
Case Study: Print Optimization

Relevance to State of Colorado Departments & Agencies

Defining clear options for customer-driven change underpinned the case for investment in a recent Print Optimization initiative at the Colorado Department of Public Health and Environment (CDPHE). This case summarizing their approach and success proves that dramatic improvements are both realistic and achievable with a sustained commitment to an appropriate strategy and the active support from both leaders and the front-lines.

This case study highlights a successful approach to using customer-friendly tools and tactics (as well as hard work) to achieve measurable and positive benefits in Print Optimization at the Colorado Department of Public Health and Environment (CDPHE).

- Customers benefit from more intuitive & faster printing, with fewer technical problems
- Leadership benefits with reduced cost & continuous visibility into device and job performance metrics so they can be continuously improved.
- Solutions were agreeable to all members of the team because they reduced the effort required to achieve sustainable improvements to customers' experiences.

Key Outcomes and Learnings from the Case Study

This case focuses on the Lean strategy and specific tactics to fully operationalize an efficient printing environment across a diverse & distributed State of Colorado Department.

- The team opted to implement their optimization program over 4 phases, using a broad variety of print management analyses, devices & support options. They evaluated nearly all operations, including what users print, how they print it and even what they don't print.
- With any eye toward streamlining, these teams methodically:
 - Reduced the number of printers by about 60%;
 - Reduced costs by about 30%;
 - Reduced printer cartridge use by over 300/year;
 - Freed up 6 cubes for employee use;
 - Developed solutions to ensure higher print speeds; and,
 - Instituted measures to make these changes sustainable.

Business Case for Change

- ✓ The new all-in-one copiers will support the department's initiatives to become more effective, elegant and efficient
- ✓ Divisions will realize costs savings on printer toner and related supplies, service calls, maintenance, fax lines. The maintenance, service calls, toner and related supplies are included in the competitive copier lease contract
- ✓ The Department will realize costs savings on energy and paper.
- ✓ Divisions may gain space if printer areas no longer needed could be converted to employee workspaces or other space needs.
- ✓ OIT staff will require fewer resources to support network and individual printers, scanners and fax lines and be able to direct those resources toward other department OIT related priorities
- ✓ Employees will need to walk to collect their printed pages thus supporting employee wellness
- ✓ The current copy codes will be eliminated as they are no longer necessary with the new contract. Thus any employee could use any copier anywhere on campus.

Armed with this basic information, please read the case study and consider answering the discussion questions on the following pages. A perspective on these questions is also provided that may help engage your team.

Case Study

1. Read the following pages.
2. Consider how this relates to challenges and opportunities you see in your Department's printing.

Forward Thinking in Print Optimization

In FY2011, the State-wide contract for copiers expired, and new contracts were executed. The new contracts included an option to join the State-wide initiative to convert simple copiers to Multi-Function Printers (MFPs) which expand functionality to include faxing, scanning and printing.

I - Planning

In June 2011, members of OIT and CDPHE Operations and Sustainability began discussing the capabilities of the MFP and strategizing how the department could incorporate the new technology department wide. The MFP team investigated current business practices, employee habits, network printer usage, copier usage and determined that the department could benefit by fully utilizing the MFP features, thus reducing the number of personal and network printers, scanners and fax machines\lines. The potential benefits identified were:

Cost Savings

Initial data showed divisions could save operating dollars by reducing the number of individual and network devices.

- By reducing the number of individual devices, divisions would save operating dollars by not purchasing toner, maintenance\service calls, device replacement, etc.
- Initial data showed that employees with individual printers may change work habits. If employees had their personal printer removed, they may reconsider printing items as they would have to walk to the MFP.
- Data also showed that the majority of individual printers were older and did not have duplexing capabilities, meaning all items printed were single sided versus double sided. The MFP's default to double-sided printing thus reducing paper consumption. By reducing paper consumption, the department would realize cost savings.
- The department would be supporting the Governor's Executive Order to reduce paper consumption 20% by 2012.
- The cost savings would be realized directly by each division\program.

Energy Savings

Initial data showed the department could reduce energy consumption by reducing the number of individual and network devices.

- By reducing energy consumption, the department would also realize energy cost savings.
- Reducing the number of devices in the building can also reduce the amount of heat generated in the building from the operation of these devices and in turn reduce the cooling load in the summer months.
- The department would be supporting the Governor's Executive Order to reduce energy consumption by 25% in the next 5 years.

Space Savings

- Initial data showed that certain divisions could benefit by reducing the number of network devices, thus freeing up space for better usage including employee workspaces, storage, etc.

Staff Time Savings

Initial data showed that numerous hours were spent supporting individual and network devices. Support includes:

- OIT staff time processing device orders and responding to service calls.
- Division staff time processing device orders, toner and supply orders, receiving the items, delivering the items, paying for the items, placing service calls, etc.
- Operations\Accounting staff time approving payments of the above items on either the State Procurement card and/or via payment voucher.

Employee Wellness

Initial data showed that employees would increase steps by walking to the MFP devices rather than individual and network devices, thus promoting employee wellness initiatives.

Environment

Initial data showed that the environment would benefit by reducing the number of toner cartridges, thus saving valuable natural resources.

- Some divisions were actually throwing away empty toner cartridges thus sending these to the landfill.
- Some divisions were properly recycling the cartridges; although these can be reused, they cannot be reused more than a few times.

In July 2011, the MFP team presented the concept to members of the Leadership Team, in which, the LT approved the department to proceed with a test group to see if the transition\conversion would in fact produce the identified benefits. The project would then also support on on-going LEAN initiatives.

The MFP team strategically identified key divisions\programs to test the process and work through the technological and confidentiality issues. This first group was identified as Phase I and included

- DCEED
- CHEIS (both Vital Statistics and MMR)
- OIT\ITS
- EPR
- DEHS Bldg C
- HFEMS Bldg C
- Administration including Operations, Community Relations and EDO.

In August 2011, the team coordinated with the Phase I divisions to gather data, explain the project, do a complete device inventory, determine what devices would be removed, analyze how many and placement of the MFP's, place the MFP order and discuss specific technological\confidentiality issues.

The team conducted two meetings and a walk-through of the floors with each division. The first meeting was a "Kick off" meeting to explain the project and time line and discuss each division's printing, faxing, copying and scanning needs (agenda attached). The team then walked each floor with the division and took an inventory count of all devices (scanners, fax machines, network printers, and individual desk top

printers). Based on the information provided by the division at each “Kick off” meeting and the information gathered from the walk-through, the MFP team met separately from the division to come up with recommendations on placement, number of devices to remove and number of MFP’s needed. The team provided each division with a spread sheet of recommendations and then had a follow-up meeting with each division to review the recommendations and to listen and address each division’s concerns and develop a final plan. Once the final plan was agreed upon by the MFP team and each division, additional MFPs were ordered. Unique needs were handled in various ways such as: adding additional features to the MFPs like scan-to-file and confidential pin numbers for secured printing, training, vendor involvement on special printing needs. In some case network printers were kept to accommodate unique needs, and recommendations were also made to use the in-house print shop. MFPs were placed to accommodate each quadrant of the floor (SE, SW, NE, NW). In some cases 6 MFPs were placed to accommodate the number employees on the floor as well as unique printing needs. A color network printer was placed next to the MFP at each quadrant to accommodate color printing needs.

From September 2011 through June 2013, the team worked to provide hands on employee training, identify and fully train division personnel identified to serve as key operators and address specific technical issues including: confidential printing, duplexing, confidential scanning and faxing and printing envelopes and labels.

Phase II: PSD, HFD Bldg A and the Lab

- August 2012 thru September 2012 - Division coordination, meetings and needs assessment, device inventory, device recommendations\decisions.
- October 2012 thru December 2012 – MFP’s ordered and delivered. OIT staff to program the MFP’s and setup employee profiles.
- January 2013 – Go live, employee training, and division key operator training
- February 2013 – Device removal and data compilation

As of July 1, 2013, all of the Phase I & II MFPs (except for the Lab) are functional. Employee training and usage issues have all been addressed. One technical issue encountered related to confidential faxing\scanning. In these instances, fax machines were initially left in divisions and programs. However, as of today, secure scan-to-file services are actively being released on all Phase I & II devices.

II - Results

The Phase I & II data was compiled in July and overwhelmingly supports the overall project justification and anticipated benefits including:

Cost Savings

- Before the MFP project, the Phase I divisions had 307 devices costing \$143,057 per year which does not include device replacement costs. After the exercise, the number of devices was 144 a reduction of 58% and \$107,186 a cost savings of \$35,871 annually or 25%.
- The department’s paper consumption is measured on an annual basis by the Facilities and Sustainability staff. A full year of data will be necessary to capture and report any paper savings.

Energy Savings

- By reducing the number of devices, the department will reduce energy consumption by 12,750 Kwh annually or \$1,020 annually.

Space savings

- Only one division reported space savings. In this case, Administration converted 3 cubicles from printer stations to employee workstations. In the other Phase I & II divisions, the printers were located in central hallways, store rooms, etc, so no space savings was realized.

Staff time savings

- While the team has not identified a way of time savings measurement, by reducing the number of devices from 307 to 144, a reduction of 58% - staff time savings will be realized.

Employee wellness

- Although the team has not formally surveyed the Phase I & II employees, overall feedback has been very positive. Many employees first reported removing their personal printer was an inconvenience; however, those same employees now report they only print necessary items and appreciate getting away from their desk to retrieve the print job from the MFP.

Environmental

- By reducing the number of devices from 307 to 144, a reduction of 163 devices, the department will reduce the number of toner cartridges by approximately 300 annually, once again saving valuable natural resources.

CDPHE - MFP Project
Summary Data by Phase
Updated 01/01/2013

Division	Before		After							
	# of Devices	Average Annual Cost	# of Devices	% Device Reduction	Average Annual Cost	Cost Savings	% Cost Savings	Space Savings	Annual Energy KWH Savings	Annual Energy Cost Savings
Phase 1 Summary - Completed										
Admin All Bldgs:	72	\$34,666	30	-58%	\$21,458	(\$13,209)	-38%	3 Cubes	(3,150)	(\$252)
DCEED A3:	105	\$35,381	45	-57%	\$30,612	(\$4,769)	-13%	--	(4,500)	(\$360)
HFEMS C1:	17	\$15,324	3	-82%	\$7,804	(\$7,520)	-49%	--	(1,050)	(\$84)
CHEIS A1 and C2:	79	\$40,020	50	-37%	\$31,161	(\$8,859)	-22%	--	(2,175)	(\$174)
OEPR C2:	26	\$12,118	9	-65%	\$9,749	(\$2,369)	-20%	--	(1,500)	(\$120)
DEHS C1:	8	\$5,548	3	-63%	\$5,402	(\$146)	-3%	--	(375)	(\$30)
Phase 1 Total:	307	\$143,057	140	-54%	\$106,186	(\$36,871)	-26%	3 Cubes	(12,750)	(\$1,020)
Phase 2 Summary - In-Progress										
PSD A4 & A5:	116	\$69,640	25	-78%	\$41,924	(\$27,716)	-40%	--	(6,375)	(\$510)
HFD A2:	38	\$23,765	10	-74%	\$17,976	(\$5,789)	-24%	2 Cubes	(2,100)	(\$168)
DCEED A2:	4	\$1,250	0	-100%	\$0	(\$1,250)	-100%	--	(300)	(\$24)
OIT A2:	9	\$8,218	2	-78%	\$5,152	(\$3,066)	-37%	--	(525)	(\$42)
Lab:	48	\$31,036	20	-58%	\$20,654	(\$10,382)	-33%	1 Cube	(2,100)	(\$168)
Phase 2 Total:	215	\$133,909	57	-73%	\$85,706	(\$48,203)	-36%	3 Cubes	(11,400)	(\$912)
Phase 3 Summary - Pending 02/01/2013 thru 05/31/2013										
Hazmat:										
APCD:										
WQC:										
DEHS B2:										
Phase 3 Total:										
Phase 4 Summary - Pending 07/01/2013 thru 09/30/2013										
Air - Offsite Locations:										
Grand Junction:										
Pueblo:										
Refugee Clinic:										
Phase 4 Total:										
Phase 1 and 2 Summary	522	\$276,966	197	-62%	\$191,892	(\$85,074)	-31%	6 Cubes	(24,150)	(\$1,932)

III – Next Steps

Given the remarkable outcome, the remainder of the department has been assigned phases and timelines as follows.

Phase III: Starting in August 2013, will include all of Building B including; Air, Haz, WQC and DEHS Sustainability.

- July – Division coordination, meetings and needs assessment, device inventory, device recommendations\decisions
- August – MFP's ordered and delivered. OIT staff to program the MFP's and setup employee profiles.
- September– Go live, employee training, and division key operator training
- October– Device removal and data compilation

Phase IV: 2014 - All off-site locations including Grand Junction, Pueblo, Air Test centers (Denver, Broomfield and Aurora) and the Refugee Clinic - 2014

Perspective on Discussion Questions

The following perspectives may be of use to you as you take action.

Questions and Perspective

Discussion Question	Perspective
<p>What does this case demonstrate about the link between customer satisfaction and print optimization?</p>	<ul style="list-style-type: none"> • Organizations and customers develop entrenched behaviors and processes over time. Changing these takes broader-than-usual agreement on both problems and solutions, including shared understanding of their tradeoffs. • The customer’s satisfaction with the device & related services are the primary measure of this link, because the less time the customer spends worrying about printing, the more likely he or she is to be satisfied.
<p>What is the significance of analyzing metrics? Why is gathering this data so early (and often) at the core of institutionalizing change?</p>	<ul style="list-style-type: none"> • Device locations and costs are simple and easy enough to analyze and use optimize printing problems. <ul style="list-style-type: none"> ○ Smaller but more common print jobs can be addressed by network printers. ○ Larger but more infrequent jobs can be addressed by funneling to high-speed MFD devices.
<p>What kinds of customer-facing discussions were key to adoption? When was the last time you collected baseline metrics? What could be done with the feedback you received?</p>	<ul style="list-style-type: none"> • Device location and page counts were primary metrics for this case. • If you haven’t collected metrics like these recently: <ul style="list-style-type: none"> ○ Inventory existing devices ○ Interview users to provide context about business needs ○ Draw lessons from the responses. Implement them where feasible and request feedback from customers again ○ What are the daily/weekly changes? Where can you reverse unfavorable trends?