QUALITY CONTROL IN BANKS - WHY, WHERE AND HOW

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ABSTRACT

Banks are beginning to look at a quality control discipline as an aid toward productivity improvement, with major emphasis being on data processing quality control. The authors explore the area of quality control in banks with three basic questions: (1) Why should there be a quality control in banks? (2) Where should it be emphasized to make significant productivity improvements? (3) How to practice and manage it?

The parallels from product industries such as, failure mode and effects analysis, capability studies, reliability testing principles, quality costs, etc. are used to establish answers to these questions. Examples are included.

INTRODUCTION

Banks largely depend on computers in handling their internal work flow, whether dealing with commercial or with individual customers. Therefore, any computer related failures could mean either a delay in providing customer services, or a considerable increase in cost of doing business; either of which could lead to customer dissatisfaction and eventually a loss of revenues.

Conventional methods to correct these failures are:

1. Employees working overtime.
2. More employees than would be necessary in case of fewer computer problems.
3. Greater lead time in satisfying consumer demand.
4. More stand-by computers.

All of these corrective measures cost more money to accomplish the given task. Banks, generally label this as a "productivity" problem.

Quality Control principles will adapt to any productivity improvement situation, though it is not recognized as such by banking management. What is basic to quality control principles is a prevention philosophy translated into easy-to-follow prevention, control and monitoring procedures; and also, an information gathering process based on statistical principles for quantification of the problems. Whereas quality control principles are well translated for product and construction industries, they have yet to pave a roadway into many service industries. Banks fall into this category. There are a tremendous number of opportunities to apply quality control disciplines as an aid toward productivity in banks.

COMPARISON BETWEEN A PRODUCT INDUSTRY AND A BANK

Figure 1 shows the comparative features of product and banking industries

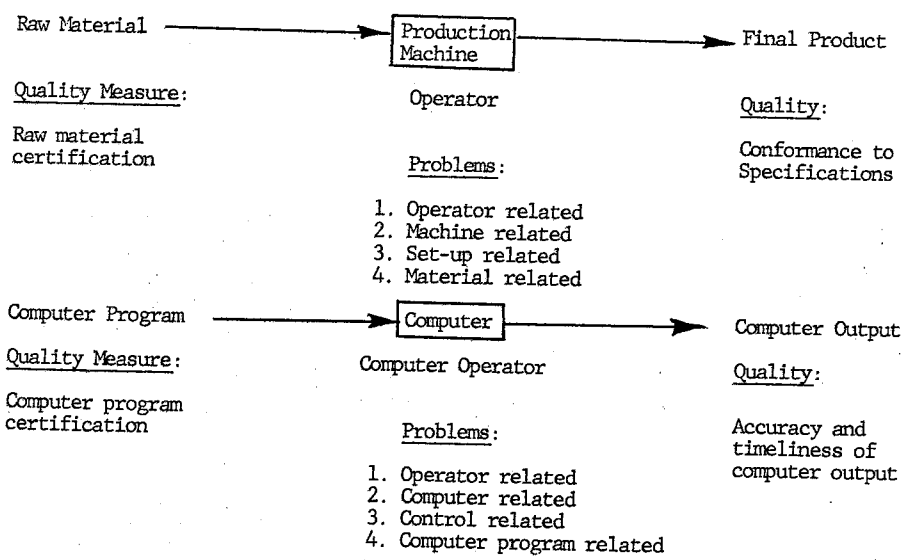

FIGURE 1

COMPARATIVE FEATURES OF PRODUCT AND BANKING INDUSTRIES

The following techniques, well-established for product industries, are described with respect to their applicability to bank operations.

1. PROCESS CONTROL

   A. Product Application
      Measures condition of each machine on a daily basis. Corrective action is instituted much before problem is going to occur.

   B. Bank Application
      Set up control charts based on Poisson charts to measure condition of a particular operation on a daily basis.

2. PARETO ANALYSIS

   A. Product Application
      Measures which individual problem is contributing most to the overall problems.

      Disadvantage: Does not measure interaction among the causes of individual problems.

   B. Bank Application
      Analyze bank problems based on Pareto analysis to find out which one among the four is causing the most problem, i.e., operator, computer hardware, control, or computer program.

3. DESIGN OF EXPERIMENT

   A. Product Application
      Sort out those few factors and interactions among many factors that are causing problems.

B. Bank Application

When operator, computer hardware, control procedures and computer program are interacting they can be sorted out by this technique. Figure 2 shows such an arrangement.

		COMPUTER RELATED			
		YES		NO	
		OPERATOR RELATED		OPERATOR RELATED	
COMPUTER PROGRAM RELATED	CONTROL RELATED	YES	NO	YES	NO
YES	YES				
	NO				
NO	YES				
	NO				

FIGURE 2

Typical Layout of Design of Experiment
(2^4 = 16 Blocks Data Collection Layout)

4. FAILURE MODE & EFFECTS ANALYSIS

A. Product Application

This technique looks at possible product failure modes, examines their effect on system, rates these failure modes on the basis of priority and specifies danger action that will prevent problem occurance or will minimize the effects of failure on system.

B. Bank Application

Banks can use this technique in identifying possible failure modes with computer systems and should develop procedures to deal with failure modes.

Some of the failure modes and their consequences in bank computer systems are shown in Table I.

TABLE I

NO.	Failure Mode	Consequence
1	Wrong or incomplete input	1 - 2 hours rerun
2	Operator uses wrong tape file	10 minutes - 4 hours rerun
3	Computer disk problem	Slowing of production for a period of several days
4	Computer program logic failure	Production of affected system stops until defect corrected

A detailed Failure Mode and Effects Analysis form is shown in Figure 3.

FAILURE MODE	CAUSE OF FAILURE	EFFECTS OF FAILURE ON SYSTEM	PRIORITY OF DEVELOPING PROCEDURE TO PREVENT A PROBLEM OR MINIMIZE ITS EFFECT				IDENTIFIED PROCEDURE TO SOLVE THE SITUATION
			HOW OFTEN PROBLEM CAN OCCUR 1-10 A	HOW SEVERE IS A PROBLEM 1-10 B	CAN ITS OCCURENCE BE PREDICTED 1-10 C	PRIORITY A x B x C	

FIGURE 3

Failure Mode and Effects Analysis

5. PROCESS CAPABILITY STUDIES

A. Product Application

Processes are generally measured to assess their capability to meet the product specifications before such processes are applied in production.

B. Bank Application

Computers produce computer outputs. Generally, "capability" as defined for production machines is not of concern in assessing computers. What is important, however, is how often computers breakdown and how quickly they can be restored to normal operation. The parameter that measures the effect of breakdowns and repair time is called "availability" and is defined as:

$$\text{Availability} = \frac{\text{Measure of Frequency of Breakdowns}}{\text{Measure of frequency of breakdowns} + \text{Measure of repair time}}$$

Computer manufacturing industry has not grasped these ideas to the fullest extent and therefore, they will neither supply "availability" data nor would agree to assess the "availability" of computers by buyers. However, at the receiving end, the computer breakdowns cost lots of money and are often the cause of poor productivity. Banks being the large customers, have a leadership role to play, in insisting that "availability" parameters be supplied during purchase of the equipment. Only then may computer System A versus B be compared.

6. QUALITY INFORMATION SYSTEMS

A. Product Application

A quality information system serves the purpose of collecting quality related information such as scrap, rework, warranty, etc. and provides analysis of this information to generate indices that represent the product quality related costs. These indices help distribute quality efforts in appropriate functional areas toward productivity improvement. These information systems are generally computerized.

B. Bank Application

Banks can develop quality information systems to track time delays, overtime paid, and other quality (productivity) related indices. Such indices can serve the purpose of establishing future goals for productivity improvement.

7. QUALITY MANAGEMENT, ORGANIZATION, PEOPLE AND MOTIVATION

A. Product Application

Quality organizations are generally established based on a "check and balance" theory. Theoretically, this should accomplish a good balance between quantity and quality. Quality organization is also involved in monitoring quality related problems and also in assisting in the solution or prevention of such problems.

Management of quality organization is generally independent of production organization. However, small businesses do not strictly follow this philosophy.

People selection in quality organization is extremely difficult. First of all, there is a shortage of trained people. Secondly, business environment always leans toward quantity as opposed to a good balance between quantity and quality. Even the most competent quality professionals feel frustrated in resolving

this situation.

Motivation for quality has been the toughest issue of all; with the biggest problem being company policy. Instead of quality being a requirement, it becomes a trade-off item in many decision making situations. As a result, management, organization and people are not committed to improving quality.

B. Bank Application

Quality organizations in banks are yet in the development stage, with perhaps few exceptions. Banks have a tremendous opportunity to do it right from the very beginning and they can learn from the same difficulties and current issues in product related quality organizations.

Quality management in banks can easily be line managment, rather than "check and balance" management. "Check and balance" management almost always invites adversary relationships. However, a careful management organized in "produce → check → produce", fashion is likely to obtain the best results.

People selection for quality organizations should look for at least the following two attributes in potential candidates:

(1) Basic Knowledge in computer systems operations

(2) Introductory knowledge in quality control methods.

Motivation for quality (productivity improvement) does not depend on company policy alone. It also needs awareness of productivity costs that are related to banking operations, coupled with the basic knowledge that quality disciplines can help improve the productivity situation.

SUMMARY

WHERE? - Computers are identified as being the main source of quality related (productivity) problems in the banks. These problems fall into the following categories:

1. Computer programs - software
2. Computer hardware
3. Control systems
4. Operators

WHY? - These problems contribute to quality costs (low productivity) in terms of: (1) Overtime costs (2) Computer equipment cost (3) Delay costs (4) Low work efficency as a result of frustration in dealing with the problems, etc.

HOW? - To improve quality (productivity), parallel situations from product industry are compared with the banking industry. Methods, management, organization, people selection, motivation and quality information systems are shown to be vital keys to unlocking increased revenues.

The banking industry can gain significantly by learning from product industries' progress, problems and current issues in dealing with productivity related problems.