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A Research Monograph of the Printing Industry Center at RIT

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R·I·T Printing Industry Center

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# Acknowledgements

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# Introduction

The World Commission on Environment and Development (WCED) was established by the United Nations to address the growing concern about issues such as environmental deterioration and depletion of natural resources. In 1987, the WCED stated (Prugh, 1999):

> "Sustainable Development means ensuring our ability to meet the needs of the present without compromising the ability of future generations to meet their own needs."

Sustainable development and sustainability involves the integration of not just environmental issues, but economical and societal as well. In recent years, there has been an increase in sustainable print activities to address these issues, from forest management programs such as the FSC (Forest Stewardship Council) to print-production certification such as SGP (Sustainable Green Printing Partnership). Accompanying this increase have been increasing innovations in ink, chemistry, printing process technology, and more.

Presently, there is a growing market for sustainable printing. Investments towards sustainability can provide long-term benefits such as cost-savings and value-added profits. Surveys have been taken in various sectors of industry to assess how companies are addressing sustainability.

"The State of Sustainability in Graphic Communications" survey was produced through a collaboration between Graphic Arts Monthly & Reed Business Research. These companies also partnered with Printing Industries of America (PIA), Specialty Graphic Imaging Association (SGIA) and the FlexoTechnical Association (FTA). The survey took place in 2008 and was updated in 2009. The results revealed awareness and adoption levels, impact on decision making, activities taken towards sustainability, and measurement and metrics used in sustainable graphic communications (Esler, 2009).

There have been several surveys within the packaging industry. The Sustainable Packaging Coalition (SPC) and Packaging Digest conducted a comprehensive research study benchmarking the state of sustainability in packaging in both 2007 and 2008 (Packaging Digest, 2008). There have also been survey efforts made by the Flexible Packaging Association (FPA) (de Guzman, 2008).

In the field of gravure packaging printing, a survey was conducted by the GAA Gravure Packaging Standards Committee, in collaboration with Rochester Institute of Technology (RIT), Gravure Association of America (GAA), and Packaging & Label Gravure Association (PLGA). The survey took place in March 2007 and sought to reveal industry perceptions about printing standards, such as process control and color management (Chung, 2007).

In today's gravure packaging industry, sustainable development efforts are fueled by consumer and retailer demands for environmentally-friendly packaging products. These demands influence the production workflow of packages on multiple levels, such as the composition of materials and the implementation of printing process controls.

The goal of this survey is to assess:

- The general view of all stakeholders regarding sustainability in the gravure packaging industry,
- The specific views of various stakeholders regarding sustainability practices within their respective areas of expertise, and
- The general views of respondents toward the development of sustainability.

The findings of this survey will reveal current industry practices and positions concerning sustainability, which will provide a background for future decisions that move towards the achievement of sustainability in the gravure packaging industry.

Stakeholders in the packaging gravure industry for this survey include the following categories:

- Customer & Buyers
- Suppliers
- Printers & Converters
- Other

# Methodology

## Sample

Gravure packaging stakeholders were identified through a collaboration with professional industry organizations in the United States and Europe. The Gravure Association of America (GAA) and the European Rotogravure Association (ERA) distributed this survey to their electronic mailing lists. The survey was also distributed directly to professional contacts in the gravure packaging industry through e-mail and phone-calls.

## Procedure

The survey was developed by the School of Print Media and the Sustainable Print Systems Laboratory. The survey was distributed online through SurveyMonkey.com, and was available from March 30, 2009 to April 10, 2009. Field-delimited data and open-ended comments were gathered and then analyzed.

Upon completion of the survey, respondents were given the opportunity to enter a drawing for one of two iPod shuffles.

### Survey Questions

Survey questions and direct results are presented in the Appendix.

### Survey Results and Analysis

The results of this survey are organized as follows: (1) respondent sample profile; (2) general views on sustainability; (3) stakeholder specific views; (4) current policies and practices; and (5) views on developing sustainability in gravure packaging. In this report, each survey question is discussed and the major findings are interpreted.

## Sample Profile

A total of 190 individuals started the survey, and approximately 63% completed all of the questions— resulting in a sample of **119 total respondents**.

### Stakeholders

As shown in Figure 1, the majority of respondents were *Printers/Converters* and *Suppliers*. The *Customers/Buyers* category includes those who are purchasing or seeking print services. *Suppliers* include those providing printers and converters with materials and equipment. *Printers/Converters* include the companies producing the final product which will be distributed to consumers. The *Other* category consists of responses mainly from those involved in educational institutions as well as a few from design and premedia services.

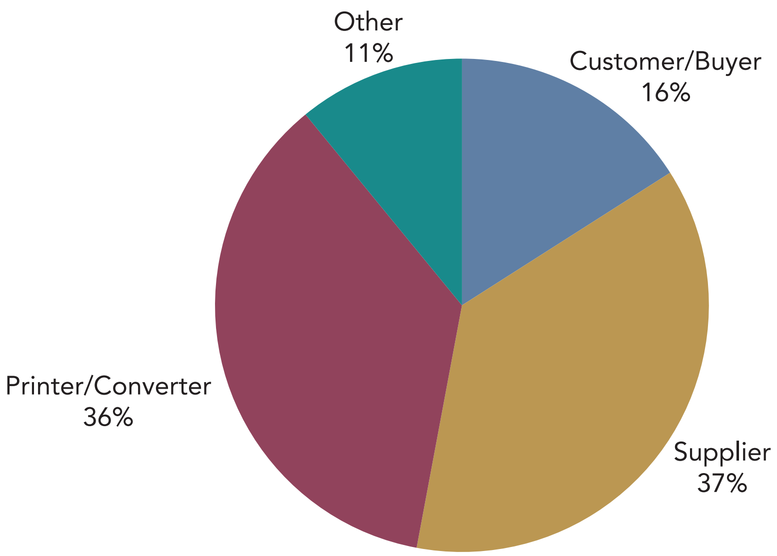


Figure 1. Respondents by stakeholder category

## Size of Company

As shown in Figure 2, 47% of respondents' companies have 1,000 or more employees, indicating that the **majority of respondents are from large companies**.

The company size breakdown for the entire sample is fairly representative of the numbers within each stakeholder category.

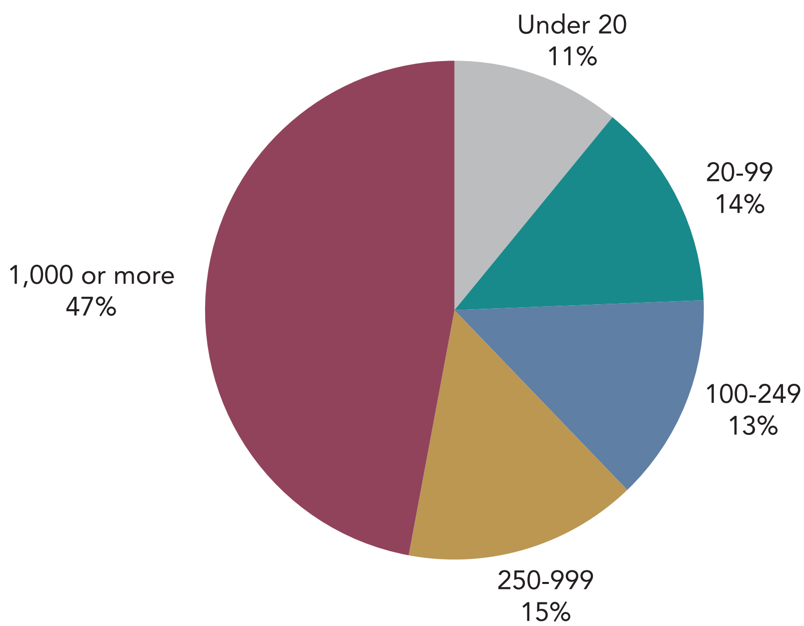


Figure 2. Respondents by company size

## Length of Time in Industry

When asked how many years they have been involved with gravure packaging products or services, a large percentage of respondents (44%) have been in business for 30 years or more (see Figure 3).

Within each category, the following patterns emerged:

- ***Customers/Buyers* in this sample are companies that are fairly young**. This could be due to the changing nature of the purchasing market. 42% have been in business for 10 years or less.
- ***Suppliers* in this sample are mainly mature companies.** 61% have been in business for 30 years or more. There is also a significant portion of younger companies, however, with 23% in business for 10 years or less.

- ***Printers/Converters* in this sample are fairly mature.** 40% have been in business for 30 years or more, with 28% in business for 21 to 30 years.
- The small sample of *Other* has no clear pattern in maturity.

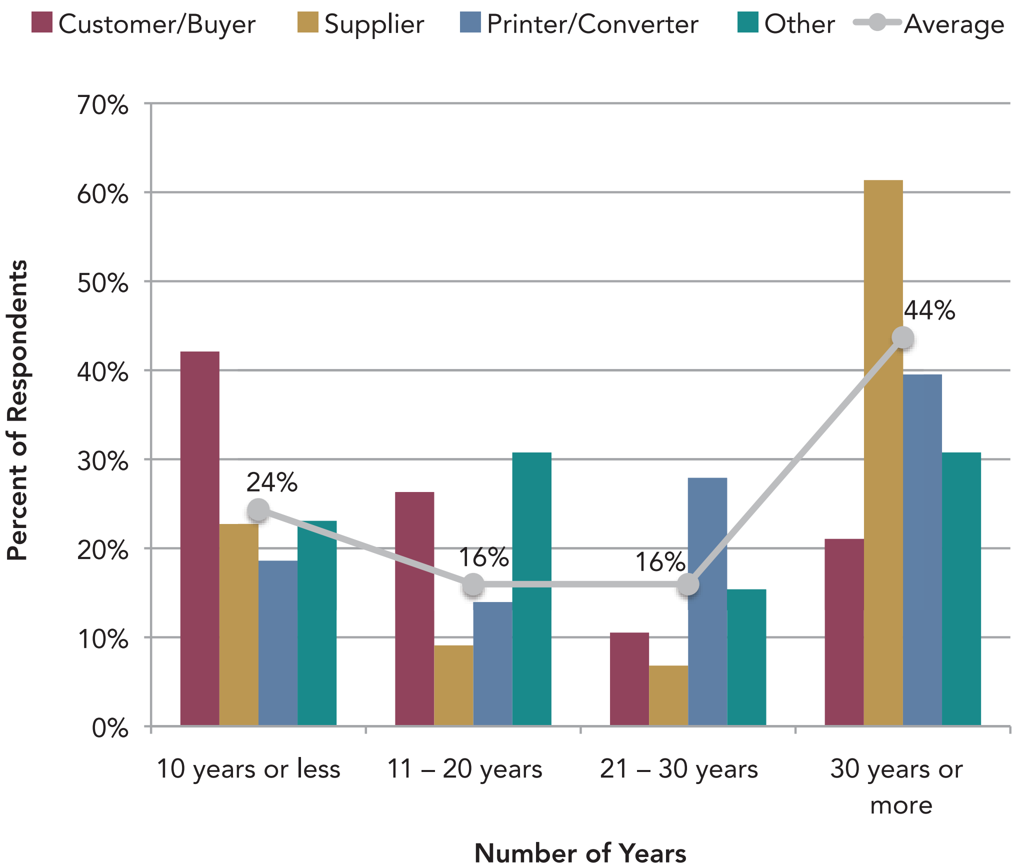


Figure 3. Number of years in business by respondent category

## Company Location

Respondents were asked where they were located and allowed to select all that applied. Therefore, a respondent could have selected one or more of the responses.

**The majority of respondents (68%) are from the United States, with 40% from Europe**. (See Figure 4.) This is likely due to the membership makeup of the two organizations to whom the survey was sent—the GAA (US) and the ERA (EU). 14% of respondents were in other locations, including Asia, Canada, Mexico, Africa, and Australia.

**Within the United States, there is a higher concentration of locations in the Midwest and Northeast compared to lower numbers of locations in the West.** There are stricter environmental laws and regulations in western states such as California, which may have an influence on the location of gravure-related manufacturing as well as buying demands.

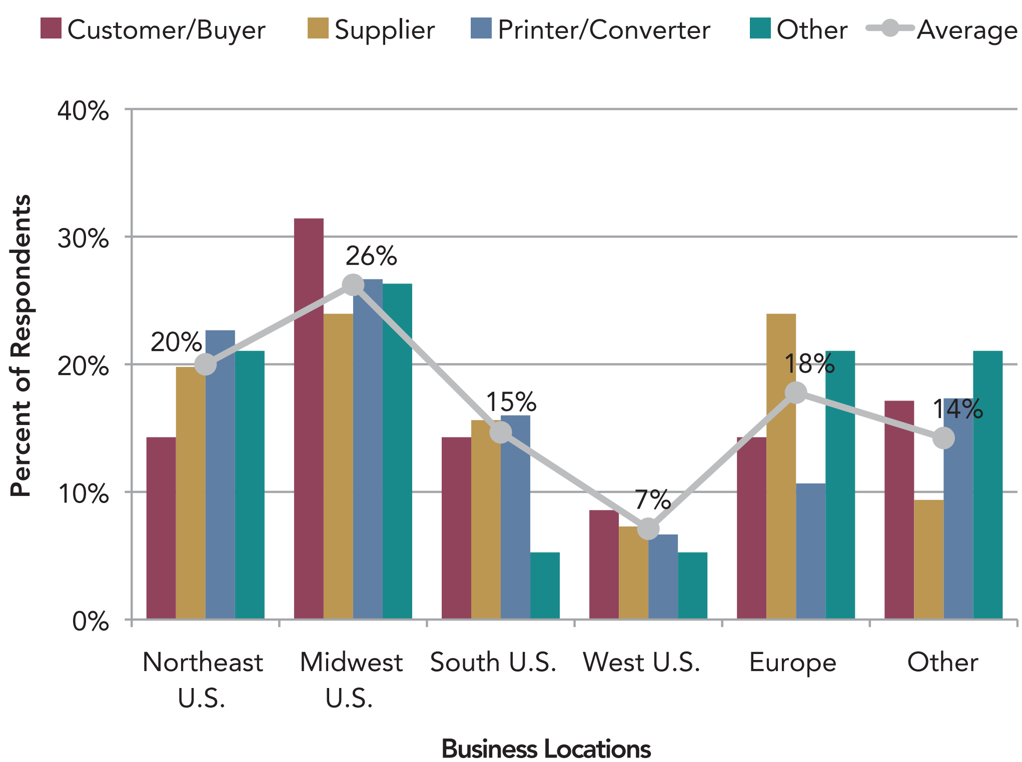


Figure 4. Geographic location by respondent category

# General Views on Sustainability

## Knowledge of Sustainability

When asked how familiar they were with the issue of sustainability within gravure packaging printing, **62% of respondents feel that they are *Moderately Familiar* or *Very Familiar***, as shown in Figure 5.

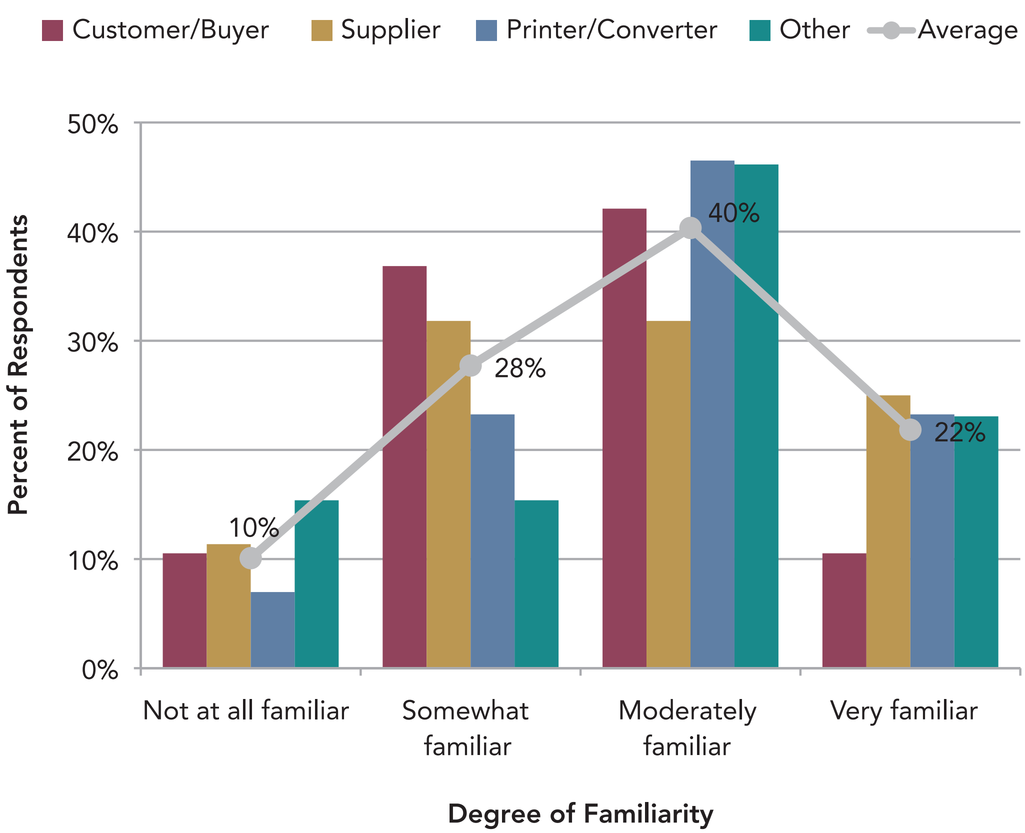


Figure 5. Familiarity with sustainability by respondent category

Of the 22% that are *Very Familiar* with sustainability, only 11% of *Customers/Buyers* selected this choice. This indicates that customers and buyers of gravure packaging may need more education and training in sustainability.

## Emphasis on Sustainability

When asked if the emphasis on sustainable printing within the past year has increased, stayed about the same, or decreased in importance, **72% of respondents say that it has increased** (see Figure 6).

For *Customers/Buyers,* the majority (89%) feel that the emphasis on sustainability has increased, and none felt that it has decreased.

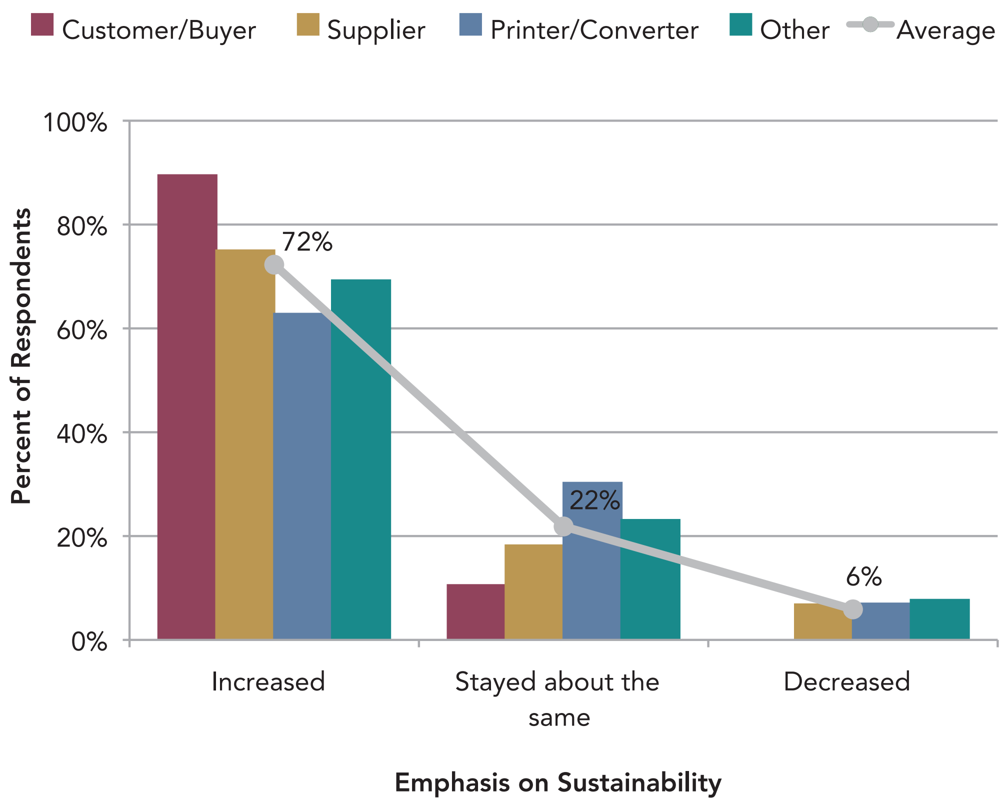


Figure 6. Emphasis on sustainability within the past year by respondent category

## Areas of Importance

When asked about the top three areas of importance in terms of sustainability, the results were (1) *Competitive quality and pricing*, (2) *Efficient use and conservation of material resources*, and (3) *Management of waste and pollution* (see Figure 7).

**The three pillars of sustainability are economic, environmental, and social**—though the latter is often of less focus than the first two. This can be observed in this sample, as the examples of social areas of importance (*customer and employee satisfaction and education*, *health and safety programs*, and *ethical labor practices*) are ranked at the bottom.

**The number one ranked area of importance is economic.** *Competitive quality and pricing* is the key to business sustainability because it allows companies to gain and retain paying customers. *Increasing productivity to lower the bottom-line* and *maximizing ROI* were ranked just before the social areas.

Environmental areas are ranked second through forth, with *management of waste and pollution* and *responsible energy use* ranked after *efficient use and conservation of material resources*. The latter focuses on cutting back early in the production stream as opposed to towards the end (waste and pollution).

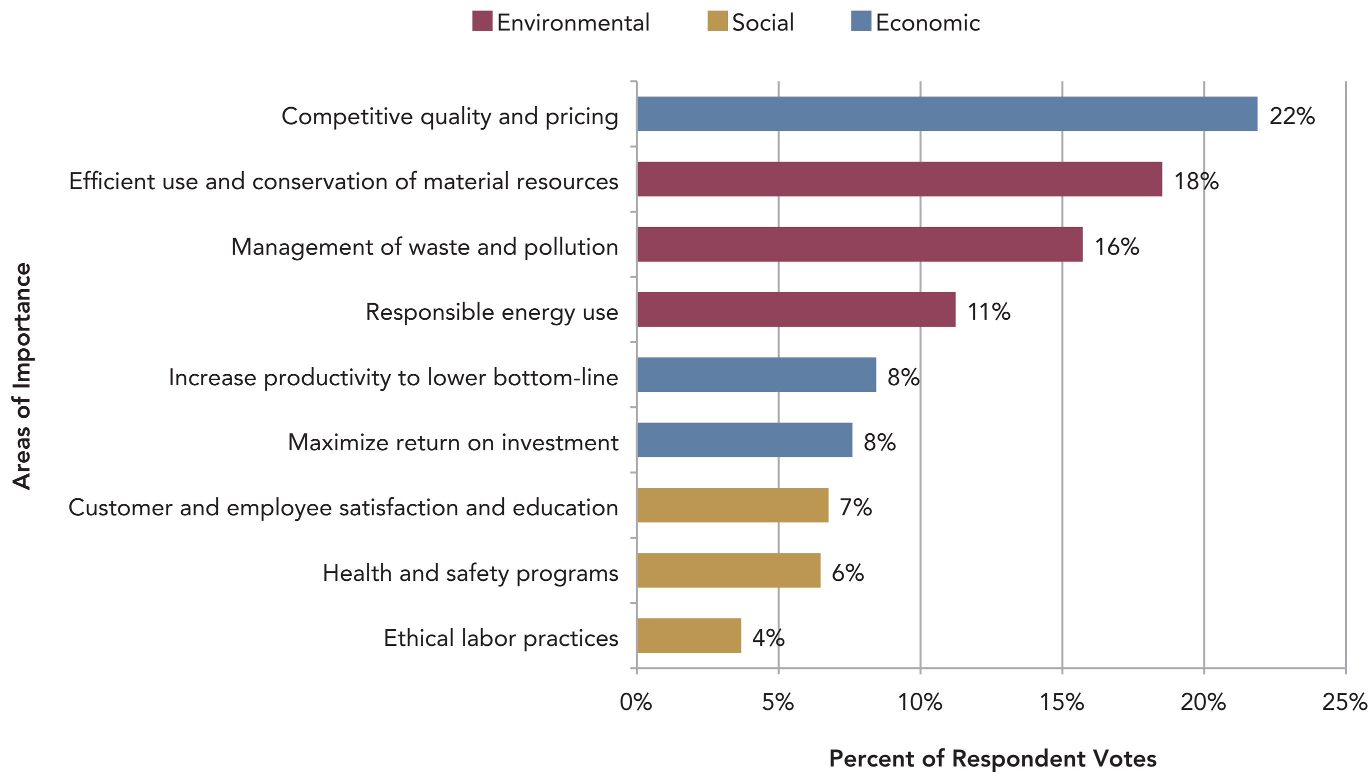


Figure 7. Areas of importance for sustainability in gravure packaging

## How Well Issues Are Addressed

As shown in Figure 8, respondents were asked to assess the degree to which gravure sustainability in packaging printing is addressing environmental, social, and economic issues.

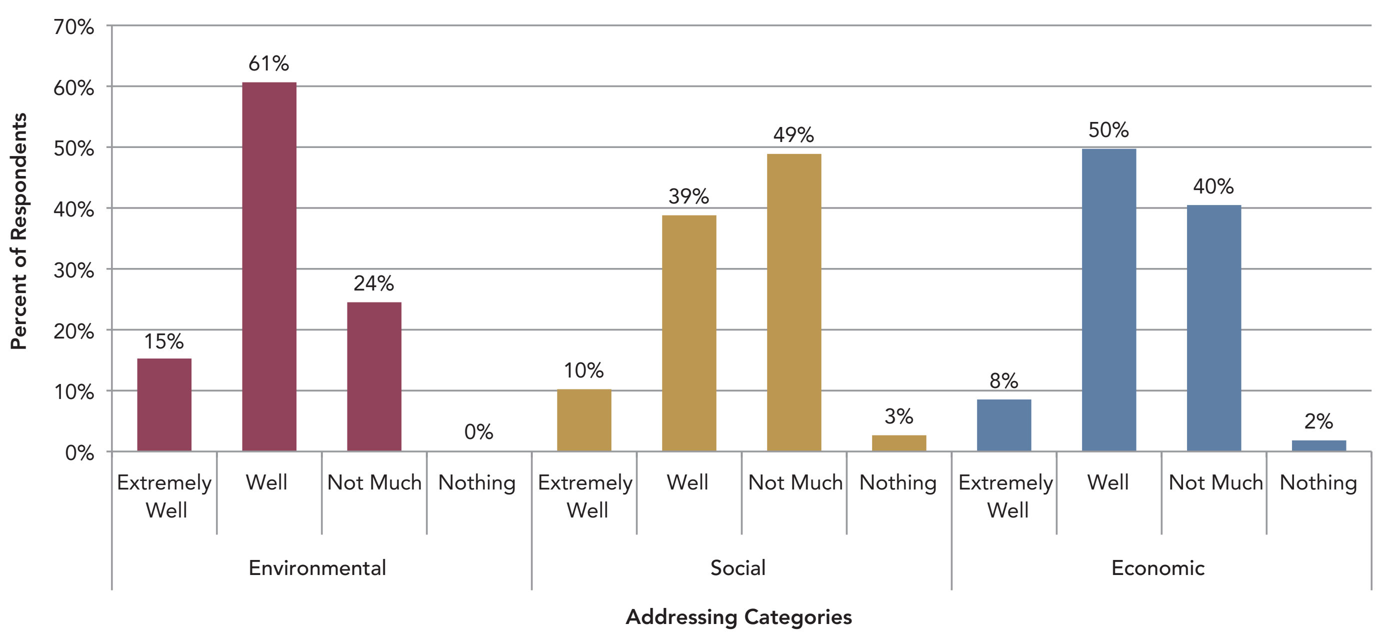


Figure 8. Degree to which sustainability issues are addressed

**Environmental issues are viewed as being well addressed by the industry**, as 61% believed that environmental issues are addressed *well* and no respondents felt that *nothing* is being done. Many *Customers/Buyers* (26%) selected *extremely well*, compared to only 5% of *Suppliers*.

**Social issues are viewed as needing more attention,** as only 39% felt that social issues are *well* addressed while 49% believed that they are *not much* addressed. The 3% that felt that *nothing* is being done consisted of *Suppliers* and *Printers/Converters*. 21% of *Printers/Converters* felt that social issues are addressed *extremely well,* compared to only 5% of *Customer/Buyers* and *Suppliers*.

**Economic issues are viewed as being fairly well addressed**. 50% said that economic issues are *well* addressed, while 40% said *not much*. 57% of *Suppliers* and 51% of *Printers/Converters* selected *well* and 54% of Other said *not much*. The 3% that felt that *nothing* is being done consists of *Customers/Buyers* and *Printers/Converters*. Only 2% of *Suppliers* felt that economic issues are addressed *extremely well,* compared to 16% of *Customers/Buyers* and 12% of *Printers/Converters*

## The Three Rs of Sustainability

Respondents were asked to rank the three Rs of sustainability. The results are (1) *reduce*, (2) *recycle*, (3) *reuse*, as shown in Figure 9.

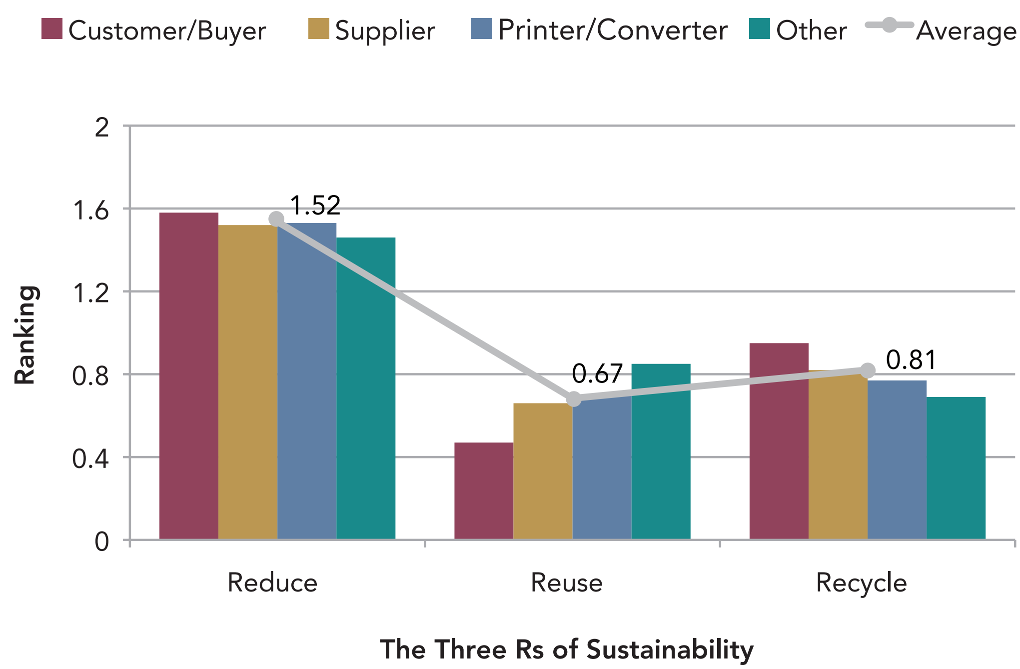


Figure 9. Ranking of the three Rs of sustainability by respondent category

***Reduce* is ranked highest among all stakeholders**. *Recycle* is ranked a clear second by *Customer/Buyers* and *Suppliers*, while *Others* rank *reuse* before *recycle*. This could be because recycling is a more commonly known practice, and the educational nature of the *Other* companies may allow for further exploration in the reuse of materials and products.

## Addressing Sustainability

When asked which of the following describes how their company addresses sustainability, the **majority of respondents (39%) indicated that continuous improvement goals are identified and communicated**, while 37% indicated that sustainability efforts are addressed company-wide (see Figure 10).

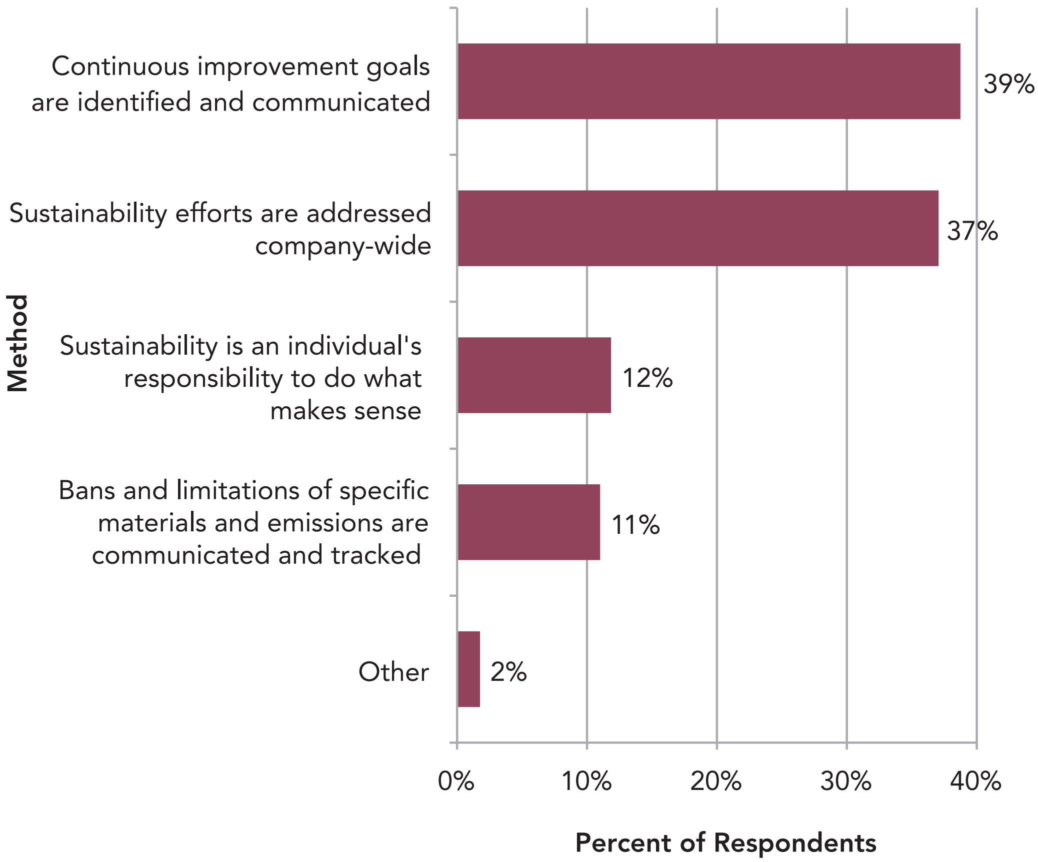


Figure 10. Methods of addressing sustainability

*Other* responses include:

“Working with vendors who have sustainability programs whenever possible.” -CB

“Using team work to reach a common goal with the collective talent of all team members as the prime asset.” -S

# General Stakeholder Views on Sustainability

## Customer Behavior

All respondents were asked: What percentage of your current consumers are seeking sustainable products and services from your company? An average of 24% said that *50% or more* of their customers are seeking sustainable products and services. However, for a larger portion of companies, it is less than a quarter of their customers (see Figure 11).

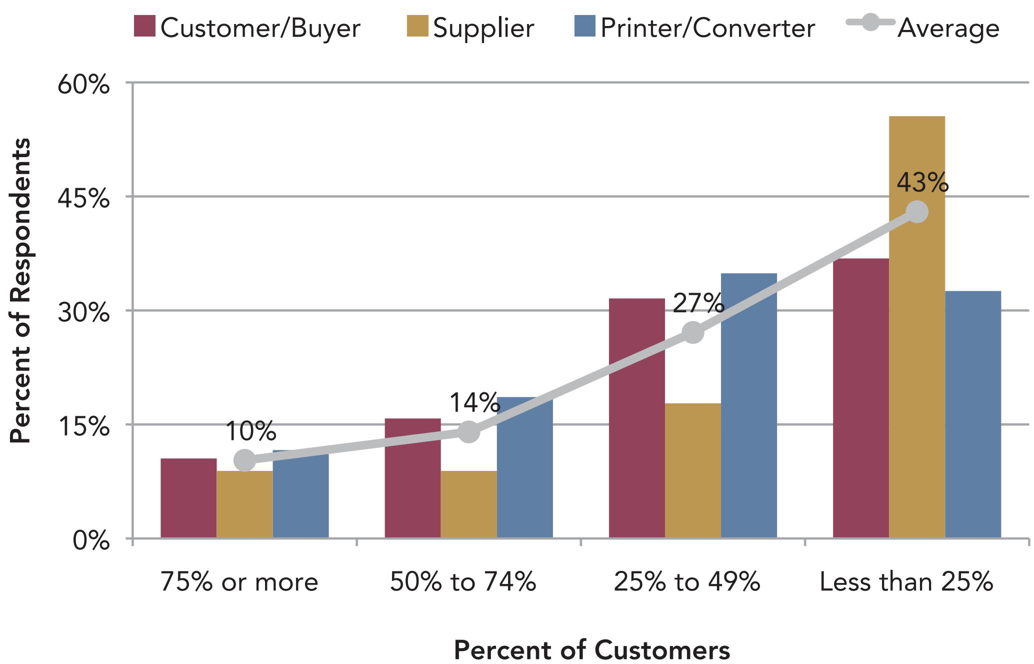


Figure 11. Percentage of customers seeking sustainable products and services by respondent category

## Drivers for Sustainable Solutions

*Suppliers* and *Printers/Converters* were asked: What are the top three drivers for providing sustainable solutions?

***Customer requirements* was the main driver for providing sustainable solutions,** followed by *pricing pressures* as shown in Figure 12.

*Regulatory compliance* and *consumer requirements* were also significant drivers for both stakeholders. However *Suppliers* find *regulatory compliance* slightly more significant (55% compared to 44% for *Printers/Converters.)*

*Printers/Converters* were driven a bit more by *increased competition*. 40% of *Printers/Converters* felt that it was a top three driver, compared to 27% of *Suppliers*. Also, for both stakeholders, *increased media attention* was not a significant driver.

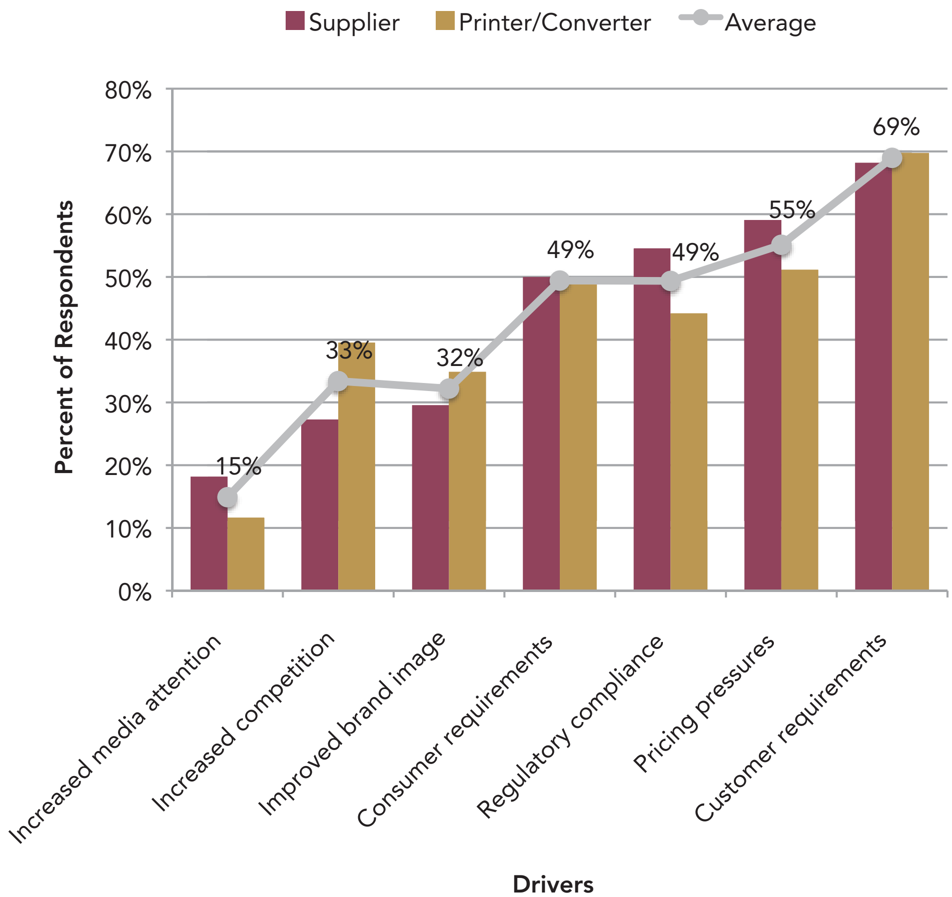


Figure 12. Drivers for sustainable solutions by Suppliers and Printers/Converters

## Environmental Concerns

Respondents were asked to select the top three environmental concerns they consider to be most important (see Figure 13).

***Customers/Buyers*** take these issues into consideration in their print supplier evaluation. The **most important issues were *recycled content* and *material sourcing***. Only 5% of *Customers/Buyers* felt that greenhouse gas emissions were among the top three concerns.

**There was a difference in concerns among stakeholder groups.** *Recycled content* and *material sourcing* are very important to *Customers/Buyers*, with 58% and 53% respectively considering them as top three concerns. This is likely due to the marketing strategies for "green-printing" that promote eco-friendly materials (recycled content, forest stewardship, etc.).

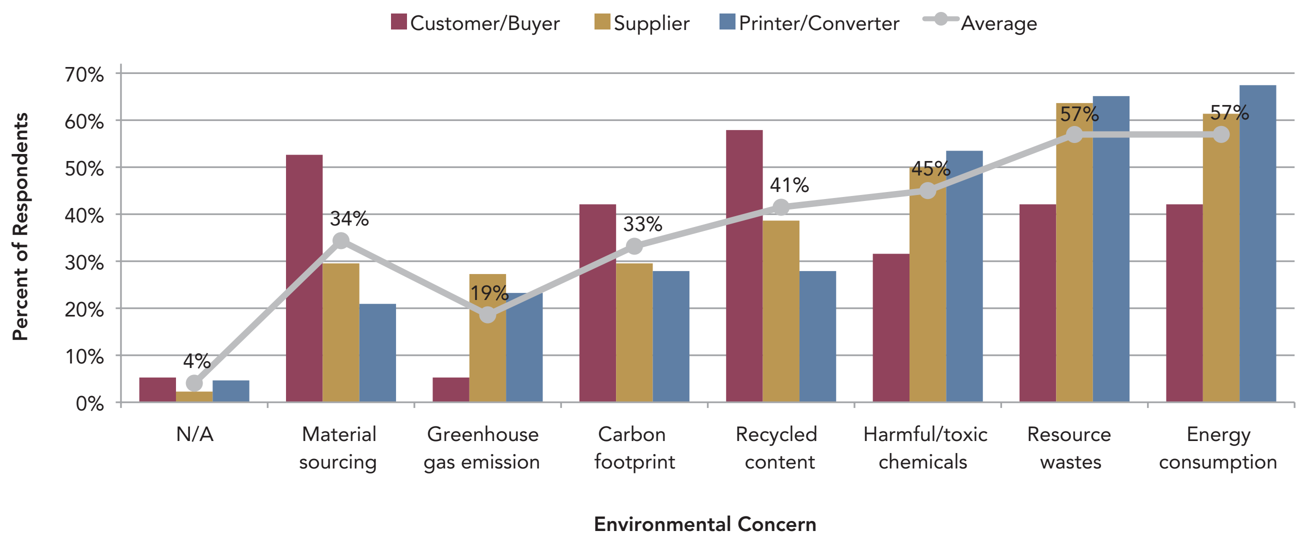


Figure 13. Environmental concerns by respondent category

However, for *Suppliers* and *Printers/Converters*, recycled content and material sourcing are not among the top three concerns. Instead, **the top concerns for *Suppliers* and *Printers/Converters* are *resource wastes*, *energy consumption* and *harmful/toxic chemicals*.** These issues are more directly related to their production-based activities.

## Sustainable Printing Challenges

*Customers/Buyers* were asked: What are the top three challenges to obtaining sustainable printing from the packaging printing supply chain?

*Suppliers* and *Printer/Converters* were asked: What are the top three challenges in making processes/products more sustainable?

Further up along the supply chain, *Customers/Buyers* and *Suppliers* share some similar challenges. ***Comparable quality* was the greatest challenge for both *Customer/Buyers* and *Suppliers***, with 79% and 73% respectively as shown in Figure 14. This is followed by *raw materials prices (68% and 64% respectively),* and *alternative materials (47% and 52% respectively).* The production-oriented Suppliers also see *compatibility with existing systems* (50%) as a top three challenge as well as *recovery infrastructure (39%).*

**For *Printers/Converters*, the top challenges are *alternative materials* and *raw materials prices*,** followed by *comparable quality* and *compatibility with existing systems.* Compatibility is an issue during production because many companies have established workflows and specialized equipment. It is important that new materials be able to be processed without making changes to workflow or requiring the purchase of new equipment.

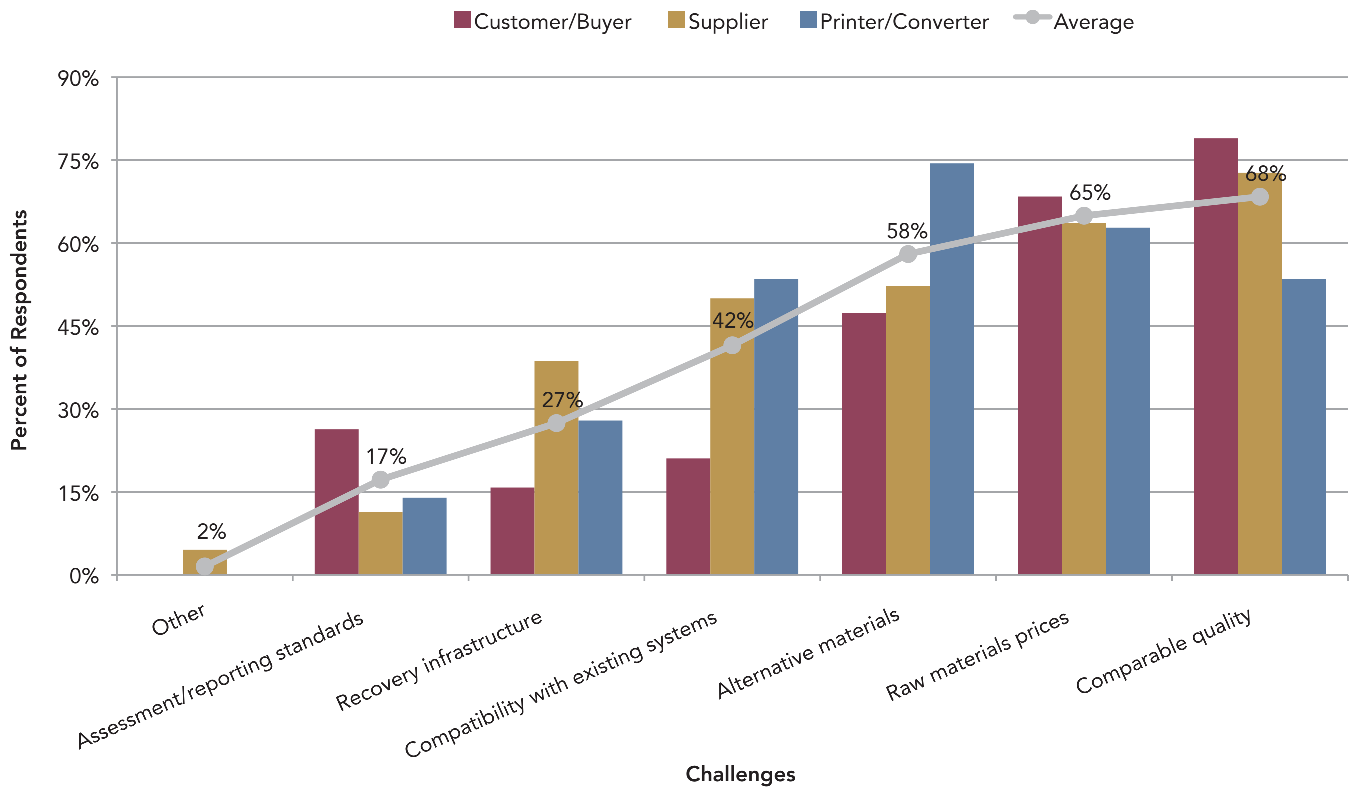


Figure 14. Sustainable printing challenges by respondent category

# Customer/Buyer Views on Sustainability

## Purchasing Decisions

*Customers/Buyers* were asked: Which of the following best describes your company's purchasing decisions in relation to sustainability?

42% of ***Customers/Buyers* said that sustainability was a moderately important factor in purchasing decisions** (see Figure 15). Only 11% of *Customers/Buyers* indicated that sustainability was not important.

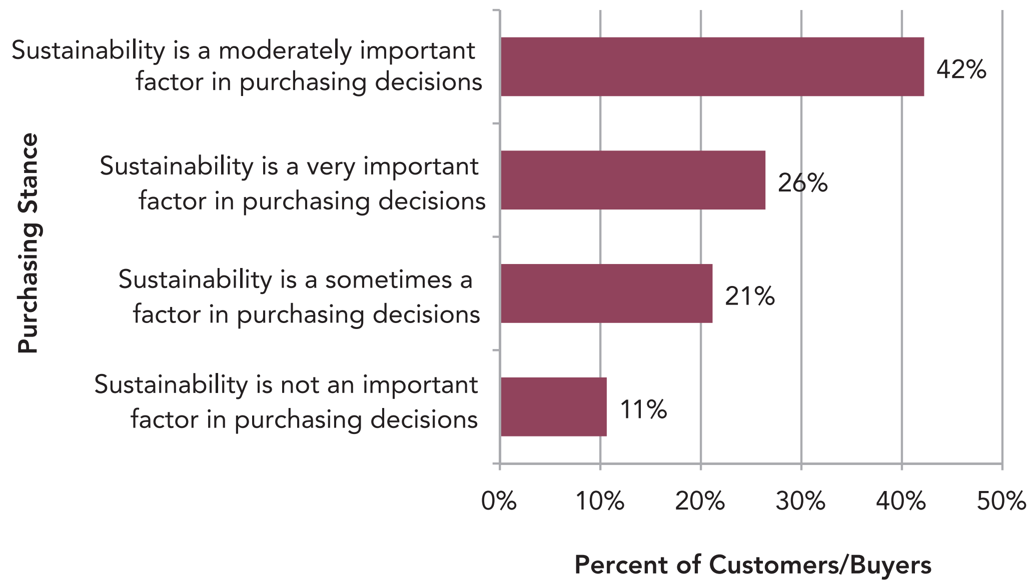


Figure 15. The impact of sustainability on Customers/Buyers purchasing decisions

## Supply-Chain Requirements

When asked what best described their company's position in regard to their supply chain sustainability practices, 47% of *Customers/Buyers* indicated that they work with suppliers that are concerned about sustainability (see Figure 16). This shows that most ***Customers/Buyers* are looking for other companies that have a general concern for sustainability** but are not necessarily certified or meet specific standards.

26% would like their suppliers to meet certification standards and demonstrate continuous improvement, compared to 11% that looked for suppliers that meet certification standards only.

16% of *Customers/Buyers* were not concerned with sustainability practices and will work with all suppliers.

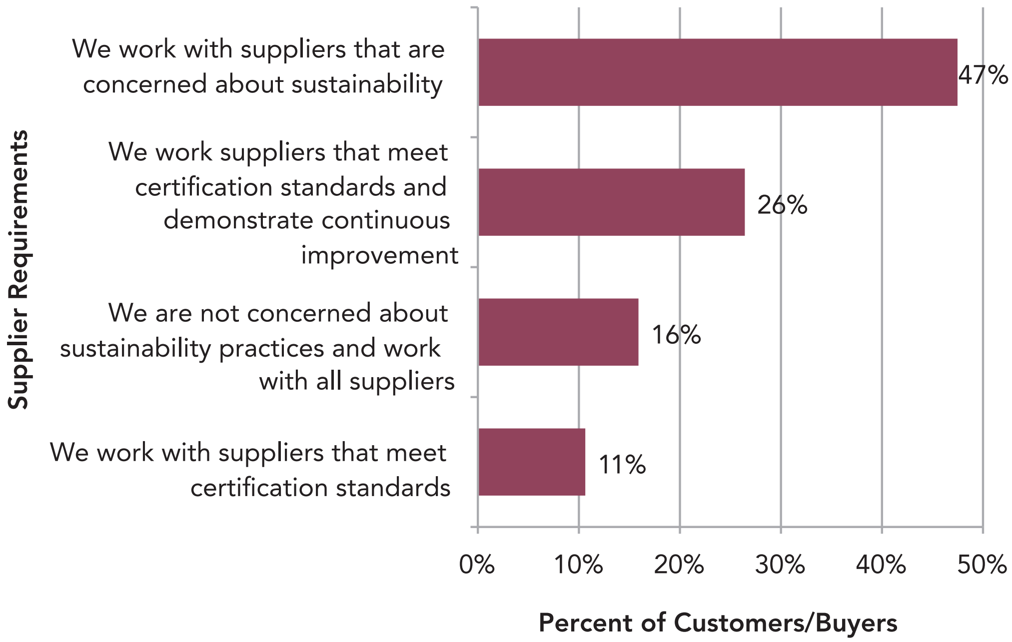


Figure 16. Supply-chain sustainability requirements for Customers/Buyers

## Communicating Sustainability

50% of ***Customers/Buyers*** **communicate their sustainability requirements through written means with detailed criteria**, while 31% do so informally or orally as shown in Figure 17.

**More detailed guidelines and assessment methods are needed,** as only 13% include criteria and guidelines, and a mere 6% also include assessment information.

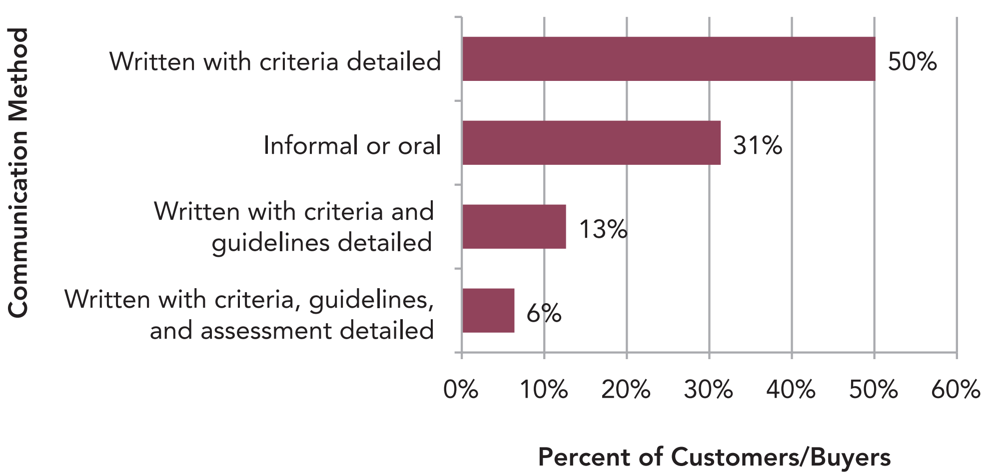


Figure 17. How sustainability requirements are communicated by Customers/Buyers

## Definition of "Reduce"

**Minimizing energy use is how *Customers/Buyers* define "reduce."** When asked to select the top three efforts that best describe the meaning of "reduce" in relation to gravure packaging printing, 58% chose *minimize energy consumption* (see Figure 18).

Support for the other efforts is varied, showing how reduction can be applied to numerous aspects of the production process.

A respondent also added "lower pricing" to the list to define "reduce."

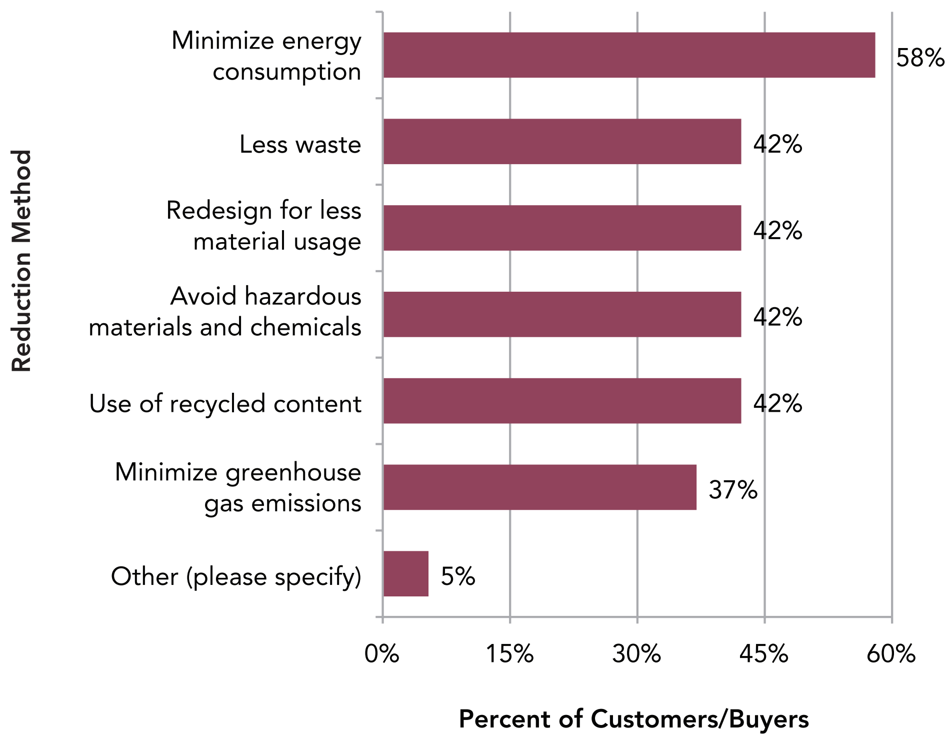


Figure 18. Definition of "reduce" according to Customers/Buyers

## Soft Proofing Application

When asked what statement best describes their company's position on adopting soft proofing for color communication, 32% of *Customers/Buyers* said that they *prefer soft proofs over hard copy proofs* as shown in Figure 19. **Overall, the stance on soft-proofing is mixed,** with 26% considering using the technology and 26% continuing to use hard copy proofs.

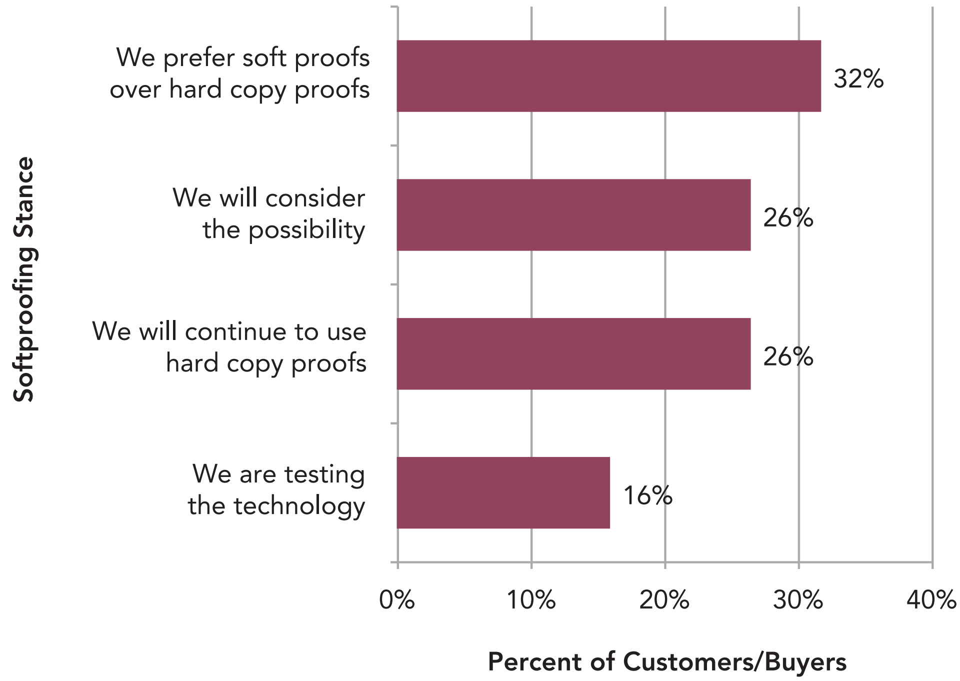


Figure 19. Customers/Buyers stance on soft proofing

# Supplier Views on Sustainability

## Supplier Breakdown

The companies surveyed on the supply-side of the industry can be further distinguished by the type of products and services they provide. There is a fairly even distribution of each within the sample as shown in Figure 20.

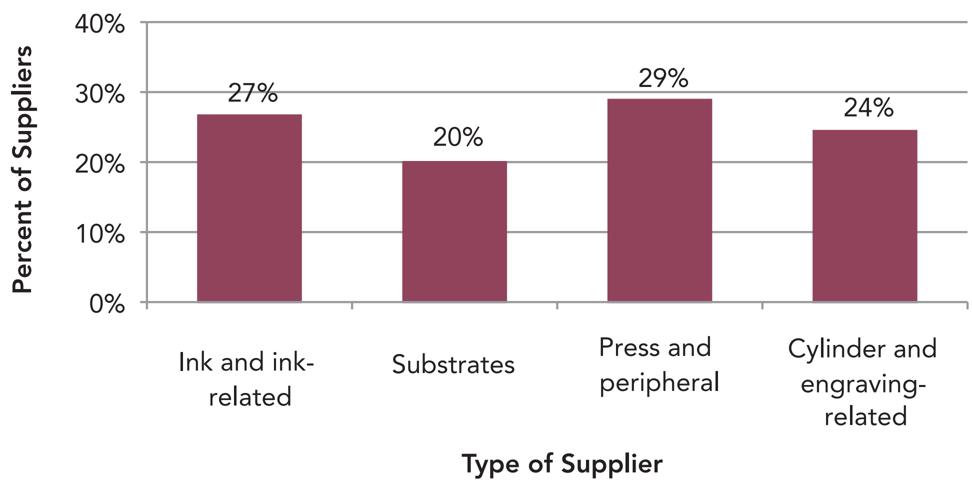


Figure 20. Suppliers by type of product/service provided

## Ink-Related Environmental Considerations

Ink-related suppliers were asked to identify the top three environmental considerations they currently focus on.

***Reduction of VOCs* was the top answer,** with 32% of companies working with *alternative inks* such as vegetable or soy-based inks and 25% working with *water-based inks* to reduce VOC emissions (see Figure 21).

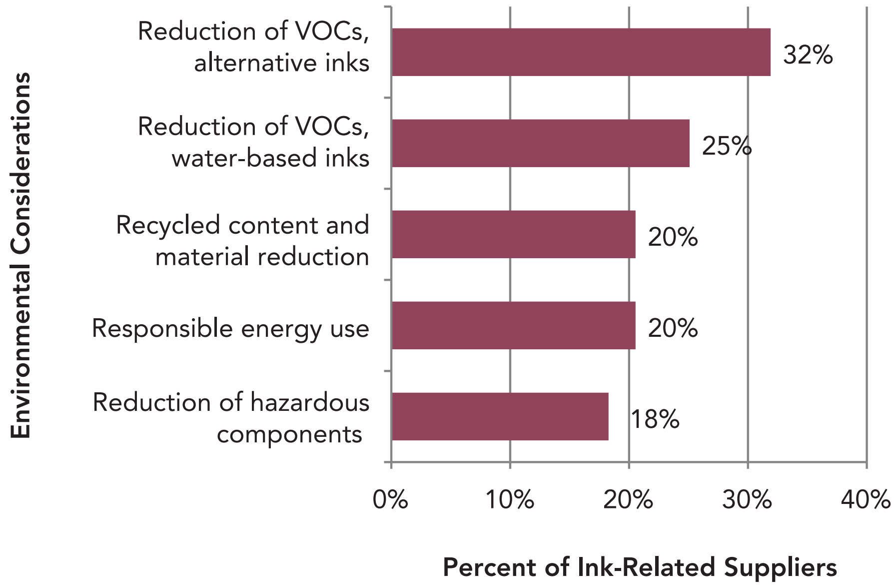


Figure 21. Environmental concerns for ink-related suppliers

## Substrate-Related Environmental Considerations

For substrate-related suppliers, ***recycled content* was the top focus**, as shown in Figure 22. Recycled content was also highly valued by *Customers/Buyers* (see Figure 13).

*Friendlier processing* was a top three issue for only 9% of substrate-related companies. This could be because there are less marketing opportunities for processing.

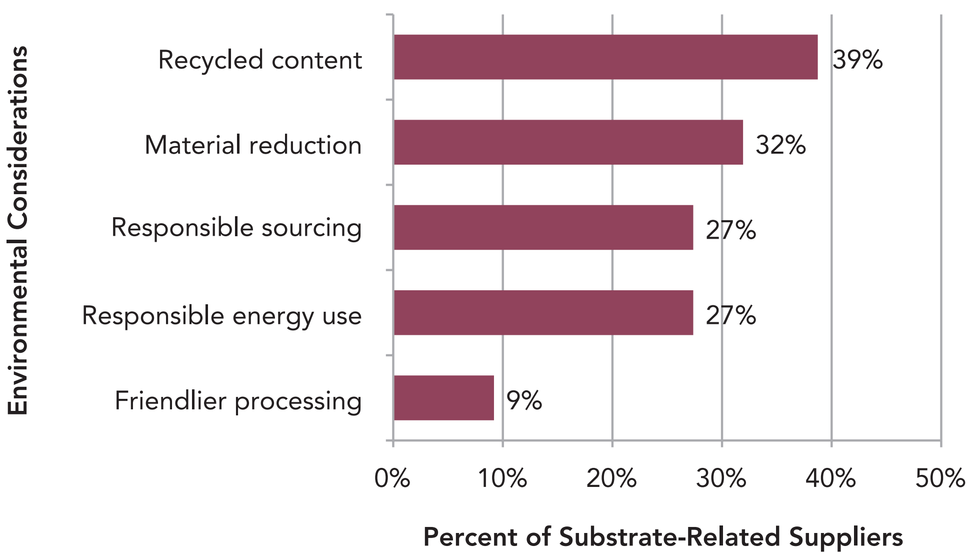


Figure 22. Environmental concerns for substrate-related suppliers

## Cylinder-Related Environmental Considerations

For cylinder engraving and cylinder-related suppliers, ***responsible energy use*** **is the top focus (see Figure 23)**. Among materials and technology, the focus is on alternatives to chrome and base materials.

The 7% of *Other* responses include "recycling machinery and waste" as well as "recycling and using minimum plating."

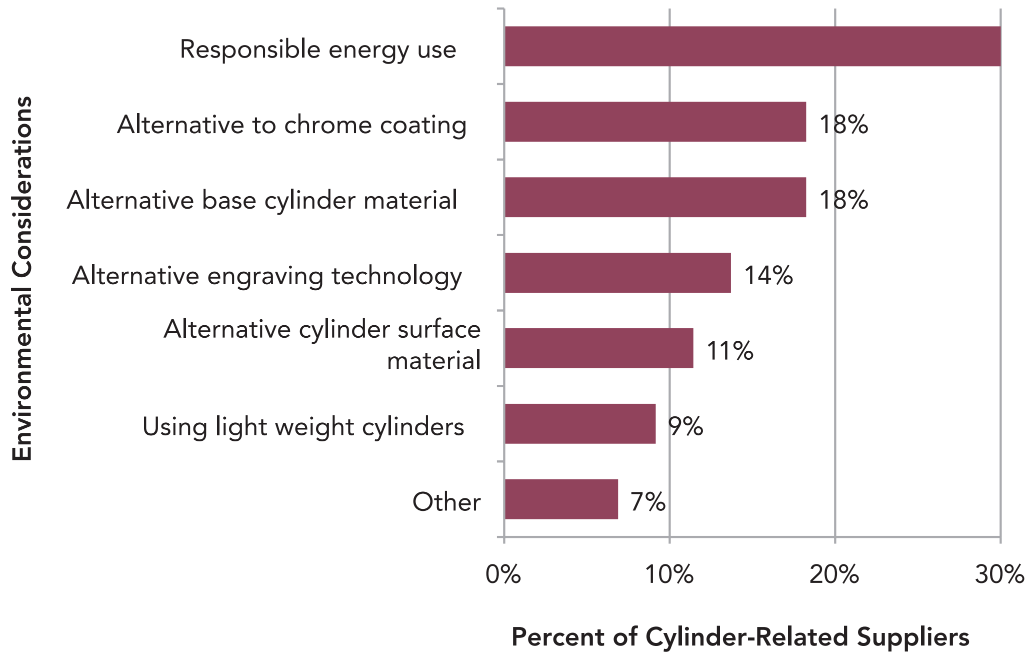


Figure 23. Environmental concerns for cylinder-related suppliers

## Press and Peripheral Environmental Considerations

Press and peripheral suppliers are **focusing on *automation* and *process control* as well as *responsible energy use* and *sustainable materials***, as shown in Figure 24.

Increasing the efficiency of equipment through automation and process control is an important base to waste reduction plans for printers and converters.

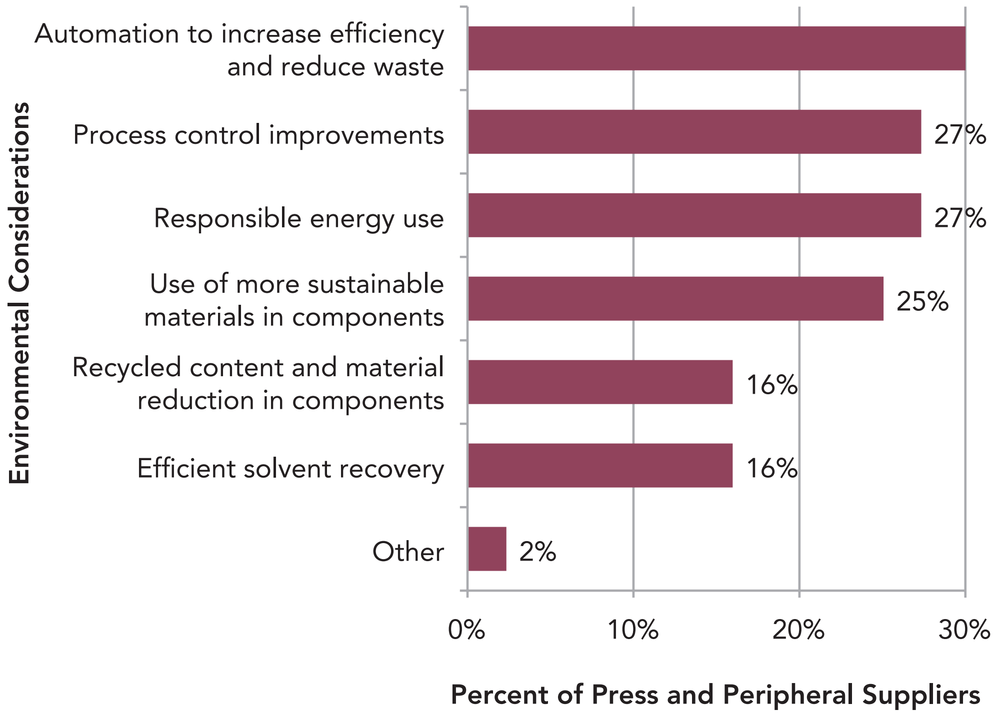


Figure 24. Environmental concerns for press and peripheral suppliers

# Printer/Converter Views on Sustainability

## Sustainability Activities

*Printers/Converters* were asked to identify the top three significant activities pertaining to sustainability efforts in their companies. The **top efforts were focused on *reducing production wastes* and *encouraging recycling and recovery of materials***. Reducing pollution and consuming energy responsibly were also significant (see Figure 25).

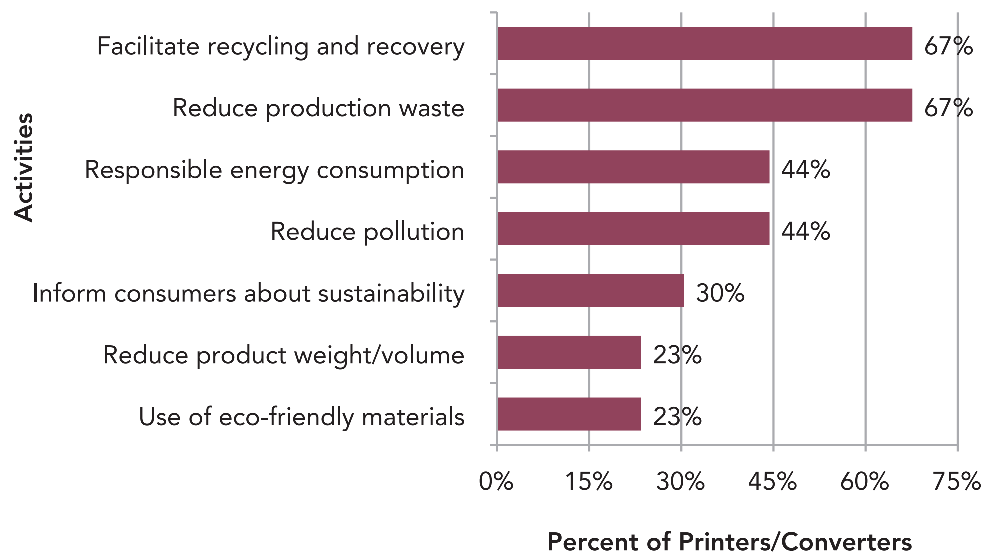


Figure 25. Top sustainability activities for Printers/Converters

## "Green Printing"

Many brand owners expect their package printing suppliers to use "green printing" while keeping costs down. The majority of *Printers/Converters* (79%) feel that they should ***adopt process control* to meet brand owner needs** while maintaining costs, as shown in Figure 26.

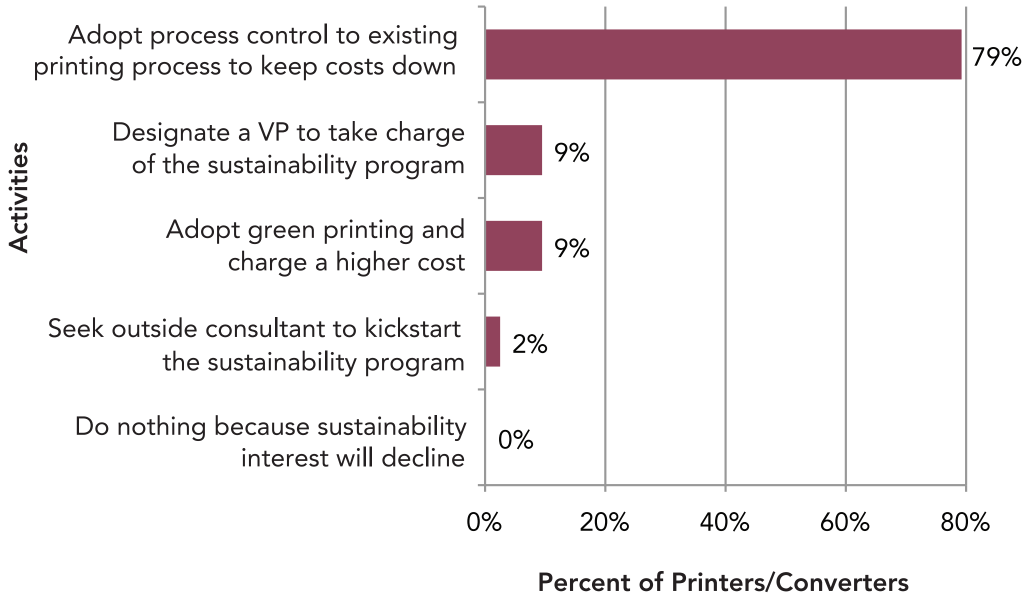


Figure 26. Green printing activities performed by Printers/Converters

## Green Certification

Out of various areas of "green printing," most *Printers/Converters* identified with or have obtained certifications in ***ISO standards*, *responsible energy use*, and *recycled content*** (see Figure 27).

Only 2% of *Printers/Converters* had no involvement in green recognition.

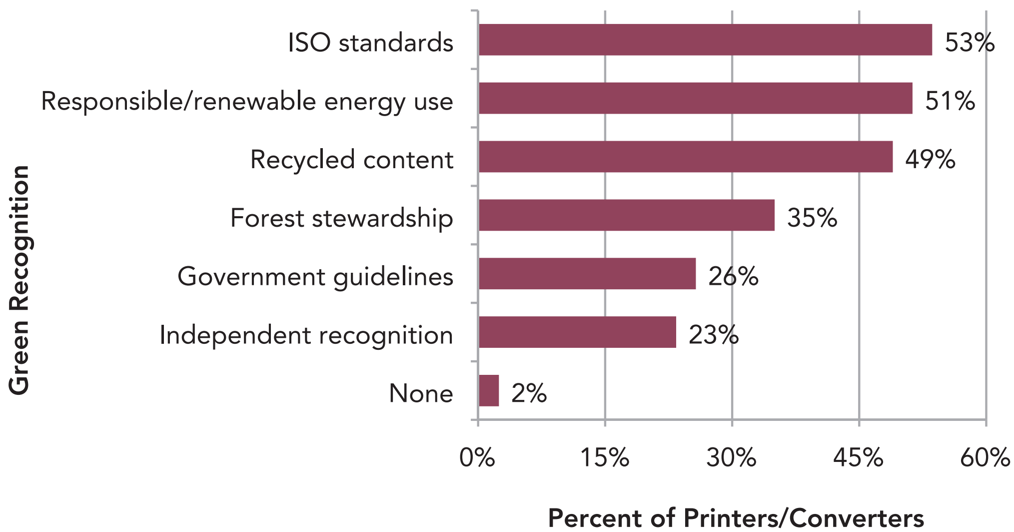


Figure 27. Green printing certifications held by Printers/Converters

## Energy Reduction

The areas of workflow that had the greatest potential for reducing energy consumption were **on-press activities and building expenses** such as lighting and heating/cooling as shown in Figure 28.

Prepress activities had less potential for energy reduction, corresponding to relatively low energy consumption compared to other areas of production.

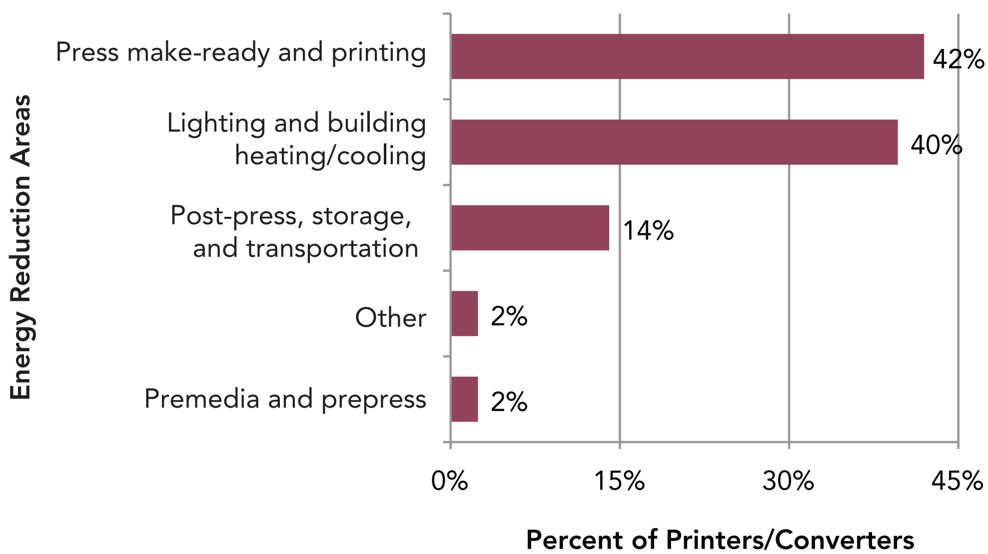


Figure 28.Potential areas for the reduction of energy consumption within Printers/Converters

## Waste Reduction

If waste reduction on press is a priority for *Printers/Converters*, 77% of companies felt the method that was most successful in achieving that goal while maintaining quality was ***on-press process control*** (see Figure 29).

*Designing for print* and *prepress process control* were additional ways to reduce waste for some companies, while the other 2% found success by "replacing equipment to more modern technologies."

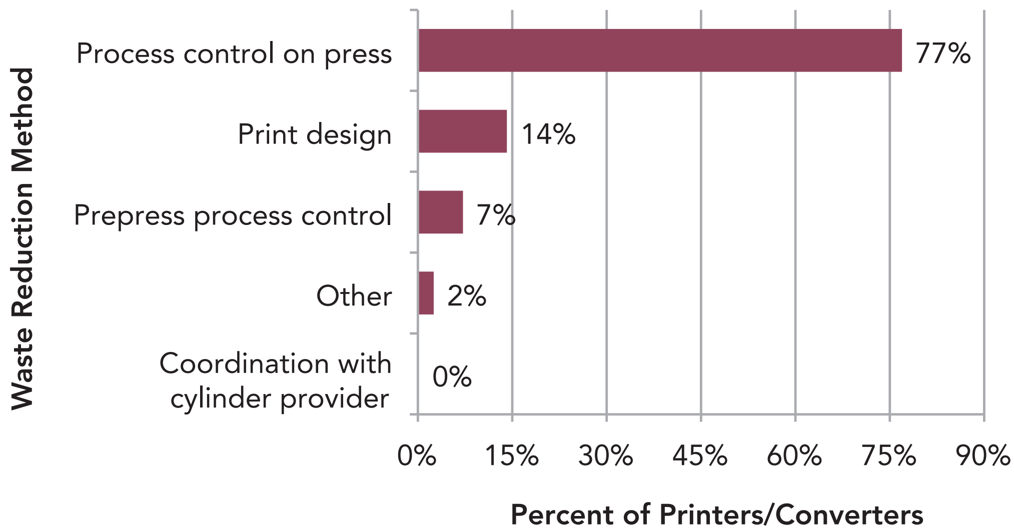


Figure 29. Ways to reduce waste for Printers/Converters

## Greenhouse Gas Reduction

If reduction of greenhouse gas emissions on press is a priority for *Printers/Converters*, 33% of companies felt the method that was most successful in achieving that goal while maintaining quality was ***recovering solvent for reuse*** (see Figure 30).

Many companies also found success in reducing ink use and using water-based or lower-VOC content inks and solvents.

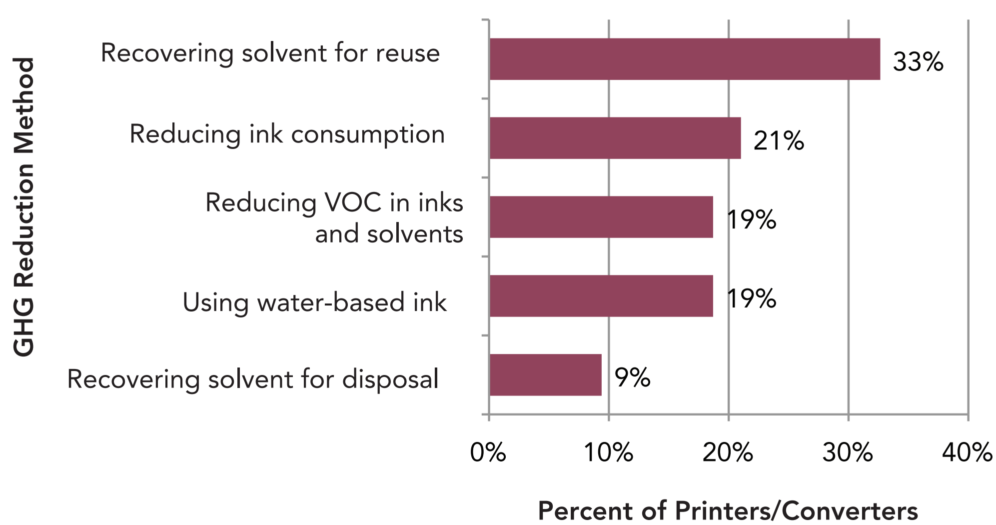


Figure 30. Potential methods to reduce greenhouse gases for Printers/Converters

# Current Policies and Practices

## Sustainability Polices in Place

**Most packaging gravure printers have sustainability policies in place,** as 83% of companies have established sustainability polices: 44% were informal and unwritten, while 39% were formal and written (see Figure 31). On average, 11% of companies have no policies in place.

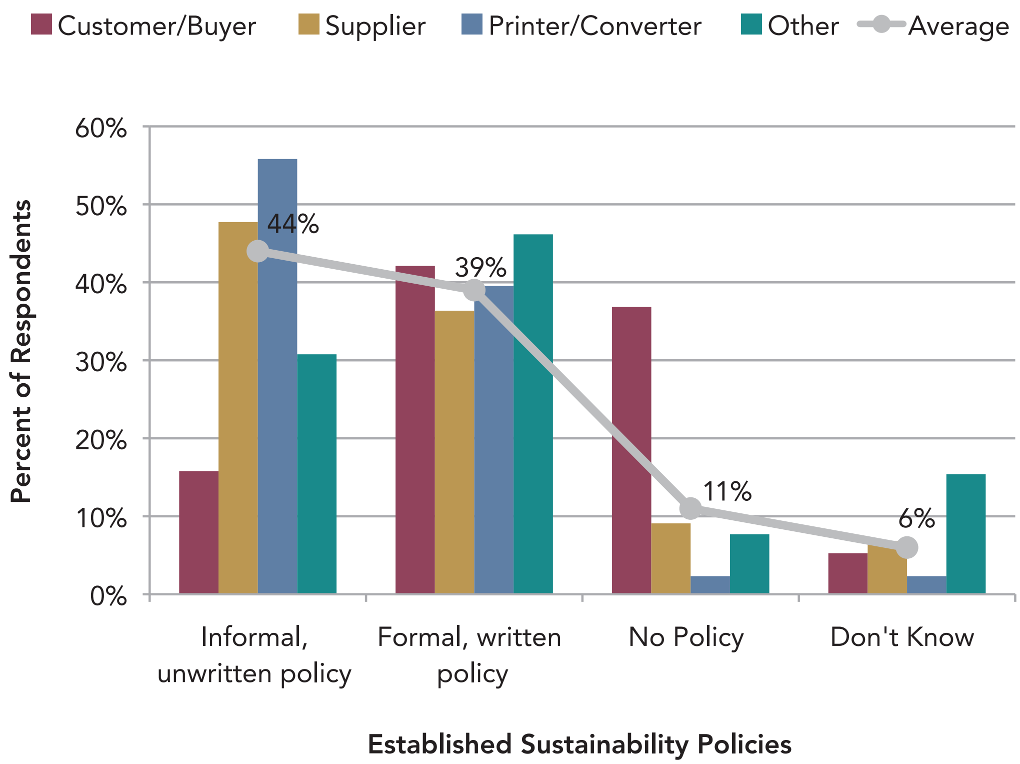


Figure 31. Established sustainability policies by respondent category

It is interesting to note that though customer requirements is a top driver for sustainability (see Figure 12), a fairly large portion (37%) of customer/buyers have no sustainability policies.

## Sustainability vs. Environmental

**The distinction between sustainability policies and environmental polices is unclear.** When asked if companies differentiate sustainability policy from environmental policy, the answer was split between *yes* and *no* with 39% for both, as shown in Figure 32.

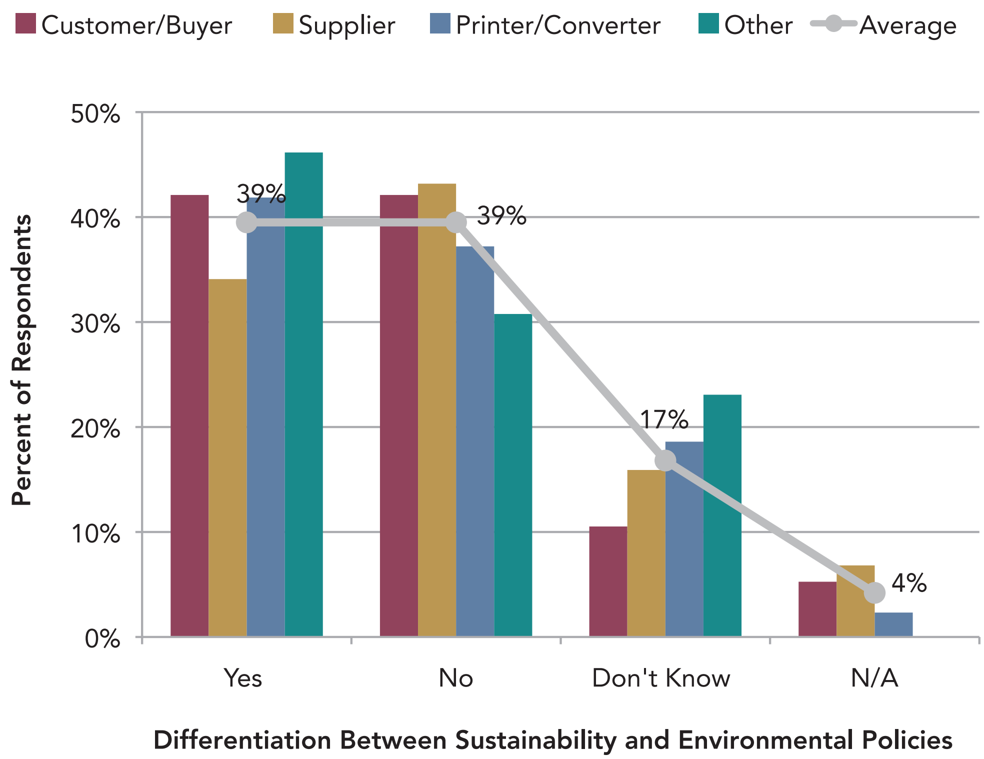


Figure 32. Differentiation between sustainability and environmental policies by respondent category

Sustainability involves more than just environmental stewardship and therefore the two concepts are not completely synonymous. This demonstrates the necessity for further education on the concept of sustainability and standard definitions to make efforts in sustainability and environmental stewardship more clear.

## Policy Management

**Sustainability policy is managed through a general company effort**, as 34% of respondents reported that their existing sustainability policies are managed in this manner (see Figure 33). Many respondents (25%) were also forming teams within existing departments, while only 3% of respondents were creating separate divisions or departments devoted to sustainability policy management.

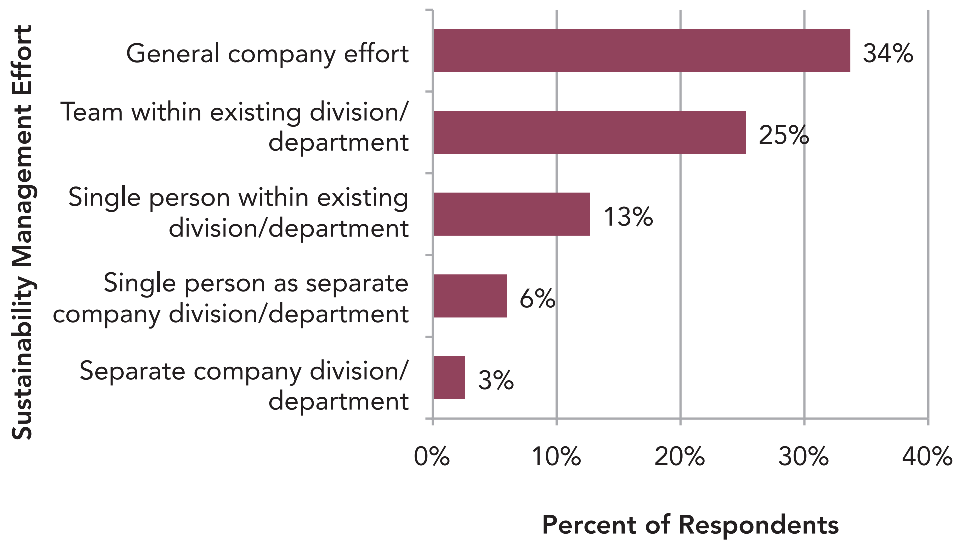


Figure 33. Sustainability policy management effort

## Policy Strategy

Respondents were asked to describe their company's sustainability efforts as short-term and tactical or long-term and strategic. Answers were ranked on a scale of 1 to 5, with "1" being short-term and tactical and "5" being long-term and strategic.

On average, there was a **slight bias towards long-term and strategic strategies** for most companies as shown in Figure 34. Within *Customers/Buyers*, however, a fairly large portion have short-term, tactical strategies—32% chose "1."

### Sustainability Guidelines

When asked what guidelines are included in their sustainability policies, **most respondents include *employee and customer education guidelines*** as shown in Figure 35. Many also include *measurable sustainability goals*. These two categories are very broad (recycled content can also fall under measurable goals), and therefore more specific guidelines merit further survey. An example is *print design guidelines*, which are included by many companies involved at the beginning of the production stream (*Customers/Buyers* and *Other*, which were 12% and 18% above the average, respectively).

A *Customer/Buyer* also included "...customer desires." *Suppliers* also included "resource usage reduction" and "quantifying print quality," while an *Other* stakeholder included "recycling and [material] source reduction."

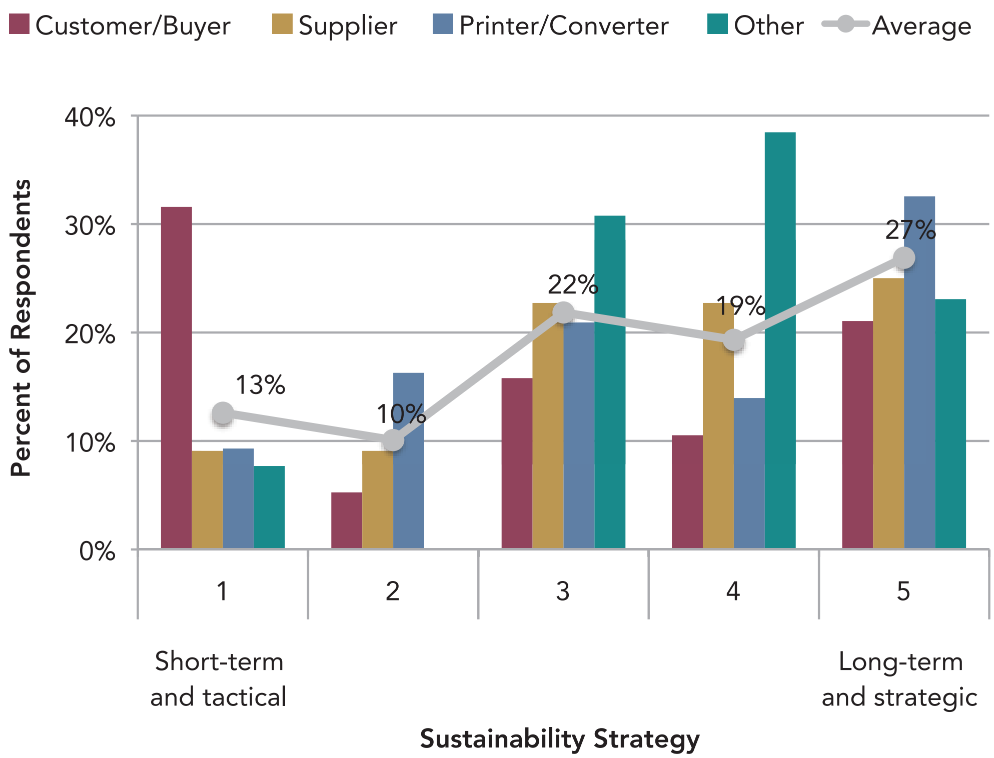


Figure 34. Sustainability policy strategy by respondent category

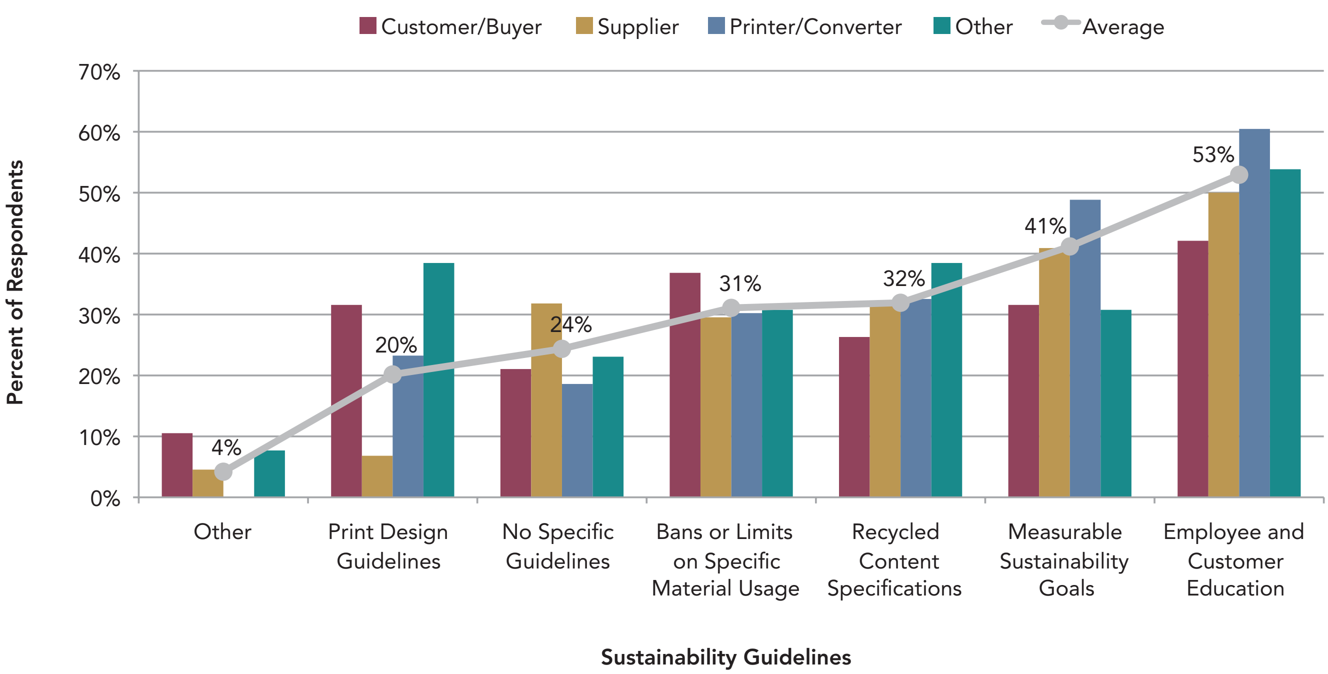


Figure 35. Guidelines included in sustainability policies by respondent category

## Progress Assessment

**Most respondents use *internal benchmarks and tools* to assess sustainability progress as shown in Figure 36**. Other methods in use included 44% of respondents who use *internal measurable benchmarks*, and 36% who use *internally developed assessment tools*.

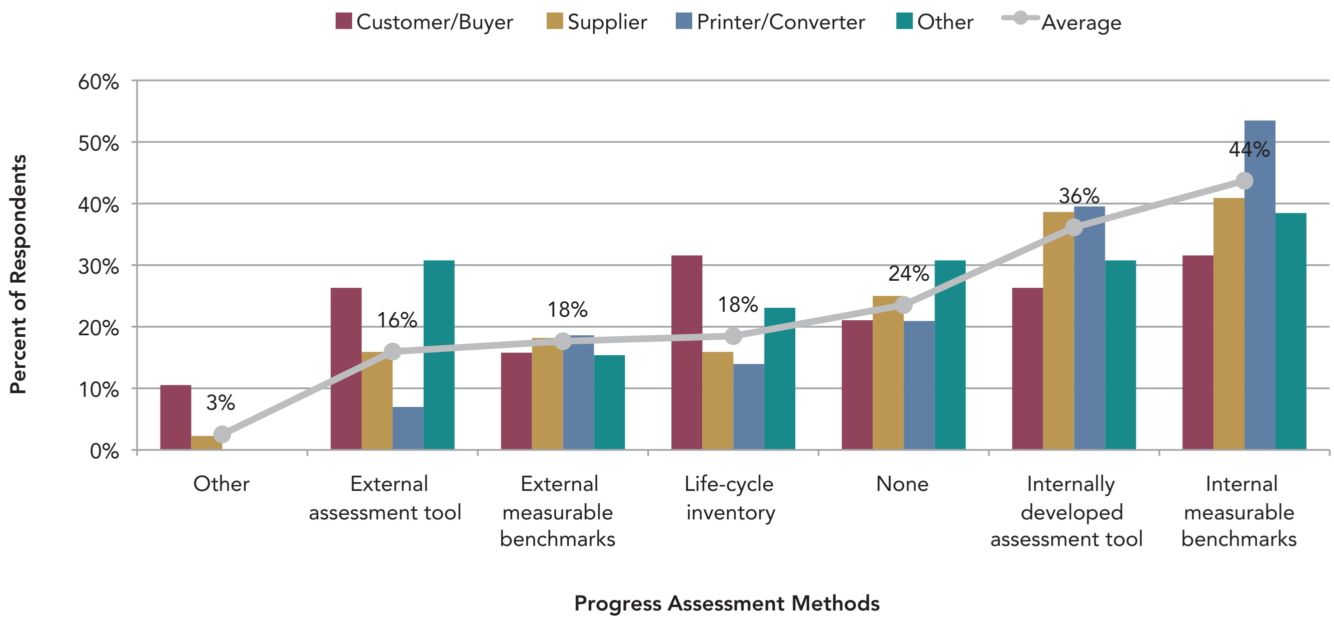


Figure 36. Methods of assessing sustainability progress by respondent category

*External assessment tools* are used by only 16% of respondents. These external tools can provide a way to standardize the assessment process and allow for comparisons between companies. Of the respondents, *Customers/Buyers* and *Other* stakeholders tend to use more external tools (10% and 15% more than the average, respectively).

The *"Other" responses* (3%) *included* a *Customer/Buyer* who uses "vendor tracking systems" to assess progress, while an economic-minded *Supplier* uses "sales."

## Assessment Criteria

The criteria used to assess a company's progress in sustainability shapes the actions taken and their resulting impacts. For example, the inclusion of GhG emissions in an assessment will most likely cause the company to focus on and eventually decrease their air pollution. Therefore, respondents were asked what criteria were included in their sustainability assessments.

***Consumption of materials* was a popular criterion**, with approximately half of all respondents selecting *energy*, *waste*, and *material consumption* as one of the criteria used in their sustainability assessment (see Figure 37).

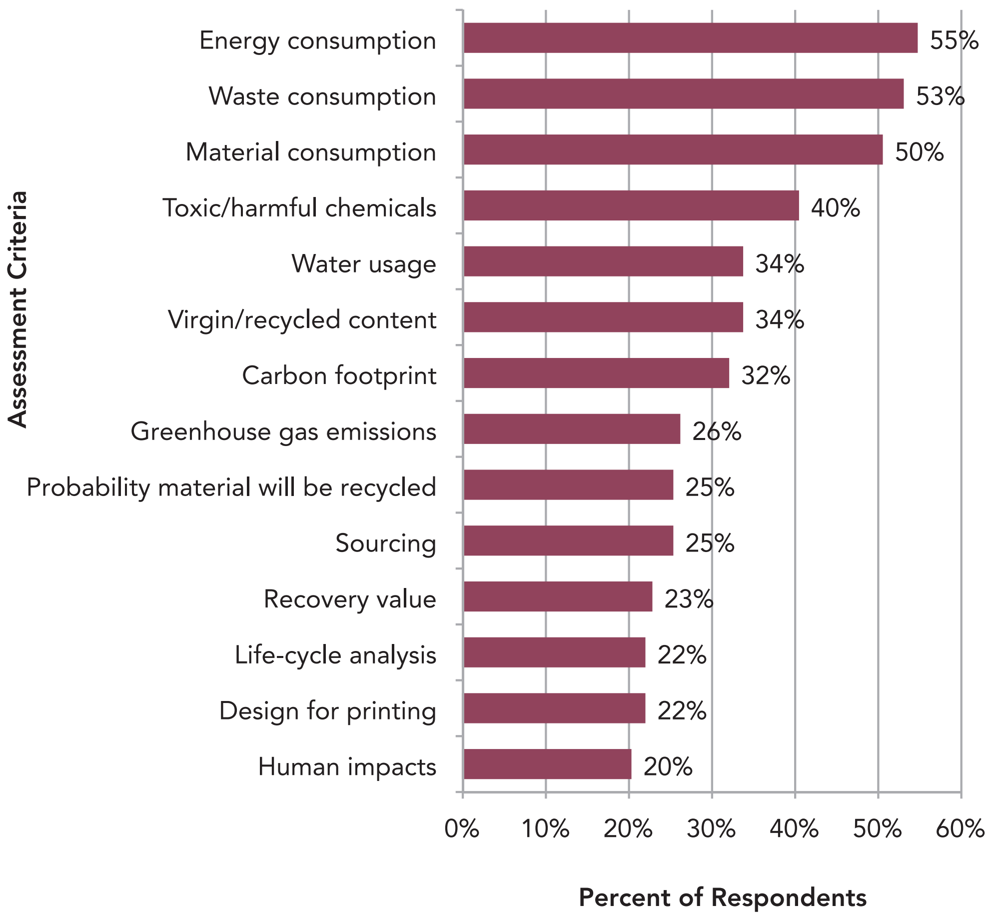


Figure 37. Criteria included in assessment efforts

Criteria most frequently included in assessments were easier to measure— energy in BTUs, recycled content as a percentage, wastes in pounds, etc. On the other hand, criteria at the bottom of the list were more complicated, not defined by hard units, and difficult to measure. These include *life-cycle analysis*, *design for printing*, and *human impacts*.

# Developing Sustainability in Gravure Packaging

## Benefits of Sustainable Growth

The **greatest result of sustainable growth is the *reduction of environmental impact* and *wastes/costs***, as shown in Figure 38. This may be because respondents feel that both environmental and economic issues are well addressed by the industry (see Figure 8).

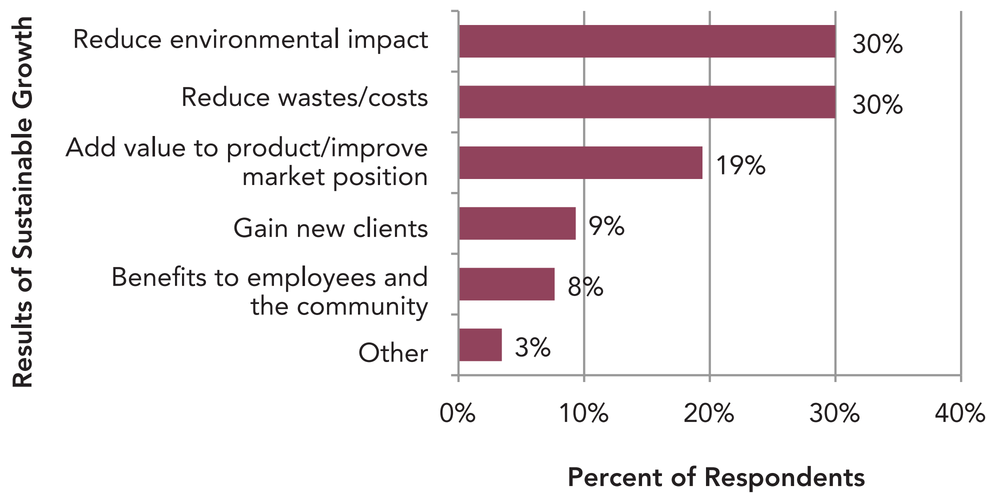


Figure 38. Results of sustainable growth

A *Customer/Buyer* also added "lower prices," while an *Other* stakeholder said "continuous triple bottom line performance improvement." One *Printer/Converter* added "retention of existing clients, while a more cynical one stated "disruptive change."

## Strategy Influences

When asked which of the following factors will have the greatest impact on the strategic direction of their company over the next five years, respondents said that the ***availability and cost of energy and materials*** as well as ***changes in technology*** were the most influential factors (see Figure 39). These results are logical, as surrounding factors such as economic conditions and technological research can greatly influence company strategy.

For production-oriented companies, the aforementioned surrounding factors hold more impact. 9% more of *Printers/Converters* felt that *energy and material costs and availability* will have the greatest impact, while 9% more of *Suppliers* chose *changes in technology* (see Figure 40).

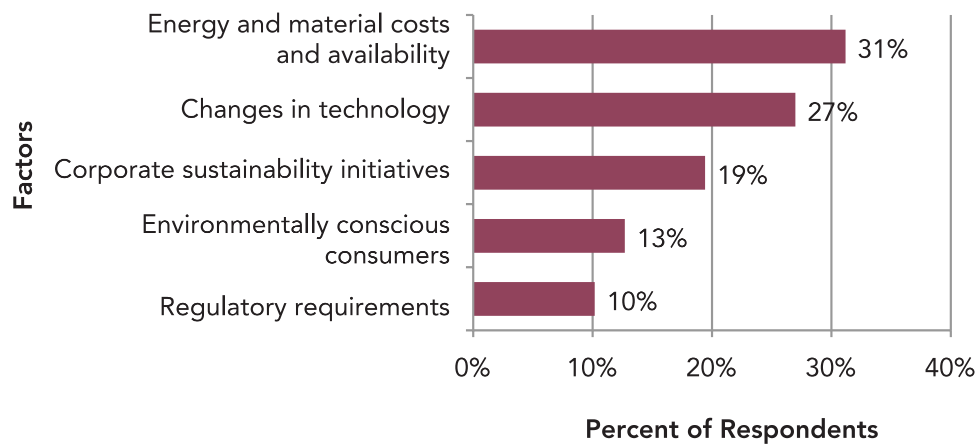


Figure 39. Factors impacting the strategic direction of the company

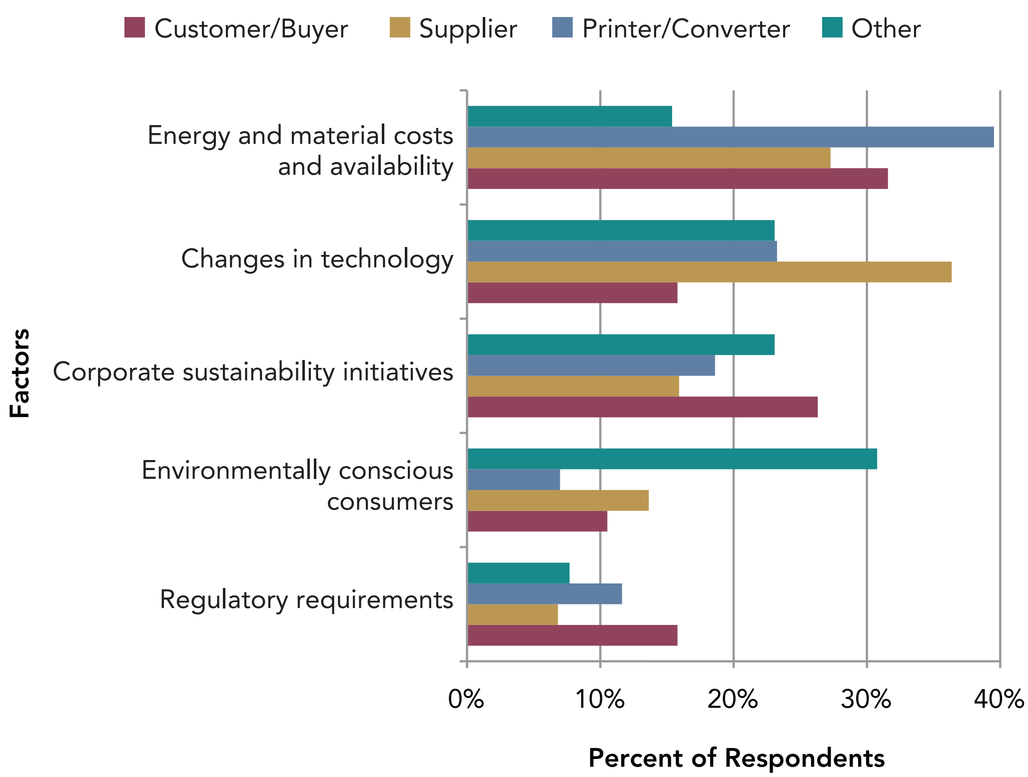


Figure 40. Factors impacting the strategic direction of the company by respondent category

## Mandatory Certification Standards

56% of companies felt that **there should be mandatory certification standards** before companies can market themselves as sustainable (see Figure 41). *Customers/Buyers* and *Other* stakeholders felt more strongly about establishing standards, with 74% and 77% respectively saying "yes" to mandatory certification.

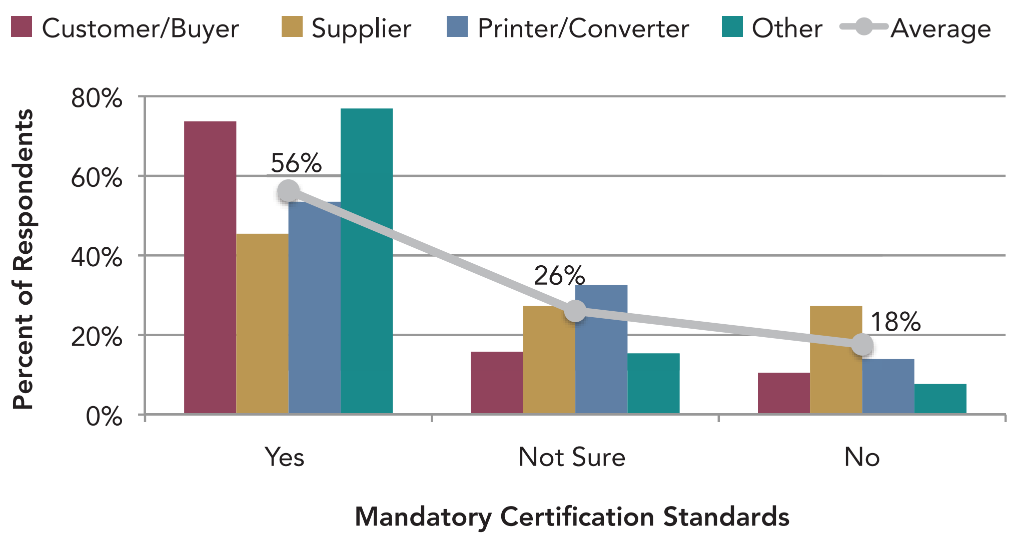


Figure 41. Level of support for mandatory certification standards by respondent category

## Standards Organizations

The next question asked respondents who should set, maintain, and administrate these mandatory certification standards? 37% of respondents believe that **the responsibility should fall under an *industry or trade association*** (see Figure 42), while control by corporate groups or educational institutions were at the bottom of the list.

*Other* stakeholders had a slightly different opinion than the average (see Figure 43). None of these respondents felt that educational institutions should administer standards, while a large portion favors administration by government and corporate groups, with 38% and 31% respectively. This variation from the average could be due to the fact that this stakeholder category is mainly composed of educational institutions, which may feel that the responsibility of administering standards should lay elsewhere.

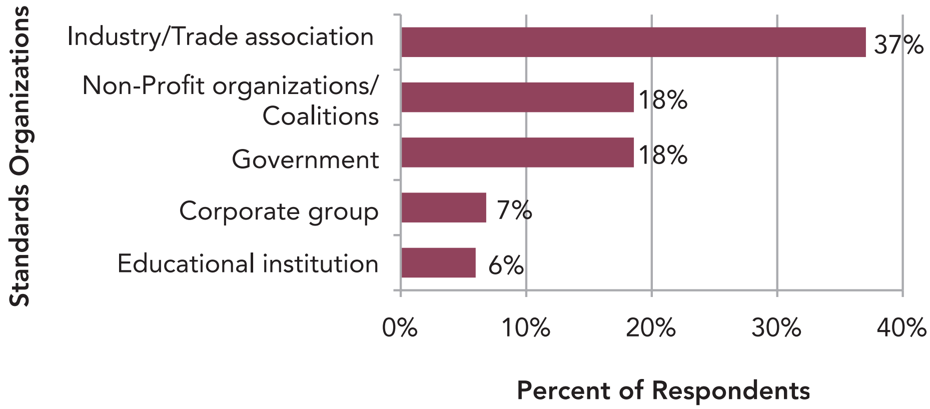


Figure 42. Ranking of organization type for mandatory certification standards administration

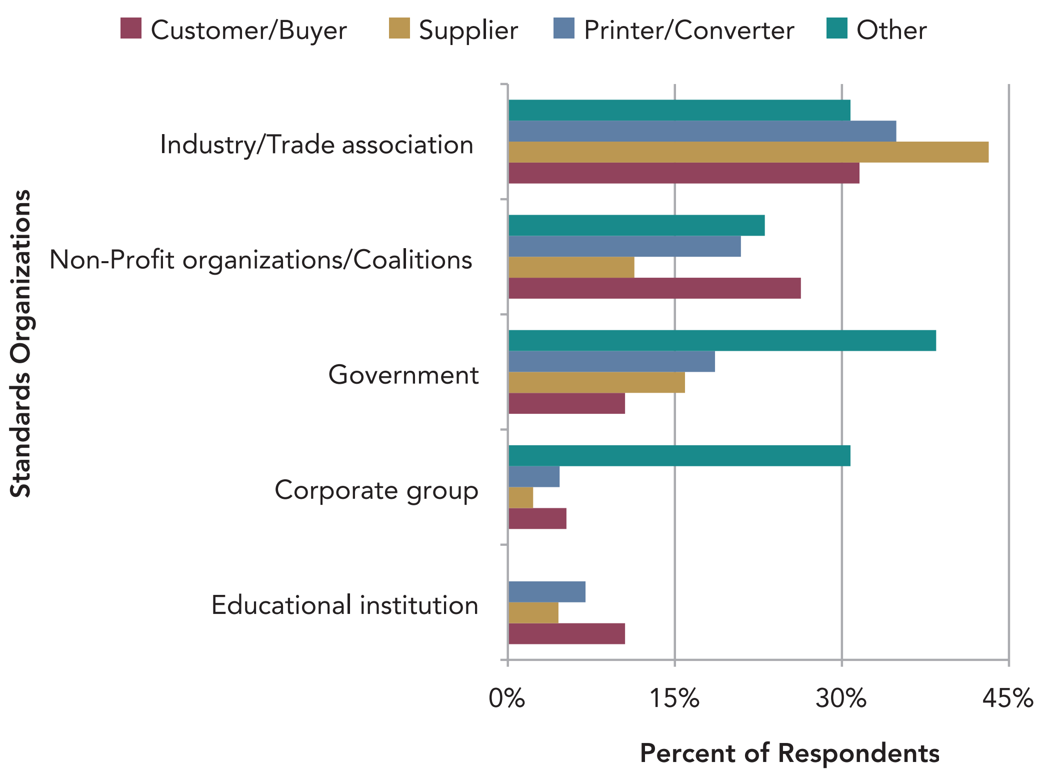


Figure 43. Ranking of organization type for mandatory certification standards administration by respondent category

## Areas of Improvement

There are a variety of areas within the gravure packaging industry that are affected by sustainability. Respondents were asked what area of gravure packaging currently requires significant developments in order to be more sustainable.

On average, 35% of respondents felt that **significant developments are needed in *printing ink and chemicals*** (such as cleaning solvents and fountain chemicals), while *Other* stakeholders felt that *printing substrates* was the area most in need of developments (see Figure 44).

In the "*Other*" responses, a *Customer/Buyer* felt that there should be "less government control," while a *Printer/Converter* stated that "energy" is an area that needs developing.

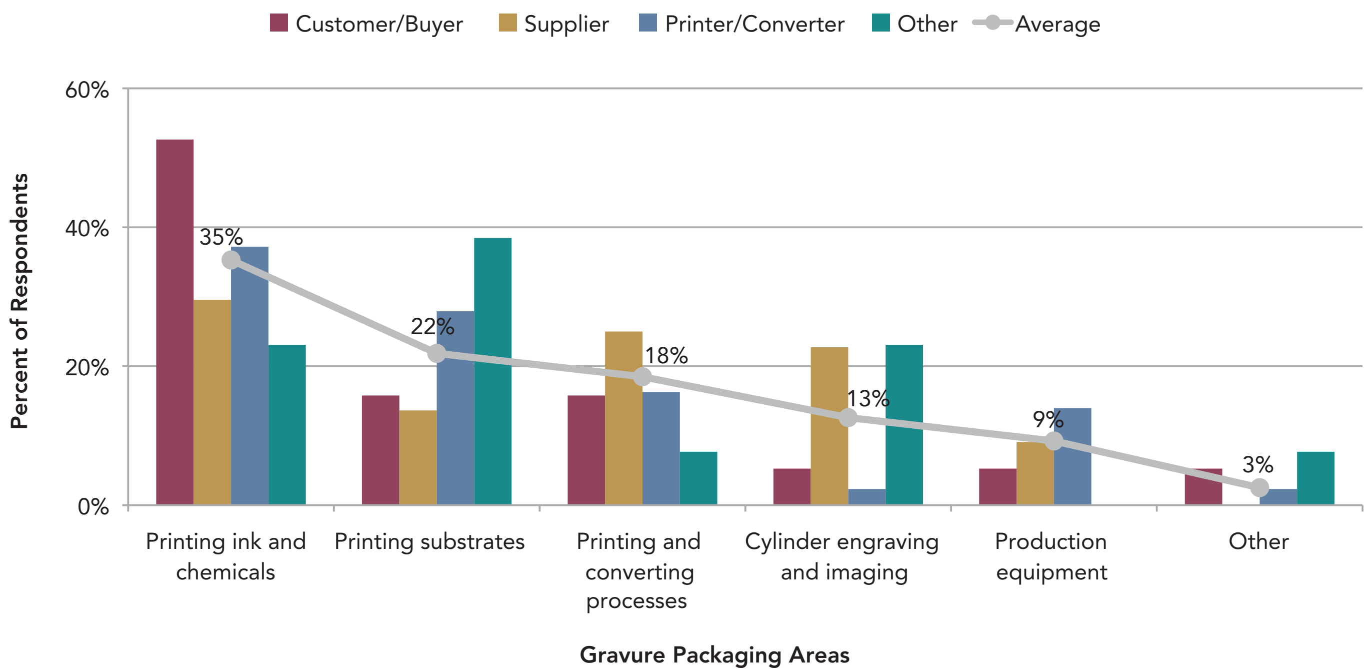


Figure 44. Areas requiring significant developments in gravure packaging by respondent category

## Necessary Developments

Respondents were then asked what developments are most needed to best achieve sustainability goals.

There was no clear majority response, indicating that **necessary developments are varied and there are many different areas within the industry that need work** (see Figure 45).

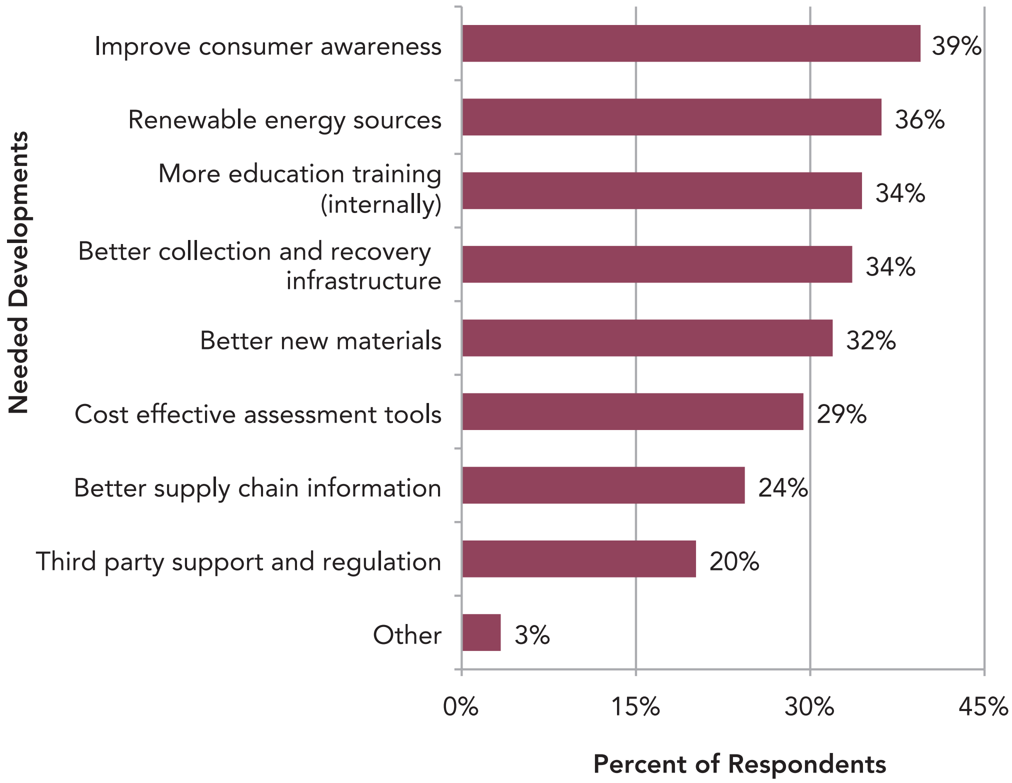


Figure 45. Necessary developments to help achieve sustainability goals

A higher percentage of respondents felt that consumer awareness needs improving, while a lower percentage of respondents felt that third party support and regulation as well as better supply chain information were necessary developments.

Among the "Other" responses (3%) were comments from *Customers/Buyers* that ranged from "cost effective solutions" to "[getting] rid of the green peace activists." A *Supplier* also added that "milestones and definitions" are needed, while a *Printer/Converter* provided a plea for government support, stating that development is needed in "the economy and the government's role in providing tax relief to converters so they can stay in business." The respondent also states that "If converters cannot compete or afford to stay in business then there will be no printing and packaging, sustainable or otherwise."

# Conclusion

Sustainability within the printing industry is becoming a widespread movement that will only continue to grow. This survey of the gravure packaging sector demonstrates that sustainability is indeed a substantial issue, with 62 percent of respondents indicating that they are moderately or very familiar with sustainability and 72 percent of respondents saying that the emphasis on sustainability has increased over the past few years.

In general, customer requirements are the main driver for providing sustainable solutions, which is congruent with the findings of the 2008 Packaging Digest survey. Most customers and buyers (68 percent) indicated that sustainability is a moderately or very important factor in their purchasing decisions.

Between the various stakeholders, there is a difference in environmental concerns, which may be due to their different functions within the supply chain. Customers and buyers value more marketable concerns such as recycled content and material sourcing, while suppliers, printers and converters value material- and production-specific concerns such as resource wastes, energy consumption and harmful/toxic chemicals.

In terms of current policies and practices for all gravure packaging stakeholders, the majority of companies have sustainability policies in place. 83 percent of respondents indicated that they have established informal (unwritten) or formal (written) policies. This is a much higher response rate than the 47 percent in the 2009 Graphic Arts Monthly & Reed Business Research survey and the 38 percent in the 2008 Packaging Digest survey.

80 percent of respondents currently use internal benchmarks and/or tools to assess sustainability progress within their company. The consumption of materials is a popular criterion, with approximately half of all respondents selecting energy, waste, and material consumption as one of the criteria used in their sustainability assessment.

In terms of the future development of sustainability, there is a concern for proper marketing efforts to prevent “green washing.” 56 percent of respondents felt that there should be mandatory certification standards before companies can market themselves as sustainable. Competitive quality and pricing is also an important area for gravure packaging stakeholders. Respondents indicated that energy and material costs and availability as well as changes in technology would impact their strategic direction in terms of sustainability.

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# Appendix: Tabular Data

| Category | Response | Count* |
|---|---|---|
| Q1. What is the size of your company, including all locations? | | |
| Under 20 | 10.9% | 13 |
| 20 – 99 | 13.4% | 16 |
| 100 – 249 | 13.4% | 16 |
| 250 – 999 | 15.1% | 18 |
| 1,000 or more | 47.1% | 56 |
| Q2. How many years has your company been involved with gravure packaging products or services? | | |
| 10 years or less | 24.4% | 29 |
| 11 – 20 years | 16.0% | 19 |
| 21 – 30 years | 16.0% | 19 |
| 30 years or more | 43.7% | 52 |
| Q3. Where are your manufacturing locations? [Select all that apply] | | |
| Northeast U.S. | 37.8% | 45 |
| Midwest U.S. | 49.6% | 59 |
| South U.S. | 27.7% | 33 |
| West U.S. | 13.4% | 16 |
| Europe | 33.6% | 40 |
| Other (please specify) | 26.9% | 32 |
| Q4. How familiar are you with the issue of sustainability within the gravure packaging printing industry? | | |
| Very familiar | 21.8% | 26 |
| Moderately familiar | 40.3% | 48 |
| Somewhat familiar | 27.7% | 33 |
| Not at all familiar | 10.1% | 12 |
| Q5. In the past year, do you feel the emphasis on sustainable printing has increased, stayed about the same, or decreased in importance? | | |
| Increased | 72.3% | 86 |
| Stayed about the same | 21.8% | 26 |
| Decreased | 5.9% | 7 |
| Q6. What are the top three areas of importance in terms of sustainability in the current gravure packaging printing industry? | | |
| Efficient use and conservation of material resources | 55.5% | 66 |
| Responsible energy use | 33.6% | 40 |
| Management of waste and pollution | 47.1% | 56 |
| Health and safety programs | 19.3% | 23 |
| Customer and employee satisfaction and education | 20.2% | 24 |
| Ethical labor practices | 10.9% | 13 |
| Competitive quality and pricing | 65.5% | 78 |
| Increase productivity to lower bottom-line | 25.2% | 30 |
| Maximize return on investment | 22.7% | 27 |

** n=119 unless stated otherwise*

| Category | Response | Count* |
|---|---|---|
| Q7. Which of the following describes how your company addresses sustainability? | | |
| Sustainability is an individual's responsibility to do what makes sense | 11.8% | 14 |
| Sustainability efforts are addressed company-wide | 37.0% | 44 |
| Bans and limitations of specific materials and emissions are communicated and tracked | 10.9% | 13 |

| Q8. Please rank the importance of the following Rs in terms of gravure sustainability. ["1" is most important] | | | | |
|---|---|---|---|---|
| R | 1 | 2 | 3 | Average |
| Reduce | 69.7% | 13.4% | 16.8% | 1.47 |
| Reuse | 10.9% | 44.5% | 44.5% | 2.34 |
| Recycle | 19.3% | 42.0% | 38.7% | 2.19 |
| Q9. Please assess the degree to which gravure sustainability in packaging printing is addressing these issues | | | | |
| Issue | Extremely Well | Well | Not Much | Nothing |
| Environmental | 15.1% | 60.5% | 24.4% | 0.0% |
| Social | 10.1% | 38.7% | 48.7% | 2.5% |
| Economic | 8.4% | 49.6% | 40.3% | 1.7% |

| Category | Response | Count* |
|---|---|---|
| Q10. Indicate the role of your company in the gravure printing industry. | | |
| Customer/Buyer | 16.0% | 19 |
| Supplier (equipment, consumables, cylinders, etc.) | 37.0% | 44 |
| Printer/Converter | 36.1% | 43 |
| Other (please specify) | 10.9% | 13 |
| Q11. What % of your current consumers are seeking sustainable products and services from your company? (n=19) | | |
| Less than 25% | 36.8% | 7 |
| 25% to 49% | 31.6% | 6 |
| 50% to 74% | 15.8% | 3 |
| 75% or more | 10.5% | 2 |
| N/A | 5.3% | 1 |
| Q12. As a customer/buyer in the gravure packaging printing industry, which of the following best describes your company's purchasing decisions in relation to sustainability? (n=19) | | |
| Sustainability is a very important factor in purchasing decisions | 26.3% | 5 |
| Sustainability is a moderately important factor in purchasing decisions | 42.1% | 8 |
| Sustainability is a sometimes a factor in purchasing decisions | 21.1% | 4 |
| Sustainability is not important an important factor in purchasing decisions | 10.5% | 2 |

** n=119 unless stated otherwise*

| Category | Response | Count* |
|---|---|---|
| Q13. As a customer/buyer, which of the following best describes your company's position in regard to your supply chain's sustainability practices? (n=19) | | |
| We are not concerned about sustainability practices and work with all suppliers | 15.8% | 3 |
| We work with suppliers that are concerned about sustainability | 47.4% | 9 |
| We work with suppliers that meet certification standards | 10.5% | 2 |
| We work suppliers that meet certification standards and demonstrate continuous improvement | 26.3% | 5 |
| Q14. As a customer/buyer, what are the top three environmental concerns considered most important in your print supplier evaluation? (n=19) | | |
| Energy consumption | 42.1% | 8 |
| Resource wastes | 42.1% | 8 |
| Harmful/toxic chemicals | 31.6% | 6 |
| Greenhouse gas emission | 5.3% | 1 |
| Carbon footprint | 42.1% | 8 |
| Recycled content | 57.9% | 11 |
| Material sourcing | 52.6% | 10 |
| N/A | 5.3% | 1 |
| Q15. As a customer/buyer, how does your company communicate its sustainability requirements to your packaging printing suppliers? (n=19) | | |
| Informal or oral | 26.3% | 5 |
| Written with criteria detailed | 42.1% | 8 |
| Written with criteria and guidelines detailed | 10.5% | 2 |
| Written with criteria, guidelines, and assessment detailed | 5.3% | 1 |
| N/A | 15.8% | 3 |
| Q16. As a customer/buyer, what are the top three efforts that best describe the meaning of "reduce" in relation to gravure packaging printing? (n=19) | | |
| Use of recycled content | 42.1% | 8 |
| Minimize energy consumption | 57.9% | 11 |
| Minimize greenhouse gas emissions | 36.8% | 7 |
| Avoid hazardous materials and chemicals | 42.1% | 8 |
| Redesign for less material usage | 42.1% | 8 |
| Less waste | 42.1% | 8 |
| Other (please specify) | 5.3% | 1 |
| Q17. As a customer/buyer, what statement best describes your company's position on adopting soft proofing for color communication? (n=19) | | |
| We will continue to use hard copy proofs | 26.3% | 5 |
| We will consider the possibility | 26.3% | 5 |
| We are testing the technology | 15.8% | 3 |
| We prefer soft proofs over hard copy proofs | 31.6% | 6 |

** n=119 unless stated otherwise*

| Category | Response | Count* |
|---|---|---|
| Q18. In general, as a customer/buyer, what are the top three challenges to obtaining sustainable printing from the packaging printing supply chain? | | |
| Assessment/reporting standards | 26.3% | 5 |
| Comparable quality | 78.9% | 15 |
| Alternative materials | 47.4% | 9 |
| Raw materials prices | 68.4% | 13 |
| Compatibility with existing systems | 21.1% | 4 |
| Recovery infrastructure | 15.8% | 3 |
| Other (please specify) | 0.0% | 0 |
| Q19. What is your company's primary role in the supply-side of the gravure printing industry? (n=44) | | |
| Ink and ink-related | 27.3% | 12 |
| Substrates | 20.5% | 9 |
| Press and peripheral | 27.3% | 12 |
| Cylinder and engraving-related | 25.0% | 11 |
| Q20. What % of your current consumers is seeking sustainable products and services from your company? (n=44) | | |
| Less than 25% | 54.5% | 24 |
| 25% to 49% | 18.2% | 8 |
| 50% to 74% | 9.1% | 4 |
| 75% or more | 9.1% | 4 |
| N/A | 9.1% | 4 |
| Q21. As a supplier in the gravure packaging printing industry, what are the top three drivers for providing sustainable solutions? (n=44) | | |
| Regulatory compliance | 52.3% | 23 |
| Customer requirements | 65.9% | 29 |
| Consumer requirements | 47.7% | 21 |
| Pricing pressures (i.e. materials and energy costs) | 59.1% | 26 |
| Increased competition | 27.3% | 12 |
| Increased media attention | 18.2% | 8 |
| Improved brand image | 29.5% | 13 |
| Q22. As a supplier, what are the top three environmental concerns considered most important? (n=44) | | |
| Energy consumption | 59.1% | 26 |
| Resource wastes | 63.6% | 28 |
| Harmful/toxic chemicals | 47.7% | 21 |
| Greenhouse gas emission | 25.0% | 11 |
| Carbon footprint | 29.5% | 13 |
| Recycled content | 38.6% | 17 |
| Material sourcing | 29.5% | 13 |
| N/A | 2.3% | 1 |

** n=119 unless stated otherwise*

| Category | Response | Count* |
|---|---|---|
| Q23. In general, as a supplier, what are the top three challenges in making processes/products more sustainable? (n=44) | | |
| Assessment/reporting standards | 11.4% | 5 |
| Comparable quality | 70.5% | 31 |
| Alternative materials | 52.3% | 23 |
| Raw materials prices | 63.6% | 28 |
| Compatibility with existing systems | 47.7% | 21 |
| Recovery infrastructure | 36.4% | 16 |
| Other (please specify) | 4.5% | 2 |
| Q24. As an ink-related supplier, what are the top three environmental considerations you are focusing on? (n=44) | | |
| Responsible energy use | 20.5% | 9 |
| Recycled content and material reduction | 20.5% | 9 |
| Reduction of VOCs, alternative inks (i.e. soy) | 31.8% | 14 |
| Reduction of VOCs, water-based inks | 25.0% | 11 |
| Reduction of hazardous components (i.e. metals) | 18.2% | 8 |
| N/A | 56.8% | 25 |
| Other (please specify) | 0.0% | 0 |
| Q25. As a substrate-related supplier, what are the top three environmental considerations you are focusing on? (n=44) | | |
| Responsible energy use | 27.3% | 12 |
| Recycled content | 38.6% | 17 |
| Material reduction | 31.8% | 14 |
| Responsible sourcing (i.e. forest stewardship) | 27.3% | 12 |
| Friendlier processing | 9.1% | 4 |
| N/A | 52.3% | 23 |
| Other (please specify) | 0.0% | 0 |
| Q26. As a cylinder engraver and cylinder-related supplier, what are the top three environmental considerations you are focusing on? (n=44) | | |
| Responsible energy use | 29.5% | 13 |
| Using light weight cylinders | 9.1% | 4 |
| Alternative base cylinder material | 18.2% | 8 |
| Alternative cylinder surface material | 11.4% | 5 |
| Alternative to chrome coating | 18.2% | 8 |
| Alternative engraving technology | 13.6% | 6 |
| N/A | 59.1% | 26 |
| Other (please specify) | 6.8% | 3 |

** n=119 unless stated otherwise*

| Category | Response | Count* |
|---|---|---|
| Q27. As a press and peripheral supplier, what are the top three environmental considerations you are focusing on? (n=44) | | |
| Responsible energy use | 25.0% | 11 |
| Automation to increase efficiency and reduce waste | 27.3% | 12 |
| Efficient solvent recovery | 15.9% | 7 |
| Process control improvements | 25.0% | 11 |
| Recycled content and material reduction in components | 15.9% | 7 |
| Use of more sustainable materials in components | 25.0% | 11 |
| N/A | 50.0% | 22 |
| Other (please specify) | 2.3% | 1 |
| Q28. What % of your current consumers is seeking sustainable products and services from your company? (n=43) | | |
| Less than 25% | 32.6% | 14 |
| 25% to 49% | 34.9% | 15 |
| 50% to 74% | 18.6% | 8 |
| 75% or more | 11.6% | 5 |
| N/A | 2.3% | 1 |
| Q29. As a printer/converter in the gravure packaging printing industry, what are the top three drivers for providing sustainable solutions? (n=43) | | |
| Regulatory compliance | 44.2% | 19 |
| Customer requirements | 69.8% | 30 |
| Consumer requirements | 48.8% | 21 |
| Pricing pressures (i.e. materials and energy costs) | 51.2% | 22 |
| Increased competition | 39.5% | 17 |
| Increased media attention | 11.6% | 5 |
| Improved brand image | 34.9% | 15 |
| Q30. As a printer/converter, what are the top three significant activities pertaining to sustainability efforts in your company. (n=43) | | |
| Reduce production waste | 67.4% | 29 |
| Reduce pollution | 44.2% | 19 |
| Use of eco-friendly materials | 23.3% | 10 |
| Reduce product weight/volume | 23.3% | 10 |
| Responsible energy consumption | 44.2% | 19 |
| Facilitate recycling and recovery | 67.4% | 29 |
| Inform consumers about sustainability | 30.2% | 13 |
| Other (please specify) | 0.0% | 0 |

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| Category | Response | Count* |
|---|---|---|
| Q31. Brand owners expect their package printing suppliers to use "green printing" while keeping costs down. What can a gravure packaging printer do to help their clients? (n=43) | | |
| Do nothing because sustainability interest will decline | 0.0% | 0 |
| Adopt process control to existing printing process to keep costs down | 79.1% | 34 |
| Adopt green printing and charge a higher cost | 9.3% | 4 |
| Designate a VP to take charge of the sustainability program | 9.3% | 4 |
| Seek outside consultant to kick start the sustainability program | 2.3% | 1 |
| Other (please specify) | 0.0% | 0 |
| Q32. As a printer/converter, which of the following areas of "green printing" does your company identify with or have obtained certification from? [Select all that apply] (n=43) | | |
| ISO standards | 53.5% | 23 |
| Forest stewardship | 32.6% | 14 |
| Responsible/renewable energy use | 51.2% | 22 |
| Government guidelines | 25.6% | 11 |
| Recycled content | 48.8% | 21 |
| Independent recognition | 23.3% | 10 |
| None | 2.3% | 1 |
| Other (please specify) | 2.3% | 1 |
| Q33. As a printer/converter, what are the top three environmental concerns considered most important? (n=43) | | |
| Energy consumption | 67.4% | 29 |
| Resource wastes | 65.1% | 28 |
| Harmful/toxic chemicals | 53.5% | 23 |
| Greenhouse gas emission | 23.3% | 10 |
| Carbon footprint | 27.9% | 12 |
| Recycled content | 27.9% | 12 |
| Material sourcing | 20.9% | 9 |
| N/A | 4.7% | 2 |
| Q34. As a gravure packaging printer/converter, which area of your workflow has the greatest potential in reducing energy consumption? (n=43) | | |
| Lighting and building heating/cooling | 39.5% | 17 |
| Premedia and prepress | 0.0% | 0 |
| Press make-ready and printing | 41.9% | 18 |
| Post-press, storage, and transportation | 14.0% | 6 |
| Other (please specify) | 4.7% | 2 |

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| Category | Response | Count* |
|---|---|---|
| Q35. If waste reduction on press is a priority for your company, what method is most successful in achieving your goal while maintaining quality? (n=43) | | |
| Print design | 14.0% | 6 |
| Prepress process control | 7.0% | 3 |
| Coordination with cylinder provider | 0.0% | 0 |
| Process control on press | 76.7% | 33 |
| Other (please specify) | 2.3% | 1 |
| Q36. If reduction of greenhouse gas emissions on press is a priority for your company, what method is most successful in achieving your goal while maintaining quality? (n=43) | | |
| Using water-based ink | 18.6% | 8 |
| Recovering solvent for disposal | 9.3% | 4 |
| Recovering solvent for reuse | 32.6% | 14 |
| Reducing VOC in inks and solvents | 18.6% | 8 |
| Reducing ink consumption | 20.9% | 9 |
| Other (please specify) | 0.0% | 0 |
| Q37. In general, as a printer/converter, what are the top three challenges in making processes/products more sustainable? (n=43) | | |
| Assessment/reporting standards | 14.0% | 6 |
| Comparable quality | 53.5% | 23 |
| Alternative materials | 74.4% | 32 |
| Raw materials prices | 62.8% | 27 |
| Compatibility with existing systems | 53.5% | 23 |
| Recovery infrastructure | 27.9% | 12 |
| Comments | | 0 |
| Q38. Does your company have established sustainability policies? | | |
| No Policy | 10.9% | 13 |
| Informal, unwritten policy | 43.7% | 52 |
| Formal, written policy | 39.5% | 47 |
| Don't Know | 5.9% | 7 |
| Q39. Does your company differentiate sustainability policy from environmental policy? | | |
| Yes | 39.5% | 47 |
| No | 39.5% | 47 |
| Don't Know | 16.8% | 20 |
| N/A | 4.2% | 5 |

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| Category | Response | Count* |
|---|---|---|
| Q40. If your company has sustainability policies, how is the effort managed? | | |
| Single person as separate company division/department | 5.9% | 7 |
| Single person within existing division/department | 12.6% | 15 |
| Separate company division/department | 2.5% | 3 |
| Team within existing division/department | 25.2% | 30 |
| General company effort | 33.6% | 40 |
| N/A | 20.2% | 24 |
| Q41. How would you describe your company's sustainability efforts, are they more short-term and tactical or more long-term and strategic? | | |
| 1 Short-term and tactical | 12.6% | 15 |
| 2 | 10.1% | 12 |
| 3 | 21.8% | 26 |
| 4 | 19.3% | 23 |
| 5 Long-term and strategic | 26.9% | 32 |
| N/A | 9.2% | 11 |
| Q42. If your company has or is developing sustainability policies, what guidelines are included? [Select all that apply] | | |
| Print Design Guidelines | 20.2% | 24 |
| Recycled Content Specifications | 31.9% | 38 |
| Measurable Sustainability Goals | 41.2% | 49 |
| Bans or Limits on Specific Material Usage | 31.1% | 37 |
| Employee and Customer Education | 52.9% | 63 |
| No Specific Guidelines | 23.5% | 28 |
| Other (please specify) | 5.0% | 6 |
| Q43. What methods are you employing to assess your sustainability progress? [Select all that apply] | | |
| External assessment tool | 16.0% | 19 |
| Internally developed assessment tool | 36.1% | 43 |
| Life-cycle inventory | 18.5% | 22 |
| External measurable benchmarks | 17.6% | 21 |
| Internal measurable benchmarks | 43.7% | 52 |
| None | 23.5% | 28 |
| Other (please specify) | 2.5% | 3 |

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|---|---|---|
| Q44. What criteria is included in your sustainability assessment? [Select all that apply] | | |
| Virgin/Recycled content | 33.6% | 40 |
| Sourcing | 25.2% | 30 |
| Human impacts | 20.2% | 24 |
| Material consumption | 50.4% | 60 |
| Energy consumption | 54.6% | 65 |
| Water usage | 33.6% | 40 |
| Toxic/harmful chemicals | 40.3% | 48 |
| Design for printing | 21.8% | 26 |
| Probability Material will be Recycled | 25.2% | 30 |
| Life-cycle analysis | 21.8% | 26 |
| Greenhouse gas emissions | 26.1% | 31 |
| Waste consumption | 52.9% | 63 |
| Recovery value | 22.7% | 27 |
| Carbon footprint | 31.9% | 38 |
| N/A | 12.6% | 15 |
| Q45. What is the greatest result of sustainable growth? | | |
| Gain new clients | 9.2% | 11 |
| Add value to product/improve market position | 19.3% | 23 |
| Reduce wastes/costs | 30.3% | 36 |
| Reduce environmental impact | 30.3% | 36 |
| Benefits to employees and the community | 7.6% | 9 |
| Other (please specify) | 3.4% | 4 |
| Q46. Over the next 5 years which of the following factors will have the greatest impact on the strategic direction of your company? | | |
| Energy and material costs and availability | 31.1% | 37 |
| Changes in technology | 26.9% | 32 |
| Environmentally conscious consumers | 12.6% | 15 |
| Regulatory requirements | 10.1% | 12 |
| Corporate sustainability initiatives | 19.3% | 23 |
| Q47. Should there be mandatory certification standards to be met before companies can market themselves as sustainable? | | |
| Yes | 56.3% | 67 |
| No | 17.6% | 21 |
| Not sure | 26.1% | 31 |

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| Category | Response | Count* |
|---|---|---|
| Q48. Who should set, maintain, and enforce these mandatory certification standards? | | |
| N/A | 16.8% | 20 |
| Corporate group | 3.4% | 4 |
| Educational institution | 5.9% | 7 |
| Government | 18.5% | 22 |
| Industry/Trade Association | 37.0% | 44 |
| Non-Profit Organizations / Coalitions | 18.5% | 22 |
| Q49. Currently, what area of packaging gravure requires significant developments to be more sustainable? | | |
| Printing ink and chemicals | 35.3% | 42 |
| Printing substrates | 21.8% | 26 |
| Production equipment | 9.2% | 11 |
| Printing and converting processes | 18.5% | 22 |
| Cylinder engraving and imaging | 12.6% | 15 |
| Other (please specify) | 2.5% | 3 |
| Q50. To best achieve sustainability goals, what developments are most needed? [Select top three] | | |
| Better new materials | 31.9% | 38 |
| More education training (internally) | 34.5% | 41 |
| Third party support and regulation | 20.2% | 24 |
| Cost effective assessment tools | 29.4% | 35 |
| Renewable energy sources | 36.1% | 43 |
| Better collection and recovery infrastructure | 33.6% | 40 |
| Better supply chain information | 24.4% | 29 |
| Improve consumer awareness | 39.5% | 47 |
| Other (please specify) | 3.4% | 4 |
| Q51. What is your personal role within your company? | | |
| Business/ Corporate Management | 21.4% | 25 |
| Production/ Operations Management | 30.8% | 36 |
| Production/ Operations | 11.1% | 13 |
| Sales and Marketing | 24.8% | 29 |
| Other | 12.0% | 14 |

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