SWST – International Society of Wood Science and Technology

Marketing Practices in the Urban and Reclaimed Wood Industries

BIOPRODUCTS BUSINESS

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Abstract

In the United States, trees felled in urban areas and wood generated through construction and demolition are primarily disposed of as low-value resources, largely sent to landfills, or utilized for energy, composting, and landscaping mulch. In recent years, the urban and reclaimed wood industries have emerged to provide a higher value-added outlet, foster local economies, and divert supplies from landfills. This paper presents the results of a nationwide survey carried out to understand marketing practices of the urban and reclaimed wood industries. The results indicate that a majority of respondents were small firms operating for less than 10 years, and that they appealed to consumers between 35 and 54 years of age, with upper middle income status. Products and species were widely variable between firms, and sales were largely made-to-order and priced higher than similar products made from traditional sources. Primary promotional messages included quality, aesthetics, and customization, largely advertised via the company's webpage, word of mouth, and social media. The prevalent distribution channels included direct sales, online sales, and retail sales. Partnerships appeared to be critical for effective raw material procurement, and, despite barriers associated with urban and reclaimed wood materials and production, growth expectations were almost unanimously optimistic, as reported by participating firms.

Keywords: urban wood, reclaimed wood, marketing, wood products

1 Introduction

Traditionally, logs from trees originating in urban areas of the United States and wood elements generated through construction and demolition (C&D) projects have been disposed of as low-value resources, typically through chipping, burning, or landfilling. There are approximately 74 billion existing urban trees, and when trimming or removal is necessary, the resulting wood is considered wood waste. In 2010, roughly 34.2 million tons of wood waste entered the municipal solid waste (MSW) stream, with 18.4 million tons consisting of woody yard trimmings such as urban trees and limbs (Bratkovich, Howe, Bowyer, Pepke, Frank, & Fernholz, 2014). A majority of reclaimed wood supplies originate from structures like old barns and buildings, and approximately 36.4 million tons of wood waste from C&D were generated in the U.S. in 2010 (Bratkovich et al., 2014; Howe, Bratkovich, Bowyer, Frank, & Fernholz, 2013). In recent years, new industries have emerged to capitalize on these undervalued resources by offering unique aesthetics, historical significance, environmental sustainability, and sentimentality derived from such inimitable wood supplies. These industries also provide economic opportunities in their communities and make use of an underutilized resource to produce high value-added products. This paper presents the results of a research project that used a nationwide survey to develop an industry profile of firms operating in the urban and reclaimed wood industries, with an emphasis on marketing practices.

1.1 Urban Trees

For the purpose of this project, urban trees were defined as those located in urban areas, as outlined by the US

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Acknowledgements: The authors would like to thank all the companies that participated in the study. Thanks also to Alejandro Sanchez Chinchilla for his assistance during the development phase of this study.

The work upon which this publication is based was funded in part through a grant awarded by the Wood Education and Resource Center, Northeastern Area State and Private Forestry, USDA Forest Service. This institution is an equal opportunity provider.

BioProducts Business 4(2), 2019, pp. 15-26. ISSN 2378-1394.
https://doi.org/10.22382/bpb-2019-002

Office of Management and Budget (OMB), for an estimated total of 74 billion urban trees (Sherrill, 2017). Urban trees bring forth a variety of environmental, economic, and societal benefits, such as lower air temperatures, pollutant filtration, carbon sequestration, benefits to mental health and community wellbeing, noise reduction, and reduced heating and cooling costs (City and County of San Francisco, 2016; Nowak et al., 2010).

Urban trees are removed for a variety of reasons, including landscaping, disease, or development, and the resulting materials have traditionally been regarded as urban wood waste. The EPA defines urban wood waste as: yard trimmings, wood from project site removals, pallets, furniture, packaging, and other commercial or household wood waste disposed of in landfills (Lyon & Bond, 2014). Using this definition, it was estimated that, of the 34.2 million tons of wood-based MSW generated in 2010, 18.4 million tons of woody yard trimmings like urban trees and limbs were disposed of, with 4.0 million tons available for recovery (Bratkovich et al., 2014).

Wood-based MSW is typically disposed of via landfilling or low-value uses, such as landscaping mulch, compost, or firewood. Landfilling not only negatively impacts the environment, but also many cities, businesses, and homeowners incur substantial costs to remove, transport, and landfill municipal trees (Cesa, Lempicki, & Knotts, 2003). In recent years, entrepreneurs have noted the potential for further urban log utilization, offering environmental and economic benefits through higher value-added production.

1.2 Reclaimed Wood

Reclaimed wood is defined as all previously utilized wood products brought back into circulation, typically originating from old structures, like barns or buildings. Salvaged elements include flooring, lumber, and timbers, resulting in a high-quality source of large-section pieces (Howe et al., 2013). C&D waste are defined separately by the EPA, with construction waste, including packaging, resulting from remodeling or renovation and demolition waste coming from selective or total demolition (United States Environmental Protection Agency, 2007). It is estimated that 36.4 million tons of C&D debris were generated in 2010, with approximately 17.3 million tons of C&D wood waste available for recovery (Bratkovich et al., 2014; Howe et al., 2013).

The Forest Stewardship Council (FSC), an organization that maintains certification standards for sustainably managed forests and supply chains, has expanded the scope of their label to include post-consumer reclaimed wood, including material from residential, industrial, or municipal end-consumer waste streams (Forest Stewardship Council, 2011). The Leadership in Energy and Environmental Design (LEED) green building rating system provides credit to reclaimed wood projects for applicable life-cycle impact reductions as well as for FSC certification, material reuse, and regional sourcing, recognizing "leadership extraction practices" (U.S. Green Building Council, 2019). Both FSC and LEED certifications recognize the environmental sustainability associated with reclaimed wood, namely landfill diversion and resource conservation, as well as decreased energy consumption and lower global warming potential when compared to alternatives (Bergman, Gu, Falk, & Napier, 2010). Additionally, reclaimed wood possesses desirable characteristics for value-added production, including large sections (typically structural beams and timbers), unique aesthetics, and slow-growth wood attributes, as well as allows for strong, fully dried wood that is less prone to additional cracking, due to years of expanding and contracting (YR Architecture + Design, 2015).

1.3 Marketing in the Urban and Reclaimed Wood Industries

Marketing can be defined as managing consumer needs through effective appeal and the promise of superior product value over industry competitors (Armstrong & Kotler, 2013; Shupe & Vlosky, 2010). Due to the newly established nature of both the supply and demand of urban and reclaimed wood products, literature specific to marketing practices in these industries is almost non-existent. A variety of sources were used to gain a basic understanding of each industry and its marketing practices, including, for example, reports (Bratkovich & Fernholz, 2010; Forest Stewardship Council, 2011; Howe et al., 2013; Lyon & Bond, 2014; MNP LLP, 2015; Stai, Wiesman, & Fernholz, 2017), books (Morrison, 2016; Sherrill, 2017), online articles (LeBlanc, 2017; Offner, 2014; Wood-Mizer LLC, 2016), and company (specific firms will not be disclosed) and organization webpages (Recycle Ann Arbor, 2017; Urban Salvaged + Reclaimed Woods, 2018; Urban Wood Network, 2017; USDA Forest Service, 2017; USDA Forest Service, American Forests & National Association of Regional Councils, 2017).

Urban and reclaimed wood firms vary in terms of products, capacity, distribution, raw materials, and

markets, to name a few. Firms range from small, owner-run facilities to international export operations, and from newly established firms to companies operating for decades. Customers are equally varied, ranging from high-volume corporate customers to architecture and design firms to individual buyers. Ultimately, this paper will place emphasis on current markets and marketing practices in the urban and reclaimed wood industries, specifically on product, price, promotion, and distribution.

A qualitative analysis of company webpages and other promotional materials revealed that urban and reclaimed wood firms generally offer differentiated products, including custom work, unique aesthetics and finishes (like live-edge tables, resin-filled slabs, and nail hole or painted boards), innovative designs, exclusivity, and sustainability associated with waste product raw materials. Pricing within the urban and reclaimed wood industries is often variable due to the high percentage of custom work as well as the unpredictable nature of the raw material and labor required. Regarding promotion, anecdotal evidence suggests that urban and reclaimed wood firms effectively leverage tools like social media, company webpages, printed or electronic publications, trade show participation, and educational training to emphasize messages surrounding quality, history, sustainability, uniqueness, and others. Finally, in recent years, the Internet has facilitated shorter distribution channels for small- to medium-sized firms by allowing them to advertise and sell directly to end users, which is particularly relevant for the urban and reclaimed wood industries.

1.4 Objective

The objective of this study was to identify current marketing practices in the urban and reclaimed wood industries. To accomplish this goal, the following specific objectives were proposed: (1) develop a profile of value-added urban and reclaimed wood products manufacturers, (2) identify current marketing practices, and (3) identify industry opportunities and barriers.

2 Methods

A survey was conducted to outline current marketing practices and major characteristics of firms in the target population, specifically US companies using timber from urban trees or reclaimed wood derived from old structures as a raw material for value-added production. Because these industries are relatively new and lack a specific Census classification designation (North American Industry Classification System, or NAICS), a list of companies was compiled through Internet searches, social media, state and regional databases, personal contacts, and others. A considerable amount of time was dedicated to compiling this list and obtaining current email addresses. The final distribution list contained 386 companies, consisting of what the authors categorized as 151 "urban wood" firms and 238 "reclaimed wood" enterprises; however, survey results (see Results and Discussion section) later indicated that many firms identify themselves as utilizing both urban and reclaimed wood raw materials. To avoid confusion, such firms will be referred to as utilizing raw materials from "mixed sources."

Using a literature review and the outlined research objectives as major inputs, a questionnaire was developed iteratively in Qualtrics, an online survey software system (Qualtrics, 2005). The draft was sent to industry experts to ensure question clarity and relevance, to add topics that may have been overlooked, and to delete or modify redundant questions. The resulting recommendations were incorporated into the questionnaire and sent to industry representatives for a second round of feedback. Table 1 summarizes the final survey sections, questions, and scales distributed via email to companies in the industry list compiled for this study.

Table 1. Survey structure breakdown.

Category	Variables	Question Type
Company characteristics	Raw material source, years in operation, number of employees, geographic sales location, monthly raw material consumption, reason for entering the industry	Multiple-choice questions, open-ended question, Likert-like Importance Scale
Customer characteristics	Major markets – age, gender, income category	Multiple-choice questions
Marketing practices	Product, pricing, promotion, partnerships, and distribution	Likert-like Importance Scale, multiple choice questions, open-ended questions
Opportunities	Expectations for growth	Open-ended question
Barriers	Barriers to growth, barriers to industry operation	Likert-like Importance Scale, open-ended question

Non-respondents received two email reminders prior to the survey's closure and data analysis.

3 Results and Discussion

After closing the survey, 132 usable responses were obtained from the sample of 386 firms. Accounting for undeliverable email addresses (6), companies that declined participation (9), companies incorrectly identified as part of the population (8), and companies that submitted incomplete responses (8), an adjusted response rate of 37.2% was calculated, using an adjusted sample of 355 firms (Dillman, Smyth, & Christian, 2009). This response rate is considerably above the median and average response rates of 26.0% and 31.6%, respectively, for surveys to North American forest products industries, according to a study of 195 surveys conducted between 2000 and 2015 (Bumgardner, Montague, & Wiedenbeck, 2017).

Nonresponse bias was evaluated to estimate whether significant differences existed between firms responding to the survey and non-respondents. Evaluating nonresponse bias is important because it limits generalizations that can be made about a population. For nonresponse bias assessment, late respondents were used as a proxy for non-respondents, and their responses were compared to those of early respondents. Questions evaluated included number of employees (a measure of company size), raw material group (including urban wood, reclaimed wood, and mixed-source), and company sales region. From the Pearson's chi-squared test results, no significant associations were detected for region and number of employees when comparing early and late response tabulations, with p-values of 0.768 and 0.175 (p-value > 0.05), respectively. However, raw material group and response timing displayed significant association, yielding a p-value of 0.033, with mixed-source firms over-represented in the final sample (65.2% of late respondents compared to 35.0% of early respondents).

3.1 Company Characteristics

Table 2 contains a summary of the participating firms' characteristics. Respondents consisted of 36 (27.3%) urban wood firms, 41 (31.3%) reclaimed wood firms, and 55 (41.7%) mixed-source firms. Overall, a majority of firms had been in operation for less than 10 years (43.2%) or more than 15 years (36.4%). More urban wood producers and mixed-source companies (50.0% and 43.6%, respectively) reported operating for less than 10 years when compared to reclaimed wood firms (36.6%). Overall, as per the convention adopted for this study, the Pearson chi-squared test revealed no significant association between raw material group and years of operation (p-value = 0.070); however, a p-value below 0.10 provides some support to the assertion that urban wood is a newer concept in large-scale application than reclaimed wood (Table 2).

Companies were asked to report where their products were sold, selecting between US regions (Midwest, Northeast, Southeast, Southwest, and Northwest) and export markets. Multiple responses were possible. A majority of participating firms had sales in the Midwest and/or Northeast (approximately 50.0% of respondents for each region), and 18.9% of participating firms reported having exporting operations (Table 2). Twice as many reclaimed wood firms (29.3%) reported international sales than did either mixed-source (14.5%) or urban wood firms (13.9%). In this and other questions, mixed-source responses resembled urban wood firm responses to a higher degree than those of reclaimed wood firms. However, no significant association was detected between region of sale and raw material group based on a Pearson's chi-squared test (p-value = 0.962) (Table 2).

Number of employees was used as a proxy for firm size in the survey questionnaire. Most firms were small, with 65.9% of respondents having fewer than 10 employees and only 12.9% employing 20 individuals or more. Using a Pearson's chi-squared test, a significant association was found between firm size and raw material group (p-value = 0.003) (Table 2). In general, urban wood and mixed-source firms were smaller than reclaimed wood operations, with 86.1%, 67.3%, and 46.3%, respectively, having fewer than 10 employees. Conversely, 24.4% of reclaimed wood firms had 20 or more employees, while only 9.1% of mixed-source and 8.3% of urban wood companies met this criterion.

In addition to number of employees, general firm size and production capacity were estimated by monthly raw material consumption in board feet. It was determined that, of the three raw material categories, reclaimed wood firms consumed the highest volume of raw material per month (average of 26.7 thousand board feet, or MBF), followed by mixed-source (16.4 MBF) and urban wood firms (6.1 MBF). The standard deviations associated with raw material consumption were high, ranging from 0.1 to 200 MBF per month and reflecting widely variable production capacities.

Table 2. Company characteristics of participating firms.

Years in Operation	Overall (%)	Urban Wood (%)	Reclaimed Wood (%)	Mixed-source (%)
< 1 year	2.3	5.6	2.4	0.0
1-4 years	10.6	13.9	2.4	14.5
5-9 years	30.3	30.6	31.7	29.1
10-15 years	20.5	16.7	12.2	29.1
> 15 years	35.6	30.6	51.2	27.3
No response	0.8	2.8	0.0	0.0

Pearson's chi-squared test: $\chi^2 = 14.471$; p-value = 0.070.

Sales region*	Overall (%)	Urban Wood (%)	Reclaimed Wood (%)	Mixed-source (%)
Midwest	50.0	47.2	51.2	50.9
Northeast	50.0	44.4	61.0	45.5
Southeast	43.9	30.6	63.4	38.2
Southwest	37.1	25.0	46.3	38.2
Northwest	30.3	22.2	43.9	25.5
International	18.9	13.9	29.3	14.5

* Note: Regions were selected from a simplistic map detailing (1) Midwest – IA, IL, KS, MI, MO, MN, NE, ND, SD, WI (2) Northeast – CT, DE, IN, KY, OH, PA, MA, MD, ME, NH, NJ, NY, RI, VA, VT, WV (3) Southeast – AL, AR, FL, GA, LA, MS, NC, OK, SC, TN, TX, VT, WV (4) Southwest – AZ, CA, CO, NM, NV, UT (5) Northwest – ID, MT, OR, WA, WY.
AK and HI were not specifically depicted but are assumed to be included in Northwest and Southwest, respectively.
Multiple responses possible, thus percentages do not add up to 100%.
Pearson's chi-squared test: $\chi^2 = 4.42$; p-value = 0.962.

Number of employees	Overall (%)	Urban Wood (%)	Reclaimed Wood (%)	Mixed-source (%)
1 to 4	39.4	58.3	19.5	41.8
5 to 9	26.5	27.8	26.8	25.5
10 to 19	16.7	5.6	22.0	20.0
20 to 49	12.1	8.3	22.0	7.3
50 to 99	0.8	0.0	2.4	0.0
> 100	0.8	0.0	0.0	1.8
No response	3.8	0.0	7.3	3.6

Pearson's chi-squared test: $\chi^2 = 19.625$; p-value = 0.033.

3.2 Reasons for Entering the Industry

To contribute to the profile of urban and reclaimed wood firms, companies were asked to rank the importance of various reasons for entering the industry. The highest importance ratings were given to *Acquire raw materials with unique characteristics*, *Capitalize on a supply of wood otherwise being underutilized or wasted*, and *Appeal to consumer demand for more sustainable and local products*, with 90.9%, 89.4%, and 77.3% of respondents, respectively, rating these reasons as "Important" or "Extremely important." These responses reflect the emphasis on unique raw material characteristics as a source of differentiation. From a Pearson's chi-squared test, a significant association was detected between responses for *capitalize on a low-cost raw material* and raw material group (p-value = 0.038). Differences were rather large, with 63.9% of urban wood firms, 43.6% of mixed-source firms, and 17.1% of reclaimed wood firms ranking *capitalize on low-cost raw materials* as "Important" or "Extremely important." It should be noted that several firms communicated directly with the researcher (responding to the invitation email) stating that reclaimed wood does not provide a significantly lower-cost raw material, nor does it definitively translate to profits, due to the labor and resources required to refine it into a product.

Firms were given the opportunity to provide additional input on reasons for entering the industry via open-ended responses. Input received included: "To divert supply from outlets like mulch, burn pile, or landfill;" "Given the geographic location, using local materials is less shipping intensive and overall more sustainable;" "Provide a product with consumer supplied wood;" and "Appeal to the emotional aspect of production."

3.3 Customer Characteristics

By understanding who their customers are, firms can tailor their marketing strategies, target specific customer segments, and develop more successful products. The survey asked firms to identify their typical consumer based on gender, age, and annual household income to help those firms better appeal to consumers with targeted marketing practices. Respondents reported gender as a largely irrelevant factor to consumer purchasing, as attested to by 70.5% of firms. A majority of firms (50.8%) indicated that their typical consumer's age fell in the 35 to 44 year range, followed by consumers in the 45 to 54 year range (37.1%). Finally, annual consumer income was identified by participating firms as *Upper middle income* (52.3%) and *High income* (33.3%). A Pearson chi-squared test revealed no significant association between raw material group and customer demographic factors, with p-values of 0.22, 0.541, and 0.155 for gender, age range, and annual household income, respectively.

3.4 Marketing Mix

This study sought to outline strategies implemented by the urban and reclaimed wood industries with regard to the marketing mix, namely product, price, promotion, and placement (the "4 Ps" of marketing). Product analysis consisted of wood species used and product type, pricing was studied in relation to the competition, promotional analysis included messaging and platform, and placement considered distribution channels for product delivery. Each factor will be detailed further in the following sections.

3.4.1 Product

For marketing strategy, products include attributes beyond functionality and packaging, such as desirable features like quality and service (Smith et al., 2010). Products can be classified into commodity, specialty, and differentiated products. Commodity products offer only pricing differentiation; specialty products have specific, niche features to appeal to narrow market segments; and differentiated products include custom work and variations that set firms apart and entice consumers with tailored offerings, like accessories, aesthetics, branding, and warranties (Smith, Cesa, & Rappold, 2008; Shupe & Vlosky, 2010).

Responses for products manufactured and species used varied widely, particularly in relation to raw material group. Products offered by urban wood firms most frequently included doors, millwork, flooring, slabs, and windows, while reclaimed wood firms identified millwork, windows, furniture, byproducts, and cabinets as their most common products. Mixed-source responses were primarily aligned with urban wood production, with products including doors, millwork, flooring, windows, and byproducts. The top five species utilized most frequently by urban wood firms included walnut, white oak, cherry, ash, and hard maple (all hardwood species). For reclaimed wood firms, both hardwoods and softwoods were listed in the top five species, which were Douglas-fir, pine, southern yellow pine, white oak, and red oak. The top five species for mixed-source firms were highly reflective of those reported by urban wood companies and consisted of walnut, white oak, red oak, ash, and hard maple.

Participating firms were also asked to report on the percent of sales, by volume, allocated to "made-to-stock" (MTS) and "made-to-order" (MTO) production. Participating firms reported an average of 39.0% and 61.0% MTS and MTO sales, respectively. From a Pearson's chi-squared test, significant association was found between raw material group and responses to this question (p-value = 0.024). Reclaimed wood firms allocated a higher percentage to MTO production than did either urban wood or mixed-source companies (71.9% compared to 53.9% and 58.1%, respectively), where, as has been previously noted, mixed-source companies primarily resembled urban wood production. Because a majority of firms, irrespective of raw material group, participated in MTO production, the focus was placed on differentiated products over commodity products.

3.4.2 Price

For firms to adequately price products, they need to balance the value to consumers with cost and desired company profits, where pricing impacts overall operations, specifically sales, profit, inventory, and labor (Smith et al., 2010). The survey asked participating firms to report their pricing as compared to "the competition." No clarification was provided regarding whether competition should be understood as other urban and reclaimed wood firms or other value-added manufacturers of functionally similar products. Approximately 36.3% of participating firms reported their prices as being "Slightly higher" or "Much higher" than the competition, while 29.5% indicated that their prices were "Slightly lower" or "Much lower" than the competition. A Pearson's chi-squared test resulted

in a p-value of 0.976, revealing no significant associations between raw material group and relative pricing. From an analysis of survey responses for the product and price questions, it can be stated that companies operating in the urban and reclaimed wood industries, in general, adopt a differentiation strategy, making high-end products and producing largely against firm orders.

3.4.3 Promotion

Promotion increases the likelihood of purchase by creating a positive company image and adequate product awareness, largely using promotional messaging to educate consumers and advertising, personal selling, sales promotion, and publicity to reach them directly (Shupe & Vlosky, 2010; Smith et al., 2008). Each aspect of promotion is equally important, where advertising is visible and thought-provoking (i.e., television or newspaper advertisements), personal selling involves face-to-face communication (i.e., salespeople), sales promotion allows for non-personal product representation (i.e., trade shows), and publicity includes third-party limelight promotion (i.e., news articles or industry publications) (Smith et al., 2010).

In this research, promotional messaging was explored to gather an understanding of promotional strategies of participating firms. A number of promotional messages were identified based on themes in the literature and a systematic evaluation of company webpages, where firms were asked to rank the importance of these messages in their promotion. Responses showed that *Quality*, *Aesthetics*, and *Customization* were considered the most important promotional messages by respondents, with 93.2%, 92.4%, and 78.0% ranking these categories as "Important" or "Extremely important," respectively (Table 3). A Pearson's chi-squared test identified significant differences in responses between the three raw material groups for *Local and domestic sourcing* (p-value = 0.026), with 91.7% of urban wood firms, 72.7% of mixed-source firms, and 53.7% of reclaimed wood firms ranking it as "Important" or "Extremely important."

Participating firms were asked to rank the importance of various promotional platforms to their business. *Word of mouth*, *Company webpage*, and *Social media* were considered the most important promotional channels, with 93.2%, 81.1%, and 65.9% of firms ranking these as "Important" or "Extremely important," respectively (Table 4). In contrast, *Public relations*, *Events*, and *Newspapers and magazines* were ranked lower in importance as promotional platforms. A Pearson's chi-squared test

Table 3. Importance of promotional messages utilized by participating firms.

Message	Not at all important (%)	Slightly important (%)	Moderately important (%)	Important (%)	Extremely important (%)
Quality	0.8	0.8	2.3	16.7	76.5
Aesthetics	0	1.5	3.0	24.2	68.2
Customization	3.0	1.5	13.6	25.0	53.0
Sustainability	1.5	4.5	13.6	28.0	49.2
Local and domestic sourcing	2.3	6.1	16.7	34.1	37.9
Emotional value	2.3	5.3	26.5	31.1	31.8
Historical significance	3.0	9.1	17.4	37.1	30.3

* Rows do not add up to 100% because companies did not answer this question.
Pearson's chi-squared test: "local/domestic sourcing" displayed significant association between promotional messaging and raw material group: $\chi^2 = 17.39$; p-value = 0.026.

Table 4. Importance of promotional platforms utilized by participating firms.

Promotional platform	Not at all important (%)	Slightly important (%)	Moderately important (%)	Important (%)	Extremely important (%)
Word of mouth	0.0	0.8	3.8	20.5	72.7
Company webpage	0.8	6.8	9.1	19.7	61.4
Social media	2.3	8.3	19.7	29.5	36.4
Public relations	6.8	18.2	25.0	16.7	27.3
Events	22.7	28.8	16.7	17.4	9.8
Newspapers or magazines	21.2	34.1	24.2	9.8	5.3

* Rows do not add up to 100% because companies did not answer this question.
Pearson's chi-squared test: "word of mouth" and "events" display significant association between promotional platform and raw material group: $\chi^2 = 16.41$; p-value = 0.012 and $\chi^2 = 19.446$; p-value = 0.013, respectively.

revealed significant association between raw material group and the responses for *Word of mouth* and *Events*, (p-values of 0.012 and 0.013, respectively.) Mixed-source and reclaimed wood firms ranked *Word of mouth* higher in the importance scale than did urban wood companies, with 100.0%, 92.7%, and 83.3% ranking it as "Important" or "Extremely important," respectively. *Events* were valued as "Important" or "Extremely important" by primarily urban wood (36.1%) and mixed-source (29.1%) firms over reclaimed wood operations (17.1%) (Table 4).

The importance of word of mouth, company webpages, and social media highlight the customer-centric nature of urban and reclaimed wood company business models. Word of mouth is heavily reliant on consumer satisfaction and is an effective way for smaller firms to attract consumers. Company webpages are a simple, effective, and professional way to relay company information to consumers. Firms often link their social media accounts on their webpages to provide frequently updated photos of current projects and contact information. Ultimately, such practices speak to the fact that the urban and reclaimed wood industries seek to connect directly with their customers and do not typically use traditional advertising such as newspapers, public relations, or events.

Firms were given the opportunity to enter additional input on platforms not listed in the survey via open-ended responses. Responses included "craft shows," "paid advertising," "radio," "review websites" (Yelp, Google), "seeing products in the community," "tours," "TV commercial," "YouTube presence," and others.

3.4.4 Distribution Channels

Distribution—or how products reach the consumer—is essential for product delivery, visibility, and price (Shupe & Vlosky, 2010). Distribution channel length, or the number of intermediaries involved before end consumer delivery, directly affects pricing. Longer channels allow for less producer control over price, which are often set so that each member is incentivized to participate and make a profit, and shorter channels allow for more control, due to direct involvement in sales (Smith et al., 2010; Smith et al., 2008). For example, a long channel might include a third-party wholesaler or broker who, in turn, sells to the consumer, while a short distribution channel might consist of a producer reaching consumers directly at a craft fair.

The most common distribution channels utilized by participating firms were listed as follows: *Direct sales* (88.6% of firms), *Online sales* (53%), *Retail sales utilizing a company-owned store or showroom* (47.4%), *Retail sales* (43.2%), *Sale to a distributor* (25.8%), and *Consignment sales* (19.7%). More urban wood firms indicated using *Consignment sales* (33.3%) than either mixed-source (21.8%) or reclaimed wood (4.9%) firms. *Export sales* were reported most frequently by participating mixed-source firms (16.4%), followed by reclaimed wood and urban wood firms (12.2% and 11.1%, respectively). However, using a Pearson's chi-squared test, no significant association was found between distribution channel and raw material group (p-value = 0.773) (Table 5). The prevalence of direct sales, online sales, and retail sales again speaks to the customer-centric nature of the urban and reclaimed wood industries and their desire to interact with customers throughout the production process and up to the final sale.

Firms were given the opportunity to provide additional, specific distribution channels not listed in the survey via open-ended responses. Distribution channel length was quite variable between firm size, capacity, location, etc., in the urban and reclaimed wood indus-

Table 5. Distribution channels utilized by participating firms.

Distribution Channel	Overall (%)	Urban Wood (%)	Reclaimed Wood (%)	Mixed-source (%)
Direct sales	88.6	86.1	87.8	90.9
Online sales	53.0	58.3	46.3	54.5
Retail sales (company-owned or showroom)	47.7	50.0	41.5	50.9
Retail sales	43.2	44.4	39.0	45.5
Sale to a distributor	25.8	27.8	26.8	23.6
Consignment sales	19.7	33.3	4.9	21.8
Export sales	13.6	11.1	12.2	16.4
Other	6.8	11.1	2.4	7.3

* Multiple responses possible, thus percentages do not add up to 100%.
Pearson's chi-squared test: $\chi^2 = 8.149$; p-value = 0.773.

tries, where input received from firms included both short channels ("community events," "art shows," "direct from job sites," and "direct online sale using websites like Wood Planet or eBay") and longer channels with sale to third parties ("architecture and design firms," "furniture dealers and purchasers," and "wholesalers").

3.5 Supply Chain Partnerships

Partnerships are essential to urban and reclaimed wood production due to their role in raw material procurement. The survey asked firms to identify sourcing collaborations by selecting from a list tailored to each raw material group, and respondents were also given the opportunity to list partnerships not provided in the survey via open-ended responses in the category of *Other*. Notably, 94.4% of urban wood, 95.1% of reclaimed wood, and 100.0% of mixed-source firms, respectively, reported at least one partnership utilized for raw material sourcing. Both *Homeowner* and *Building-owner* partnerships were more prevalent than anticipated, probably due to the effort needed to foster and sustain so many relationships in a supply chain. These relationships are indicative of the sense of community and collaboration stressed by the urban- and reclaimed-wood industries. It was also determined that each firm utilized an average of four partners, which highlights the importance of partnerships for the industries of interest. Responses to this question are explained below.

It was found that a majority of urban wood firms collaborated with *Tree removal firms* (83.3%), *Arborists* (77.8%), *Homeowners* (75.0%), *City governments* (69.4%), and *Urban foresters* (58.3%). *Other* partnerships utilized by participating urban wood firms included "cemeteries," "golf courses," "developers and waste management companies," "demolition companies," "green waste repositories," "Native American Tribes," and "universities." Primary reclaimed wood partners included *Deconstruction firms* (78%), *Demolition firms* (75.6%), *Building owners* (70.7%), and *Construction and remodeling firms* (51.2%). *Other* partnerships utilized by participating reclaimed wood firms included "brokers," "manufacturers of waste byproducts," "other segments of a larger company, and "salvage yards." Finally, mixed-source firms maintain relationships primarily with *Homeowners* (72.7%), *Tree removal firms* (63.6%), *Arborists* (58.2%), *Building owners* (56.4%), *Deconstruction firms* (52.7%), *Urban foresters* (49.1%), *City governments* (49.1%), and *Construction and remodeling firms* (45.5%). The most frequently utilized partnerships for mixed-source firms align closely with those of urban wood companies. *Other* partnerships utilized by participating mixed-source firms included "college campuses," "material brokers," "reclaimed wood wholesalers," "USDA Forest Service," "waterways and rivers," "other sawyers," "other lumber stores," and utility industry partners."

3.6 Expectations and Barriers for Growth

The survey asked participating firms to rate their expectations for growth over the next 5 years. Overall, answers reflected largely optimistic expectations, with 85.6% of companies anticipating modest or significant growth, and merely 1.5% expecting business decline (Table 6). This sentiment was general across raw material groups, as a Pearson's chi-squared test determined that there was no significant association between growth expectations and raw material group (p-value = 0.251). Almost unanimous optimism surrounding growth reinforces confidence within these industries that urban and reclaimed wood production and consumption are not merely a fad, but have established plans for the foreseeable future.

To facilitate growth, firms will need to overcome barriers identified in the survey. The most important barriers, ranked by respondents as a "Large barrier" or "Extreme barrier," were *Lack of financial resources* (31.8% of responses), *Lack of storage space* (25.0%), and *Under-performing or insufficient marketing efforts* (22.0%) (Figure 1). The high importance of *Under-performing or insufficient*

Table 6. Anticipated company growth as reported by participating firms.

Anticipated Growth	Overall (%)	Urban Wood (%)	Reclaimed Wood (%)	Mixed-source (%)
Grow significantly	37.9	38.9	24.4	47.3
Grow modestly	47.7	47.2	61.0	38.2
Stay the same	9.1	11.1	4.9	10.9
Decline modestly	1.5	0.0	2.4	1.8
Decline significantly	0.0	0.0	0.0	0.0
No response	3.8	2.8	7.3	1.8

Pearson's chi-squared test: $\chi^2 = 7.824$; p-value = 0.251.

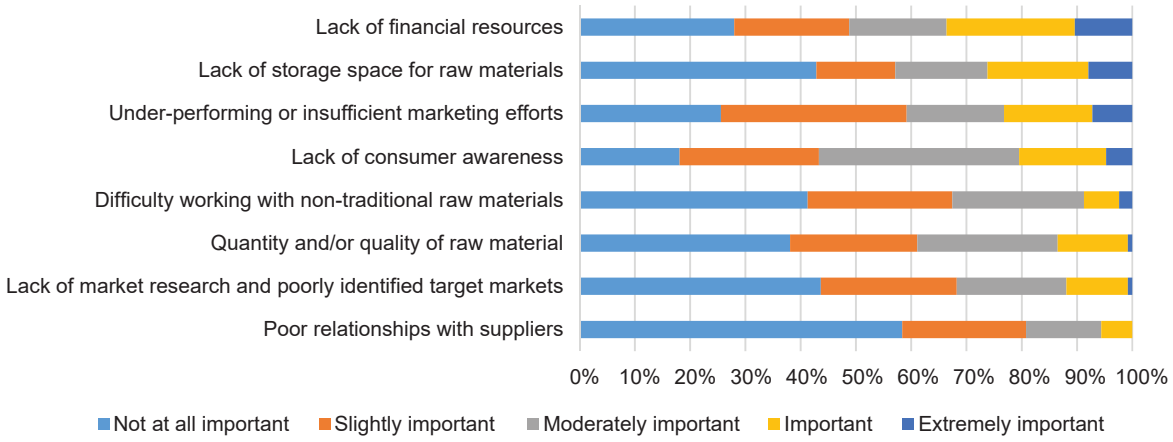

Figure 1. Importance of barriers to growth as identified by participating firms.

marketing efforts as a barrier highlights the need for this study. The barrier rated as least important was *Poor relationships with suppliers*, validating previous findings that a majority of participating firms maintain an effective relationship with at least one partner. According to a Pearson's chi-squared test, only *Lack of consumer awareness* displayed significant association between responses and raw material group (p-value = 0.01). *Lack of consumer awareness* was found to impact urban wood firms more significantly than those utilizing reclaimed or mixed-source raw materials (ranked as a "Large barrier" or "Extreme barrier" by 36.1%, 12.2%, and 14.5% of firms, respectively).

Overall, barriers listed in the questionnaire were not considered severe obstacles to participating firms, who ranked them primarily as "Not a barrier" and "Slight barrier." Specifically, raw material quality and quantity were ranked as less impactful than we anticipated. Urban and reclaimed wood processors face challenges from using raw materials containing embedded metals, having potentially lead-containing paints, and lacking structural integrity, and for this reason, it is assumed that such barriers to daily operations exist, but do not inhibit growth as a whole.

4 Conclusions

The primary purpose of this research project was to identify current marketing practices in the urban and reclaimed wood industries. To accomplish this objective, a survey was distributed to urban and reclaimed wood firms in the United States, with focus on developing a profile of manufacturers, outlining opportunities for and barriers to growth, and identifying current marketing practices using the marketing mix—product, price, promotion, and placement.

Results from this survey show that, overall, a majority of participating firms have operated for less than 10 years, and that reclaimed wood firms tend to operate at higher capacities than urban wood firms, many of which have less than 10 employees. In general, the responses from participating mixed-source firms resembled those of urban wood firms to a higher degree than did responses from reclaimed wood firms. The major reasons for entering each industry were associated with raw material characteristics as a source of differentiation, and included the desire for unique raw materials, a supply of wood otherwise being underutilized or wasted, and sustainable and local products. The typical consumer was identified as an individual 35 to 54 years of age with upper middle-income status, and gender was noted as irrelevant to purchasing. Products and species were variable between raw material groups, and it was noted that firms primarily produced MTO over MTS product. Participating firms indicated that their pricing was, in general, higher than the competition's, attesting to consumer willingness to pay for differentiated product attributes, specifically those stressed in promotional messaging, such as quality, aesthetics, and customization. Promotion was carried out primarily through word of mouth, company webpages, and social media, showing a direct connection between urban and reclaimed wood firms and their customers. The customer-centered nature

of the industries is reinforced through the importance of distribution channels such as direct sales, online sales, and retail sales, as well as through the importance of fostering and maintaining supply chain partnerships. A majority of participating firms anticipated modest to significant growth going forward. To facilitate growth, firms will need to overcome the identified barriers, including a lack of financial resources, lack of storage space, and inadequate marketing efforts.

As with any research effort, this study had limitations that should be considered when drawing conclusions and making recommendations (Dillman, Smyth, & Christian, 2009). Such limitations include the following: (1) Questionnaire responses came from only one representative from each of the firms surveyed, and this single opinion may or may not represent those of other employees. (2) Although great efforts were made to compile a complete list of companies operating in the industries of interest, there is no certainty that all, or even a majority, were included. Many firms in the urban and reclaimed wood industries are small operations, which may not be listed in any directory or may lack an Internet presence. Thus, generalizations about the population of interest are not possible. (3) Measurement errors may have originated from respondent inability to comprehend or complete the survey, leading to inaccurate, incomplete, or speculated results (for example, assumed consumer age, gender, or income). (4) Technical errors may have arisen around issues such as a poor Internet connection. (5) Significant associations between variables were tested using Pearson's chi-square tests, where test power depends, in part, on having "expected counts" greater than one and no more than 20% of those values lower than five. These conditions were not met in all cases, and some loss of power was tolerated.

Because the urban and reclaimed wood industries emerged to upcycle materials traditionally considered to be waste, there are inherent environmental benefits associated with the diversion of supply from landfills. Urban and reclaimed wood production also allows for economic growth by providing employment opportunities and a high value-added outlet for undervalued materials. This study generated information about company characteristics and marketing practices utilized in the value-added urban and reclaimed wood industries important for the formulation of marketing strategy recommendations, which will be the final outcome of this research.

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