

MEMORANDUM

TO: XXXX, Manager

FROM: XXXX, Store Operations Assistant

DATE: November 2, 2014

SUBJECT: Completion report on the cost analysis of printing on both sides of a sheet of paper

I have attached for your viewing a copy of my completed report of the cost analysis of using a duplex printer at T-Mobile location, 11111 Southwest Freeway in XXXX, Texas.

This cost analysis involved doing research on the acquisition of either a new printer to replace the existing one or adding on a duplexing module to the existing one. Both options are feasible but I think that replacing the printer is the better decision should we choose to move on.

At this time, in order for the above mentioned solution to be affordable, this location would need to print 225 pages a day on average for T-Mobile to recoup the cost of the solution in a timely manner of a year and a half.

Thank you for allowing me the opportunity to do this cost analysis on this subject. I hope that we can move forward and you and I can get this implemented as soon as possible to begin saving money and wasting less.

Cost Analysis

Printing duplex pages instead of single pages at T-Mobile

Prepared for: XXXX, Store Manager

Prepared by: XXXX, Store Operations Assistant

November 2, 2014

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Introduction

On September 13, 2014, I approached XXXX for permission to do a cost analysis on the topic of using a duplexer printer at 11111 Southwest Freeway, XXXX, Texas in effort to save the company money by not wasting paper. This is the report which will show the information on whether or not it is a feasible option to move forward with and send upward to the proper persons to implement this into our store and possible other locations as well.

A duplexer is a device that attaches to a printer that allows both sides of the paper to be printed on without having to reinsert the paper into the paper tray. My thought is that if we can eliminate printing by half we can save the company money as well as reduce our waste in the stores, and reduce our footprint in the store since we will be printing half as many pages.

In the end, I did conclude that the solution of replacing our existing printer with a new one is currently a feasible option because of the future benefit after the breakeven point of a year and a half.

In the following sections I will provide all the information I used to make this decision.

Research Methods

1. I used our partner site Staples Advantage to determine the cost of a new printer, and I used a non-partner website to locate a duplexer for our existing printer because our partner site did not offer a solution for this matter.
2. I also did a side-by-side comparison based on the two printers as far as specs and operating costs go.
3. I thought of some possible problems, and found solutions to those problems.
4. I prepared the financial statement using tables to illustrate the best options for moving forward with the final decision.
5. I explained why I chose the option I ultimately chose for the final solution.

Results

This section will outline the results of my findings in accordance with my research.

1. Vendor options for the acquisition of parts.

I used two websites to determine the pricing of both the acquisition of the duplexer for our existing printer and the purchase of a new printer. The duplexer needed for our existing printer was not available through our partner site, Staples, so I located another company that could provide us with one. A Matter of Fax would charge \$426.26 for the duplexer add on, (A Matter of Fax) and Staples would charge \$749.99 for a new printer that would suit our needs sufficiently. (Staples)

2. Comparison of the old printer to new printer.

In regards to the two printers both are comparable with one another as seen in figure 1 below.

Figure 1

Printer Comparison					
Printer	Pages Per Minute (PPM)	Pages of paper it holds	Toner cartridge cost	Toner cartridge yield	Toner cost per page of paper printed based on yield
HP 4000n	17	500	\$184.00	10,000	\$0.0184
HP p3015dn	42	600	\$228.00	12,500	\$0.0182

The only big difference that stands out is the pages per minute (PPM). Beyond that, the two are very similar although the new one holds a little more paper. In addition, for the new option the toner cartridge does cost less to operate based on the toner cost per page printed.

3. Possible problems.

There is always the potential for problems to arise when changing hardware. Luckily, Hewlett Packard offers support for both printers with the operating systems we currently use. They also offer support on operating systems that are already out but are currently not in use at T-Mobile. T-Mobile also has a service agreement with Hewlett Packard, so in the event of any problems we should have the problem fixed in a timely manner. I also feel that it is best that we install the newer printer after we close so there is no disruption to our customers as they come and go throughout the day. I have estimated

it would take just a couple of hours to install the solution in our store. This would give us proper time to make sure everything is working properly on all seven of our computers and will perform flawlessly the following morning. We would need to create a ticket through the EIT helpdesk to get this scheduled to have someone come out and install the new printer, and for that, the help desk only needs two days' notice.

4. Preparing of the financial statements.

The following information is based on the store maintaining our average of 10 activations, 10 upgrades, 20 credit card bill payments a day and another 20 cash bill payments per day. We also print around 20 pages a day for miscellaneous reports needed throughout each day as well as our nightly closing reports. Using an average of 20 single sided pages used for activations with about half of those going to customers. Also using the average of 12 single sided pages printed per device upgrade, with again half of those pages going to the customer. Most credit card transactions require just four pages and again half of those are going to the customer. Lastly, the cash transactions do not require we keep a receipt so those are just two pages handed to the customer. Therefore, to sum it up we as a store on an average day print 420 pages a day. Below is a table that shows the above information for an average day. This does not take into consideration device launches, holidays or weekends, all of which where sales are significantly increased. Just to give an idea of how many pages are printed on just the weekends when no new devices launched or fell on a holiday; we used over 1,100 pages of paper on those two days alone. That would be similar for an entire week around holidays or on device launch weeks.

Figure 2

Detailed page consumption

Type of transaction	Number of pages printed per type of transaction	Average quantity printed per day *	Average number of pages printed per day
Activation	20	10	200
Upgrade	12	10	120
Credit card payment	2	20	40
Cash payment	2	20	40
Reports	1	20	20
Total pages per day			420

*Information pulled from Appendix A

As far as our cost of supplies goes, we purchase our paper through the Staples Advantage website at a rate of \$34.21 per box of paper (Staples Advantage). A box of paper contains 5000 pages of paper making each sheet of paper cost \$0.0068. The

cost of the toner cartridges is virtually the same, so it is not as large of a factor to consider for the purposes of this report. The only variable is the use of the number of sheets of paper a day. Both solutions reduce the amount of paper used by half so it is just a matter of how long before we begin seeing the savings of implementing the solution. The below figure shows the number of pages required to be printed to breakeven.

Figure 3

Cost per page and pages printed to breakeven

Printer	Cost of paper per box	Pages in a box of paper	Cost of paper per page	Cost to upgrade or replace	Amount of pages until breakeven
HP 4000n	\$34.21	5,000	\$0.006842	\$426.26	62,301
HP p3015dn	\$34.21	5,000	\$0.006842	\$749.99	109,616

5. Final Findings

Based off the above information on what it will cost to either modify the existing printer or replace the existing printer I believe that it is feasible to actually replace the printer and go with a quicker and less expensive to operate printer. I think that we will actually print somewhere around the 225 average pages duplexed and therefore save the company money in as little as one year and six months. Not to mention the HP 4000n was discontinued (HP) and parts will eventually get harder to acquire. This next figure illustrates the option of both modifying the existing printer and replacing the existing one with the newer one based on how long it will take to breakeven.

Figure 4

Breakeven point				
Printer	Pages needed to print to breakeven	Avg. pages of paper per day (duplexed)	Days until breakeven	Months until breakeven
HP 4000n	62,301	200	312	10.38
HP 4000n	62,301	225	277	9.23
HP 4000n	62,301	250	249	8.31
HP 4000n	62,301	275	227	7.55
HP p3015dn	109,616	200	548	18.27
HP p3015dn	109,616	225	487	16.24
HP p3015dn	109,616	250	438	14.62
HP p3015dn	109,616	275	399	13.29

Conclusion

After analyzing the information, I believe the best option is to purchase the newer printer. This printer will pay for itself in just a year and a half with our current output and as we continue to increase our customer base at the store the amount of time before we breakeven will be shortened. Also because of the age of our existing printer I think that we will begin to have more and more problems with it and parts will be harder to find, and will result in unprofitable downtime.

Recommendation

I recommend moving forward with the acquisition of the new printer and get with our purchasing department to acquire the new printer for our location. Once the new printer arrives we need to contact EIT helpdesk and schedule a time for them to come out and install the printer. We could even be a pilot store and see how well this works before rolling this out district wide or even companywide possibly.

Works Cited

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Appendix A

Observation

Type of transaction done	Number completed on Sunday	Number completed on Monday	Number completed on Tuesday	Number completed on Wednesday	Number completed on Thursday	Number completed on Friday	Number completed on Saturday	Daily Average
Activation	7	7	8	9	9	15	15	10
Upgrade	7	6	11	11	10	12	13	10
Credit Card payments	17	15	15	15	15	33	30	20
Cash Payments	22	18	15	20	20	25	20	20
Reports	10	30	30	20	20	15	15	20

Observation dates (Sept. 28, 2014-Oct. 4, 2014)