

# QUALITY MANAGEMENT IN GRAPHICS IMAGING

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## ABSTRACT

Quality Management is considered as a structure for the application of the many disciplines which are employed and which influence the Imaging Industry. The Elements which make up the Industry are described and the future implications are considered.

## INTRODUCTION

The printing and publishing industries, in recent years, have shown a growing and expanding interest in the subject of Quality, its meaning and achievement. (*Ref 1*)

Quality Management, rightly or wrongly, has developed as a business discipline in its own right and there are now a number of recognised “gurus” who have defined many of the principles which may be employed. (*Ref 2,3*)

The use of quality management in the Graphic Arts sector is a recent development and it is now that the implications of the approach, in terms of disciplines and culture change are being fully appreciated.

This discussion aims to show the relationship between the structure of formal Quality Management and the Pre Press sector of the industry.

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## THE CUSTOMER

The basis of Quality management is to achieve  
“Customer Requirements”  
while maintaining control within the organisation.  
This raises the question “who is the customer”

and this may be asked of

- an individual
- a department
- a company
- a division
- a corporation

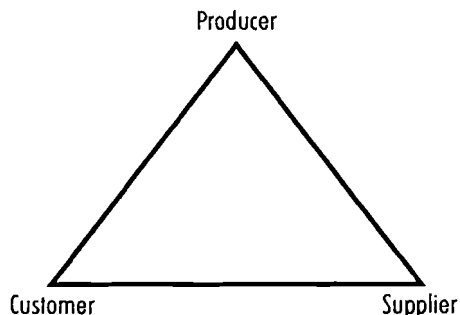
Customers can therefore be

- Internal or External

to an organisation or individual. In addition, each function listed can be at one of three positions in the “Triple Role” of

- the customer
- the supplier of components
- the producer of goods

which positions activities in the structure of  
“Quality Management”  
or  
“Total Quality Management”



*Fig1 The Triple Role*

The difference between QM or QA (Quality Assurance) and TQM being the span of the activities affected under the respective titles.

## **STANDARDS**

Quality Management as defined by the ISO 9000 series of standards is a framework of

- Policies
- Elements and
- Procedures

which together, when correctly applied, establish and maintain ie “ assure ” the ability of a unit to function efficiently over time.

The Standards contain twenty elements, extending from Responsibility to Statistics and relate to any industrial production process or service. Graphics Imaging fits naturally into this area.

The Elements are

- 1 - Responsibility
- 2 - Structure
- 3 - Contracts
- 4 - Design
- 5 - Documentation
- 6 - Purchasing
- 7 - Supply
- 8 - Traceability
- 9 - Process Control
- 10 - Testing
- 11 - Test Equipment
- 12 - Test Status
- 13 - Non conformance
- 14 - Correction
- 15 - Handling
- 16 - Records
- 17 - Audits
- 18 - Training
- 19 - Servicing
- 20 - Statistics

The numeric reference relates to the appropriate section of the Standard.

## **GRAPHICS IMAGING**

The term Graphics Imaging in this context spans the Pre-Press area of imaging but the principles can equally be applied to later processes. Functions in Pre Press, particularly in electronic pre-press can be described generically as

- Design
- Image Capture
- Manipulation
- Assembly
- Distribution
- Production

and each of these functions needs to co-ordinate with

- Standards
- Specifications
- Instructions
- Controls
- Operations

in order to meet the “ customer requirements ” and business objectives. Each function or activity thus needs a structure where it has “ assurance ” that the operation has been carried out to the necessary level so that

“ Right things are done ”  
and  
“ Things are done right ”

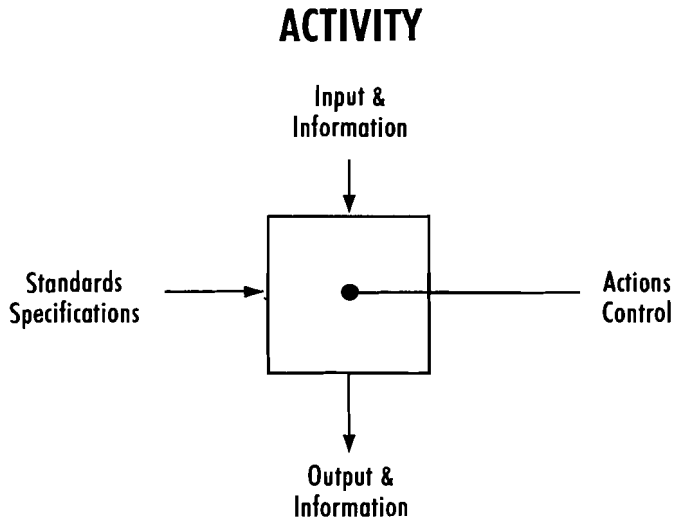
The list of elements also implies that the process of production is only part of the structure to obtain “ Quality ”.

## **THE ACTION PLAN**

All manufacturing operations – including written work instructions – must be carried out under controlled conditions. If operations are omitted or not executed the result may be products of below standard quality from one or more aspects.

The control also applies to inspection, testing and the equipment used to carry out these activities. The implementation of these duties require the identification and recording of items in the production flow thus adding to the control of the process.

The establishment and maintenance of controlled operations requires an action plan so that all the people involved know what is required of them. Each activity therefore has a structure which follows the pattern shown below.



*Fig 2 Action Plan Structure*

The relationships between the operations of a production unit were described earlier. (Ref 4)

The illustration shows the necessary combination of actions and information flows in an operation. Each operation therefore has a responsibility to both previous and following operations to obtain and supply the necessary information and control the operation itself.

The description given above would appear to be no more than is needed to carry out the activity in any case. This is true except that the process is put in a formal context. By establishing a formal structure the confidence and "assurance" that the process is carried out in a prescribed manner is achieved.

In addition, if the formal structure is known, any potential improvements can be examined to show whether they offer any advantage for a given set of circumstances. The cost and financial implications are implicit in the establishment of Quality Management so that there is a direct link to commercial performance.

## QUALITY MANAGEMENT IN GRAPHICS IMAGING

The previous description enables the Pre-Press functions to be related to quality management.

Each of the functions has a group of “parameters” which need to be structured to permit control. These are outlined here.

### Design

Specification  
Standards  
Perception  
Colour Space  
Data Transfer

### Input

Specification  
Standards  
Data Transfer  
Colour Space

### Manipulation

Specifications  
Standards  
Colour Space  
Perception  
Data Transfer

### Assembly

Specifications  
Standards  
Imposition  
Data Transfer

### Distribution

Standards  
Communications  
Data Transfer

### Production

Specifications  
Standards  
Imaging  
Proofing

## SYSTEMS

It will be clear from the above that the description and outline given are particularly related to electronic pre-press operations and that many of the function parameters have a common theme.

Coordination of all the functions is a prime requirement of the process as discussed earlier. The establishment and use of Specifications and Standards is thus a means of simply defining parameters in an operation together with their measurement and control.

This means that the technology may be transparent and that the focus of the production activity can be towards the creative, production and control areas.

## **PRODUCTION**

Given that the system is defined, the ability to produce work is then limited by the internal efficiency of the unit. It is in this area that the use of quality assurance principles will be of most benefit and will require skills of a different kind from those traditionally associated with a production unit. The principles involve all the people in the production chain. A detailed examination of the QA elements is not possible in this discussion but the need for instructions to be

- complete
- clear
- available
- understood

is a vital part of the production cycle. Failure to adhere to these requirements will lead to constraints in terms of

- time
- quality
- cost

which directly affects the agreed quality requirements. It will be seen that this also has a direct connection with the other elements in the quality chain such as training and audits of activities or operations.

Success in Image Quality Management will result in

- quality .. for the customer
- cost efficiency .. for the producer
- satisfaction .. for the individual

## **PROGRESSION**

This discussion has emphasised the Strategy and Structure of Quality Management as it relates to the Graphics Imaging area.

The development and application of IT ( Information Technology ) in Graphics Imaging will require an increasing involvement in the field of quality management.

As the amount of data rather than “Tangible Products” develops the management, handling and control functions will become of critical importance in the effective operation of units in the industry. This will breed a new skill and discipline which will become a controlling factor in the graphics business arena.

## **REFERENCES**

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