



CPSC 2910 – Lesson 5

Progress and Fears: The Rapid Pace of Change

Carrie L Russell | Clemson University, Spring 2023

Agenda

- **Quiz 1**
- **The Pace of Change**
- **Unexpected Outcomes of Change**

The Pace of Change

The Pioneering Era
1955 – 1965



The Stabilizing Era
1965 – 1980



The Micro Era
1980 – 2005



The Cloud Era
2005 - now



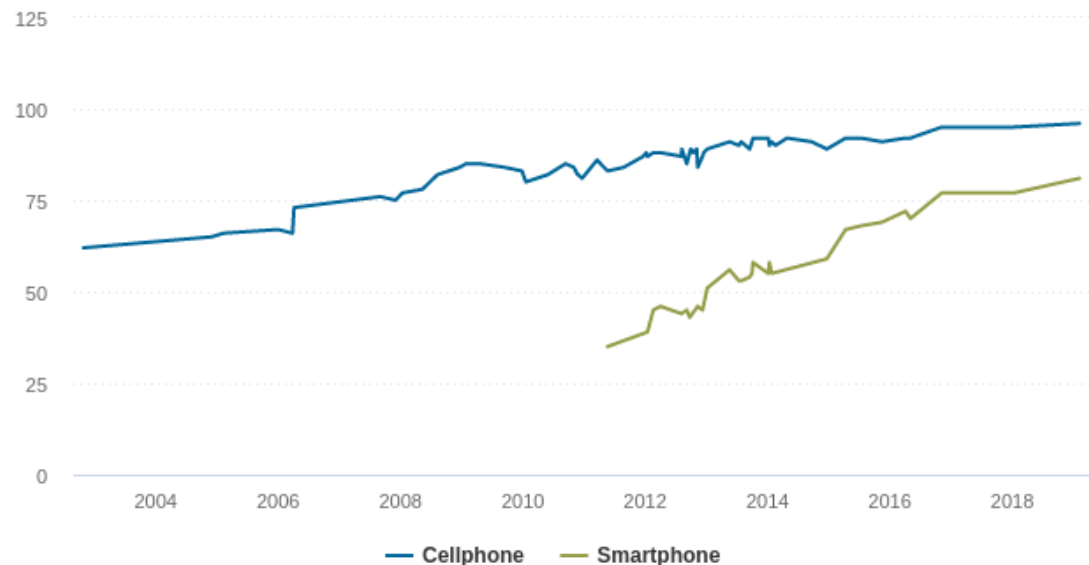
- **Moore's Law** – refers to Gordon Moore's (co-founder of Intel) perception that the number of transistors on a microchip doubles every two years, though the cost of computers is halved.

Unexpected Outcomes: Cell Phones

Relatively few in the 1990's – approx. 5 billion worldwide today (roughly 63% of the human population) and 3.5 billion smartphones

Mobile phone ownership

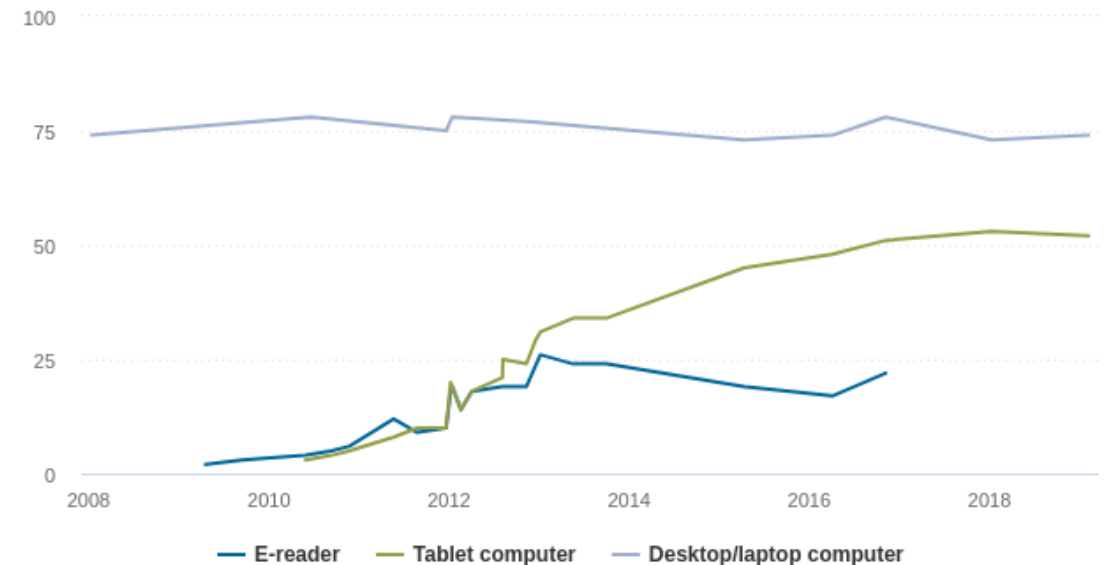
% of U.S. adults who own the following devices



Source: Surveys conducted 2002-2019.

Ownership of other devices

% of U.S. adults who own the following devices



Source: Surveys conducted 2008-2019.

Unexpected Outcomes: Cell Phones

Discussion Questions – cellphone versus smartphone usage and social media

- Using data shown from the Pew Research Center – [Mobile Fact Sheet](#)
 - What are some common features of Americans who report the greatest differences in cellphone usage over smartphone usage? Why might this be?
 - What are some common features of Americans who report the greatest dependency on smartphone usage? Why might this be?
- Using data shown from the Pew Research Center – [Social Media Factsheet](#)
 - What are some common features of Americans who report higher use of social media? Why might this be?
- More about the digital divide - <https://www.pewresearch.org/fact-tank/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption/>

Unexpected Outcomes: Smartphones

The good – it's not just a phone – smartphones used daily for -

- Taking, editing, and sharing photos
- Downloading music and watching videos
- Checking email and playing games
- Banking and managing investments
- Maps and directions
- Social networking

Wide range of apps available for personalized needs –

- Diabetes – blood sugar monitoring and reminders
- Cardiovascular health – monitoring blood pressure, heart rate
- Fall alert systems – accelerometer and gyroscope for motion tracking
- etc.....

Unexpected Outcomes: Smartphones

With the good, comes the bad -

- Location tracking raises privacy and safety concerns
- Cameras affect privacy in public and non-public spaces
- Can interfere with solitude, quiet, and concentration
- Using a smartphone while driving is dangerous
- Highly connected usage across apps and services gives tons of data for social engineering, targeted marketing, etc
- Smartphone addiction and dependency -
<https://www.helpguide.org/articles/addictions/smartphone-addiction.htm>

What else can you think of?

Unexpected Outcomes: Themes

- Old problems in a new context – crime, pornography, violence
- Adapting to new technologies – thinking in a new way
- Varied sources of solutions to problems – natural part of change and life
- Trade-offs and controversy – i.e. increasing security means reducing convenience
- Perfection is a direction, not an option

Progress and Fears

Introduction of computers in the workplace generated many fears –

- Mass unemployment due to increased efficiency
- Need for increased skill and training widens the earning gap

New trends still generating fears –

- Offshoring of jobs will lead to mass unemployment
- Employers use of technology to monitor employees
- Automation will replace human workers

Global Workforce

- **Outsourcing** – a company pays another company for services instead of performing the tasks itself
- **Offshoring** – the practice of moving business processes or services to another country, especially overseas, to reduce costs
- **In-shoring** – when another company employs thousands of people in the .S. (e.g. offshoring for a German company means in-shoring for U.S.)
- Almost 5% of U.S. workers are employed by foreign companies
- Others – nearshoring and insourcing

Discussion Question –

- Suppose you are a manager at a software company in the U.S. and are about to begin a large software development project. You will need to hire dozens of programmers. Using the internet for communication and software deliver, you can hire programmers in another country at a lower salary than programmers in your country. Should you do this?

Telecommuting

Telecommuting is here to stay post-COVID - what are some benefits and problems?

- Benefits –
 - Reduces overhead for employers
 - Reduces need for large office spaces
 - Employees are more productive, satisfied, and loyal
 - Reduces traffic congestion, pollution, fossil fuel dependency, and stress
 - Reduces expenses for commuting and money spent on professional attire
 - Allows work to continue in otherwise hazardous conditions – blizzard, hurricane, etc.
- Problems –
 - Employers might see resentment from those to have to go to the office
 - For some telecommuting employees, corporation loyalty weakens
 - Odd work hours
 - Cost for office space has shifted to employee
 - Security risks when work and personal activities reside on same computer – BYOD policies

Corporate Monitoring

Before you get the job, many employers will review your social presence

When you get the job, there are rules about use of your corporate computers, phones, etc –

- Over half of major companies in U.S. sometimes monitor the email or voice mail of their employees on company systems
- Some companies block specific websites
- Some monitor time spent on non-work activities (social media, personal email, browsing the internet, online shopping, etc)
- Some monitor location (e.g. truck drivers, nursing staff, access badges)

How is this justified?

- Training, measuring or increasing productivity, checking compliance with rules for communication, and detecting behavior that threatens the employer in some way
- Concerns over software security threats – viruses and other malicious software
- Concerns about inappropriate activities – harassment, unprofessional comments

In-Class Teamwork

As a team – answer this week’s discussion post in Canvas

Monitoring in the Workplace –

- You will work together in class to complete the online discussion post - due at midnight.
- Individual responses to other posts due midnight before next week’s class.

Reading and Discussion Rubric-Sp22		
Criteria	Ratings	Pts
Provided thoughtful answer to the specified question. Showed thought and reflection in their answer. Referenced key elements of the article to back up their answer.	This area will be used by the assessor to leave comments related to this criterion.	12.5 pts
Commented on at least 2 classmate answers. Provided a thoughtful response either supporting or challenging an answer provided by two of their classmates answers.	This area will be used by the assessor to leave comments related to this criterion.	5 pts
No major grammar or spelling issues in the submission. Shows an attention to detail by ensuring that the grammar and spelling are correct in their submission.	This area will be used by the assessor to leave comments related to this criterion.	2.5 pts
Total Points: 20		

Looking Ahead

Next week -

- Reading and Online Discussion – read <https://ethics.acm.org/2018-code-draft-3/> and <https://insights.globalspec.com/article/4232/vw-scandal-when-good-engineers-do-the-wrong-thing>.
- Be prepared to discuss as a class and in small groups next week. You will work together in class to complete the online discussion post, so it is important that you **READ AHEAD**.
- In-class quiz on this week's topics

Questions?

Use our Teams channel first – this is preferred for general questions!

- Prof Russell - crusse4@clemson.edu
- Matt Bernard - mberna2@clemson.edu