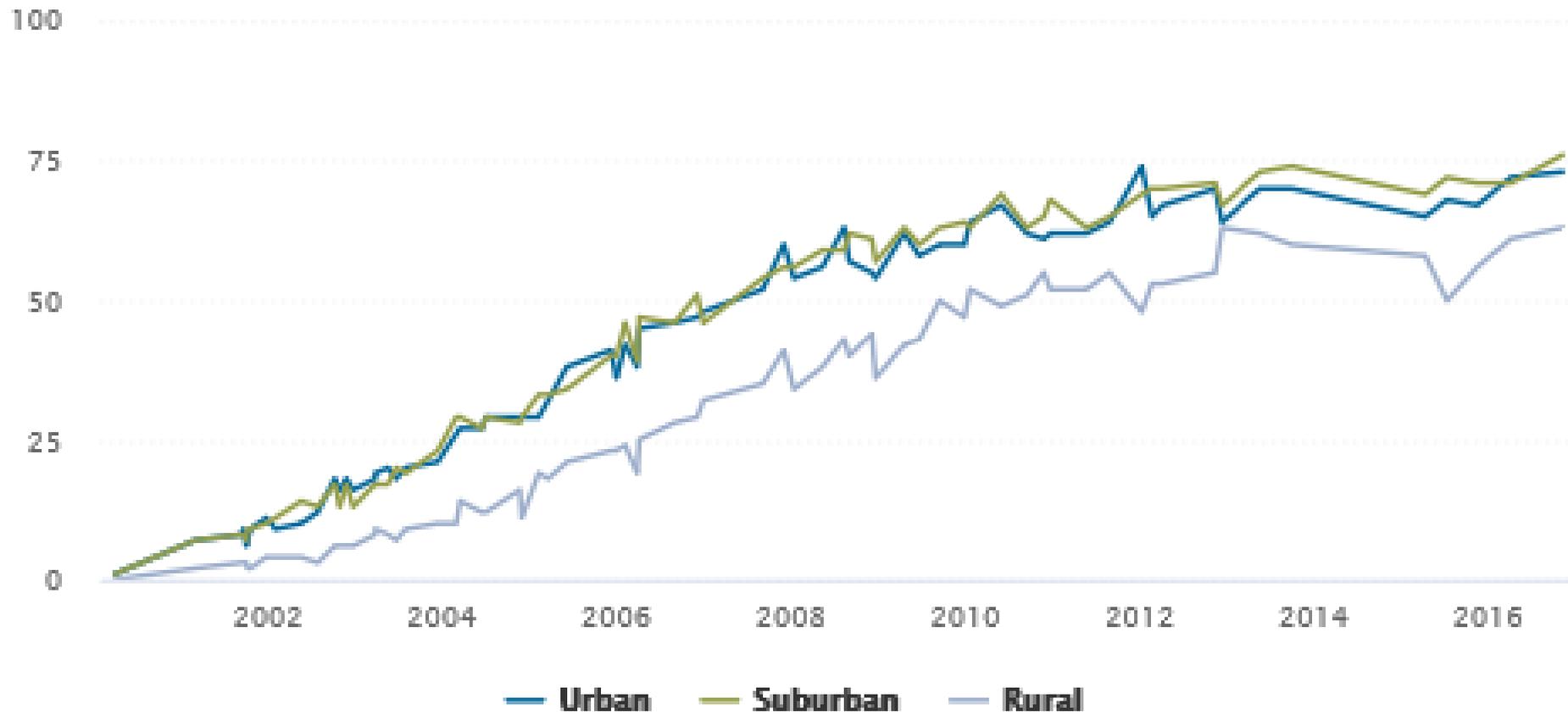
% of U.S. adults who say they have ...



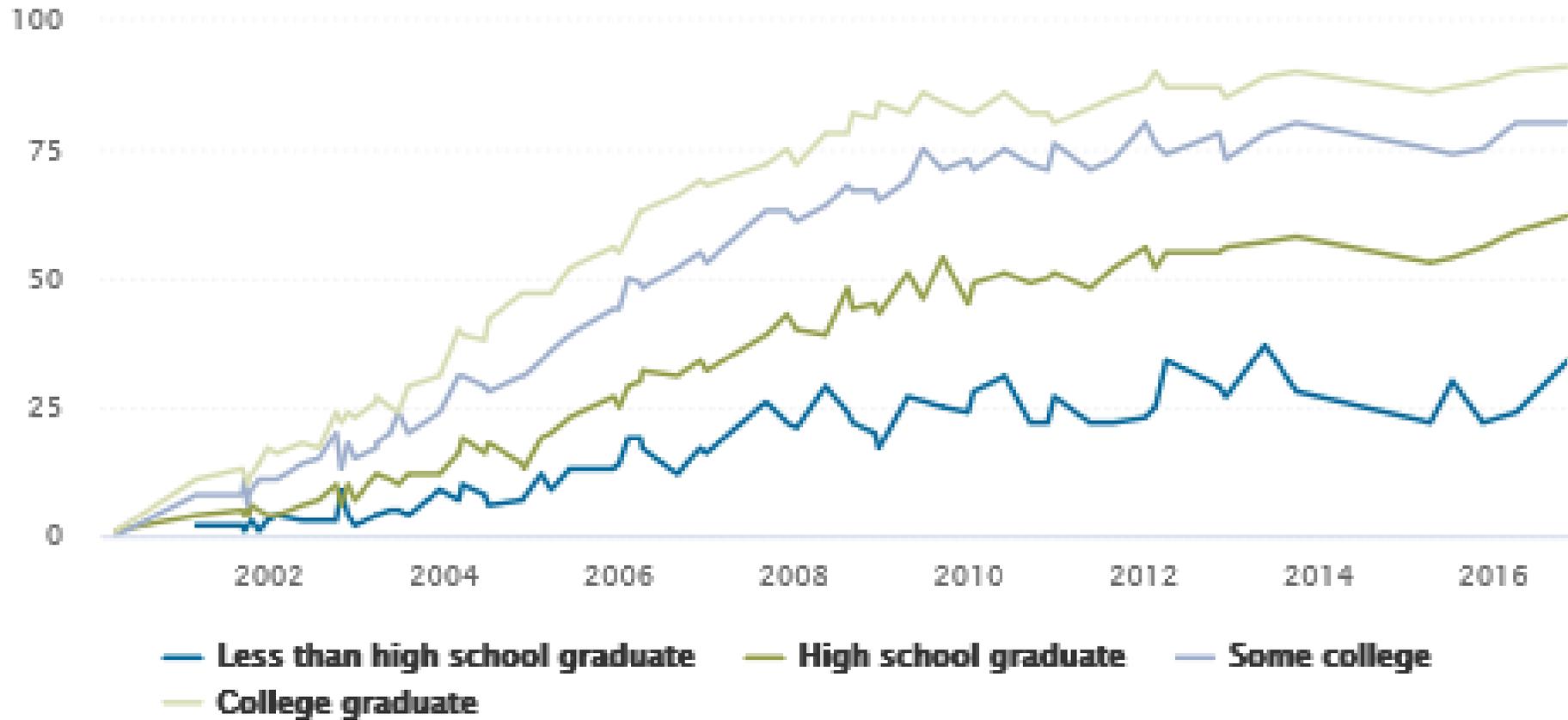
Source: Survey conducted Sept. 29–Nov. 6, 2016.

PEW RESEARCH CENTER

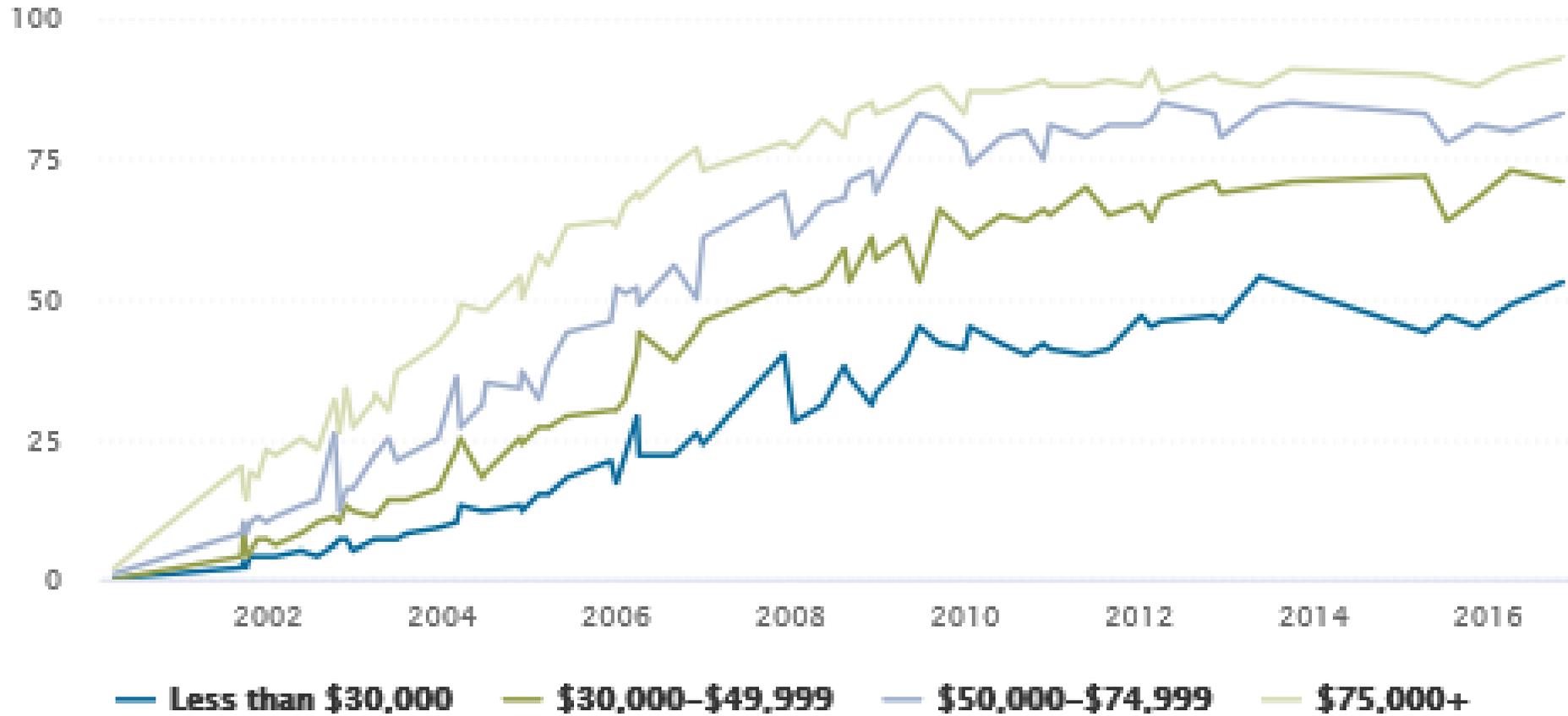
% of U.S. adults who are home broadband users, by community type



% of U.S. adults who are home broadband users, by education level

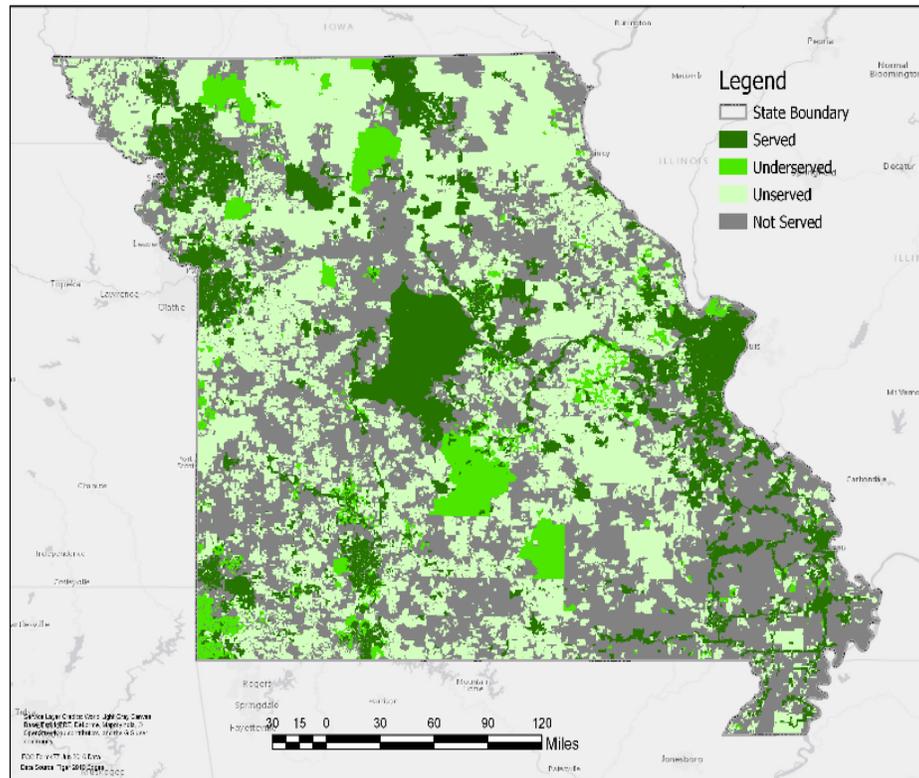


% of U.S. adults who are home broadband users, by income

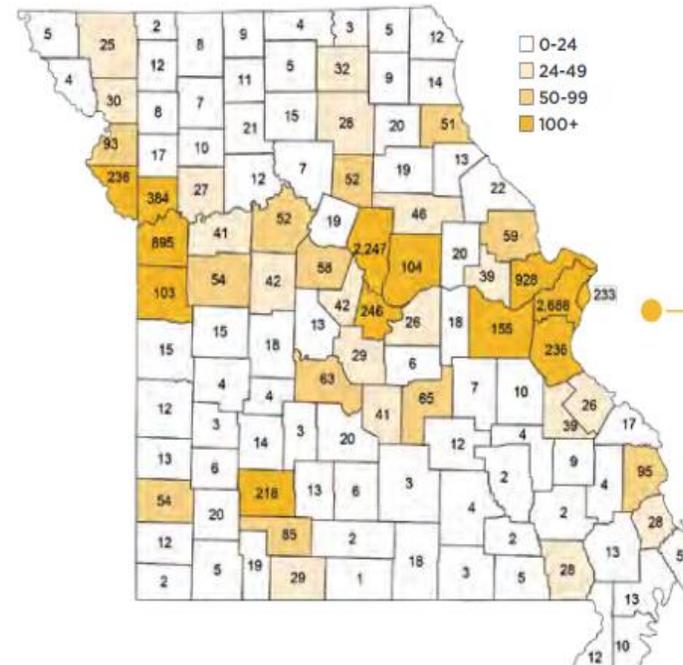


BROADBAND AND MIZZOU ONLINE

Terrestrial (non-mobile) Broadband Speed Coverage in Missouri CQA



STUDENTS IN MISSOURI TAKING AT LEAST ONE CLASS FACILITATED BY MIZZOU ONLINE



100+

STUDENTS IN THESE MISSOURI COUNTIES:
Boone, Callaway, Cass, Clay, Cole, Franklin, Greene, Jackson, Jefferson, Platte, St. Charles, St. Louis, St. Louis City



MISSOURI STUDENTS
10,776 of the total 16,480 students live in Missouri.

Scottish Government Urban/Rural Classification, 2013-2014

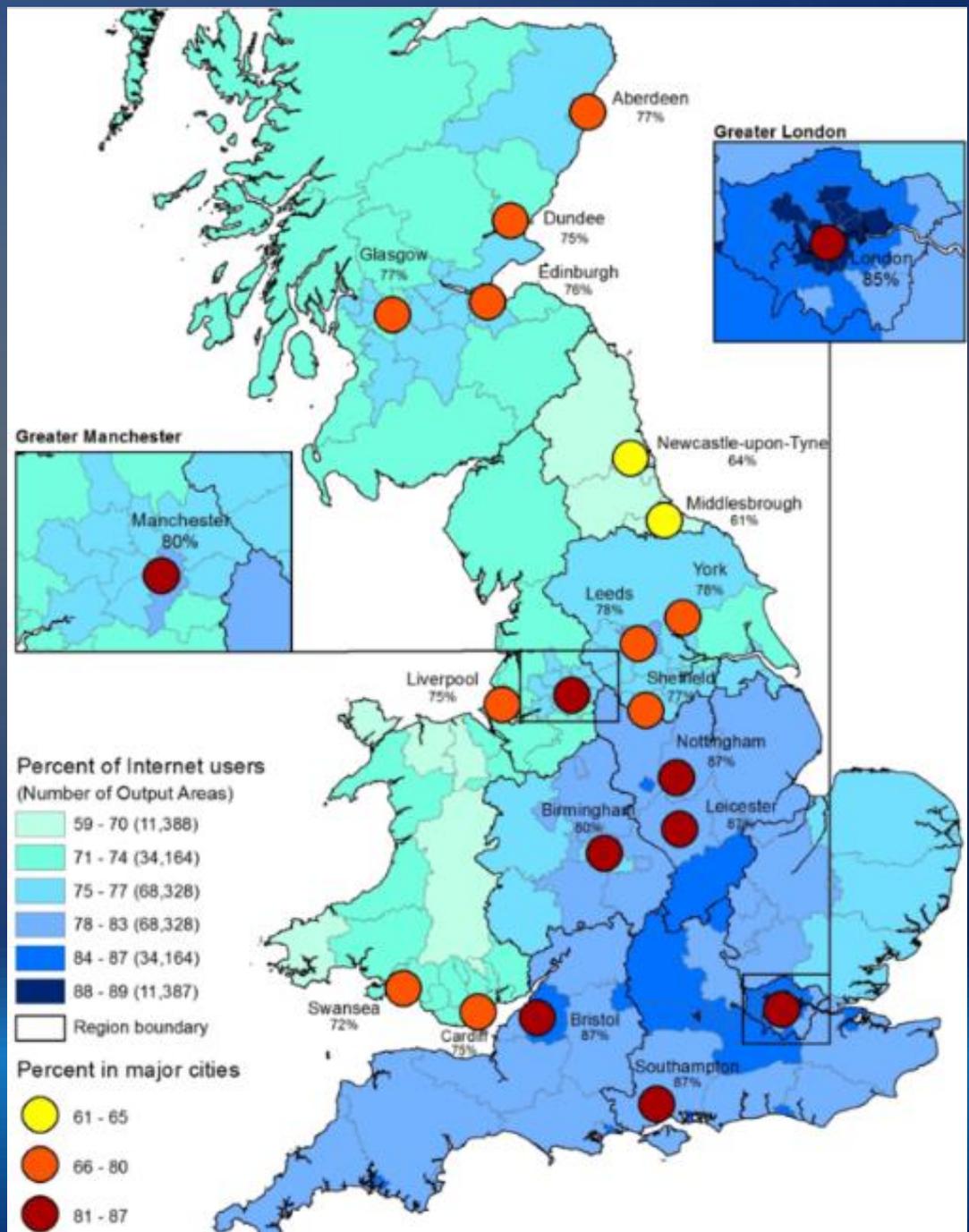
6 Fold Classification

- Large Urban Areas (with a population of 125,000 or more)
- Other Urban Areas (with a population of 10,000 to 124,999)
- Accessible Small Towns (with a population of 3,000 to 9,999)
- Remote Small Towns (with a population of 3,000 to 9,999)
- Accessible Rural (with a population of less than 3,000)
- Remote Rural (with a population of less than 3,000)

Note:
Accessible Areas are defined as those areas that are within a 30 minute drive time from the centre of a Settlement with a population of 10,000 or more, while Remote Areas have a drive time which is greater than 30 minutes.

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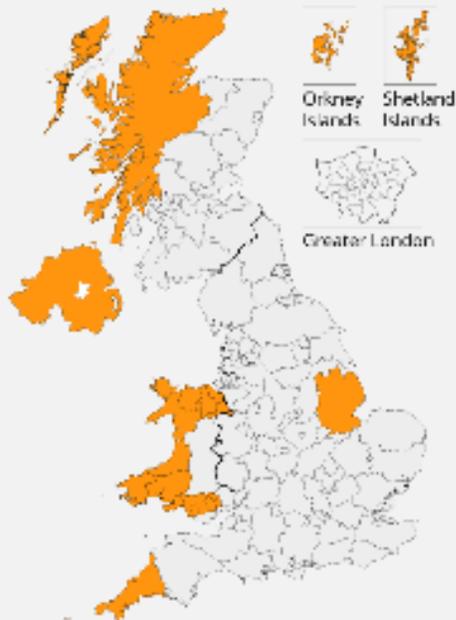
Scottish Government GIS Science & Analysis Team, October 2014, Job 5547aj



U.K. BROADBAND

Top 5 with highest rate of internet non-users

UK, 2015



- 1 Northern Ireland **18.8%**
- 2 Highlands and Islands **16.9%**
- 3 Cornwall and Isles of Scilly **16.8%**
- 4 West Wales and the Valleys **15.7%**
- 5 Lincolnshire **15.2%**

Source: Internet users 2015

Digital exclusion heatmap

Likelihood of overall digital exclusion
High | Medium | Low



IMPLICATIONS

- Knowledge economy is borderless (space and time)
- Higher Education pursues distance education for economic reasons
- Driving increase in student enrollment
- Increase access to participation
- Non-Traditional Students
- Robust Reporting Structure
- Public Universities in the U.S.- In-state students (80%)
- Scotland- Keeping them there (Leavers 80%)- accessibility to centers that are closer
- International Markets
- Rural Broadband Infrastructure- approach, built, delivery system

POLICY AREA'S TO SUPPORT DISTANCE EDUCATION

- Infrastructure/ faster internet connectivity/ improved bandwidth
- Strategic lenses to counter decreased funding and enrollment
- Price structure
- Distance education value
- Technical support
- Improved training for academic educators

CONCLUSIONS

- Rural people have access to online education
- Digital Divide
- Serving Non-Traditional Students
- Policies are being developed in response to globalization and academic capitalism
- Reporting Structure is not robust for who institutions are serving
 - Student satisfaction
 - Achievement
 - Attainment
 - Quality of instruction
- Data is lacking

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