Ditching Desktop Printers

A Behavior Change Guide to Cutting Paper Use, Energy Consumption, and Costs

Root Solutions

aashe
The Association for the Advancement
of Sustainability in Higher Education®

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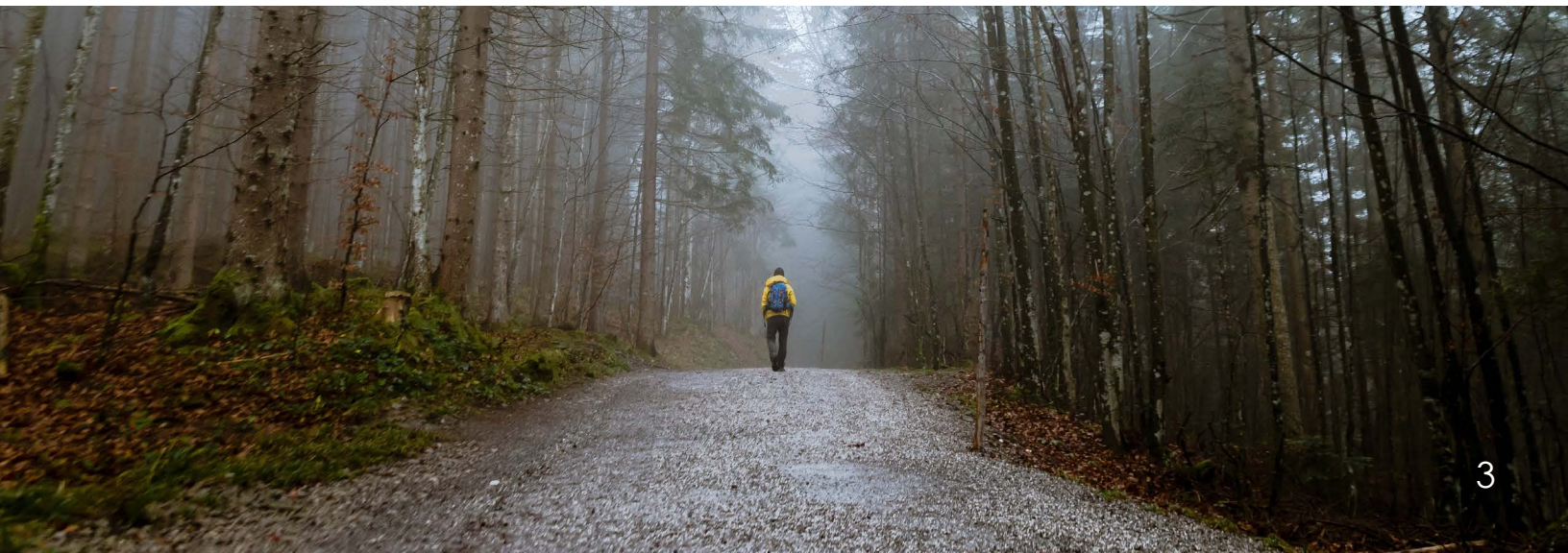
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Executive Summary

Replacing individual desktop printers with a shared office or department 'multi-function' printer (MFP) is one of the most impactful ways campuses can reduce paper use. It also generates a suite of other benefits, including cost savings on paper, energy, ink/toner, increased security, and reduced demand on IT staff time.

This report examines some of the barriers to and motivators for making the switch as uncovered in surveys given to staff and faculty across six higher education campuses. It provides step-by-step guidance for implementing a printer consolidation campaign, including potential intervention ideas based on the results of these surveys.

Suggested interventions include:

- Make using multi-function printers (MFPs) easier and more convenient than using desktop printers. When asked what the most challenging aspects of using an MFP would be, survey participants most commonly mentioned convenience, congestion, and technical or maintenance issues.
- Correct the mistaken belief that MFPs are less secure than desktop printers. Survey respondents tended to believe that MFPs were less secure than desktop printers, when in fact they are typically more secure. Be on the lookout for misperceptions like this that can be corrected.
- Vividly emphasize the motivators. Find out what motivates people in your audience who have already switched to MFPs. A majority of survey respondents mentioned that MFPs are faster and more efficient than desktop printers, features that can be highlighted.

Several other interventions, such as using social proof, securing commitments, and employing incentives and disincentives, are also discussed.
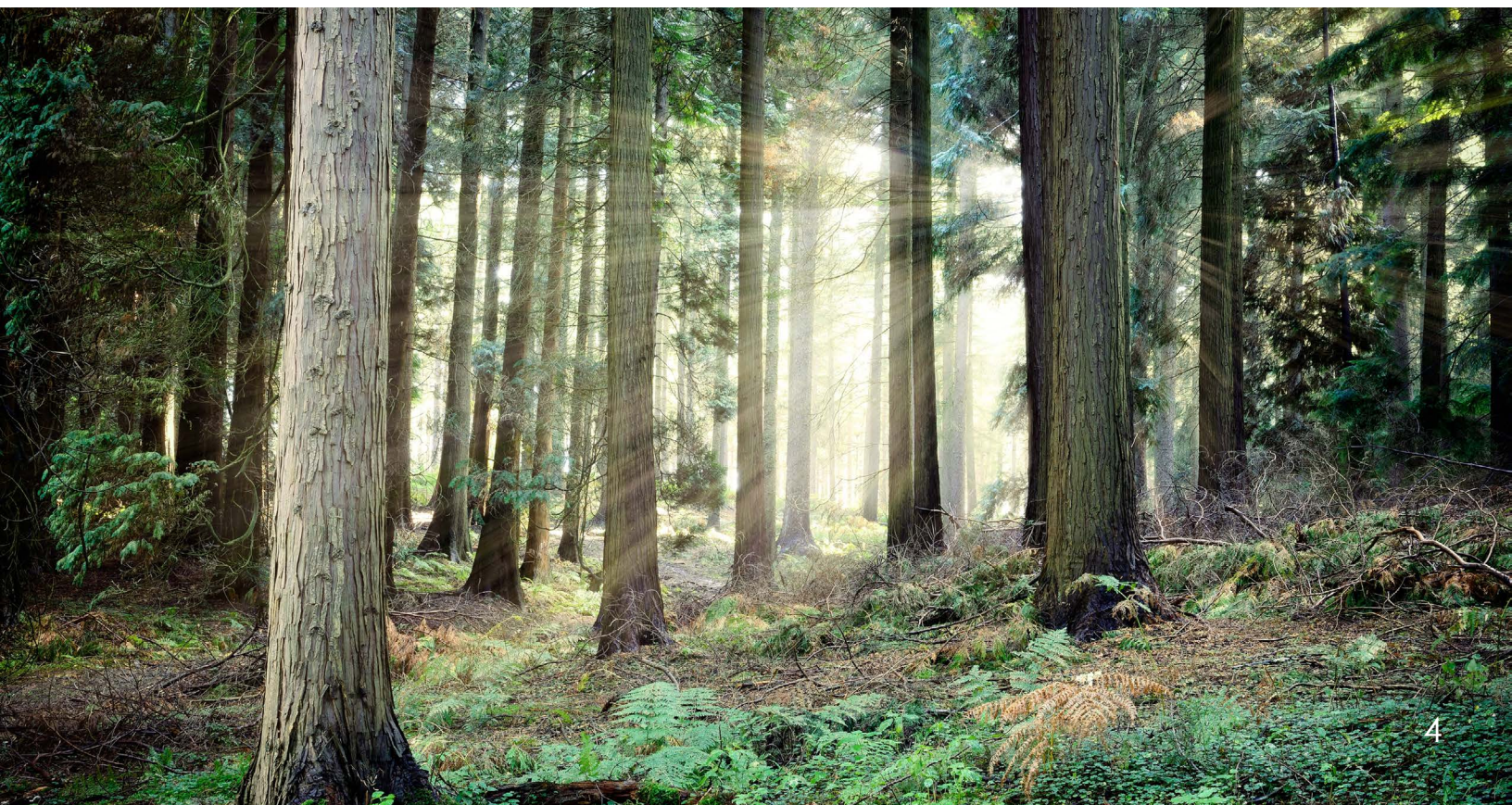
Introduction

In 2017, the Association for the Advancement of Sustainability in Higher Education (AASHE) and Root Solutions, with funding from the Lisa and Douglas Goldman Fund, launched "Turning the Page on Campus Paper Use," an initiative to help higher education institutions develop and implement behavior change interventions that reduce paper consumption. From 2017-2020, we trained more than 20 higher education institutions in how to use behavioral insights to save paper. In our work on this initiative, we found that printer consolidation - i.e., the replacement of individual desktop printers with shared multi-function printers (MFPs) - was an extremely effective approach to reduce paper use that offers a variety of other benefits as well.

This guide applies the general approaches we developed previously in Turning the Page: A Behavior Change Toolkit for Reducing Paper Use to the specific case of printer consolidation. Ditching Desktop Printers examines the barriers to and motivators for making the switch, as uncovered in surveys given to staff and faculty across six higher education institutions. It provides intervention ideas based on these survey results as well as our experience working with other higher education institutions like UC Berkeley and Portland Community College, and includes examples from a successful printer consolidation program.

We report commonalities across multiple schools but each institution also discovered many barriers and motivators that were unique to their priority audiences. We recommend you conduct your own audience research so you can design an initiative that uses the specific characteristics of your audience to design targeted messaging.

A new normal - why do this now?

The period of disruption and adaptation brought about by the COVID-19 pandemic can be used as a window of opportunity for businesses, schools, and other organizations to build paper conservation into their habits, culture, and systems.

If you are reading this guide during the COVID-19 pandemic, paper use reduction understandably might not be at the top of your mind right now. We know that many universities are struggling to stay afloat and are focused on how to continue operating safely.

At the same time, the disruption to routines and habits forced by the pandemic creates opportunities to develop new behavioral patterns. For example, many people have probably been printing less while working from home and may be more open to paperless solutions when they return. Institutions should encourage these new, desirable habits to remain in place as campuses open back up, e.g., by having new MFPs up and running when people return to work.

It is also important to acknowledge that the pandemic has likely introduced new barriers and motivators that impact paper usage. For example, new cleanliness concerns may be an additional barrier to using a shared printer. On the other hand, people may also be more hesitant to use paper due to perceptions about its potential to spread germs. Likewise, administrators facing new financial pressures may find the cost savings resulting from printer consolidation more attractive.

Why focus on desktop printers?

While there are a wide range of worthwhile strategies for reducing paper use (e.g., using digital forms instead of paper forms or issuing assignments digitally), transitioning from individual desktop printers to MFPs is likely to be among the most impactful for paper savings and cost reductions. Indeed, as detailed in Desktop Printer Removal and the Transition to Managed Multi-Function Printers: Benefits and Case Studies, the potential impacts are significant:

- Regis University reported saving $166,000 and reducing print volume by almost 40% in the first year after a printer consolidation effort.
- By replacing a wide variety of older printers with a smaller number of networked MFPs, Millersville University reduced its paper use by more than 1.2 million pages and cut printing-related energy costs by 60%.
- A 2018 audit at The Ohio State University estimated that the University could save almost $700,000 annually by consolidating printers and copiers.
- A printer consolidation effort at University of Kentucky was projected to save more than $22 million over six years.
- Los Angeles Trade-Technical College was anticipated to save $1.5 million over 5 years via printer consolidation.
- Printer consolidation at Oregon State University cut printer energy costs by about 30%.

> " Organizations can save as much as 65% of total printing costs through printer consolidation efforts.
>
> - InfoTech "

MFPs generate these kinds of savings because they help reduce paper use in multiple ways. For example, MFPs:

- Allow departments to easily implement double-sided and black and white printing as the default;
- Make it more difficult to accidentally print or abandon a document by requiring users to input a code or scan an ID card or key fob before printing; and
- Make it easier to set printing quotas, monitor usage, and provide feedback to users.

Paper, Ink, Toner **+** Electricity **+** Hardware **+** Maintenance **=** $

MFPs also offer additional benefits that go beyond the paper savings:

- **Other Sustainability Goals** - Moving to MFPs helps save energy as it results in fewer devices using electricity and MFPs typically have effective power management features. Similarly, reduced printing means less ink used, which means less toner cartridges to dispose of. Additionally, desktop printers tend to be more difficult to repair when damaged, which ultimately creates more waste.

- **Efficiency** - Purchasing and recycling ink and other supplies for a small number of MFPs is easier to manage than having to supply many different types of desktop printers. It is also easier for IT staff to maintain fewer machines, resulting in less overall printer downtime and less staff time spent on printer maintenance.

- **Functionality** - MFPs typically provide functionalities that desktop printers do not, including the ability to process large print jobs more quickly and the ability to automatically staple documents. These can save time for employees using the machines.

- **Security** - Printers are a significant but often underappreciated security risk. MFPs reduce this risk because they are easier for IT staff to secure than individual desktop printers. This is partly due to the smaller number and reduced variability of the machines they need to monitor and keep updated, and partly due to the security features that MFPs typically offer. Among other things, these features can require the user to swipe a card/fob or enter a personal identification number to release their print job, thereby ensuring that the user is physically present when their document is printed.

Key considerations before launching a printer consolidation campaign

Although printer consolidation is a highly impactful intervention, it can be challenging to implement. The following considerations can help determine if the conditions are right to pursue printer consolidation at your institution:

- **Organizational resources required** - Replacing individual desktop printers with MFPs may require a significant up-front investment of time and money. It takes time to gain support for the effort from relevant stakeholders (especially department heads and IT staff) as well as to coordinate the installation of the MFPs and the removal of the desktop printers. You'll also want to consider the cost of buying or leasing the MFPs.

- **Probability of adoption and potential for controversy** - The probability that the audience will adopt the desired behavior may vary depending upon their characteristics and values. You may find that some employees react negatively to efforts to remove desktop printers, while others may be more enthusiastic about giving up their printers than you'd expect. In a survey of six schools (described in more detail below), we found that roughly 33% of respondents were willing to voluntarily remove their desktop printers and solely use a shared printer, even before any behavior change interventions were designed or employed.

- **Fair access** - Effort must be made to ensure that consolidating printers is done ethically and equitably. For example, some people may have disabilities that prevent them from accessing a shared MFP, and should therefore be allowed a desktop printer or other accommodations.

These challenges can all be overcome, especially if you are prepared. Overall, as long as you are able to invest the time to work through them, we believe printer consolidation is almost certainly worthwhile.

How to lead a printer consolidation campaign

Because volunteering to give up desktop printers is a behavior, insights from the behavioral sciences can help ensure that your campaign is successful. This section walks you through how to run a successful behavior-based printer consolidation campaign, based on the general approach described in Turning the Page: A Behavior Change Toolkit for Reducing Paper Use.

The recommendations in this section are informed by the results from a survey issued in 2018 by six Turning the Page cohort campuses. Respondents were asked about:

- Barriers and negative consequences of switching to MFPs
- Benefits of using MFPs
- Ways to make using MFPs easier
- Perceived superiority of MFPs vs. desktops across functions

We aggregated the results from all six institutions to identify common barriers and motivators to giving up desktop printers and switching to MFPs. Specific findings from the combined survey are woven into the interventions sections below where relevant.

Step 1 - Select your audience

There are likely to be multiple groups of people on campus that use individual desktop printers and could be the potential audience for your intervention. As each of these groups may have different job demands, needs, beliefs, or preferences that affect how they respond to an initiative to transition to MFPs, you'll want to select your audience strategically to increase your overall impact and chance of success.

For example, focusing on a group that prints frequently has more potential for impact than focusing on a group that does not print much. Likewise, selecting a group of people who are generally hesitant about change will be much more challenging than working with a more open group. In some cases, an audience already experiencing a change (e.g., moving buildings) might be a better candidate than one that is not already undergoing a change in habits. For example, a department moving buildings could decide that no desktop printers will be moved to the new building, or that no new desktop printer purchases will be allowed once the department transitions to the new building.

See the Turning the Page Toolkit for more on what to consider when selecting an audience.

Potential audience characteristics:

- Role (e.g., staff or faculty)
- Technological proficiency
- How much they print
- Specific job duties and printing requirements
- Openness to the change
- Whether they are undergoing a period of transition, such as moving buildings
- How often they use the printer

Step 2 - Consider your metrics and collect baseline data

It's important to start thinking early about how you will measure whether your initiative is successful. You will need to collect measurements before, during, and after your initiative so you can track your progress and measure your success! If possible, you'll also want to collect these measurements for your target audience as well as a control group (i.e., a group with similar characteristics to your target audience that was not introduced to your interventions). While it is always best to measure as directly as possible (e.g., count the number of desktop printers before and after your initiative), you may have to collect your measurements indirectly, depending on the availability of data (e.g., counting the amount of ink/toner that is purchased and used before and after your intervention). You should strive to use the same metrics throughout your initiative (i.e., if you counted the number of desktop printers before your initiative, try to do so during and after your initiative, as well).

Examples of Relevant Metrics:

- # of desktop printers in a department
- # of desktop printers purchased
- # of desktop printers connected
- # of desktop printers relinquished
- # of existing multifunction printers
- % of personal desktop printers vs. MFPs
- $ spent on desktop printers per year (hardware, ink, maintenance, etc.)
- # of pages/reams printed
- # of reams purchased or $ spent
- # of toner cartridges purchased, used or recycled

Step 3 - Survey your audience

To design behavioral interventions that work for your audience, you'll need to determine why some in your audience might not want to give up their printers and why others may be happy to do so. Typically, this information is collected via a survey, but you could potentially gather similar information from focus groups or individual interviews.

You may choose to narrow your audience before you survey in order to ask more targeted questions. On the other hand, you could also choose to survey a broader audience, which allows you to narrow in on certain segments after you have analyzed responses and learned more about the audience.

The interventions we suggest in this report are based on the barriers and motivators uncovered in the Turning the Page cohort surveys. While we think these results are likely to be fairly representative of higher education audiences generally and provide a good starting place, it is still worthwhile to survey your own audience, as different barriers and motivators may be present. For example, in the Turning the Page cohort surveys, some people listed the opportunity to exercise by walking to the MFPs as a benefit of printer consolidation, while others felt having to get up and walk would be an unwanted barrier and distraction. If you don't know the preferences of your audience, you risk deploying an intervention that falls flat or even breeds controversy and distrust. Even if you ask only a few questions, surveying your audience is an essential step in the behavior design process.

A key part of the process of uncovering barriers and motivators is to compare responses from "Doers" - people who are already engaging in the desired behavior - with those of "Non-Doers" - people who are not engaging in the behavior. By asking the Doers and Non-Doers the same questions about their behaviors and perceptions and evaluating how their answers differ, we can see which factors are critically influencing behavior.

Separating Doers and Non-Doers purely on whether they have already given up their desktop printers isn't always feasible, especially if most of your audience doesn't currently have easy access to an MFP. Additionally, many campuses might find that there are not enough Doers to survey, as voluntarily giving up one's desktop printer is often an uncommon behavior. As a result, the surveys carried out by the cohort broadened the categorization of Doers to include those who would be willing to give up their desktop printers if they had access to an MFP, and our Non-Doers to include those who are unwilling to do so. This allowed us to effectively analyze some of the factors driving the differences between the two groups.
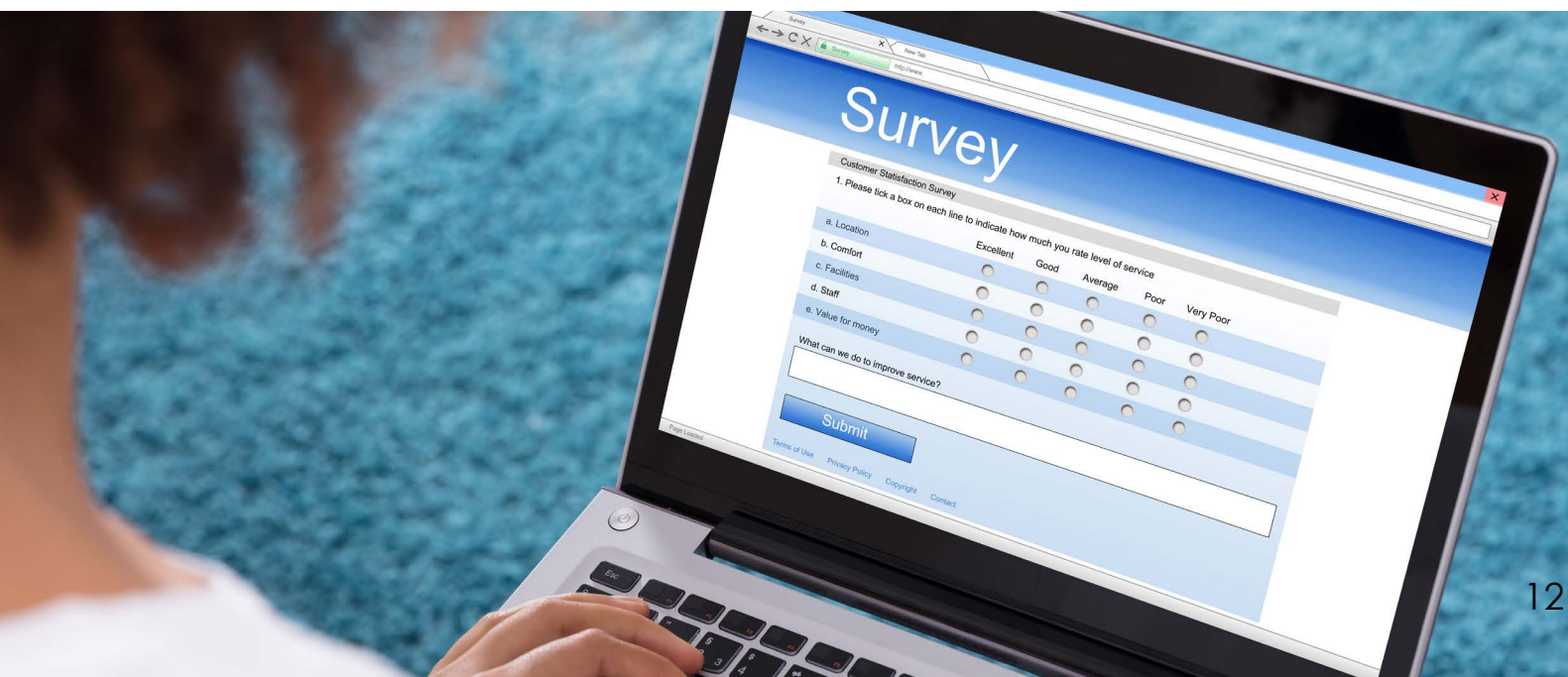
Step 4 - Strategically design and implement interventions

A key goal in any behavior change initiative is to address the biggest barriers and amplify the motivators for your audience. This section provides ideas for behavioral science-based interventions to promote voluntary removal of desktop printers and adoption of MFPs. We start by suggesting interventions that we would recommend prioritizing given the barriers and motivators found in the Turning the Page campus surveys. However, your audience may have different barriers and motivators for behaviors (which is why we strongly recommend that you do your own research with your audience), so we also provide additional ideas for potential interventions rooted in key behavioral principles.

Note: For even more intervention ideas and guidance on running a paper saving initiative, see our Turning the Page toolkit. You may also want to refer to Root Solutions' upcoming book, *Making Shift Happen: Designing for Successful Environmental Behavior Change*, which will be published in June 2021.

E Make it EASY

Any kind of hassle factor, whether mental or physical, can deter us from a behavior. To encourage people to transition to MFPs, reduce mental and physical hurdles and design easy-to-make choices.

Make the process of ditching one's desktop printer easier

Even if people are willing to start using MFPs, a cumbersome process for giving up desktop printers may prevent them from doing so. Therefore, you should try to make the process as easy as possible.
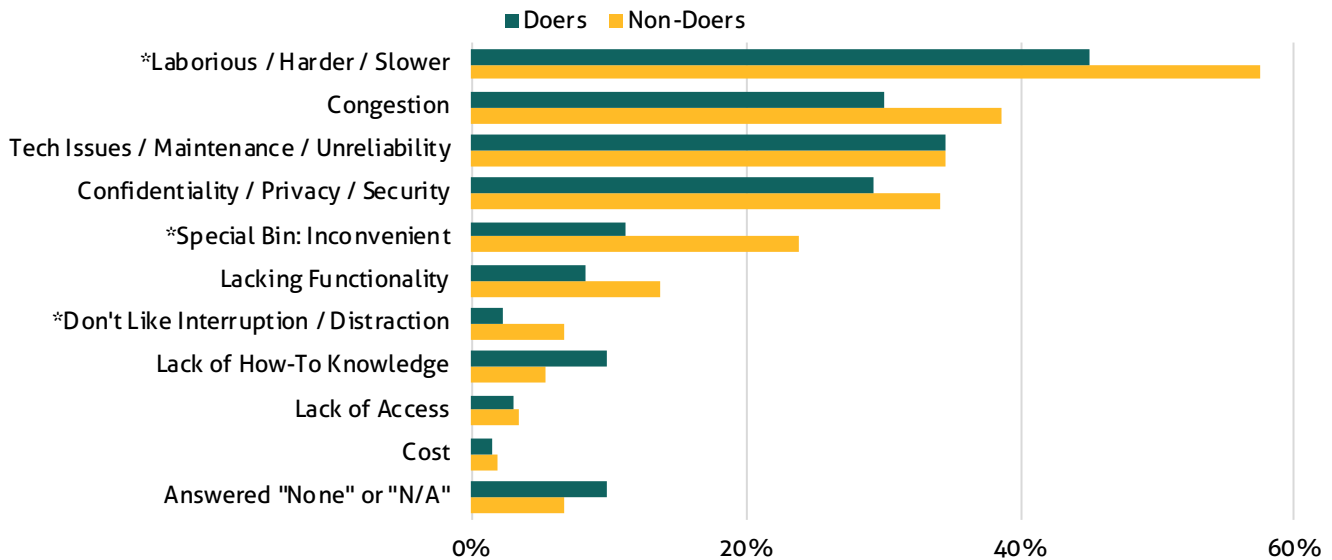
Intervention ideas:

- Reduce the number of steps required for people to get their printer removed - for example, send people auto-filled forms to request printer removal.
- Make it clear who to contact about printer removal.
- Provide a simple sign-up sheet for relinquishing desktop printers at a department event, and then follow up to make sure people remember to sign up.
- Provide clear, step-by step instructions for giving up your desktop printer.
- Schedule prompts for when they are most salient. For example, pair a prompt to remove desktop printers with IT communications that require a reply, so that a person can request to have their printer removed when they are already communicating with IT.
- Avoid the problem altogether by changing the default processes for onboarding new employees so that new staff don't receive desktop printers automatically.

Make using MFPs more convenient

Survey respondents said that the most challenging aspects of using an MFP would be convenience, congestion, and technical or maintenance issues. In particular, many felt that using an MFP is more laborious, harder, or slower than using a desktop printer. This belief was expressed by both Doers and Non-Doers but it was noticeably more common among Non-Doers. Therefore, we recommend prioritizing interventions that make it easier, faster, and more convenient to use MFPs.

Figure 1: Perceived challenges of using MFPs

* Starred categories signify a statistically significant difference between Doers and Non-Doers.

Intervention ideas:

- Place the MFPs in convenient, easy-to-access locations and make sure that they are easy to find. You could even use directional signage that makes it easy to find the nearest printer at any time.
- Ensure there are enough backup printers (even shared desktop printers) in case of crowding or outages. For example, even having just one backup printer available can alleviate concerns about bottlenecks.
- Alleviate congestion by showing users how to check the print queue of an individual MFP and how to send their documents to a different MFP if necessary.
- Make it easy for people to access assistance when using an MFP (e.g., by posting the appropriate phone number to call for support on or next to each MFP).

Change perceptions about convenience

While some complaints about the inconvenience of MFPs are based in experience, many may be rooted in perception. Our survey respondents included people from departments that already had MFPs in place as well as some that did not have any at all. Therefore, some responses were based on expectations of what operating an MFP might be like, rather than actual experience with MFPs. These perceptions may or may not be accurate. If your audience does not already have direct experience with MFPs, be on the lookout for misunderstandings that can be corrected. Key ways to change perceptions include messaging motivators and using social proof, both of which we discuss in more detail below.

Make using desktop printers more difficult

You can make using MFPs relatively easier by adding friction or additional barriers to the undesirable behavior of using individual desktop printers. Note, however, that making desktop printers more inconvenient could engender negative reactions. Be sure to pair these interventions with efforts to make using MFPs easier.

Intervention ideas:

- Require people who want a desktop printer to submit special requests.
- Provide paper/toner/ink in communal printers free of charge and require people who opt to use personal printers to secure their own supplies.
- Rescind or limit IT support for desktop printers while amplifying technical support for MFPs.

Provide how-to information

One way to make using an MFP easier is to ensure that everyone knows how to do it. This is especially important for MFPs, as using the technology can be initially daunting to those who aren't shown how or given opportunities to practice. In fact, survey respondents were most likely to select some kind of tutorial when asked what would make using MFPs easier. Tutorials for how to set up secure printing were the most common, followed by tutorials on how to remove unwanted print jobs from the queue, and then how to use different kinds of paper. In addition to tutorials, how-to information can include signage or instructions near the printer on how to use it, reload it, use scrap paper, etc.

Figure 2: What would make it easier for you to use a shared MFP?
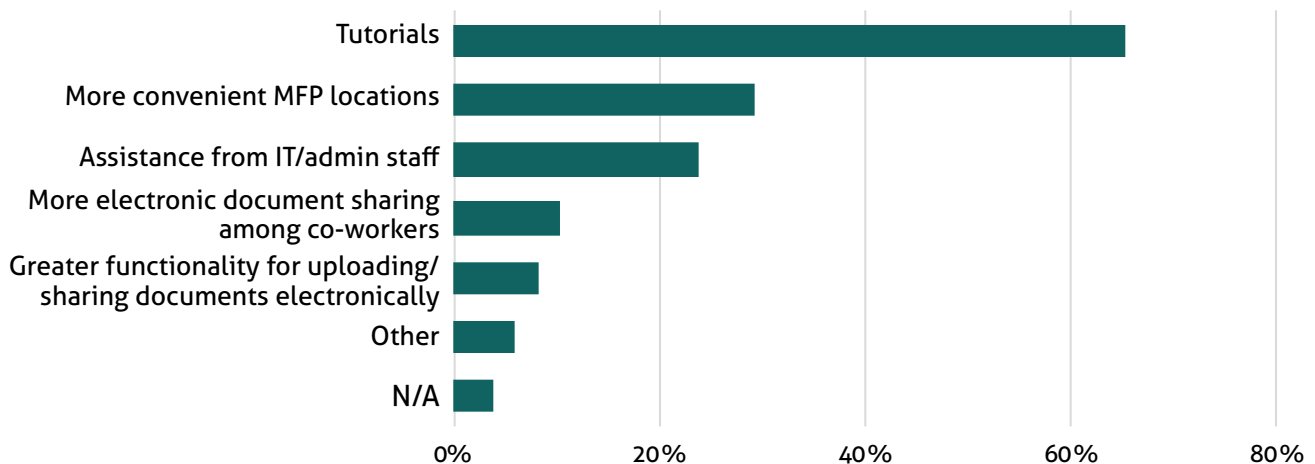
While how-to information is often necessary, it is often not sufficient to produce behavior change. For example, even though the majority of respondents chose some kind of tutorial when asked what would make using MFPs easier, a lack of how-to knowledge was actually one of the least cited challenges of using an MFP (see barriers graph, Figure 1 above). This suggests that while people may find it easier to use an MFP after they have tutorials, gaining the how-to knowledge alone may not be enough to help them overcome other important barriers to MFP usage. Therefore, even if you provide tutorials, there are likely more important barriers that must be overcome (e.g., convenience, efficiency, congestion, maintenance/downtime concerns, and misperceptions).

Demonstrate what is ORDINARY

While we are often unaware of the influence that our peers have on us, social norms are among the most powerful influences on our behavior. You can build support for relinquishing desktop printers and transitioning to MFPs by highlighting individuals from within your audience who have positive attitudes toward MFPs and are using them successfully.

Intervention ideas:

- Create an honor board of staff that have given up their printer.
- Enlist people to publicly give up their desktop printers and show others how to use MFPs.
- Involve high-level authority figures in your efforts to set standards for behavior. For example, Portland Community College enlisted its dean and president to serve as behavior models by publicly relinquishing their printers. Images of them doing so were advertised in the campus' weekly news along with a story about PCC's paper reduction initiatives.
- Publicize success stories, especially those that feature people who were once reluctant to make the switch but now find MFPs to be superior.
- Enlist "print ambassadors" to encourage their peers to make the change from desktop printers to MFPs.
- Make the undesirable behavior less visible. For example, if some desktop printers are necessary, hide them so they are not seen as the norm.

SPOTLIGHT: University of Saskatchewan's Norms in Action

As part of their effort to transition people to MFPs, the University of Saskatchewan used normative messaging highlighting that most staff are already using MFPs:

USask is transitioning from less efficient individual desktop printers to multi-functional print, copy and scanning devices for faculty, staff, and student printing. Currently, 73% of faculty and staff print to multi-functional devices and we are continuing to provide faculty and staff with print solutions that will reduce the number of individual desktop printers in use across campus. Multi-functional devices consume less energy and resources to operate while eliminating the need for individuals to manage printer ink or paper supplies.

V Make your messages VIVID

Help your audience understand the consequences of desktop printer usage and the benefits of using MFPs by making them vivid.

Intervention ideas:

- Use vivid, real-world displays of how much toner is used or not recycled properly; how much paper is wasted every year from accidental print jobs.
- Communicate how much money could be saved in a more memorable and meaningful way by highlighting other things that money could go toward such as sustainability projects, new faculty hires, scholarships, or school infrastructure.
- Contrast images of a cluttered, paper-laden desk with a clean "desktop printer-free" office.
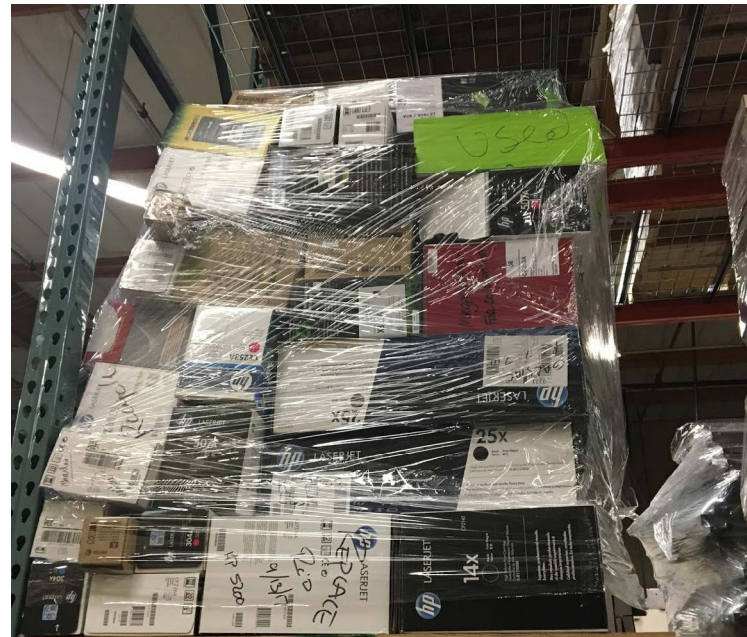

Photo credit: Portland Community College

Emphasize the motivators

It can be valuable to look at the responses of the people who already have positive attitudes toward using MFPs (either because they have already voluntarily begun using them or because they are willing to do so). Asking the Doers why they use MFPs (or would be willing to do so) can help uncover what motivates the positive behavior. This can help you design messages and interventions for the Non-Doers, as some of those motivators may be things that the Non-Doers aren't aware of.

In addition, asking about motivators can generate unexpected but important insights. For example, as expected, Doers in our survey were more likely than Non-Doers to cite the environmental benefits and reduced waste of using MFPs. However, in open-ended responses, people named several additional motivators that we had not yet considered, such as the desk space that is saved by not having a desktop printer. Emphasizing these motivators in messaging may help engender more positive attitudes toward switching to MFPs.

Photo credit: Root Solutions.

Figure 3: Perceived motivators for using an MFP instead of a desktop printer
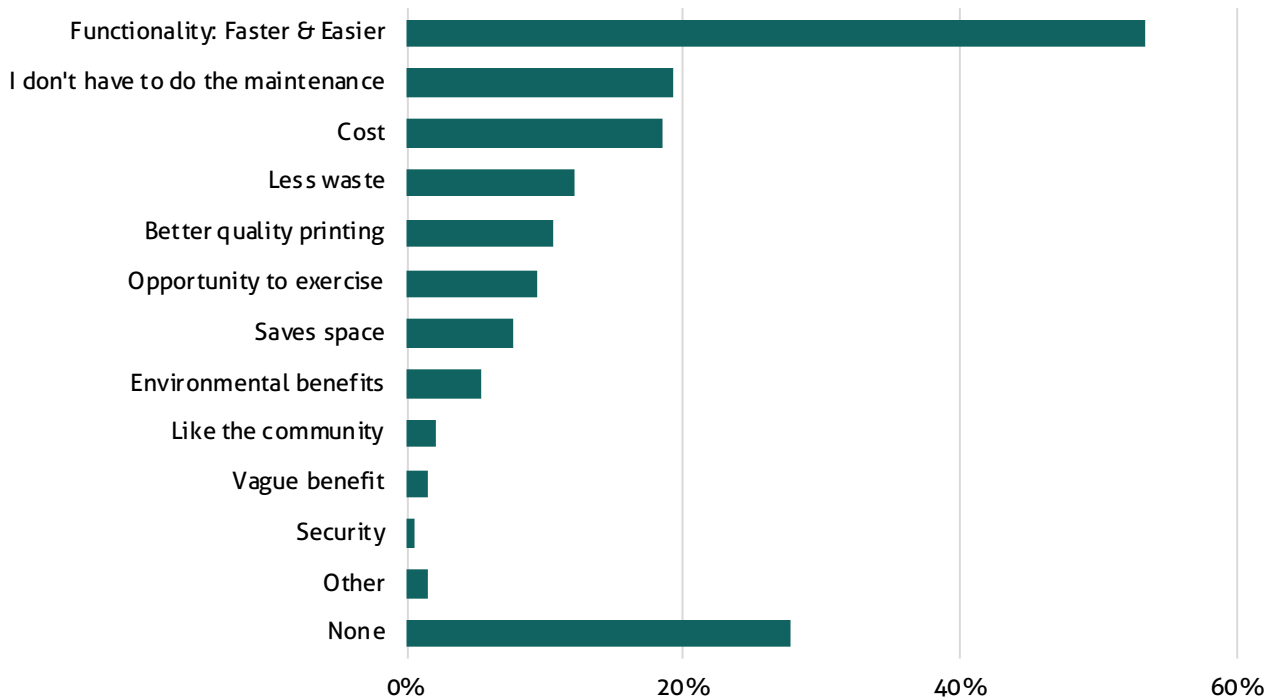
Examples of motivators listed by survey respondents:

- "Exercise - I need to get up and move several times a day"
- "Community building! Community Printing is the modern water cooler."
- "It prints out things much faster and much better looking. It staples things for me. I don't have to refill the paper."
- "Not having to replace the ink or deal with the device breaking down."
- "I don't need to be responsible for changing ink cartridges!"

Be strategic about motivators

Choose the motivators you message strategically. Emphasizing motivators that directly address key barriers is more likely to make an impact. For example, the combined survey uncovered that cost was the least important barrier to using MFPs (see Figure 1, barriers graph on page 14), so messages that center on cost savings may not have much impact as messages that both highlight an important benefit and address a more significant barrier.

We asked respondents whether they thought MFPs or desktop printers were more effective across a range of potential motivators, including print quality (e.g., color vibrancy, image quality), functionality (e.g., stapling, collating, use of various paper types), and the availability of printer maintenance support. The majority of respondents, Doers and Non-Doers alike, indicated that they thought MFPs were superior for these criteria. This means that messages emphasizing the superiority of MFPs in these aspects might not do much to increase support, as awareness of these benefits is already present. At Penn State, for example, more than 95% of people indicated that they were already aware of superior MFP functionality. This indicated to the Penn State Sustainability Team that their interventions should focus on other factors, such as correcting misperceptions and providing how-to knowledge, which the survey indicated were actually preventing people from using MFPs.

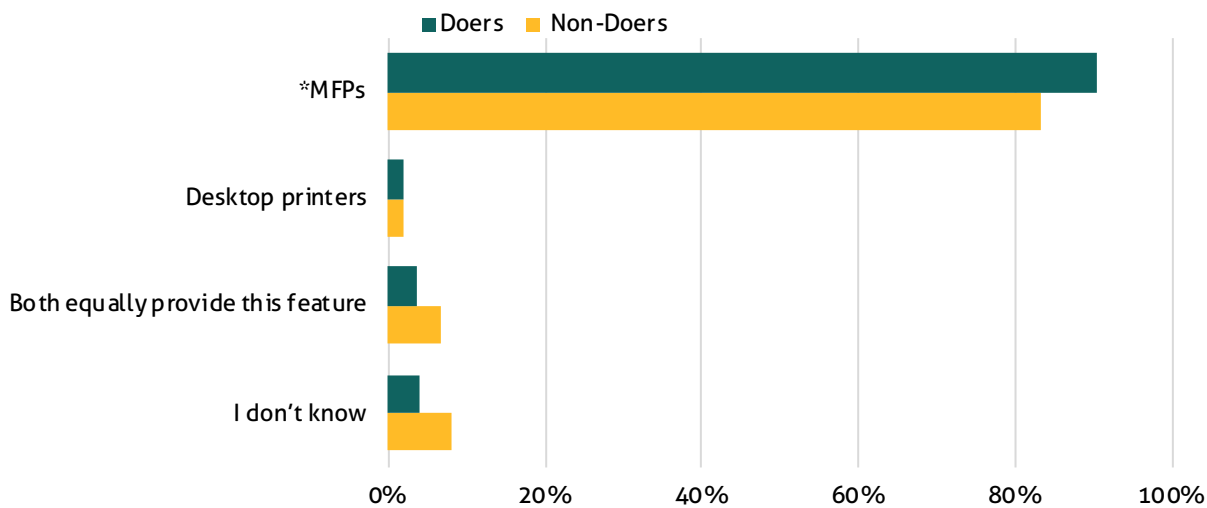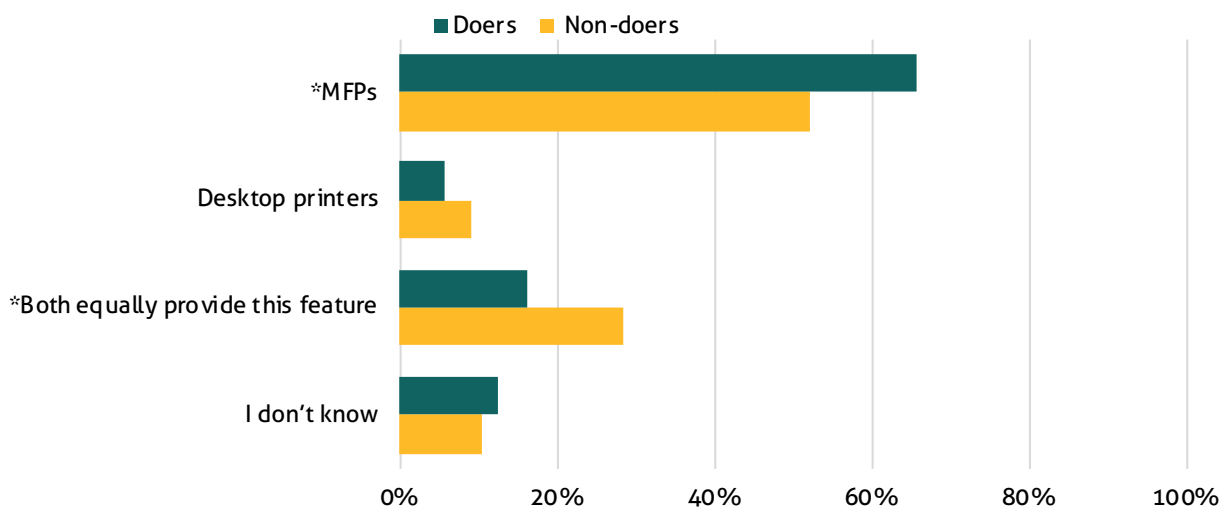**Figure 4: Perceptions about MFP vs. desktop functionality**

Figure 5: Perceptions of availability of printer maintenance support for MFPs vs. desktop printers

* Starred categories signify a statistically significant difference between Doers and Non-Doers.

While emphasizing motivators that Non-Doers are not concerned about will likely have little effect, correcting misperceptions about issues they do care about can be effective. Even though security was the least mentioned perceived motivator for using MFPs (see Figure 6 on page 21), this may have been because people were not aware that MFPs are more secure than desktop printers, and not necessarily because they did not care about this benefit. Indeed, most respondents (51%) incorrectly believed that desktop printers provide better security than MFPs. In this case, emphasizing the superiority of MFPs in terms of security could address a real concern of the audience, and could thus be a more effective intervention than emphasizing motivators that people are already aware of. This is one reason why interpreting motivators through the light of other survey questions is important.

I Encourage consistent IDENTITY: Secure commitments

Humans have a desire to appear consistent and trustworthy to ourselves and to others by behaving in accordance with our identities: including our stated beliefs and commitments. Therefore, people who pledge to change their behavior are more likely to be motivated to follow through. If you are not able to get people to relinquish their printers immediately, consider encouraging people to commit to doing so in the future. Pledges that are specific, written, and publicly made are more likely to be effective.

Consider asking people to commit to:

- Giving up their desktop printers
- Not repairing or replace their desktop printers when they break down
- Telling three of their colleagues about replacing their desktop
- Pledging to phase out printers by a certain deadline (if they are a department head)

B Utilize BENEFITS: Incentives and Disincentives

People sometimes need extra motivation to make a change. Rewards can be monetary, physical (tokens, snacks, etc), reputational (public recognition), or stem from more intrinsic motivations (enjoying helping the environment, opportunity to master a new technology, feelings of competence, etc.)

A key part of applying rewards and disincentives is to recognize when they are appropriate. This will help you avoid spending unnecessary resources on rewards that turn out to be ineffective or instating disincentives that are viewed negatively by the audience. This is why surveying your audience and tailoring your rewards to their barriers and motivators is crucial.

Intervention ideas:

- Award a small prize to those that relinquish a desktop printer, or enter everyone into a lottery for a more substantial prize. While very few professors might be motivated to give up a desktop printer in exchange for $10, many might be willing for the chance to win $1,000 for their lab.
- Promise a "pizza party" for the first department to reach a certain percentage of people who gave up their desktop printers.
- Distribute tokens of appreciation like stickers or useful items like pens to people who gave up their desktop printers.
- Publicly praise or recognize individuals that give up their desktop printers (but remember that social recognition can be a disincentive to people that shy away from attention).

You can read more about the best practices for using rewards in the *Turning the Page Toolkit*.

Correct misconceptions

Be on the lookout for misperceptions that your audience may have. For example, as noted above, the combined survey found that Doers and Non-Doers alike believe that desktop printers are more secure than MFPs and nearly a third of respondents listed confidentiality/privacy concerns as a challenging aspect of using an MFP (see barriers graph above).

Figure 6: Perceptions of which type of printers are more secure
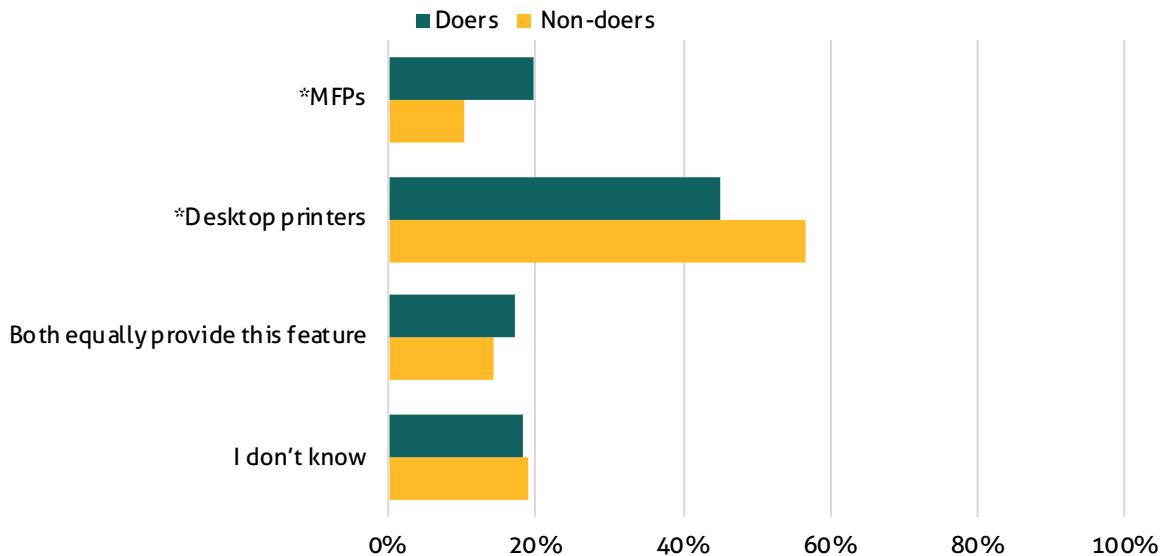
* Starred categories signify a statistically significant difference between Doers and Non-Doers.

However, in reality, MFPs that have secure printing features properly set up are often more secure than desktop printers. Therefore, using messaging that corrects this misperception and emphasizes the security benefits of MFPs would be an important way to increase support for MFPs.

The University of Saskatchewan's IT department was seeking to address the security risks posed by desktop printers. However, the IT leadership didn't believe that security concerns would provide enough motivation for users to be willing to give up their printers so they approached the Office of Sustainability about working together to promote a transition to MFPs.

They conducted a survey that found that the audience did care about security - in fact, the incorrect perception that desktop printers were more secure than MFPs was a driving factor in hesitation about giving up individual printers. People were concerned that printing sensitive documents on MFPs would mean that the documents could arrive at the printer tray before the user could go pick them up, meaning anyone could see them.

These results indicated an opportunity to correct a misperception. Communicating the security risks of desktop printers and the security features of MFPs thus became a key component of the University's desktop printer removal strategy.

The sustainability and IT teams designed several messages aimed at increasing motivation to relinquish desktop printers, centered around security, social norms, and ensuring that backup options are available if an MFP breaks down. When these messages were delivered in person at trainings about how to use MFPs (along with instructions and support to easily get rid of desktop printers), they proved to be extremely effective (initial email communications had proved less successful).

Ultimately, at least 250 desktop printers (out of approximately 740 known desktop printers - about 33%) were relinquished before the onset of the COVID-19 pandemic paused operations.

🍃 **printSMART**

Sending your print requests to one of the university's multi-functional printers is the safest way to print confidential and private information. The university's multi-functional printers are maintained by ICT and hosted in a secure location on the university network, eliminating the potential risk of cyber-attacks and security breaches that can occur on individual printers. All university multi-functional printers come equipped with a secure print function so your print job is only released when you are physically at the printer. This feature allows you to control when your documents are printed and eliminates the chance of your documents being left on the printer or viewable by others.

One of University of Saskatchewan's three messages was crafted to address misperceptions about security.

Conclusion

Replacing desktop printers with shared MFPs has many benefits, including significant cost savings, greater efficiency, better security, and improved environmental sustainability. The process of giving up desktop printers and transitioning to MFPs is rooted in human behavior, and therefore requires behavior-based solutions. This guide has outlined a science and evidence-based approach to leading a printer consolidation campaign. Many institutions have already made this switch, and with this guide, your campus can do the same.
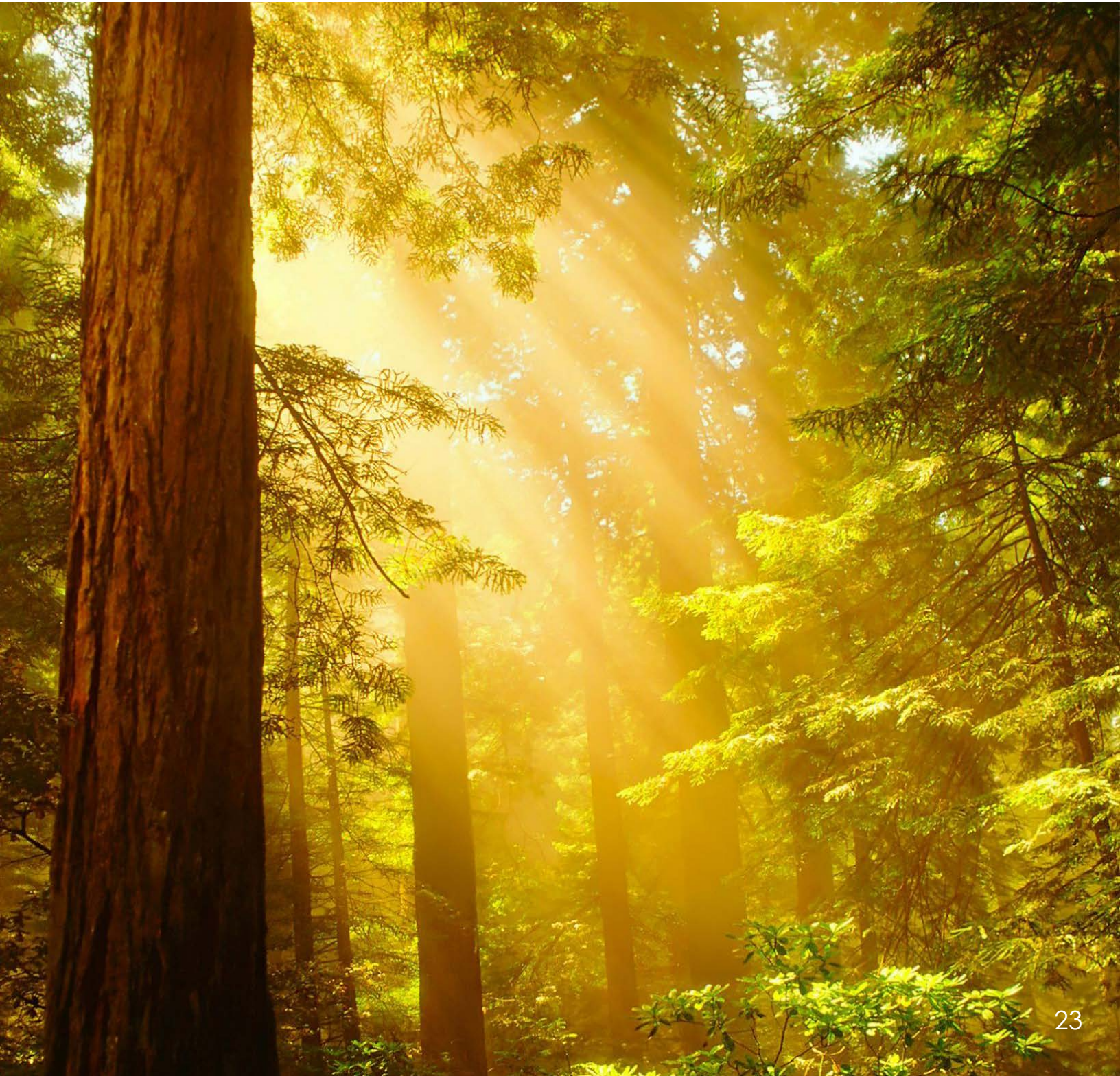
Resources Referenced in this Guide

TOOLKIT: Turning the Page: A Behavior Change Toolkit for Reducing Paper Use - Shares a process for selecting target audiences and behaviors, understanding the drivers of your audience's behavior, and selecting the right suite of interventions to change behavior.

MAKE THE CASE: Desktop Printer Removal and the Transition to Managed Multi-Function Printers: Benefits and Case Studies was designed to introduce higher education staff to the topic of printer consolidation, with an emphasis on the many sustainability and other benefits (especially cost savings) of replacing individual desktop printers with shared multifunction printers.

BOOK: Making Shift Happen: Designing for Successful Environmental Behavior Change - this book teaches you how to use behavioral science and human-centered design to understand why people do what they do, and to harness this to help the planet. Drawing on decades of scientific research and practice, this practical guide shows you how to:

- Research, design, test, and implement practical, data-driven, science-based initiatives to get people to engage in environmentally friendly behaviors
- Use tools such as design thinking, prototyping, and a behavioral drivers analysis that can be implemented quickly to adapt to rapidly changing situations
- Design and strengthen pro-environmental policies that are generally beyond the reach of legislation or regulation.