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Proposal to Reduce Wasted Copier and Printer Paper Products

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## Proposal

**Date:** 8 December 2007

**To:** Lt Col Bryan L. Crutchfield

**From:** Joseph Martinez

**Subject:** Proposal to Reduce Wasted Copier and Printer Paper Products in my Work Center

The Air Force's slogan in its commercials is "Step into the Blue." I would like to see them "Step into the green" as in the global environmental and combat safety green. Every morning when I arrive in my work center, I see large plastic tubs full to the top of wasted paper spread through out many areas. When I look at the amount of squander I wonder; how many pieces of paper does my work center waste every day? How much money is thrown in the trash every day? Does anyone care? I want to show just how much money in paper is being wasted every year, first using my unit as the sample and then applying it to the Group and then Base wide. You will all be surprised as to how tax dollars are being mismanaged. Making the Air Force a conservation conscience and adding Green to the Blue is my intent of this analysis by using Cost of Poor Quality (COPQ) as my foundation.

Ben Franklin said "An ounce of prevention is worth a pound of cure" this is the basic concept behind Cost of Poor Quality. COPQ is costs that would vanish if processes and products were faultless. COPQ consists of costs which are generated as a result of producing defective products. COPQ is the amount spent on prevention, appraisal and failure costs. This price includes the cost involved in fulfilling the space between the desired and actual product quality. It also includes the cost of lost opportunity due to the loss of resources used in rectifying the defect.

## **Background**

Over the last year and a half my organization has transformed our process manuals, aircraft publication and regulations into an electronic format as an AFTO 21 (Lean) initiative to save the government money. Up until then every operator had their own hardcopy set of regulations and manuals costing thousands of dollars annually to print and maintain.

This library was converted to an electronic format, so that all operators could carry a complete set with them on a flash drive. Not only did this not reduce cost, but it has increased cost. In this paper I will only example the misuse of paper that has led to the increased cost through unnecessary printing and copying of information that is in an electronic form.

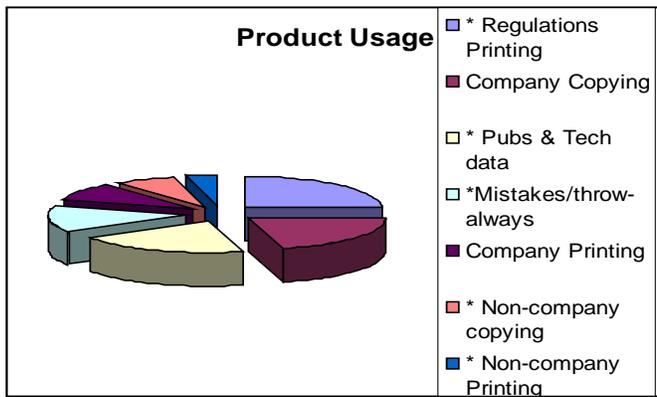
Using a variation of the Cost of Poor Quality formula I will identify and assign a dollar amount to a paper usage defect in my work center (ASQ 2002). Funding for paper products within military organizations comes out of each military base's O& M (Operation and Maintenance) military appropriations funding. This is a portion of the congressional funding allocation for all of the branched of service then further broken down to commands and then to specific bases to use for the daily operating needs for the base.

Daily operating costs are invisible to the base work centers and daily users of paper products. Since

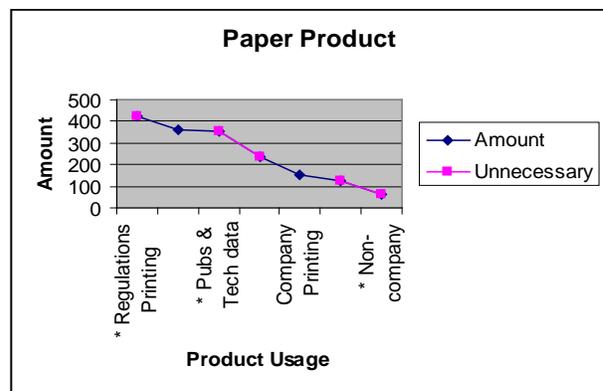
the fund lines used to purchase paper seem to never run out, there is not a need to be conscience of wasting resources.

**Problem**

The problem is that unnecessary paper products are copied printed and discarded an alarming rate. I have observed over the past four years that I have been assigned to my work center large plastic tubs full to the top of wasted paper. These paper products come from copy machines, printers, and chart makers that are thrown away at the end of each day. That is so much paper wasted each day that the generated costs are staggering each year to keep this practice up. This is a culture of waste without regard for consequences to the resource in terms or funding and the environment. I will show a pattern of negligence in printing protocols and draft recommends guarding against wasted paper resources.



**Figure 1**



**Figure 2**

**Benefits and Features**

The benefits of identifying and conserving paper have endless possibilities. If we were too take into account the amount of money that could be save through positive control of paper utilization would be approximately \$12,000 per year. These funds could be redirected into critical areas of our unit’s combat operation that critically need up-graded technology to ensure mission success. The reductions in paper will also help the environment by fewer trees being cutting down by the paper mills for excess paper consumption leaving a greener world. Listed below are some other areas that the savings could be redirected.

- The funding saved could be applied to combat operations safety equipment.
- Reducing the government utilization of paper products will reduce space in land fills.
- Up-Graded survival vest for fifteen aircrew members.
- The funding saved could be applied to quality of life programs
- The reduction in governmental paper use will result in fewer trees cut down. preserve the environment

## Getting Started and Recommended Solutions

### Making Unnecessary Copies and Printing COPQ

1. Step 1: I counted the number of incidences within my work center.
  - a. The count was conducted on 5 December 07 by observers, usage logs positioned at copy and print locations, and waste receptacles and recycle bins were also counted. Non observation time was during 1hour lunch.
  - b. Measurements and analysis are listed below

Product Use	Amount	Unnecessary	Justification	Cumulative
* Regulations Printing	427	427	Regulation are in an electronic format	24.8%
Company Copying	364			45.9%
* Pubs & Tech data	353	353	Publication and tech data electronic	66.4%
*Mistakes/throw-always	238	238	No proper edits/retrieving blanks	80.2%
Company Printing	153			89.1%
* Non-company copying	128	128	Personal Copying w/company resources	96.5%
* Non-company Printing	60	60	Personal Printing w/ company resources	100.0%
Reams of paper used	3.4	2.5		

Figure 3 1 Ream =500 sheets, \* annotates unnecessary paper usage

2. Step 2: I determined the labor cost (Pande 2002 p 181) associated with the wasted paper.
  - a. 40 workers earns an average wage of \$13 per hour
  - b. 1 ream of copy and printer paper = \$ 4.28 x 2.5 reams wasted = \$ 10.70 per day
  - c. Estimated time spent printing and copying unnecessary products = 3 hours daily
  - d. 
$$\frac{\text{Hours spent printing \& copying}}{3} \times \frac{\text{Hourly pay}}{\$13 \text{ per hour}} = \$ 39$$
  - e. 
$$\frac{\text{Cost per item used}}{\$ 4.28} \times \frac{\text{Quantity defects per day}}{2.5 \text{ reams}} = \$ 10.70 \text{ per day}$$
  - f. 
$$d + e = \text{COPQ} \quad \$39 + \$10.70 = \$49.70$$

#### Results:

- Total work center cost for unnecessary copying/ Printing is: \$ 49.70 per day rounded to \$50
- 241 work day per year equals a total work center annual cost = \$12,050 wasted per year

There are Approximately 25 work centers in our regional organization, total regional organization annual cost = \$ 301,250 wasted per year.

**Recommendation**

- Implementation of a maximum number of copies and printing allowed per day policy
- Utilization of government paper resources will only be used for official purposes
- Tracking and usage logs set up at printing locations
- Identification marks electronically imprinted from Control Access Cards on products printed
- Specific number of reams of paper allocated to base-wide organizations.
- Implement a paper recycling program

**Summary**

The price of keeping the status quo can be costly in terms of the unit's mission, the quality of life for its members and the environment. It was identified that printing regulations that are otherwise kept in an electronic form for temporary purposes is the single biggest waste of paper. All areas of paper misuse together have generated over expenditures in the range of \$12,000 per year. This cost is from just a single unit, combined with the other twenty-five units on base, it equates to over \$301,250 per year. This figure multiplied by all of the bases in the Air Force, results in a significant amount of money just thrown away. If my recommendations to implement a new policy, reduce, track and allocate paper appropriation for my unit are adopted, it will result in freeing up capital otherwise used for paper products. This additional funding can and will be used to benefit my unit's combat survival equipment, quality of life and reduce the strain on the environment. Giving me the approval to proceed is just the first step in achieving a greener, smarter and safer Air Force. Let's begin the journey to lead the Air Force Blue to the Green.

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