

Management styles of lumber mill managers in the northern United States

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Abstract

The management styles of chief executives largely determine how firms react to a myriad of challenges and opportunities that arise in the marketplace. The management style of a chief executive can influence a firm's ability to successfully compete in an increasingly globalized world. To better understand management styles and practices, a survey of chief executives at 32 sawmills operating in the northern United States was conducted. Five management styles were synthesized from the literature—autocratic, bureaucratic, authoritarian, democratic, and participative. The frequency with which these management styles were used by chief executives was based on their responses to a series of questions related to five key areas of management. Three-quarters of the managers surveyed used a combination of between two and four management styles and just 25 percent exhibited a single style. Management styles were found to be largely independent of demographic profiles and mill characteristics such as product type and mill capacity.

Management style refers to the approach used by executives when making decisions in one or more of the key areas commonly associated with managing a business. Understanding the management styles used by chief executives can help explain on how decisions are made in the face of major challenges and opportunities in the marketplace. Ultimately, those decisions often determine the success or failure of the company. The purpose of this study was to gain an understanding of management practices and styles in three types of mills manufacturing lumber from species common to the northern United States: spruce-pine-fir (SPF) dimension lumber mills, hardwood lumber mills, and eastern white pine mills. None of the mills were integrated beyond having drying facilities and a planer mill. The mills in the states surveyed produce a significant percentage of the lumber in the Eastern United States with about 10 percent of the eastern softwood and about 21 percent of the eastern hardwood milled in the six states encompassed by the study (U.S. Census Bureau 2007).

Initially, it was hypothesized that the manager's style would depend on variables such as the complexity of the organization, the ownership of the mill, the mill's annual output, the number of employees, and the education of the executive, so the survey instrument included detailed demographic and related information. After analysis, some of those assumptions

were supported while others proved false as discussed below. The specific objectives of the research were to:

1. Assess the management style used by the chief executive to make decisions in key areas of management; and
2. Explore statistical relationships between these management styles, mill characteristics, and demographics.

Background

Koontz and O'Donnell (1976) identified five major functions common to all managers: planning, organizing, leading, staffing, and controlling. These five functions are defined as:

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Forest Prod. J. 59(3):29–34.

1. Planning: spending time setting goals and deciding the best way to achieve them.
2. Organizing: the organization of resources such as capital, materials, and labor needed to perform various functions.
3. Leading: directing and motivating employees in order to achieve the organization's goals.
4. Staffing: interviewing, hiring, developing and training, and terminating employees.
5. Controlling: monitoring organizational performance, comparing performance with established goals, and taking corrective action as needed.

While manager duties are typically well-defined, management styles are not, although management theorists have identified certain management styles (Steinmetz and Hunt 1974, Goleman 2000). McGregor (1960) described two different philosophical views about human behavior and how to manage people. The first view termed Theory X assumes that workers do not like work and will generally try to avoid assigned tasks. For example, under this view employees avoid responsibility, want or need direction, and are less intelligent and motivated than managers and thus need to follow someone else's lead. In contrast, McGregor's Theory Y posits that employees enjoy work, find it natural, want to achieve more, are self motivated, seek responsibility, and, in general, respond better to praise than threats. Depending on a particular manager's viewpoint, they will manage their employees accordingly.

Earlier research offered other characterizations of management styles. Tannenbaum and Schmidt (1973) described seven different management styles ranging from "The manager makes the decisions and announces it," to "The manager permits the group to make decisions within prescribed limits," with various levels of authority allocated to the managers and their subordinates. Goleman (2000) outlined six management styles. Examples include the coercive leadership style where the leader is very dominant and demanding; the affiliative leadership style where the employee's feelings and emotions are a top priority, and the coaching style where the leader mentors subordinates and coaches them to perform better.

Based on a review of traditional leadership styles, Steinmetz and Hunt (1974) developed a "dominance scale" based on the characteristics of the leader, the organization, the group, and the individual. They then defined seven styles or levels of dominance. The most dominant style was the "autocrat"—a leader who makes all decisions and has firm control over the entire organization. The "bureaucrat" is subordinate to others higher in the organization, and therefore derives power from the structure of the organization and the organizational rules and regulations. The "democrat" describes a style dominated by the group, where the group makes decisions for the organization. Finally, the "humanist" leader is the most employee/subordinate oriented, where people come first and their happiness is the ultimate goal of the organization.

Approach and methodology

For this research, management styles were synthesized from the literature into five categories:

1. Autocratic managers are in complete control of their organizations and make all or nearly all of the major management decisions.
2. Bureaucratic managers act much like autocrats, but derive authority from corporate management, organizational rules and regulations, and past practices. Bureaucratic managers implement decisions often made by others in a way that is generally autocratic.
3. Authoritarian managers make all of the decisions, although they also solicit and use input from other managers to reach their final decisions.
4. Democratic managers involve others in their deliberations and arrive at decisions through majority rule.
5. Participative managers let lower-level managers and employees make most of the major decisions. These managers function largely as facilitators.

The survey sample chosen was the Northern United States, east of the Mississippi River and included the states of Maine, New Hampshire, Vermont, New York, Pennsylvania, and Michigan. In order to identify sawmills in the area, industry directories, buyers' guides, state agency representatives, extension specialists, trade associations, and others were contacted. After an initial contact, a 10 million board feet (MMBF) cutoff was established as the size of mill having a definite management structure. A total of 44 mills were identified as the survey sample and a personal letter to the chief executive was mailed. One week later, each chief executive was contacted by telephone. At that time, either a phone interview occurred, or a time was set for a personal face-to-face interview, a choice determined by project funding and constraints of those contacted; 32 of the 44 chief executives consented to an interview. Twenty-one of the 32 interviews were completed in person and 11 were completed via telephone.

The survey instrument consisted of four sections. The first three sections gathered necessary demographic and other information. The final section consisted of five subsections, each containing questions corresponding to one of the five management functions. This last section employed multiple-choice questions (see Appendix for specific questions and answer choices). Each question was read to the participant, who was then instructed to select the most suitable response from the five options presented. Each question was designed to ask how a key decision from a particular management function was decided. These questions were developed using a Delphi process whereby several persons experienced in both lumber production and management practices were consulted on question content and form.

In order to assign a management style to an entire management function, questions were asked about broad topics thought to encompass the entire management function. The broad topic for the planning function was strategic planning and how strategic plans were developed. The organizing function was confined to asking who made decisions regarding the allocation of major resources. The process of communicating company goals served as the central question regarding the leading function. Staffing functions were assessed by identifying the individual responsible for making final decisions regarding management team hiring, while decisions regarding the execution of daily activities served as the determining factor for the controlling function.

Data were analyzed using Pearson's Chi-square tests found within the SPSS analysis software. The Chi-square assigns a distribution based on predicted population information. The test then checks the sample distribution against the assumed population distribution and determines the fit. If the two distributions fit reasonably well, the probability or *p*-value is large. If there are significant differences or a *p*-value below 0.05, then the alternative hypothesis is accepted. Chi-square is calculated as:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where:

O = observed values, the number of respondents giving a particular answer (e.g., management style) and in a variable group (e.g., mill type) and

E = expected values, calculated by summing all of the observed values in a particular row (e.g., management style) and multiplying that by the sum of the observed values in a column (e.g., mill type).

This result was then divided by the total number of answers to arrive at the expected value. Large Chi-square values result from large differences between the observed and expected values from the hypothesis. This allows the researcher to accept the alternative hypothesis and conclude that there is a difference in the sample distribution (Koopmans 1981).

Eight explanatory variables, described below, were tested independently, and the entire population was split into two or three categories (depending on the variable) and the frequencies of management styles in each unique group were recorded. This information was then entered into SPSS and a cross tabulation of the data were performed. A Pearson's Chi-square test on the group of management styles was calculated for each grouping of the variable. A probability value of 0.05 or smaller was considered significant. Due to issues relating to the small data set, some responses had to be excluded for statistical validity.

Results

A total of 32 sawmill chief executives were interviewed for this study. Summary demographic and related data are shown in **Table 1**.

Management styles

After performing a broad analysis of the data, it was concluded that the entire data set could be combined for the purpose of assessing styles. **Table 2** shows the categorization of the respondents, by style, for each of the five management functions. Respondents did not choose a single style for all five functions. In fact, no one manager chose the same style for all five functions. Eight respondents (25%) chose the same style for four of the five management functions. Among these eight managers, one used an autocratic style, five an authoritarian style, and two a democratic style for four of the five functions. Also, no clear distinctions in styles arose based on the demographic and related data gathered. Twenty-four managers (75%) chose three or more styles across functions. Again, there was no clear distinction arising from the demographic and related data to distinguish the managers who were most inconsistent.

The authoritarian style was used by 35 percent of managers when making long-term strategic planning type decisions. Of this 35 percent, most (63%) were employed by corporations. Twenty-six percent used the democratic style for strategic planning, allowing upper managers to have a strong voice in the process and final decisions. Of these, most democratic managers (75%) were members of or worked for a partnership. Twenty-six percent of managers used the bureaucratic style when developing strategic plans and following plans and goals set by others. Of the bureaucratic group, most (63%) worked for corporations and over one-third (38%) worked with or were part of a partnership.

The organizing function consists of decisions related to major resource allocations. Here, nearly half of all of the respondents (54%) used the authoritarian management style. Most of those (53%) were employed by corporations, and 33 percent were sole proprietors. The authoritarian style appears to offer at least three advantages when allocating non-financial resources or making large monetary commitments. First, key employees can be consulted to gather input on a particular allocation. Second, the person in charge who is accountable for mill operations makes the final decision and, finally, the decision can usually be made in a timely manner because only one person needs to decide. The other styles prevalent in this category were the bureaucratic (25%) and the democratic (21%). The bureaucratic style was comprised mainly of chief executives working at a site with corporate ownership (71%), while the democratic style was used mainly by chief executives working for partnerships (83%).

The leading function involves decisions related to communicating goals and creating organizational incentives. No significant demographic-related similarities or differences were found among chief executives that use the same style, although the democratic style was the most common response (37%). Leading is seen to be a team effort, where all levels of management are expected to participate equally in communicating the goals of the organization to employees. Chief executives often spend less time with production workers than do the functional managers, and they expect these managers to lead their respective employee groups. Surprisingly, 27 percent of chief executives classified themselves as autocrats with regard to this function, with another 23 percent adopting the authoritarian style. Unlike the other four functions, the leading function is less concrete in scope because the activities range from the communication of goals to the motivation of employees.

Management staffing decisions were also skewed toward the authoritarian style (41% of respondents). Within this category, 54 percent of chief executives were from corporations and 31 percent were from partnerships. Functional managers usually work closely with the chief executive and are typically placed in charge of some functional area of the sawmill (e.g., procurement, sawmill, sales, etc.). Given this, it was not surprising that the chief executive made the final decision in most cases, nor was it surprising that input was sought from other members of the management team before the decision was made. Overall, 25 percent of chief executives used an autocratic style to management staffing, and 50 percent of those respondents were sole proprietors. The chief executives using the democratic style (19%) were almost evenly split among the three ownership types. For staffing decisions, the bureaucratic style was used by 16 percent of respondents, of whom 80 percent were chief executives from corporations.

Table 1. — Summary data for the surveyed participants.

Summary data for the surveyed sawmills				
	All (n = 32)	Softwood lumber (n = 14)	Softwood studs (n = 7)	Hardwood lumber (n = 11)
Annual output:				
MMBF average	41.2	23.8	104.9	22.9
Employees:				
Number of employees	99	73	107	128
Managers and upper level supervisors:				
Average number	5.5	5.5	5.5	5.5
Net sales (%):				
\$6 to \$10 million	13	29	0	0
\$11 to \$25 million	63	64	43	73
Greater than \$26 million	24	7	57	27
Ownership (%):				
Corporation	47	43	71	36
Partnership	34	36	14	45
Sole proprietorship	19	21	14	18
Chief executive profile				
	All (n = 32)	Softwood lumber (n = 14)	Softwood studs (n = 7)	Hardwood lumber (n = 11)
Education:				
Bachelors degree or better (%)	59	64	71	45
Sawmill management experience:				
Average years	18.5	21	10	20.5
Years in current position:				
Average years	10	10.5	6.5	12

Table 2. — Categorization of managers by function and style (n = 32).

	Planning ^a (n = 31)	Organizing ^{a,b} (n = 28)	Leading (n = 30)	Staffing (n = 32)	Controlling ^c (n = 28)
Autocratic (%)	13	0	27	25	0
Authoritarian (%)	35	54	23	41	25
Bureaucratic (%)	26	25	0	16	0
Democratic (%)	26	21	37	19	0
Participative (%)	0	0	13	0	75

^a Significant differences when comparing mill ownership; see text.

^b Significant differences when comparing mill types; see text.

^c Significant differences when comparing annual output; see text.

The controlling function involves monitoring progress toward goals, assuring output, and initiating corrective actions. There were no discernable differences among management styles based on demographic and mill-related data. The participative style, however, which allows lower-level managers to make decisions, was favored by 75 percent of respondents. Day-to-day mill activities were mostly handled by the functional managers without direct interaction with the chief executive. Logically, the chief executive relies on the management team to direct daily activities.

Management style comparisons with the demographic and related data

A Chi-square analysis of the major management functions, by style, using the demographic and related data, found four

significant differences (Table 3). The first was in the planning function, where respondents used different styles depending on mill ownership. Partnerships that operate sawmills developed strategic plans and conducted strategic planning either democratically (55%) or bureaucratically (27%). Corporate CEOs usually used an authoritarian (50%) or a bureaucratic style (36%). Finally, sole proprietors used either an autocratic (50%) or authoritarian style (50%). In terms of strategic planning, it appears that chief executives in partnerships tended to do things more democratically because they are owners working with other equal or nearly equal owners toward shared goals. In sole proprietorships, the owner/chief executive makes the final decisions about strategic planning using a style without input (i.e., autocratic) or with manager input (i.e., authoritarian).

A second significant difference in management style was found in the organizing function, where respondents differed significantly depending on mill ownership. Chief executives in partnerships tended

to operate democratically (56%) in decisions related to the allocation of resources. Chief executives in corporations were generally authoritarian (57%) or bureaucratic (36%), while sole proprietors used the authoritarian style 100 percent of the time.

The third significant difference in style occurred in the organizing function, where styles were found to be a function of mill type. For example, chief executives of softwood lumber mills had a strong tendency to use an authoritarian style when distributing resources (91%), while softwood stud mill managers tended to use a bureaucratic style (67%). Hardwood lumber mill chief executives were roughly split across democratic (36%), authoritarian (36%), and bureaucratic styles (27%). The 67 percent of chief executives in softwood stud mills using the bureaucratic style were sites held by corporations. This may account for the tendency to use a bureaucratic style because decisions made at the corporate level are often implemented by the chief executive of the particular sawmill.

The final significant difference in management style occurred in the controlling function when respondent styles were divided by annual output. For comparison, mills were split into the largest mills (top 50% with an annual production of 23 MMBF or more), and the smallest mills (bottom 50% with an annual production of less than 23 MMBF). Chief executives of small mills favored the participative style when conducting the daily activities (60%), although 40 percent still used an authoritarian style. Large mills relied mostly on the participative style (92%). This may be because chief executives of larger mills have more day-to-day decisions to make and tend to have more managers to assist them in

Table 3. — Results of the Chi-square analysis. Shaded cells highlight significant differences.

Chi-square analysis results table (<i>p</i> -values)					
Management function questions					
Management functions	Planning	Organizing	Leading	Staffing	Controlling
	Strategic plan development	Major resource allocation	Communicating goals	Management staffing decisions	Day to day decisions
Mill type (SL, HL, SS)	0.37	0.008	0.139	0.79	0.781
Ownership (Part., Corp., Sole)	0.003	0.01	0.12	0.53	0.69
Education (4 year degree or not)	0.20	0.69	0.62	0.73	0.08
Mgt. team education (bot/top half)	0.15	0.13	0.11	0.93	1.00
Management experience (bot/top half)	0.06	0.65	0.90	0.62	0.19
Time in position (bot/top half)	0.10	0.28	0.72	0.31	0.13
Annual output MMBF (bot/top half)	0.12	0.07	0.69	0.54	0.049
Total employees (bot/top half)	0.23	0.17	0.90	0.13	0.13

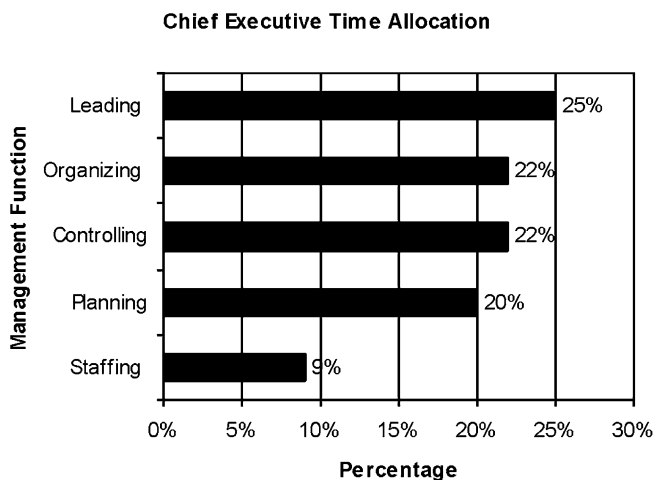


Figure 1. — Chief executive time allocation.

handling tasks. Chief executives at small mills may have to deal more directly with day-to-day operational activities due to fewer managers.

Time allocation

During the survey, chief executives were also asked to estimate the percentage of time spent on the five functions of management (Fig. 1). It was understood that these numbers can be highly variable, and that the time devoted in any given period depends on many factors. An analysis of variance using the demographic and related data showed two significant differences. First, managers with a Bachelor's degree or higher spent 11.7 percent of their time on staffing issues, while managers without a Bachelor's degree spent only 5 percent. In small mills (i.e., annual output < 23 MMBF), managers spent 20 percent of their time in activities related to the leading function, while larger sawmill managers spent 30.4 percent.

Conclusions

This results of this study determined that management style is largely unrelated to the eight variables tested, with the exception of mill type, ownership and, to some extent, annual output. Mill type affects the style of managers when it comes

to the organizing function, and ownership affects style used in activities related to the planning and organizing functions. It is also clear that managers typically do not use one style for every type of situation. Sole proprietors kept a firm hand on what they consider the most important decisions involving strategic planning and the major financial and non-financial resource allocation decisions. In general, partnerships tended to be more democratic, and corporate ownerships tended to be more bureaucratic when it comes to these same major decisions.

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Appendix

The following five questions were used to classify respondent's styles in a particular management function. The first answer to each question is the autocratic response followed by the bureaucratic, authoritarian, democratic, and participative responses.

Planning—

With regard to long term strategic planning, which of the following statements do you think best describes your approach:

- I usually keep a firm hand on strategic planning and make the final decisions regarding our strategies myself.
- (if applicable) Strategic planning decisions are usually made at the corporate level.
- I usually make the final strategic planning decisions; however, I rely heavily on input from employees.

- Strategic planning decisions are usually a group decision made by top management. A majority rule is used to decide and I facilitate the discussions.
- I allow the management team to make final strategic planning decisions and I facilitate or review the results.

Organizing—

With regard to the overall allocation of resources which of the following statements do you think best describes your approach to making the final decision:

- I usually keep a firm hand on major resource allocation decisions and make the final decisions myself.
- (if applicable) Major resource allocation decisions are usually made at the corporate level.
- I usually make the final major resource allocation decisions; however, I rely heavily on input from employees.
- Major resource allocation decisions are usually a group decision made by top management. A majority rule is used to decide and I facilitate the discussion.
- I allow the top management team to make final major resource allocation decisions without my direct oversight and I act as a facilitator or review the results.

Leading—

With regard to communicating goals and creating incentives toward accomplishing goals, which of the following statements do you think best describes your approach:

- I frequently communicate goals to the employees that work directly for me.
- (if applicable) I reiterate the goals set by corporate headquarters to people directly below me.
- I solicit input about how best to communicate goals and create incentives from top management and others. I make decisions on how to proceed from that input.
- Communicating goals and creating incentives for accomplishing them is a group effort, management does this collaboratively and I facilitate.
- I rely on my top management team to communicate goals and create incentives for employees to accomplish our goals and I review these goals and incentives.

Staffing—

With regard to staffing at the management level which of the following statements do you think best describes your approach to making the final decision:

- I usually keep a firm hand on management staffing decisions and make the final decisions myself.
- (if applicable) Management staffing decisions are usually made at the corporate level with my input.
- I usually make the final management staffing decisions; however I rely heavily on outside input and solicit feedback from employees.
- Management staffing decisions are usually a group decision made by top management. A majority rule is used to decide and I facilitate the discussions.
- I allow the top management team to make final staffing decisions without my direct oversight.

Controlling—

With regard to the day to day decisions such as the setting of priorities, accomplishing short term goals and monitoring a flow of products from the mill which of the following statements do you think best describes your approach:

- I usually keep a firm hand on day to day decisions that involve setting priorities and accomplishing short term goals and direct the work myself.
- (if applicable) Day to day decisions that involve setting priorities and accomplishing short term goals are usually made at the corporate level and I communicate them.
- I usually make the final day to day decisions involving setting priorities and accomplishing short term goals; however I rely heavily on outside input and feedback from employees.
- Day to day decisions that involve setting priorities and accomplishing short term goals are usually a group decision made by top management. A majority rule is used to decide and I facilitate the discussion.
- I allow the top management team to make day to day decisions that involve setting priorities and accomplishing short term goals without my direct oversight.