SUNspot – Use of Wireless Devices by Adults with Disabilities
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We created "SUNspot" to share some of the latest findings from ongoing data collection for our Survey of User Needs (SUN), our cornerstone survey on use and usability of wireless technology by people with disabilities. We launched the first version of the SUN in 2001. The current version (Version 4) was launched in September 2012. The data reported here are preliminary results. Data collection is ongoing.

This SUNspot addresses the following questions related to use and usability of wireless technology by people with all types of disabilities:

- The rate of ownership of wireless devices such as cell phones, smart phones and tablets by people with any type of disability

- The types of devices that people with disabilities own

This same topic was addressed in the first SUNspot of the 2013 series in January 2013. SUN data gathered since then offer an opportunity for updated analysis of this central question.

Additionally, in the earlier SUNspot we did not calculate the percentage of respondents who own only a cell phone (either basic cell phone or smartphone). Instead, we combined respondents who had either a cell phone or a tablet. Combining these mobile wireless devices made comparisons with surveys of the general population difficult. Consequently, in this SUNspot the percentage of respondents with disabilities who own either a basic cell phone or smart phone are distinguished from those who own a tablet.

Of over 900 SUN respondents to date, 716 reported having one of the following difficulties:
- Difficulty concentrating, remembering or making decisions
- Frequent worry, nervousness, or anxiety
- Difficulty seeing
- Difficulty hearing
- Difficulty speaking so people can understand you
- Difficulty using your arms

- Difficulty using your hands and fingers
- Difficulty walking or climbing stairs

Wireless use and type of devices used

Among SUN respondents who reported having one or more of the difficulties listed above, 91 percent reported owning or using a wireless device such as a cellphone, smartphone or tablet. Respondents were subsequently asked what kinds of devices they own or use from the choices listed below:

- Basic phone (Examples: Motorola Razr, Pantech Breeze, Nokia 6350, Owasys)
- Smartphone (Examples: iPhone, Android phone, BlackBerry, Windows phone)
- Tablet (Examples: iPad, Kindle Fire, Galaxy Tab, Google Nexus 7, BlackBerry PlayBook)

Smartphones were the most common device owned or used by respondents with disabilities (54%). Basic "feature phones" were owned or used by a significantly smaller percentage of SUN respondents (30%). About the same percentage of respondents (31%) reported using a tablet. The table below summarizes these results. These results generally mirror the rates of ownership and use of wireless devices reported for the general population by the Pew Internet and American Life project, whose research shows that 56 percent of American adults own smartphones and 35 percent own feature phones[1], with 34 percent owning tablets.[2]

Table 1 – Use of Wireless Devices by Adults with Disabilities and in the General Population

	SUN	Pew
Do you own or use a wireless device such as a cell phone or tablet? (% yes)	91%	--
Do you own a basic cell phone or smartphone*	81%	91%
If you own or use a wireless device, what kind do you use? **(Check all that apply)**		
- Smartphone (e.g., iPhone, Android phone, BlackBerry, Windows phone)	54%	56%
- Basic phone (e.g., Motorola Razr, Pantech Breeze, Nokia 6350, Owasys)	30%	35%
- Tablet (e.g., iPad, Kindle Fire, Galaxy Tab, Nexus 7, BlackBerry PlayBook)	31%	34%

*A small percentage of respondents with disabilities reported owning both a basic phone and a smartphone. Consequently, the total number of respondents with disabilities who own any kind of cell phone is smaller than the sum of the percentage of respondents with disabilities who own either type.

[1] Pew Internet and American Life Project, "Smartphone Ownership – 2013 Update", June 5, 2013. Online, http://pewinternet.org/Reports/2013/Smartphone-Ownership-2013.aspx, accessed July 9, 2013.

[2] Pew Internet and American Life Project, "Tablet Ownership 2013", Jule 10, 2013. Online, http://pewinternet.org/Reports/2013/Tablet-Ownership-2013.aspx, accessed July 9, 2013.

Operating systems

SUN respondents with disabilities who reported owning a smartphone or a tablet were also asked which operating system powers their devices. Among smartphone owners, Apple's iOS was the most common with just less than half of the respondents (49%) owning iPhones. The Android operating system was the second most commonly reported operating system, powering 40% of smartphones owned by respondents with disabilities. Blackberry was the third most common operating system at 8% of smartphones owned by respondents with disabilities.

Among tablet owners, Apple's iPad was by far the most common device, owned by 71% of respondents. Android devices were owned by 26% of respondents. Tables 2 and 3 summarize the data on device type and operating system.

Table 2 – Smartphone Operating Systems

If you own or use a SMARTPHONE, what kind do you have? (Operating system)*	
Android powered smartphone (Examples: Motorola Droid, Samsung Galaxy S)	40%
Apple iOS smartphone (Example: Apple iPhone)	49%
BlackBerry smartphone (Example: BlackBerry Bold 9700)	8%
Windows powered smartphone (Examples: Nokia Lumia, HTC Tilt, Samsung Focus)	4%
WebOS powered smartphone (Palm Pre or Pixi)	0%
Other	4%
Don't know	1%

*Percentages total > 100% since some respondents have more than one device, using different operating systems.

Table 3 – Tablet Operating Systems

If you own or use a TABLET, what kind do you have? (Operating system)*	
Android powered tablet (Examples: Samsung Galaxy Tab, Amazon Kindle Fire)	26%
Apple iOS tablet (Example: Apple iPad)	71%
BlackBerry tablet (Example: BlackBerry Playbook)	2%
Windows powered tablet (Examples: Microsoft Surface)	2%
WebOS powered tablet (HP Touchpad)	1%
Other	6%
Don't know	1%

*Percentages total > 100% since some respondents have more than one device, using different operating systems.

Data source: Survey of User Needs (SUN), Rehabilitation Engineering Research Center for Wireless Technologies (Wireless RERC). We share survey data with manufacturers and carriers, as well as with policymakers, for the purpose of improving usability of wireless technology. SUN data are regularly used in guiding industry and government initiatives. We invite the public to take the Survey of User Needs and share how wireless technology affects daily life, and how it could be improved. The survey is available on paper, by phone (800-582-6360), or online at: https://www.surveymonkey.com/s/SUN_2012-2013.

The data presented here are based on a non-random sample. The survey is promoted as broadly as possible through convenience sampling techniques, with special effort toward reaching under-represented groups. Sampling errors are partially corrected by weighting the response data by household income according to American Community Survey (ACS) microdata on demographics of the U.S. population of people with disabilities provided by the Integrated Public Use Microdata Series (IPUMS-USA) project at the University of Minnesota.[3] This helps to mitigate potential biases introduced by the convenience sampling approach. The data reported here are weighted by total household income, which is strongly correlated with education level in the ACS sample.

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[3] Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. *Integrated Public Use Microdata Series: Version 5.0* [Machine-readable database]. Minneapolis: University of Minnesota, 2010.