

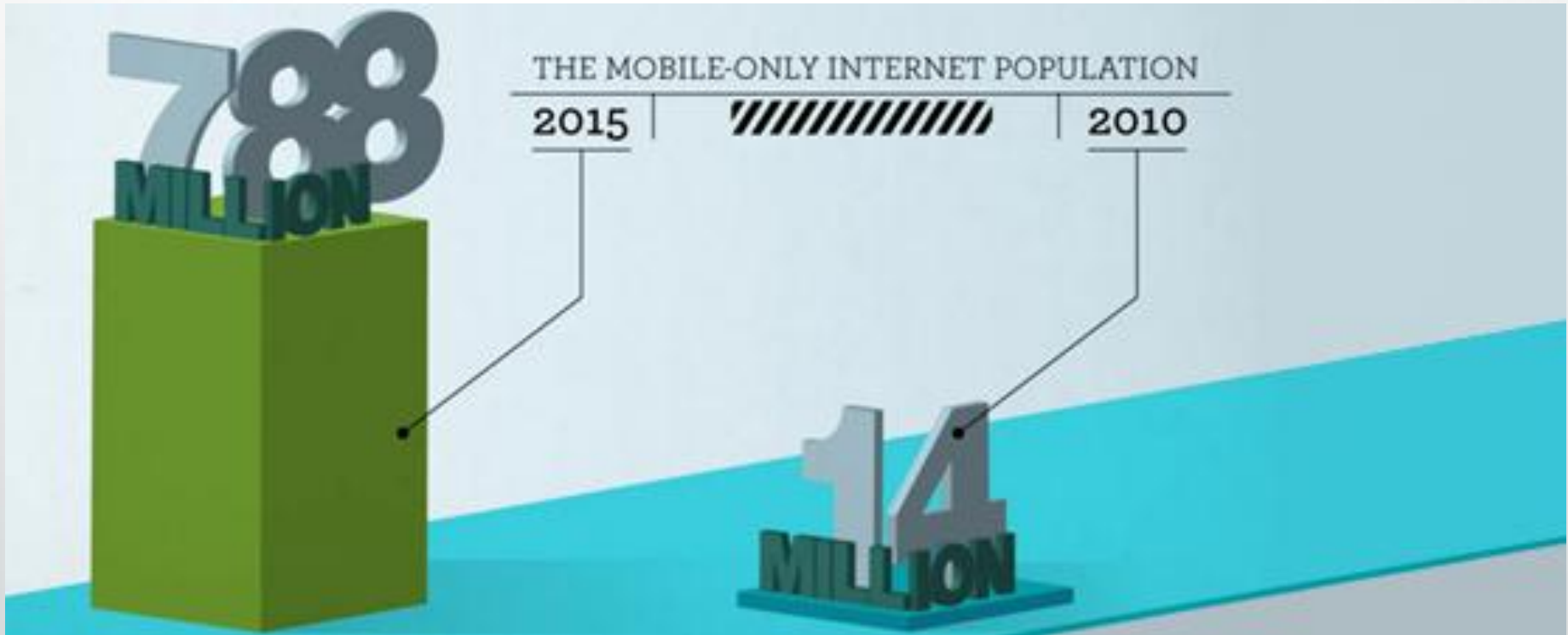
Personal Devices in the Workplace

NC Digital Government Summit
August 31, 2011

Marc Hoit, PhD
Vice Chancellor for IT
& CIO
NC State University

Tim Pursell
IT Strategist
Office of the State CIO
State of North Carolina

Projected Mobile Internet Use in 2015

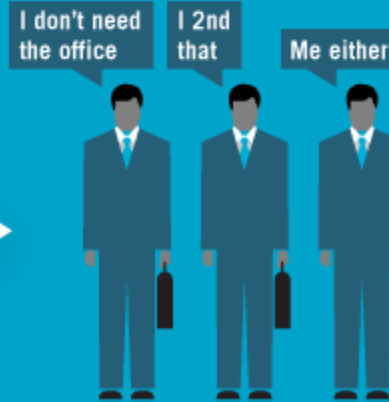


Source: <http://www.business2community.com/mobile-apps/video-infographic-mobile-trends-dominate-the-internet-in-2015-048554>

MOBILE PRODUCTIVITY

OUT OF THE OFFICE

According to a Cisco study on the international workplace, the mobile workforce is now business-as-usual for enterprises around the world.



3 of 5 workers say they don't need to be in the office anymore to be productive



MOBILE WORKING WORLDWIDE

Increasingly, work is something people do rather than a place people go.



32% of employees globally now rely on more than one mobile device during the typical workday

WHERE MOBILE WORKERS FEEL MOST PRODUCTIVE



46%
IN THE
OFFICE



38%
WORKING
FROM
HOME



2%
ON AN
AIRPLANE



2%
IN A HOTEL



2%
IN A CAFÉ

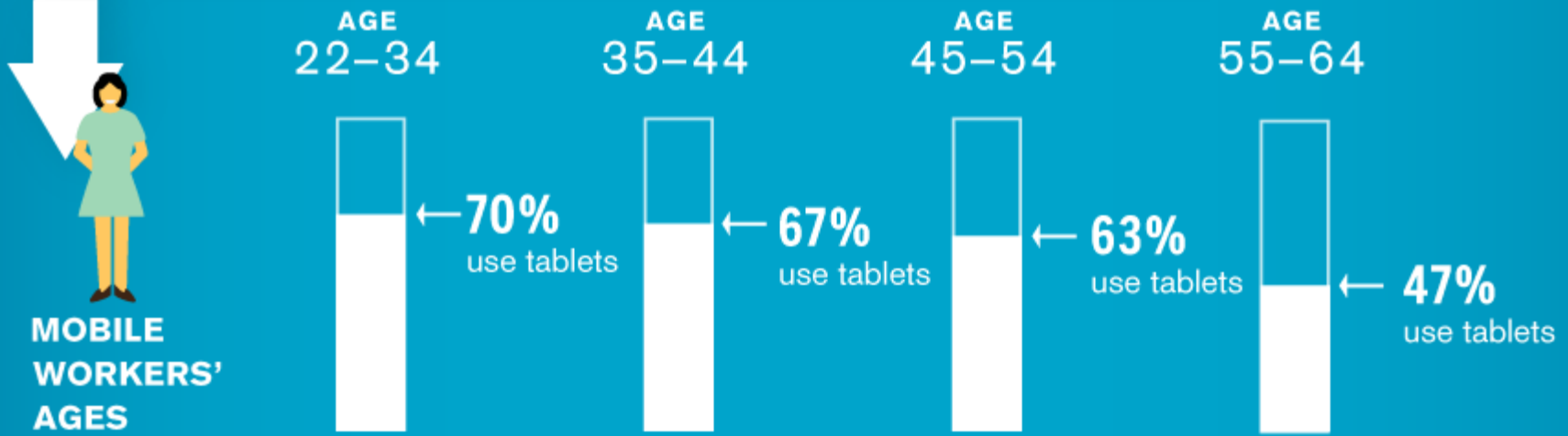


1%
PUBLIC
TRANSPOR-
TATION



9%
NO PREFERENCE

TABLET GROWTH IS YOUTH-DRIVEN



MOBILE WORKERS' AGES

MOST FREQUENT USE OF TABLETS AMONG MOBILE WORKERS



Send and receive email



Surf the Internet



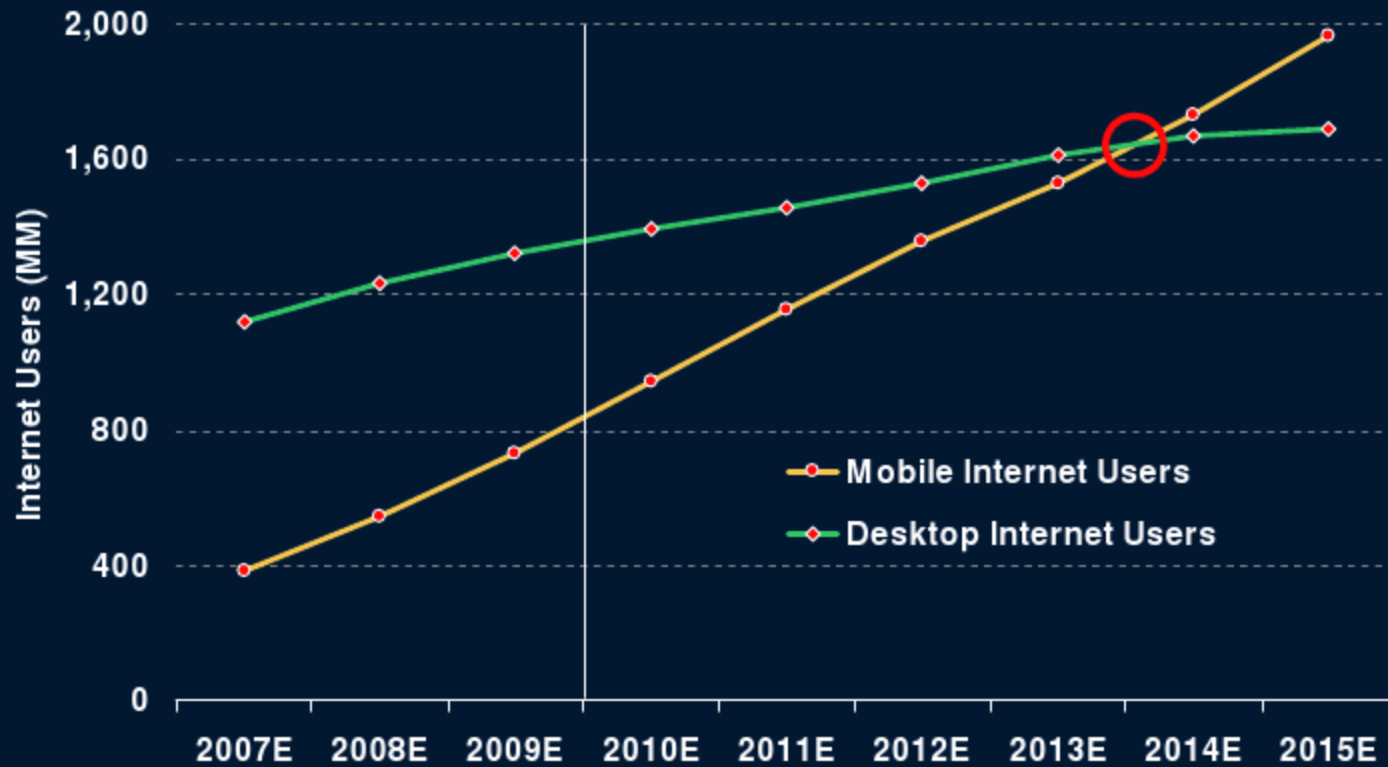
Read
(E-BOOKS, NEWSPAPERS,
OR MAGAZINES)



Watch video content

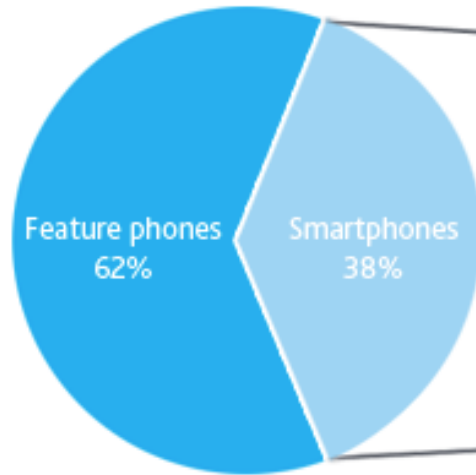
Mobile Users > Desktop Internet Users Within 5 Years

Global Mobile vs. Desktop Internet User Projection, 2007 – 2015E

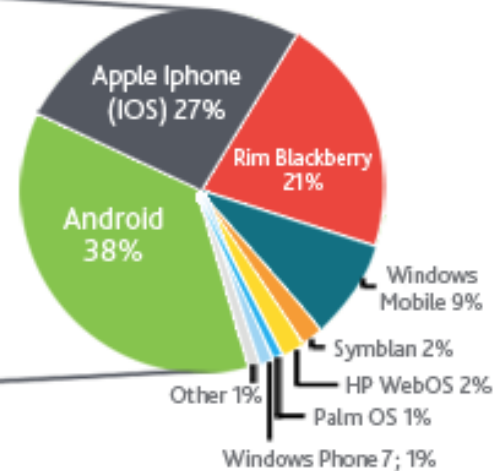


Smartphone adoption

Smartphone Penetration
Mar 11 - May 11, Mobile Insights, US



Smartphone OS Share
Mar 11 - May 11, Mobile Insights, US



nielsen

- May 2011 – 38% of all cellphones in US were smartphones
- 55% of new cellphone purchases are smartphones up from 34% last year

Mobile internet usage

RANK	Mobile Sector	Share of mobile Internet Time based on total time at an individual site-level*	Share of mobile Internet Time based on average time spent at a category-level**
1	E-Mail	38.50%	41.60%
2	Social Networking	10.70%	10.50%
3	News & Current Events	7.20%	4.40%
4	Search	6.30%	7.10%
5	Portals	4.60%	11.60%
6	Entertainment	4.30%	3.30%
7	Sports	4.10%	2.30%
8	Music	4.00%	3.10%
9	Videos/Movies**	3.00%	2.00%
10	Weather	2.80%	2.80%



**APP
STORE**

USERS

**DOWNLOADED
AN AVERAGE OF**

4.8

**APPS EACH
IN DECEMBER**



2010 Horizon Report – Technologies to Watch

- Within next 12 months:
 - Mobile computing
 - Open content
- Within 2~3 years:
 - Electronic books
 - Simple augmented reality
- Within 4~5 years:
 - Gesture based computing
 - Visual data analysis

Historical View: Enterprise Client Evolution

Today

Yesterday

Unmanaged Fixed Client

- Security Challenges
 - Unmanaged
- Inefficient operations
 - Client-server

Device Managed Fixed & Mobile Client

- Focus on TCO efficiency
 - "One size fits all"
 - Monolithic image locked to device
- Mainstream mobility
- Internet Computing

Evolving

Centrally Managed Virtual Client

- CHV (DVC) & SHV (VDI)
 - Drive to centralized administration
 - Virtual workspaces
 - 1:many user/device
- Compute, collaborate & communicate
- Wireless broadband

Emerging

Cloud Managed Client-aware

- Cloud Computing
- On demand computing
 - Elastic, ubiquitous
 - Virtual computing
- Device independent mobility (device aware)
 - N-screens
 - 3D Internet

Device Centric

User Centric



State Government Viewpoint

Tim Pursell

IT Strategist

Office of the State CIO

State of North Carolina

Slides not included – Pursell discussed changes in demand and need for Government matched global trends. He also discussed planning being undertaken to determine path forward.

Personal IT Devices on a University Campus

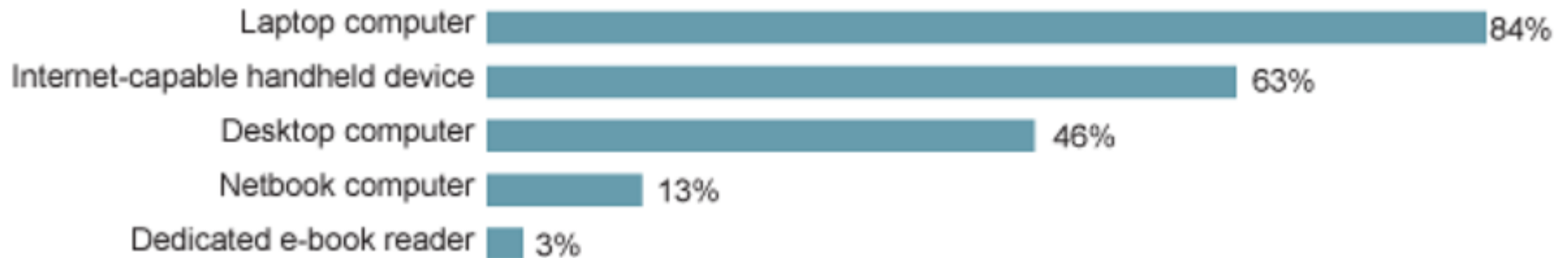
Marc Hoit, PhD
Vice Chancellor for IT
NC State University

NC State is a Small City

- 34,000 Student, 8,000 Faculty & Staff
 - 11 Colleges – each with departments
 - 57 centers & institutes
- \$1.2 B annual expenditure budget
- Business focus: Education (training) & Research
 - Research: \$361M annual expenditures
- 2,120 acres in size
 - 348 Buildings > 1000 sq ft
 - 14.2 million gross square feet
 - 1.2 million rentable square feet on Centennial Campus
 - 18.7 miles of paved roads
 - 72 residence halls housing 8,454

More Students Owned Laptops Than Other Devices in 2010

By percentage

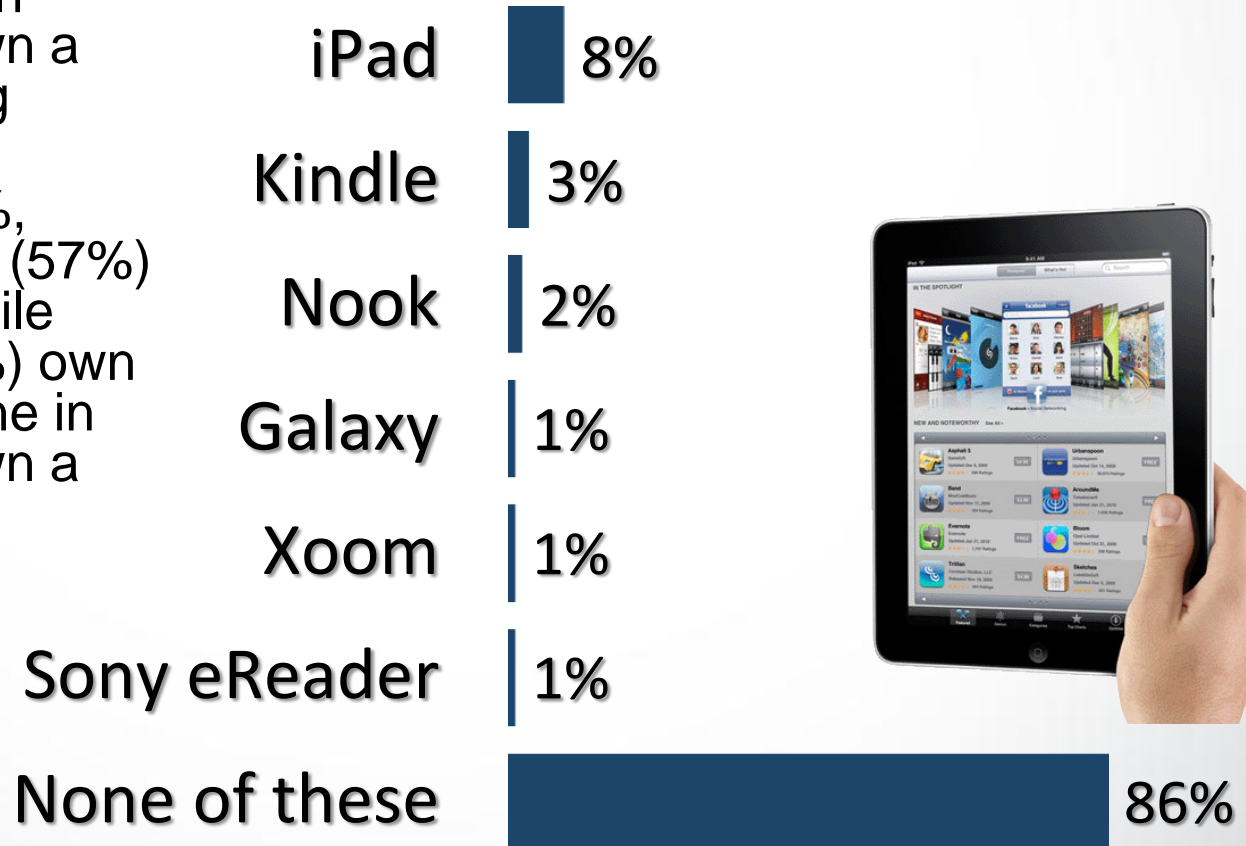


Source: Educause Center for Applied Research <http://chronicle.com/section/Almanac/536>

- ✓ 95% of students own a computer
- ✓ 4% own only a desktop

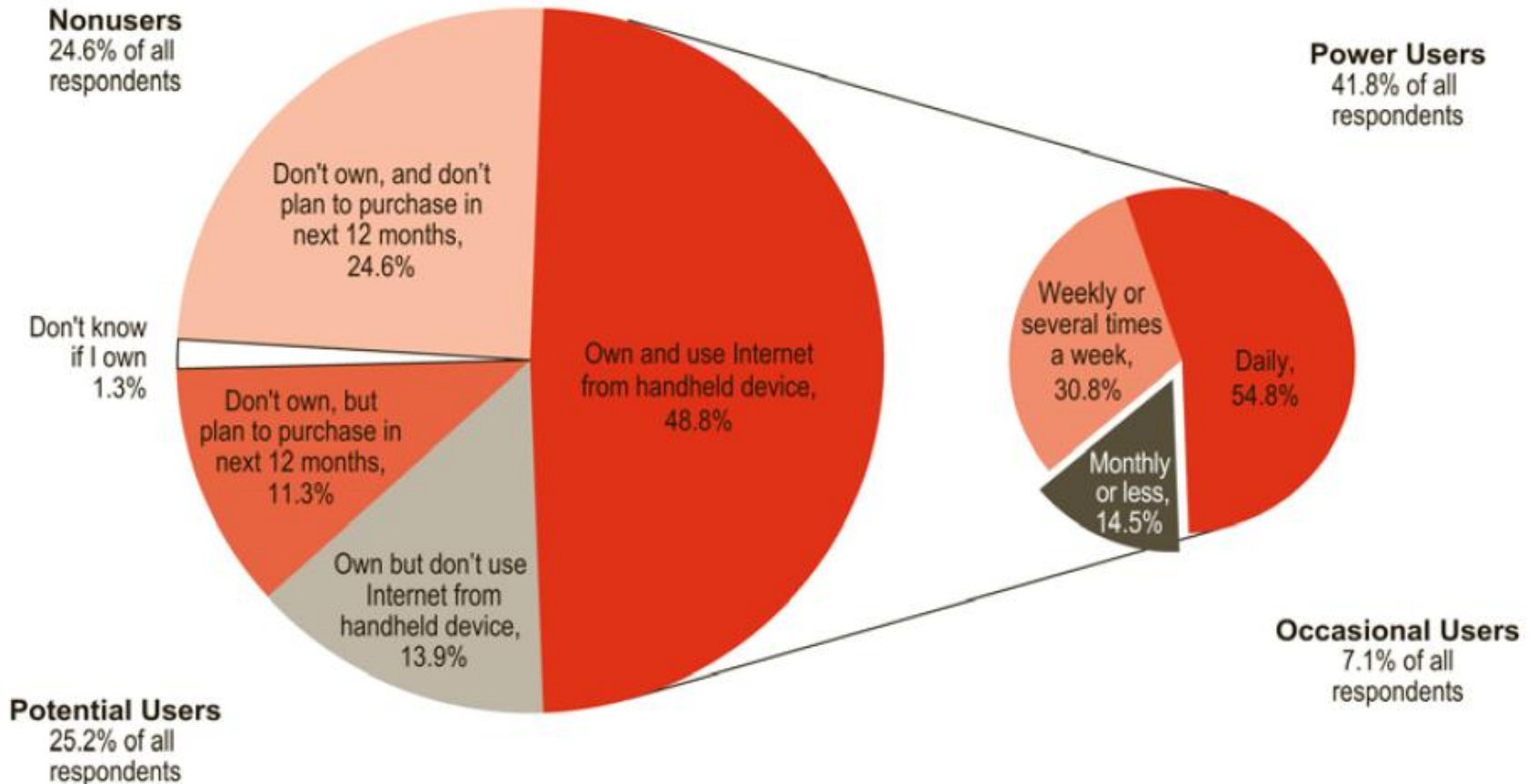
WIRELESS READING DEVICES OWNED

- ✓ More than one in seven (14%) own a wireless reading device
- ✓ Among this 14%, nearly six in ten (57%) own an iPad while one in five (21%) own a Kindle and one in seven (14%) own a Nook

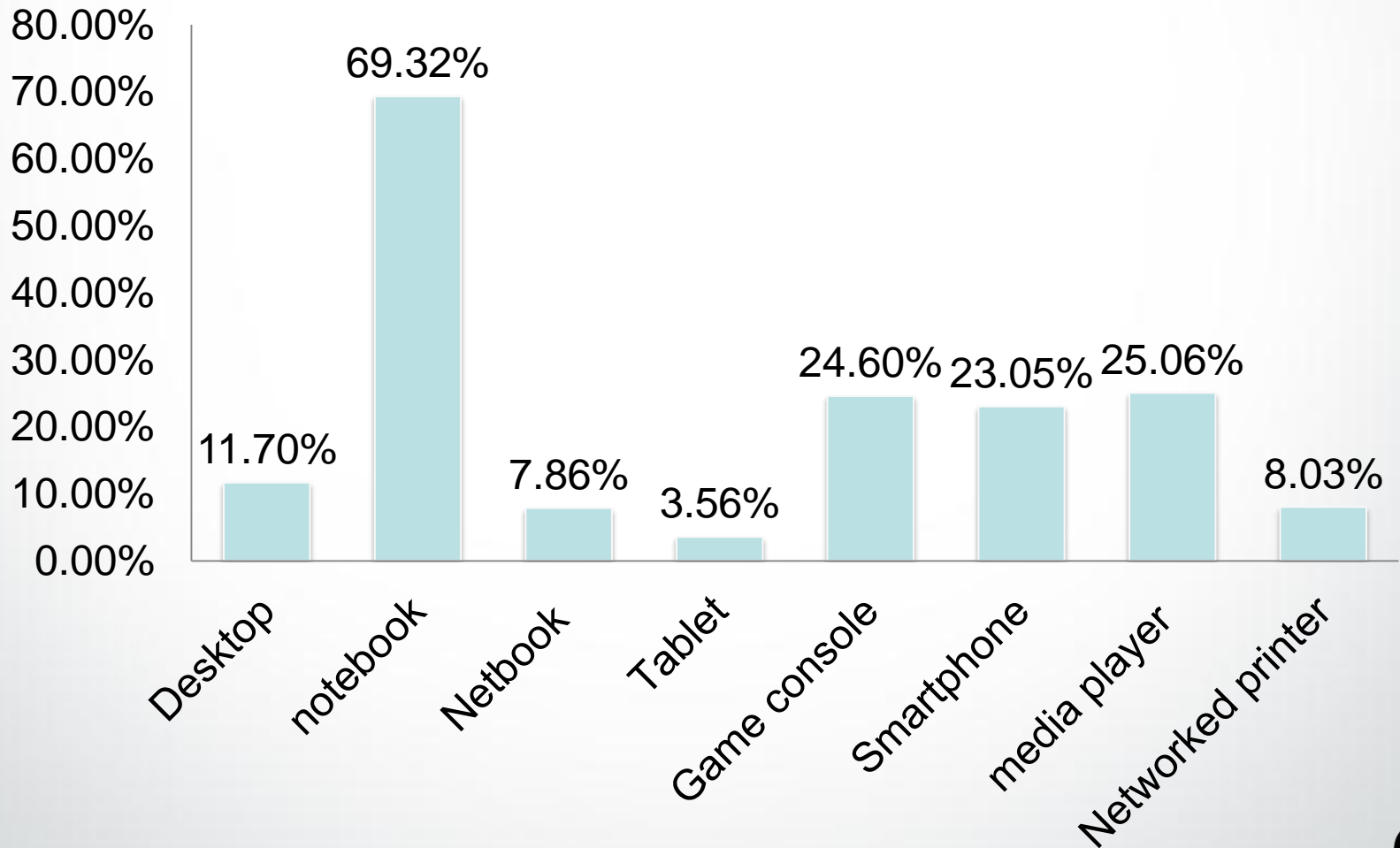


Internet Capable Handheld Devices ECAR, 2010

2010
(N = 36,950)



NC State Residence Hall Survey, 2011



University Mobile Initiative Committee

- Representation from central and distributed IT groups
- Acts as a mentor and facilitator for mobile projects on campus, including mobile web, mobile application development, and text messaging
- Responsible for the Apple Developer License for NC State
 - Released 3 applications into the Apple App Store
 - WolfWalk - A photographic guide to the history of North Carolina State University.
 - WolfMatch - A free Match 3 game from NC State Distance Education
 - On Campus - A location-based application exclusive to NC State University's campus.
- Maintain <http://m.ncsu.edu> mobile website
 - Compatible with any mobile device with a web browser.
- Support the library's initiatives with <http://m.lib.ncsu.edu>

Social Media - <http://twitter.ncsu.edu>

- Aggregates all of NC States (nearly 200) twitter accounts into a single feed.
- Collaboration:
 - **Outreach Technology** provides back-end integration with Twitter
 - **University Communications** provided user interface and design
- Outreach:
 - Source: <https://github.com/jfaustin/Tweet-gater>
 - Many universities have implemented the code at their school, giving NC State credit
- Training: Effective use Twitter to communicate
 - Slides: <http://www.slideshare.net/jfaustin/tweeting-for-nc-state-university>

Instructional Technology and the Professoriate or “the world is changing faster than you are”

- Technology causes disruptive change
 - Skype and the telecommunications industry; Professors are “Skyping” their students
- We support enterprise tools, such as LMSs or content capture
- Our challenge isn’t just “keeping up with the Jones’” but:
 - Allowing people to explore and us support technologies as they emerge, before they even get to a standardized/enterprise level.

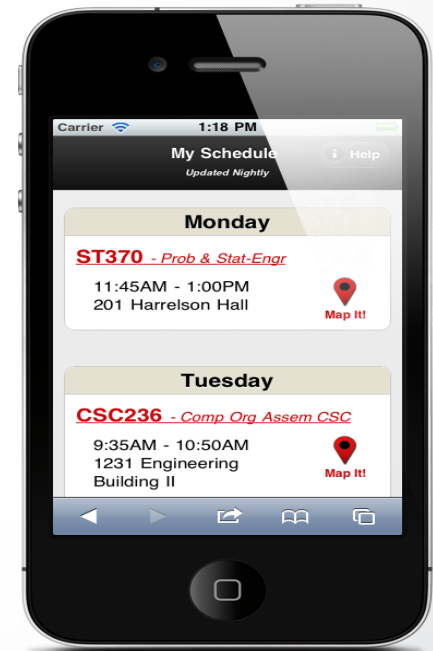
Instructional Technology Sampler

- Enterprise: Learning Management Systems
 - Moodle, Blackboard, Sakai

84% of colleges/universities use one [Eduventures. (June, 2009). *Benchmarking Online Operations*. Online Higher Educational Learning Collaborative.]
 - Content Capture
- Vs
- Emerging
 - Sharepoint (as LMS), Google Sites, Tumblr, Scoop.It,

Around COE Mobile for Students

- Computer Science department piloted using Android devices as platform to teach JAVA programming courses
- My Schedule application developed to deliver a student's course schedule tied with map data
 - Ties into Engineering Maps data to locate course's building
 - Provides instructor information and location from directory services



College of Engineering: iPad Study



- Five each faculty, staff, undergrads, and graduate students given an iPad for 3 months
 - Asked to blog about their experiences
 - Email, web browsing, and social media dominated top uses
-
- Many staff and faculty use for daily email, web browsing, and content consumption
 - Most find it is NOT a full computer replacement
 - Users will still come to you for support even if it is a personal device

My Most Used iPad Apps

- ActiveSync -> native email, calendar
- iAnnotate: PDF reader AND mark-up
- Penultimate: Note taking (written)

- Dropbox: integrated cloud storage for iPad (and others)
- FilesConnect: Connect to SMB (MS) network storage
- Jump: RDP Client

Personal Technology in the Workplace...

It's here...how to embrace and support it.

Level of Criticality in Managing Consumer Devices

	Overall (Mean=3.24)	McAfee	Non McAfee
<i>Base</i>	196	76	120
Extremely Critical	8%	8%	8%
Somewhat Critical	37%	41%	34%
Indifferent	32%	28%	35%
Not Very Critical	17%	18%	17%
Not Critical at All	6%	5%	6%

In a McAfee survey of 233 IT decision-makers, 45 percent of the respondents said that managing consumer-owned devices and related technologies within the enterprise network is “critical.”

How Can You Prepare for the Consumerization of IT? by Candace Worley, Senior Vice President and General Manager, Endpoint Security, McAfee, Inc., 2010

A growing area for NC State...

- Students and employees expect to access campus services from personally owned devices.
- Google Apps for Education is our messaging platform (faculty, staff & students)
- More use of cloud technology (e.g., Google, DropBox, etc.)
- More sensitive data and legislation
- More diversity of devices and software
- Setting service expectations is crucial
 - 24 hour support,

The key support concept...

how to access services, not how to use
the device.

Who is responsible?

University responsibility

- Establish device standards (browsers, mobile platform/OS, etc.) and communicate to clients.
- Provide configuration information for key University-provided services (email, calendar, etc.)
- Support connections to key services

Client responsibility

- Ensure that device is functional—can it connect to services off-campus?
- What data is on the device and is it secure?
- Report loss/theft of the device quickly.

Key Business Decisions...

- Can employees use personally-owned devices for their work?
- If so, what are your requirements of them?
 - Security standards
 - Data retention requirements
 - Data compliance requirements

Stipend for personal mobiles

- Support employee personal preferences
- Potentially reduced cost for organization
- Apply policy to personal device usage
- Avoid multiple mobile devices
- Avoid personal use of state owned devices
- Inventory and some control

Mixing Application on a Single Device Causes Security Challenges



Current Security Summary

- Focus on central site protection
 - Focus on keeping intruders and malware out
- Focus on user education
- Multiple solutions
- Moving towards more automation
- Setting regulations for encryption

Moving forward...

- Personal devices are here to stay.
- New services should be designed with personal devices in mind.
- In the workplace, don't confuse workplace behavior with technology.

Technology does not drive change
it enables change.

~ Source Unknown~