



DIGITAL PRINTING: QUALITY CHALLENGES IN INDIA

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Abstract: *In the wake of technical shortfalls one needs to have a out-of-box approach towards quality issues to achieve highest standard results in Digital printing .To understand these issues one needs to follow the 'best design approach' to achieve optimum, if not outstanding results. The survey findings in this regard indicate that digital printing processes are plagued with inherent quality related issues. The demerits of Digital print mostly linked and result from technical constraints such as reliability and availability. One other factor associated is the print speed and technological quality of digital printers, but more than often consistency related problems are observed more in Digital printing processes. The service providers in this field should be equipped with more tools and standards (SOP*s) for addressing these problems. While studying procedures for prevention of these defects/ demerits; the service providers should have formal hands-on training for adopting quality assurance procedures. This will enable them to deal with frequent and severe print demerits/ defects that arise. There also should be formal procedure (SOP*) for documenting customer's quality requirements.*

[* SOP- Standard Operating Procedure]

Keywords: *Digital print, Quality requirements, Customer satisfaction, Business strategy.*

Introduction

Digital printing processes depend on the use of certified paper to perform to their best capacity. Any adjustments that need to be made to the actual press require the intervention of technical support personnel other than the press operator. As digital printing materials are not yet standardized, they have great impact on digital printing and require material standards. It has been verified that digital printing substrates are critical to the quality of the image; however, as stated above, there are currently no standards for testing digital printing substrates. Regarding digital color reproduction, there is needed to establish basic target values and tolerances for colorimetric and technical properties of digital presses. The study examines properties such as digital reproducibility, registration, spatial and temporal color variation. The current status of digital printing demonstrates that digital print attributes and the assessment of these attributes are not well established. With the new activity in the development of digital printing standards, there is little knowledge examining how customers express their print quality

requirements. The objectives of this survey were to throw light into these areas.

Objectives:

Given the absence of digital standards and the growing need to objectively quantify digital print quality, a survey was conducted with the following objectives:

1. To investigate significance of digital print services.
2. To determine quality requirement practices used in the digital printing industry.

Hypothesis

1. The customers are satisfied on the "Overall Performance" of digital printing.

Approach / Research Methodology

This research had four major stages.

1. Data Collection: A data base was constructed of digital printing services providers in Kolhapur district using resources from the printing organizations, digital printing companies' official websites, and journals. This allowed the research team to determine which digital printing services providers were appropriate to participate in the study.

2. Survey: A survey questionnaire was developed and was sent to the 150 customers of digital printing services
3. Interview: Face-to-face interviews were conducted with 50 selected digital print service providers.
4. Analysis of the Results: After gathering the results from the survey questionnaires and the

interviews, the key findings and conclusions were made.

Results:

The online survey and interview was launched and 150 customers responded to the survey and 50 service providers faced the interview. At the close of the survey, the gathered data was compiled and analyzed. The following charts provide a perspective of the results.

1. Frequency and Severity of Print Demerits

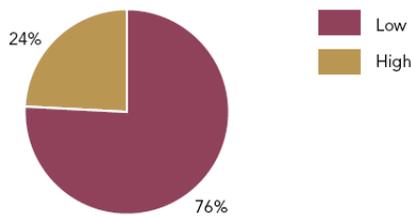


Fig1. Frequency of print demerits

Service providers were asked to rate the frequency and severity of quality issues which they experience on a scale of 1 to 5, where ‘1’ indicates low frequency or severity and ‘5’ indicate high frequency or severity. As seen in Figure1, 74%of the digital print respondents signified that the frequency of print demerits is low.

2. Customer Quality Requirements

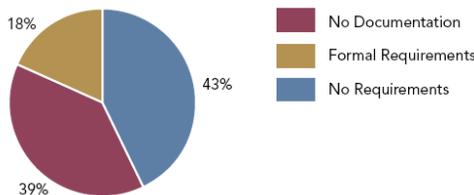


Fig1. Customer Quality Requirements

Service providers during the interview were asked to indicate how customers were expressing quality requirements. As seen in Figure 2, 43%of digital print providers indicated that no quality requirements are expressed. 39% indicated that quality requirements are expressed, however nothing is documented and 18% indicated that there is a formal quality procedure.

3. Handling of Severe Print Demerits

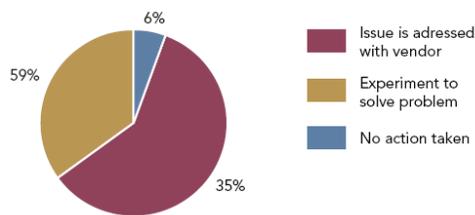


Fig 3. Handling of Severe Print Demerits

Service providers were then asked to identify how print demerits which are frequent or severe are handled. As determined from the data gathered and as shown in Figure 3, 35% noted that print demerit issues were addressed with either the technology providers or the consumable providers, 59% purported that they experimented to find solutions and 6% of digital providers communicated that nothing was done about print demerits that were deemed frequent or severe.

4. The Mean of the Satisfaction Levels to the Digital Printing

Particulars	Total Mean
	$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$
1. Print Speed	3.34
2. Reliability	3.24
3. Availability	3.24
4. Print Quality	3.48
5. Print Consistency	3.00
6. Overall Quality	3.26
	n=150

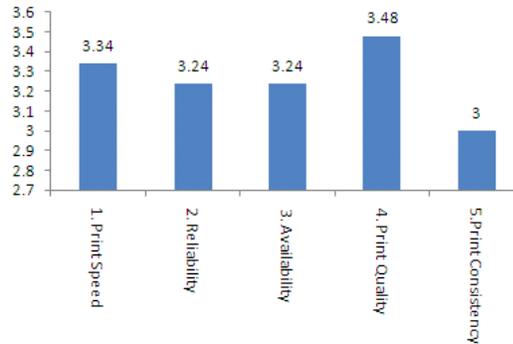


Fig 4. Satisfaction levels

Customers were asked to rate the satisfaction level to the quality parameters of digital printing on a scale of 1 to 5, where ‘1’ indicates low satisfaction and ‘5’ indicate high satisfaction. There are several items that the customers are satisfied about (**Mean scores are greater than 3.00**), such as “Print speed,” “Reliability,” “Availability,” and “Print Quality.” The “Print consistency” is just about the average (**Mean = 3.00**). This level of response means that digital printing services providers are not satisfied or dissatisfied about this aspect, overall.

As noted in above table, the overall performance is calculated as a mean of all the attributes (**Mean = 3.26**) which indicates hypothesis, “The customers are satisfied on the Overall Performance” is accepted.

Key Findings

The data gathered from the survey and interview paints a picture depicting the occurrence of print defects, the relationships customers and their print providers have with regards to print quality, and the print defects which are the most problematic. The key findings of the survey and interview can be summarized as such:

- The majority of the service providers (76% of the digital printing providers) indicated that the frequency of print demerits they experience is low.
- Less than 25% of the service providers using digital print processes indicated that their customer quality requirements are documented.

- Print consistency was found to be in the top most quality issue for digital printing processes.
- Digital Print providers whose customers have formal quality requirements tend to solve print quality problems by experimenting on their own.

The Business Strategies to fulfill the Needs for Customers

Interviews with owners of digital printing services give us a clear view of the strategies they should have. They are:

- Keep good relationships with clients. From the feedback of customers, they are pleased with the overall quality of digital printing.
- Keep updating the new digital printing technologies. Pay attention to print trade shows, magazines, and journals, as well as the academic research, printing organizations, or associations to gain new knowledge.
- Focus on customers’ wants and needs. Print speed, Reliability, Availability, Print quality are the major issues that consumers care about. Customers are the ones who decide whether the product quality is acceptable or not. Unfortunately, the digital printing presses have some problems with consistent printing.
- Provide different platforms, supply chain, and printing services (**E-commerce**) to meet the needs for customers if the company is large enough.

Conclusion

Since the digital printing industry has already at its tools for measuring and monitoring digital print demerits, the path forward needs focus on how digital technology providers can address print problems within their own proprietary. In addition,

the path forward will also need to focus on what the printing industry as a whole will do to bring about standards and procedures for monitoring and measuring quality within the digital printing environment.

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