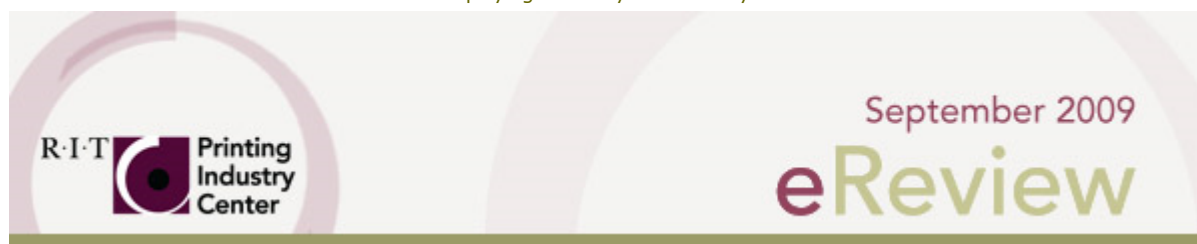


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[Lithographic Troubleshooting](#)

## Implementing Lean Manufacturing into Newspaper Production Operations - Part B

This month's research summary is the completion of "Implementing Lean Manufacturing into Newspaper Production Operations," a graduate thesis by Marianne Engum, a former graduate student in the [RIT School of Print Media](#). Last month, we began with a summary of the Introduction and Literature Review ([see Part A](#)). This month, we will finish with a look at the research objectives, methodology, and research results.

### Research Objectives

This research project sought to determine the level of knowledge of lean manufacturing within the newspaper printing industry, as well as to identify the benefits of implementation. The scope of this research was global in nature, with a focus on newspapers in North America. The printing operations, distribution, and management of these newspaper printers were all studied.

Specific research objectives were as follows:

1. Identify the general knowledge of Lean Manufacturing within the newspaper industry.
2. Identify areas where newspaper printers can reduce or eliminate waste by implementing the principles of Lean Manufacturing.
3. Explore the best approaches for implementation of Lean Manufacturing principles at a newspaper printer.

### Methodology

#### Survey Design

The first section of the survey was designed to obtain information about the newspaper's demographics, circulation, and parent organizations. The second section aimed to find the most important trends in the industry, the respondents' knowledge about Lean, and whether or not the company has received Lean training. In the last question of this section, the survey took the respondents in one of three different directions, depending on their level of Lean implementation

**October 20, 2-3 pm EST**

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#### **Sample Fast Fact:**

**Newspaper advertising remains the leading advertising medium cited by consumers in planning, shopping and making purchasing decisions**, according to early data from a MORI Research survey of more than 3,000 adults, conducted on behalf of the Newspaper Association of America (NAA).

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The *eReview* is a monthly publication of the Printing Industry Center at RIT for registered Affiliate companies. Articles are also published in the quarterly printed publication *PrintReview*.

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### **Subscriptions**

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using the "skip logic" provided by the online survey hosting tool.

### **Data Collection**

The data for this research was collected from an online survey. An American trade publication, *Newspapers and Technology*, posted a link to the survey in their "Dateline" publication, which was sent out on Mondays during January 5 to February 16, 2009. The same journal also had a short description of the research and a link to the survey in their printed February 2009 edition. The survey was also sent out by email to every newspaper printer in Norway with help from Bjørn Wisted of Papirkjøp AS, which is owned by the Norwegian Media Businesses' Association. EW Scripps, one of the major newspaper companies in the US, sent the survey out to all of their newspaper printers in the US.

The final number of respondents was 69. However, only 51 respondents completed the entire survey. Five of the 69 respondents had to be excluded due to incomplete information and redundancy (two respondents from the same company).

Based on the results, the respondents were divided into three groups for further analysis: those who have implemented Lean in their production (Group 1), those who have plans for implementation within 2-3 years (Group 2), and those who have no plans for implementation (Group 3). Two participants from each of the three groups were then chosen to be a part of a more in-depth study. The purpose of the in-depth studies was to compare the utilization and management of newspaper printers with and without some implementation of Lean Manufacturing tools. (The in-depth studies are not included in this summary. [To read the full thesis, please visit the RIT Digital Media Library.](#))

### **Research Findings**

#### **Demographics**

Table 1 shows where the companies are located. The majority of the respondents were from the United States, Norway and Canada. Of the 64 respondents, 61 gave their circulation data, which is shown in Table 2.

#### **Table 1. Location of Companies**

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## About the Center

Dedicated to the study of major business environment influences in the printing industry precipitated by new technologies and societal changes, the Printing Industry Center at RIT addresses the concerns of the printing industry through educational outreach and research initiatives.

Support for the Center comes from:

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Country	Respondents	Percentage
USA	40	62.5%
Norway	12	18.75%
Canada	6	9.38%
India	1	1.56%
Russia	1	1.56%
Venezuela	1	1.56%
Argentina	1	1.56%
Columbia	1	1.56%
UK	1	1.56%
<b>Total</b>	<b>64</b>	<b>100%</b>

**Table 2. Circulation Data**

[click to see image full size](#)

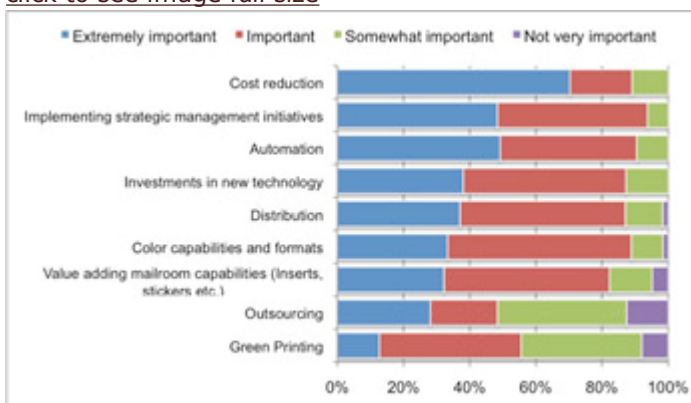
Circulation	Respondents	Percentage
< 10,000	5	8.2%
10,000-50,000	20	32.8%
50 - 150,000	17	27.9%
> 150,000	19	31.1%
<b>Total</b>	<b>61</b>	<b>100%</b>

## Trends in Newspaper Operations

Respondents were asked what they considered to be the most important trends in newspaper production operations today. The responses are shown in Figure 1, and are arranged by ranking. The question used a four-point scale, with 4 as "Extremely Important" and 1 as "Not Very Important." Respondents were also able to provide alternative answers, which included strategic analysis of overall processes, cross-training staff to perform multiple functions, revenue, and long-term strategies within decision processes for the future as being other important trends.

**Figure 1. Trends in the Industry**

[click to see image full size](#)



## Lean Manufacturing

Respondents were asked about their company's knowledge of lean manufacturing concepts, the amount of training their company had received on Lean, and if Lean has been implemented in any locations that the company owns. Based on the results, the respondents were then divided into three

groups for further analysis as described previously. Group 1 had 8 respondents, Group 2 had 17 respondents, and Group 3 had 26 respondents.

Tabular responses from these groups are not shown here, but comparisons of their responses are discussed in the next section. (To read the full thesis, please visit the [RIT Digital Media Library](#).)

## Discussion of Research Findings

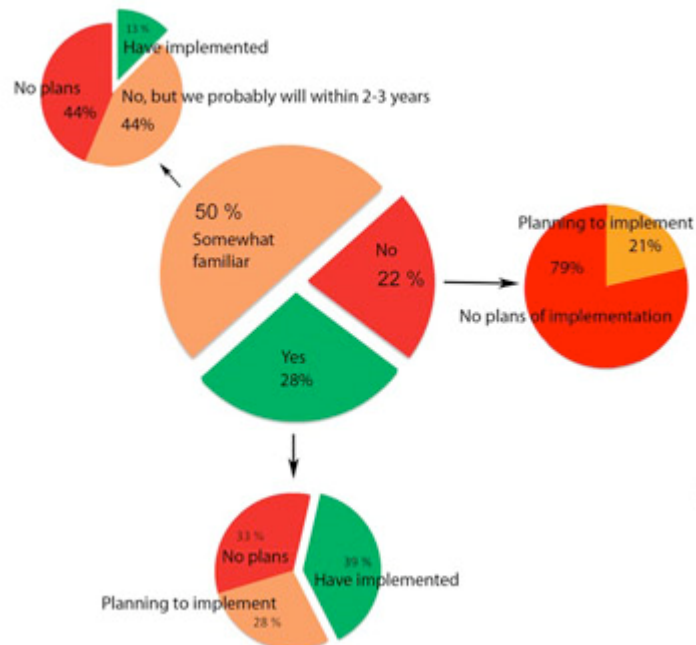
### Knowledge of Lean Manufacturing in Newspaper Production Operations

The first objective of this research was to determine the general level of knowledge of Lean Manufacturing within newspaper production operations. Many newspaper printers are somewhat familiar with the Lean concepts, but many are not aware of its advantages and do not see how it could improve their organization.

From a total of 64 respondents, 48.44% have no plans for Lean implementation, while 17.19% have implemented some degree of Lean Manufacturing into their production operations. In addition, 28.1% are familiar with Lean Manufacturing, 50% are somewhat familiar, and 21.9% have no knowledge about Lean Manufacturing. An illustration of the level of knowledge correlated to the level of implementation is shown in Figure 2.

**Figure 2. Knowledge of Lean Manufacturing and Level of Implementation**

[click to see image full size](#)



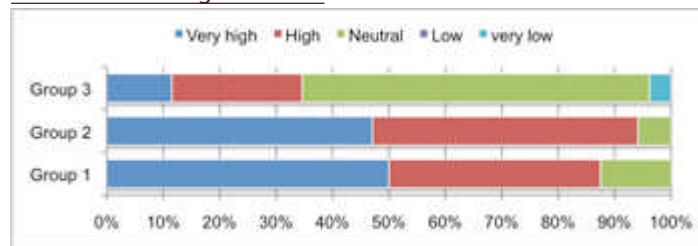
Although it seems that there is a fairly high level of knowledge of Lean concepts, only 17.2% have actually implemented some degree of Lean Manufacturing in their operations. The assumption can be made that potential respondents with no

knowledge of Lean concepts may have chosen not to complete the survey. If this assumption is correct, then the level of newspaper printers with Lean applied to their operations can be expected to be lower than 17.2%.

The respondents were asked to rate the importance of Lean Manufacturing on a five-point scale from "Very high" (5) to "Very low" (1). Groups 1 and 2 had a much higher rating average than Group 3, as shown in Figure 3. It is clear that Lean organizations rate its importance more highly than organizations without Lean. This indicates that newspaper printers with no plans for Lean implementation may not be aware of the advantages of Lean Manufacturing and how Lean principles can help their organizations.

**Figure 3. Importance of Lean for Future Success**

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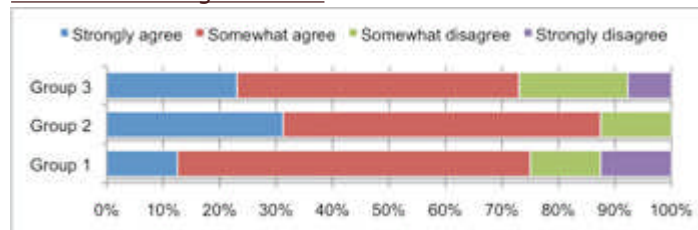


**Lack of Knowledge as an Obstacle for Implementation**

Lean companies (Group 1) rated "Lack of knowledge and implementation know-how" as their biggest challenge with Lean implementation. However, their average rating is still lower than that of the other groups for this challenge. This indicates that the challenges with implementation might not be as significant as newspaper printers fear before they start the implementation process.

**Figure 4. Lack of Knowledge Being an Obstacle for Implementation**

[click to see image full size](#)



**Areas where Newspaper Printers Can Reduce Waste with Lean**

When discussing waste reduction, it is essential to remember how waste in Lean thinking is specified as any human activity that absorbs resources, but does not directly add value. Waste is not only the traditional print waste, but also waste from waiting, time wasted due to long changeovers, work-in-progress, warehousing, downtime, people moving around, under-utilized resources, or waiting for payments (Huskins, 2007; Cooper, Keith, & Macro, 2007).

Of the newspaper printers who have implemented Lean (Group 1), 75% "strongly agree" that "decline in non-value added activities and reduced waste," as well as "Change in culture within the organization" have been major benefits with implementation. 62.5% also "strongly agree", and 25% "somewhat agree" that they have had a significant reduction in costs, which may be a direct result of waste reduction. When the respondents were asked to rate the four listed benefits, "Elimination of non-value work" was rated the highest by 57% of the respondents. The average ratings are:

- Eliminated non-value work (3.29/4)
- Increased customer satisfaction (2.75/4)
- Reduced inventory (2.14/4)
- Reduced changeover time (1.67/4)

These results show that most of the newspaper printers who have implemented some degree of Lean into their operations have experienced a reduction in or elimination of non-value added work, and therefore, a reduction in waste.

### **Implementing Lean Manufacturing**

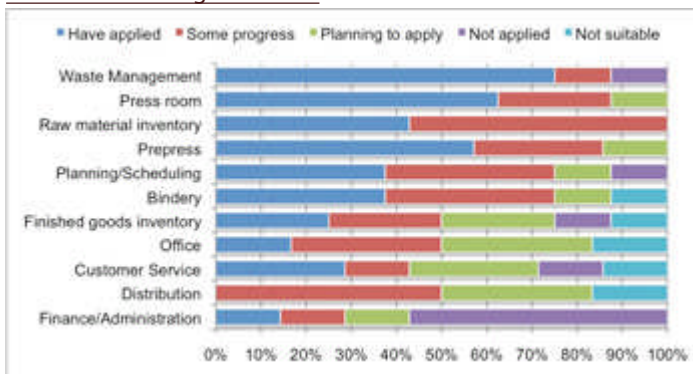
No matter the approach for Lean implementation, it is extremely important to have a clear vision of what you want your business to become. Training is a number one key word, together with engaging and focusing on people (Ginn and Finn 2006; Cooper et al, 2007; Hall, 2009; Ambor, 2009). Regardless of the path of implementation, if tools are implemented without corresponding changes in management style, the benefits gained will not be continuous. The management needs to spend as much time in enforcing cultural changes as it does on implementing the actual tools. Being successful with Lean requires dedicated senior-level leadership (Markey, 2009).

It is important to know that implementing Lean is not something that a company does once; it is an ongoing process. Even Toyota, which has been working on Lean for decades, still does not consider itself to be Lean enough. It is all about the mindset. It is not rocket science, but a change in the way of thinking.

Before any newspaper printer decides to implement Lean, a comprehensive evaluation of the current state of production processes and operations needs to be done. This will include evaluations of the capabilities of today's equipment, process performance, and the effectiveness of methods used. Figure 5 shows the areas where Lean concepts have been applied among companies who have implemented Lean (Group 1).

**Figure 5. Areas with Lean Implementation in Group 1 Companies**

[click to see image full size](#)



**Challenges with Lean Implementation**

Table 3 shows how the three groups rated the listed challenges; the gray area illustrates the highest rating average from each category. The challenges were rated on a four-point scale, with 4 representing "Strongly Agree" and 1 representing "Strongly Disagree." Averages below 2 suggest that the majority disagrees that the challenge listed is important.

**Table 3. Average Ratings of Challenges in All Groups**

[click to see image full size](#)

Answer Options	Group 1	Group 2	Group 3
Financial constraints	2.13	3.13	2.77
Backsliding to the old way of working	2.00	2.93	2.38
Employee resistance to change	2.50	3.25	2.46
Involvement in other projects	2.25	2.93	2.92
Lack of training/Cost of training	2.63	3.19	3.00
Lack of knowledge and implementation know how	2.75	3.19	2.88
Lack of resources	2.38	2.69	2.96
Lack of management commitment	2.38	2.56	2.42
No clear benefits/hard to apply in this industry	1.88	2.06	2.35

**Conclusion**

Major changes are occurring in the newspaper industry. Newspapers are going out of business, moving to online-only publications, reducing their publications from dailies to weeklies, cutting staff, or paying their employees less. Since January 2008, at least 120 newspapers in the U.S have shut down (Chen, 2009).

To be able to survive in this market, the newspaper industry must learn from other industries how to be cost-effective. The typical measures implemented to handle the challenges have been budget reductions, layoffs, buyouts, and reductions in the number of pages as well as page size. In general, much of the cost cutting has been exercised on the printed product itself, instead of focusing on making the production more efficient.

Making the product less attractive will result in less satisfied readers. Newspaper printers should be *adding* value to the

