

WHITE PAPER

The Business Value of "Green" Document Management Solutions

Sponsored by: Nuance

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IDC OPINION

Not long ago, sustainability efforts were thought to be little more than a nice gesture on the part of an organization hoping to impress current and potential customers. However, in today's business environment, "being green" has become an essential element for driving new and current business opportunities. As part of the desired effect to gain the associated business benefits of being more environmentally sensitive, more companies are making it a high priority to kick off "green IT" strategies, including an examination of all elements of their IT infrastructure.

Often times, hardcopy is an overlooked item of a company's "green IT" strategy. It shouldn't be. The costs of using paper/toner/ink supplies and machine energy consumption associated with printers/copiers/multifunction devices are considerable. Any effort to better manage these hardcopy equipment assets will have a substantial bottom-line impact.

IDC believes that "green" document management tools such as Nuance's PaperPort, OmniPage, and PDF Converter, as well as new products added to its portfolio as a result of its eCopy acquisition, are a simple way to move toward a more "green" hardcopy environment while achieving important cost and efficiency objectives. To support this assessment, IDC interviewed six current Nuance customers in North America. These customers have been using Nuance solutions for between six months and two years and have achieved significant benefits since implementing the technology. IDC's ROI research reveals that the implementation of such tools has helped these customers realize the following results:

- Total annual cost savings of \$21,555 per 100 users, stemming from increased worker productivity and IT staff efficiency as well as reduced costs
- From an environmental standpoint, the ROI research showed the following savings on hardcopy equipment and use:
 - An annual reduction of 58,800 pages of paper per 100 users
 - An annual cost reduction of toner/ink costs of \$3,230 per 100 users
 - Measurable decreases for energy consumption and carbon footprint

SITUATION OVERVIEW

Why Green IT?

The move to sustainability heightened considerably over the past few years as businesses began to take into account the environmental impact of their company operations. This includes examining the significant amount of energy used to support a company's IT infrastructure as well as the corresponding carbon footprint. This issue has gained so much attention that many companies have now put in place policies that require suppliers to meet certain "green" objectives. As a result, many requests for proposals (RFPs) stipulate specific environmental language in their IT contracts. For IT vendors, green solutions are essential to win and maintain customers.

In today's economic climate, it is no longer viable for a company to rely on altruistic posturing for environmental sensitivity alone. Instead, the move to "green" must show tangible, bottom-line benefits in order to gain the attention of procurement decision makers. While there are significant market motivations for being environmentally sensitive, IDC believes that demonstrating measurable sales and operational benefits is at the forefront of this transformation. IT products that offer proof of their technology's environmental benefits that directly impact the bottom line have a tremendous opportunity to leverage.

Why Green Hardcopy?

When companies talk about being more "green" IT friendly, they usually start with a conversation about the energy used for powering the computing environment (e.g., PCs, servers, datacenter). Discussions about how hardcopy devices (e.g., printers, copiers, and multifunction peripherals [MFPs]) are used are often overlooked or, at best, play a very minor role in the dialogue. However, IDC believes that while energy consumption used for computing products is critically important for "green" IT, the omission of an environmentally sound hardcopy strategy is shortsighted. If hardcopy and managing company document workflows are not part of the overall "green" IT solution, companies will miss a significant opportunity for cost savings and efficiency.

Here's why. All IT product categories (including hardcopy) focus on energy consumption and device life-cycle management (e.g., how the device is broken down and recycled when retired from active use) to promote "green" features. Hardcopy, though, takes "green" to a level beyond energy usage and life-cycle management. Hardcopy uniquely stands out from all other IT product categories with respect to its "razor/razor blade" usage model. In this case, the "blades" are paper and toner/ink consumption, and no other IT product category includes an aftermarket model like this in calculating total equipment usage costs. When it comes to hardcopy, the combined paper and toner/ink costs are substantial. IDC has calculated that the total cost of ownership of a printer or an MFP is multiple times higher for these aftermarket supplies than the cost of the device itself over the life of the product. Obviously, any technology that helps to better manage hardcopy output and increases company productivity/efficiency can be an appealing solution for reducing costs as well as driving a more environmentally friendly IT environment.

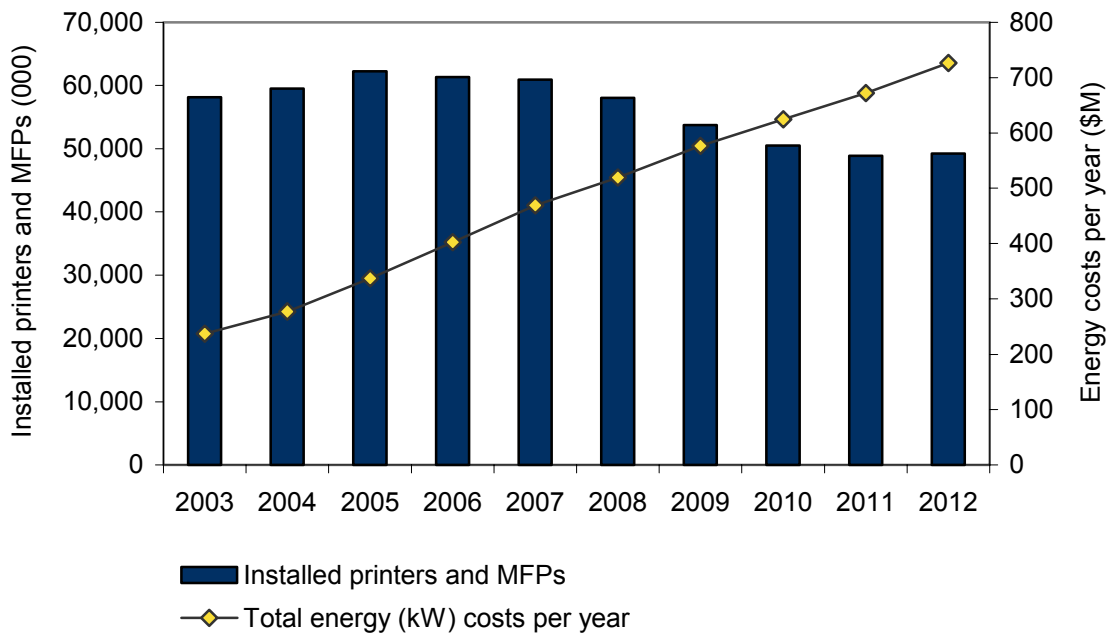
The impact of hardcopy usage on the environment is generally considered to be significant, but few truly understand the magnitude. IDC's research demonstrates hardcopy's substantial impact on the environment:

- ☒ Nearly 180 million trees were consumed in 2008 for the 1.5 trillion pages used on hardcopy devices (Source: IDC and other secondary sources).
- ☒ Between 2,000 and 10,000 gallons of water are used to produce 1 ton of paper, depending on the size and type of paper (Source: IDC and other secondary sources).

Of course, like every other IT product category, the energy issue and the environmental impact need to be part of the "green" hardcopy discussion. IDC recently calculated that although the U.S. installed base of hardcopy devices is declining, the associated energy use of this equipment is expected to rise through at least 2012 (see Figure 1).

FIGURE 1

U.S. Installed Printers and MFPs Versus Total Energy Costs per Year, 2003–2012



Source: IDC, 2009

All of these environmental concerns are leading to the need for greater sensitivity to hardcopy devices and the use of toner/ink and paper. This has led many companies to take even what may be relatively innocuous steps to better manage document output, such as adding the tagline "please consider the environment before printing this email" to all email messages or making duplexing (printing on both sides of the page) the default setting for all printing products.

In summary, hardcopy is unique with a substantial aftermarket impact that directly affects the environment. Three important points have been raised:

- ☒ Although paper use is declining slightly, the number of pages produced by hardcopy equipment is still substantial (1.5 trillion pages as of year-end 2008). Additionally, much of hardcopy's carbon footprint is attributed to paper.
- ☒ Substantial natural resources (e.g., wood, water, oil) are used to produce hardcopy aftermarket products such as ink and toner.
- ☒ Energy costs from hardcopy device use continue to rise, even with a declining installed base.

User Response to "Green" Hardcopy

IDC's 2009 *Green IT & Sustainability Survey* (IDC #219992, September 2009) offers two interesting responses to the "green" hardcopy market opportunity:

- ☒ **Survey respondents appear willing to pay a premium for "green" hardcopy technology.** The study's survey respondents indicated that they are willing to pay a slight premium (about 10%) for "green" technology versus conventional technology. Even though one of the core benefits of "green" technology is cost savings, companies are recognizing that making a small incremental "green" investment is appealing. The ROI typically comes within a short period (specific customer benefits are discussed later in this document) and negates the initial increased cost to acquire the technology. Once the breakeven period is met (increased "green" investment costs versus ongoing cost savings achieved because of the investment), companies can reap the benefit of the investment.
- ☒ **Survey respondents appear willing to change brands as a result of "green."** The interest in "green" is so compelling that survey respondents indicated that they will consider switching hardcopy brands for "green" features and capabilities.

How Nuance Addresses Green Document Management

Nuance Communications is a provider of digital imaging software as well as speech and imaging solutions that are used to automate manual processes for businesses, organizations, and consumers worldwide. The company delivers solutions that address core markets such as enterprise solutions, mobile solutions, healthcare solutions, desktop dictation, and imaging.

Nuance's core business focuses on document imaging with a mixture of document capture, management, and sharing applications. Nuance's imaging applications are designed to help customers improve their business processes by converting printed workflows into digital formats. To support growing market migration to digital workflows, Nuance has expanded its imaging applications to offer users a means to capture documents directly to software solutions. The company's current portfolio of imaging applications includes OmniPage Suite, PaperPort Suite, PDF Converter Suite, and eCopy Imaging Solutions.

OmniPage Suite

With critical information locked on paper, users' ability to include the information in current digital workflows requires the document to be recreated. OmniPage Pro eliminates this time-consuming and expensive process. By scanning a document with OmniPage Pro, the optical character recognition (OCR) technology converts the information into retrievable formats, facilitating quick integration of the data within business processes.

PaperPort Suite

PaperPort, a content management application, helps users scan, organize, find, and share digital documents. Because the application is designed for individual desktop scanning solutions, users are able to create a workflow that fits their business actions. Users utilize PaperPort's all-in-one search capabilities to quickly find essential documents and its visual document desktop to organize and assemble documents as if they were working with paper. A key capability within PaperPort Pro Office is its built-in support for creating PDF files from any Microsoft Windows application, without the need for additional PDF creation, editing, or viewing software. With the growing use of MFPs as a document capture device, PaperPort has been further enhanced to support network capture yet maintain personalized workflows. With PaperPort PSP, users are provided with a seamless personalized solution designed to enable MFP users to capture, share, and archive documents without having to modify their workflow.

PDF Converter Suite

PDF Converter applications are designed specifically for business users to reduce the time-consuming task that slows workflows and increases cost. PDF Converter provides users with everything needed to create, convert, and edit PDF files. It can convert/create PDF files to/from Microsoft office applications or Corel WordPerfect. It also provides for seamless content editing, regardless of the file type, and users can edit PDFs directly within the application. Objects can be resized or rotated, notes can be added, and changes can be tracked for review and approval.

eCopy Imaging Solutions

Nuance Communications' acquisition of eCopy in the latter part of 2009 expanded Nuance's document imaging offerings with middleware software that is designed to scan, manage, and integrate documents scanned on MFPs or scanners.

The eCopy solution stacks enable users to decide the point of entry that best fits their current business and build on top of that as the business processes progress. The basic functionality for capturing, creating, and editing documents extends across eCopy Desktop, ShareScan Essentials, and ShareScan Suite.

The eCopy ShareScan line of document imaging solutions enables office workers to convert paper documents into digital via their MFPs and scanners. These new digital documents can be integrated into various business processes. The eCopy ShareScan family of products includes ShareScan Essentials and ShareScan Suite.

ShareScan Essentials enables office workers to use their MFPs or scanners to securely scan paper documents and distribute electronic copies as PDF files. It offers document scanning to email, fax, network folders, and eCopy PaperWorks. In addition, ShareScan Essentials' platform enables integration with any business application through a variety of application integration capabilities.

The **ShareScan Suite** software provides office workers with secure scanning and seamless integration into business applications that support electronic processes. It provides a consistent, easy-to-use interface across any capture device.

The Business Value of Nuance's "Green" Document Management Solutions

IDC interviewed six current Nuance customers in North America, all of which have achieved significant benefits since implementing Nuance. Customers in this study have been using Nuance solutions for between six months and two years. Company size ranges from 4,000 to 300,000 employees, and the Nuance user base averages 3,069 people. Study demographics are shown in Table 1.

TABLE 1

Demographics

Category	Average
Number of employees	62,667
Number of Nuance users	3,069
Number of IT staff	178
Geography	North America

Source: IDC, December 2009

Creating a More "Green" Workplace

Using fewer resources was a key goal for the customers in this study. Respondents indicated that management is supportive of efforts to reduce paper and ink consumption, including some practical changes to daily tasks. As one manager said, "We had a huge initiative to reduce printing for about two years. There were several applications that would display an icon that read 'don't print this,' and the users would use the softcopy instead. We did a lot of promoting around saving paper and reported on the results."

Another customer reported that the company is working on a paperless workflow during product production. In the past, the initial customer orders would be received on paper that would be replicated multiple times as the request made its way through

the manufacturing process. According to the customer, "We have eliminated the paper by making it an image at the source. It is then able to journey through the system completely electronically."

Benefits Gained from Hardcopy Environmental Sensitivity

Any technology that helps organizations manage document workflow by either limiting the need for paper output or demonstrating improved productivity/efficiency for information access will receive the attention of information technology buyers. Beyond being positively associated with the "green" movement by using this technology, companies can realize considerable direct and indirect benefits by moving in this strategic direction.

IDC's analysis of the "green" impact of companies deploying Nuance's solution shows that the typical company in our survey with 3,000 Nuance users will achieve the following results:

- Reduce the number of pages printed per year by 1,805,640 pages
- Reduce the purchase of ink and toner cartridges by \$96,911 annually
- Reduce energy consumption by 1,528 kilowatts annually

Translating the results into "green" savings, we note that the typical Nuance user will have the following impact on the environment:

- Reduce carbon emissions by 703 metric tons per year
- Be the equivalent of removing 96 cars from the road for one year
- Save 27 trees each year

These benefits of Nuance solutions are not restricted to a company of a particular size; rather, benefits correlate to the number of Nuance users in a given company. Companies deploying Nuance solutions can expect the following benefits:

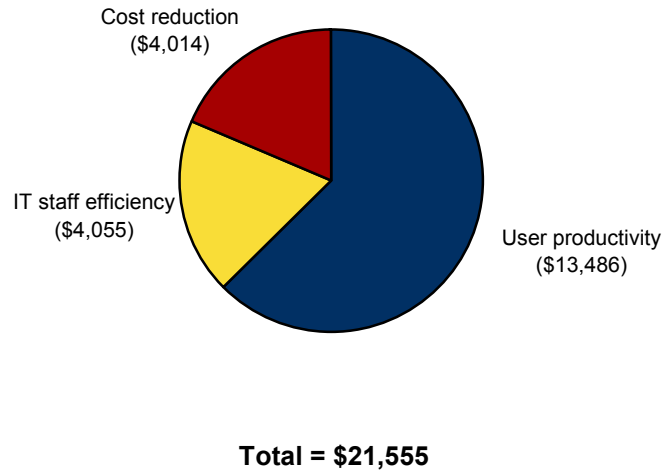
- An annual reduction of 58,880 pages (or approximately 188 reams of paper) per 100 users
- An annual cost reduction of toner/ink costs of \$3,230 per 100 users
- A reduced energy cost of \$5,600 per 100 users

Direct Cost Savings

IDC identified three key areas of customer savings since the Nuance implementation: increased user productivity, reduced costs, and improved IT staff efficiency. The average annual benefits are shown in Figure 2.

FIGURE 2

Average Annual Benefits of Nuance per 100 Users



Source: IDC, December 2009

User Productivity Benefits

In conjunction with cost savings, there are considerable productivity gains available to a company that lowers its dependency on paper and initiates a more "green" hardcopy environment.

Electronically based business documents can be searched quickly with a few key index words or phrases, while paper-based information can take longer to search for in physical storage units (e.g., file cabinets, boxes). The benefits of this easier, quicker access to information are considerable and can have a direct impact on a company's overall business performance. Examples include:

- The ability to respond to customers' inquiries more efficiently, leading to improved customer service and overall customer satisfaction
- Bringing efficiencies to basic business processes such as shortening the time to process invoices (This improvement will allow businesses to recognize revenue more quickly and will bring efficiencies to customers' accounting/finance processes.)
- The ability to free up company workers to focus on strategically important tasks rather than using valuable time searching for information

Nuance has a number of features that customers' prior solutions were not equipped with. As one manager said, "For example, our last application would not turn a PDF into other file types, but Nuance PDF Converter Pro does that for us. We can take PDFs and turn them back into Word documents or Excel documents. Those are some functions we are getting very familiar with and are very helpful." This company estimates the solution is saving users nearly an hour per month.

Nuance users found that the solution is faster than PDF solutions they used in the past. A law firm director indicated that employees open PDF programs between five and 10 times a day. Nuance saves users time because it loads in roughly half the time compared with the old solution.

Users are experiencing less downtime since the Nuance deployment. One customer's former PDF solution needed monthly patching that required users' systems to be shut down completely. As a company manager said, "The old way took a lot of time. We have to be very careful with the desktops, and the patching process was pretty slow. At least once a year we have to go in for an hour, close all the applications, and basically the users can't do anything while we're working. But we never have to do that with Nuance."

An advertising firm noted that out of its 100,000 production jobs per year, approximately 15% were affected by errors caused by the old PDF solution. But the company has been able to avoid these errors since implementing Nuance. As mentioned in the interview, "We were experiencing some font-rendering problems and the vendor couldn't fix them, or wouldn't fix them fast enough for us. This caused production to stall until the vendor understood what the problem was. Across 100,000 jobs, that's a significant amount of time lost, and it was a big problem."

On average, customers in this study are avoiding one downtime incident (planned or unplanned) per month lasting nearly one hour.

IT Staff Efficiency Benefits

IT organizations have saved time ordering software packages since the Nuance implementation. As one IT manager said, "To maintain the old solution, we spent IT staff hours every month. But with Nuance, the only support that we provide is just explaining what the new solution is." Customers in this study are saving an average of half a full-time equivalent (FTE) with regard to IT support (ink/toner management, administrative time savings, and time required to support the PDF solution).

Help Desk

Since the Nuance implementation, customers have seen a reduction in the number of help desk calls per week. One customer stated that, in the past, "the majority of help desk calls were related to the old PDF software and there were more installation issues with the old one as well. But now we simply don't get many calls about Nuance." On average, customers have reduced PDF-related help desk calls from 20 to just five per week.

Cost Savings Benefits

The cost savings available in paperless or less paper-dependent processes can be considerable. Some are obvious, such as the reduction of paper and toner/ink expenditures resulting from lower use. However, this "green" transition could also lower costs by:

- Reducing the number of devices in use

- ☒ Reducing the maintenance requirements with fewer devices and less paper produced on the remaining devices
- ☒ Procuring new equipment with the latest advances in productivity enhancements and a "green" feature set (e.g., duplexing)
- ☒ Lower shipping/transportation costs (e.g., shipping machines, paper, toner/ink) (Related to this benefit is the positive environmental impact of needing fewer trucks, emitting less gasoline exhaust/fumes, and the like due to lower shipping/transportation requirements.)

IDC also believes that there are several benefits of moving toward more environmental sensitivity when it comes to opting for more electronic document storage versus paper document storage, including the following:

- ☒ **Achieve record security/permanence.** Electronic forms can have multiple backups so that even if one system fails, the records remain safe. On the other hand, paper-based information can be easily lost, misfiled, or destroyed.
- ☒ **Use valuable office space for other needs.** Companies do not need file cabinets for paper document storage; rather, they can use the office space for more critical company requirements or cut costs by reducing their office space requirements.
- ☒ **Cut the expense of offsite storage facilities.** Companies adopting less paper-dependent processes can reduce the costs of offsite storage facilities. The costs can include rent, maintenance, and transportation to/from the facility.

Customers in this study were able to reduce hard costs such as paper and ink/toner expense, but the bulk of the cost reductions came from licensing costs that are lower than those of other, more complex solutions. On average, Nuance customers were able to reduce license fees by 74%, saving an average of \$55,013 per company annually. As one manager said, "We are saving \$150 each for 3,400 users. Obviously, that's a lot of money." Customers now have a lighter solution for the majority of their user bases and buy more comprehensive software only for users who require it. Another manager mentioned, "I used to get the same expensive copy for every single user. But now, for about 90% of my people, I can get that copy for about one-tenth the price."

Nuance Return on Investment

IDC calculated the ROI and payback period based on a three-year analysis of the aggregated results. Table 2 displays the cumulative, discounted results. Nuance offers a strong ROI of 848%, driven by the difference between its annual cost versus the annual cost of other solutions. The discounted three-year benefit per 100 users is \$51,735. Benefit includes the increase in user productivity, improved IT efficiency, and cost reductions discussed earlier. Investment includes not only the initial purchase price but also the internal staff time required to deploy Nuance and the licensing fees going forward.

TABLE 2

Three-Year ROI per 100 Users

Benefit (discounted)	\$51,735
Investment (discounted)	\$5,458
Net present value	\$46,278
Return on investment	848%
Payback	5.8 months
Discount rate	12%

Source: IDC, December 2009

IDC uses the net present value (NPV) of the savings over three years in calculating the ROI and payback period for the deployment. The NPV in Table 2 is the savings after three years with the cost of investment accounted for.

The NPV is determined by subtracting the discounted three-year investments from the discounted three-year benefits. IDC uses a 12% discount factor to allow for potential outlays made during the initial deployment and interest on that expense as well as the missed opportunity cost that could have been realized using that capital for other purposes.

METHODOLOGY

IDC conducted six in-depth interviews with current Nuance customers. Customer names and contact information were provided by Nuance. After completing these interviews, IDC followed four steps in order to calculate the ROI, environmental impact, and payback period:

1. Measure the savings from reduced costs (largely licensing fees), increased IT efficiency, and improved user productivity/fewer downtime hours.
2. Provide measurements of environmental impact due to reduced paper consumption, usage of supplies, and energy consumption.
3. Ascertain the investment made in deploying the solution and the associated training and support costs.
4. Project the costs and savings over a three-year period and calculate the ROI and payback for the deployed solution.

CHALLENGES/OPPORTUNITIES

The results of the ROI research and the white paper commentary highlight a number of benefits that can positively impact a business operation's bottom line. However, there are a number of challenges that organizations need to examine in order to make the implementation as seamless as possible:

- ☒ **Paper is still a core element of current and future business processes ... employee buy-in of new digital processes is critical.** The qualitative and quantitative data supporting a more "green" hardcopy environment is impressive, but it works only if the company and its employees are willing to adapt to less paper-dependent processes. For some, this challenge will be easy and transparent; for others that may have well-entrenched work habits, the change might be difficult to embrace. Over time, IDC believes that the transition to less paper-dependent processes, as touted by technologies from Nuance, will become commonplace and the standard for how business operates now and into the future.
- ☒ **Picking the appropriate solution.** The best solution will be scalable enough to support average users but flexible enough to support power users as well.
- ☒ **Initial implementation might require significant IT resources.** This includes manpower for the installation as well as increased user support demanded by the change.

The opportunities for companies adopting such technology are numerous. The white paper has already outlined several direct cost and productivity benefits resulting from less paper-dependent processes. Perhaps less direct are the following opportunities that could result from this implementation:

- ☒ **Leveraging the positive association of "green."** Business opportunities can be won or lost based on a company's "green" policies. Many procurement contracts and RFPs incorporate specific language about environmental policies and procedures. Only suppliers that can meet these requirements will be considered for the business opportunity.
- ☒ **"Green" initiatives range from simple to more complex implementations.** Companies that desire to be more "green" can opt for some simple policies to achieve this goal. It can be a more sophisticated program, but it doesn't have to be. For example, being more "green" might mean opting for hardcopy machines that print duplexed output and making duplexing the default setting. This can help reduce paper consumption. Implementing Nuance software can also offer several "green" benefits as outlined in this white paper. Starting a "green" program at a company does not need to be an all-encompassing, long-term plan; rather, it can start with relatively easy and small initiatives that have the desired effect.
- ☒ **High ROI.** As the white paper has already highlighted, the payback on a "green" plan can be substantial.
- ☒ **Opportunity costs.** Heightened productivity achieved by "green" implementations allows companies to use their resources on the most pressing business needs. Opportunity costs can be spent on more business-critical issues.

CONCLUSION

"Green" initiatives are impacting business operations across companies of all sizes. The cost and productivity benefits are apparent. Additionally, the "green" policies that are helping companies achieve these business objectives are not going away; rather, they are being refined to ensure ongoing business operations efficiencies. IDC believes that the hardcopy infrastructure is often overlooked for "green" examination, but it is ripe with opportunity. The use of Nuance software is one example in which companies can reap the benefit of scrutinizing the way they use and manage business documents and information — and doing so in a more environmentally sensitive manner.

APPENDIX

Green Calculation Assumptions

- ☒ Reduction in the number of pages printed per year assumes \$46,911 savings on paper (reported from interviews), divided by a cost of \$12.99 per 500 pages, times that 500 pages.
- ☒ Reduction in ink and toner cartridges assumes 1,938 cartridges saved per year (reported in interviews) times \$50 per cartridge.
- ☒ Reduction in energy consumption assumes kWh required to print 50 pages per day (11kWh used per printer annually), times 142 printers (22 Nuance users per printer), minus the kWh required after accounting for the reduction in pages printed (refer back to the first bullet).

Translating the results into green savings, we note that the typical Nuance user will have the following impact on the environment:

- ☒ Reduction in carbon emissions assumes savings of \$168,063 (results of kWh savings above), which is 80,030 gallons of gasoline at \$2.10 per gallon, which is 1,549,385 pounds of carbon (19.36 per gallon of gas), which is 702.8 metric tons (1,549,385/00045359237).
- ☒ Saving trees assumes 1,805,640 pages not printed equals 3,611 reams not printed (500 pages per ream). Assuming a 1,000-pound tree produces 133 reams, then 3,611 divided by 133 equals 27 1,000-pound trees.
- ☒ Removal of cars from the road assumes savings of \$168,063 (results of kWh savings above), which is 80,030 gallons of gasoline at \$2.10 per gallon, which is 1,920,725 miles traveled at 24 miles per gallon, divided by 20,000 miles driven per car per year equals 96 cars.

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