
Survey Finds Low Office Productivity Linked to Staffing Imbalances

Peter G. Sassone

According to a series of twenty case studies on office productivity and technology in major U.S. corporations, there is a significant lack of intellectual specialization among managers and professionals. That is, managers and professionals devote a relatively small fraction of their work time to management- and professional-level work, and a relatively large fraction of their time to support and nonproductive tasks. In addition, the study found significant staffing imbalances throughout the cases: In nearly every office, there were more managers and professionals, and fewer support workers, than were required to perform the work cost-effectively. An analysis of this situation suggests that a typical organization could reduce its annual office payroll costs by over 15 percent by calibrating its staffing mix and increasing the intellectual specialization of its office workers. Further, the apparent failure of massive corporate investments in office technology to achieve commensurate increases in white-collar productivity is likely due, in large measure, to reductions in the intellectual specialization of office workers resulting from myopic staffing decisions. The article concludes with advice on measuring and tracking office productivity, developing a coherent office productivity strategy, and making office staffing and technology decisions.

Item: In the engineering department of a Fortune 50 manufacturing company, engineers often carry office typewriters home to complete reports.

Item: In the corporate marketing department of a Fortune 50 consumer products company, senior marketing professionals devote more than a day a week to preparing charts and graphs for presentations.

Item: In one of the nation's largest commercial banks, corporate bankers devote more than 25 percent of their time to handling routine customer inquiries and problems.

Item: In one of the nation's largest insurance companies, field office managers spend more time inputting routine data into the computer system than in managing their offices.

What is wrong with these snapshots of work in America? As most managers will attest, they demonstrate the most important, and least recognized, productivity problem in corporate offices today: the lack of intellectual specialization among managers and professionals. That is, managers and other professionals are devoting an inordinate amount of time to tasks that could be handled by lower-level employees.

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In 1985, I began a series of twenty office productivity studies in five major U.S. corporations. The purpose of the initial studies was to perform cost benefit analyses of computer-based information systems. But after the first several studies were completed, it became apparent that the data-collection and analysis techniques were yielding important productivity insights beyond the cost justification of office computer systems. The data not only pointed to the lack of intellectual specialization among white-collar workers but also showed correspondingly serious staffing imbalances in the offices that were studied. That is, given the intellectual content of the entire spectrum of work performed in an office, that same work could always be performed by a lower cost mix of managers, professionals, and support staff. On average, the potential payroll savings were at least 15 percent in the typical office. To put this in perspective, at many companies an annual saving of 15 percent of white-collar payroll costs would more than double annual corporate net earnings.

HOW THE STUDY WAS CONDUCTED

Between 1985 and 1991, twenty departments at five major U.S. corporations were studied. Each department represented a separate case study. More than seventeen hundred employees in ninety-five offices in eighty-nine locations throughout the United States were involved. **Table 1** describes the five companies, whose names have been kept confidential. **Table 2** describes the twenty departments that were studied.

In each case, data were obtained in the same way. First, in each department four to eight employees in each position in the hierarchy were interviewed to identify the functions for which they were responsible, the corresponding activities and tasks that they performed while doing their jobs, and the lowest position to which the various tasks could, in principle, be delegated. This last question helped determine the intellectual content of each task or activity. Using the information gathered in the interviews, time logs were developed. All the workers in that office used the logs to record their activities for several (staggered) days over the course of the month-long study.

This series of studies is unique in its magnitude and in its focus on the intellectual content of office work. Previous studies have focused more heavily, and sometimes exclusively, on the physical attributes of office work—for example, is the subject sitting or standing, is he alone or with others, is he in his own building or elsewhere, or is he using the phone, writing, reading, using a calculator? Although many of these studies have tried to determine how office technology could improve productivity, they have not succeeded in determining the *value* of office technology, because the value of office work is linked to its intellectual content, not its physical attributes. This point has led to the development of a new and successful cost-justification methodology, Work Value Analysis, which was used in the twenty studies to evaluate potential technology-based solutions to productivity problems.

Table 1

Companies Studied (1990 Data)				
DESIGNATION	TYPE	SALES OR REVENUE	ASSETS	EMPLOYEES
Company #1	Manufacturing	> \$50 Billion	> \$100 Billion	> 500,000
Company #2	Consumer Products	\$5-\$10 Billion	> \$10 Billion	10,000 - 25,000
Company #3	Financial Services	\$15-\$25 Billion	> \$50 Billion	25,000 - 50,000
Company #4	Commercial Banking	not applicable	> \$25 Billion	10,000 - 25,000
Company #5	Electric Utility	\$5-\$10 Billion	\$15-\$25 Billion	25,000 - 50,000

RESULTS OF THE STUDY

The term intellectual specialization is used to characterize how a manager or professional spends the day. Loosely, a manager who spends much of the day doing management-level work (work that cannot be done by nonmanagers) is intellectually specialized. A senior professional, say an experienced engineer or financial analyst, who spends much of the day doing work that could be done by lesser-skilled and lesser-paid employees, is intellectually nonspecialized. Intellectual nonspecialization was the dominant characteristic at most of the organizations in the study.

Organizations can use a work profile matrix to depict an abstract model of one or more offices. The office hierarchy is often composed of managers, senior professionals, junior professionals, technical support workers, and administrative support workers. A more or less detailed stratification also can be used, however. The work categories are defined to correspond to the positions in the hierarchy. All tasks in the office can be classified as management-level work, senior professional-level work, junior professional-level work, technical-support level work, administrative support-level work, or nonproductive work. The final category (nonproductive work) is always included, regardless of the stratification used. In general, tasks are assigned to an intellectual content category based on the lowest level in the hierarchy to which the task may reasonably be delegated.

The average work profile matrix for the studied offices is shown in **Table 3**. The major finding is the significant lack of intellectual specialization among managers and professionals. It is interesting to note the clear pattern of intellectual specialization, as measured by the main diagonal of Table 3. Intellectual specialization uniformly decreases as job levels increase. That is, managers spend the least time (29.91 percent) in work at

Table 2
Departments Studied

COMPANY	TYPE OF DEPARTMENT	NO. OF OFFICES	NO. OF LOCATIONS	NO. OF EMPLOYEES
Company #1	Engineering	1	1	476
Company #1	Marketing	1	1	52
Company #1	Accounting	2	2	119
Company #2	Legal	1	1	5
Company #2	Marketing	1	1	104
Company #3	Underwriting	1	1	76
Company #3	Underwriting	1	1	31
Company #3	Underwriting	1	1	67
Company #3	Sales Offices	32	32	214
Company #4	Lending Offices	11	11	73
Company #4	Corporate Banking	1	1	52
Company #4	Corporate Banking	1	1	44
Company #4	Corporate Banking	1	1	51
Company #4	Cash Management	1	1	21
Company #4	International Banking	3	1	20
Company #4	International Banking	2	1	14
Company #4	Branch Banking	16	16	73
Company #4	Branch Banking	13	13	72
Company #4	Systems Development	1	1	98
Company #5	Treasury	4	1	57
TOTALS	20	95	89	1719

Table 3
Mean Work Profile Matrix (N=1719)

POSITIONS IN THE OFFICE HIERAR- CHY	NO.	MGMT. LEVEL WORK	SR. PROF. LEVEL WORK	JR. PROF. LEVEL WORK	TECH. SUPP. LEVEL WORK	ADMIN. SUPP. LEVEL WORK	NON- PROD. WORK	SUM
Managers	197	29.91%	28.91%	8.97%	3.02%	14.46%	14.73%	100%
Senior Profes- sionals	550	3.96%	41.52%	18.07%	5.40%	18.67%	12.38%	100%
Junior Profes- sionals	336	1.52%	7.36%	51.78%	4.72%	18.16%	16.45%	100%
Technical Support	311	0.08%	0.23%	5.52%	68.44%	11.02%	14.70%	100%
Adminis- Support	325	0.00%	0.00%	0.77%	6.57%	81.67%	10.99%	100%
Total	1,719	5.07%	18.29%	18.28%	16.74%	27.98%	13.63%	100%

their position level, while at the other end of the diagonal, administrative support workers spend the most time (81.67 percent) in work at their level. Senior professionals, junior professionals, and technical support workers fall neatly between these extremes. This pattern is so pronounced in most of the individual cases, as well as in the aggregated data, that it might well be called the *law of diminishing specialization* of office work.

The bottom row of Table 3 shows the overall distribution of work by its intellectual content. In the sample of twenty departments, about 5 percent of the work is management-level. Senior- and junior-level professional work each account for about 28 percent of the total. The sum of technical and administrative support work is about 45 percent of the total, and about 14 percent of the total is nonproductive work. Because they show the fundamental structure of an organization's work, the statistics in the summary row of a work profile matrix can be used to analyze and optimize an organization's staffing structure.

The managers in the study head the functional areas listed in Table 2. They are all either first-line or middle managers (in some larger departments that were studied, there were two or three layers of management), but they would not be considered senior, executive, or corporate management. This distinction is critical. Although senior managers were

not asked to complete time logs, they were interviewed as part of most case studies. These interviews show that senior managers *are* intellectually specialized. That is, they do not perform much work that could be delegated to lower-level workers. In most cases, the reason is clear. Senior managers, in general, have adequate staff support. They usually have more than adequate secretarial support, they have priority in marshalling technical support when needed, and their responsibilities usually do not include functional professional work. And, of course, their position enables them to delegate work more easily than subordinate managers can. Thus, the *law of diminishing specialization* seems to apply within functional departments, but not at the corporate management level.

Why do managers and professionals spend substantial portions of their time doing work that is more appropriately done by lesser paid employees? The easy answer is that organizations are top-heavy: that is, there are relatively more managers and professionals and relatively fewer support staff members than are needed to perform the organization's work. Consequently, some of the support work must be performed by managers and professionals. But why has this staffing imbalance occurred, and why does it persist? Even though this is an economic issue, economic theory provides little insight in addressing this puzzle. This is because conventional economic theory assumes that firms are efficient resource allocators—that firms know how to determine the least costly mix of inputs (different types of labor, in this case), that they do make such determinations, and that they act accordingly. Thus, economic theory dismisses, or at least skirts, the problem of firms misallocating resources on a continuing basis.

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There are several hypotheses that can account for the staffing imbalance phenomenon. First, firms tend to manage staffing *by headcount rather than by payroll*. In growing organizations, managers periodically make their case to their superiors for increased headcount. When given permission to expand their staff by a given number of employees, department managers tend to hire additional managers and professionals rather than additional support staff. Managers and professionals can generate more revenue (or at least do more of whatever the organization does), *and* they can do most support tasks as well. Support staffers, on the other hand, do not generate the additional revenue or output that managers value.

Similarly, when business conditions force reductions in staff, those cuts often are planned and executed in terms of headcount. And the same reasoning leads to management- and professional-level workers keeping their jobs, and support workers being released. As a company experiences periodic business cycles, this tendency of hiring managers and professionals on the upswing and releasing support workers on the downswing creates and sustains a top-heavy organizational structure. And this tendency is reinforced by the recognition among department managers that their own compensation, and the prestige of their departments, are both more likely to be enhanced by having relatively more, rather than relatively fewer, managers and professionals in their organizations.

Another cause of top-heavy staffing appears to be office automation. Compared with expenditures on traditional office capital equipment (typewriters, file cabinets and desks), office computer systems are a very significant budget item. Many firms decide to pay for their office information systems by reducing their support staff. The reasoning is that computer systems can absorb and eliminate some work, and they can increase the efficiency with which some of the remaining work gets done; thus, fewer support workers are needed. Unfortunately, many office computer systems have not delivered on the promise to improve overall office productivity. Thus, with a diminished support staff, the managers and professionals are forced to perform additional support work. Paradoxically, although office computer systems can unmistakably increase productivity in a limited set of office activities (for example, typing, filing, creating and distributing forms, spreadsheet analyses, graphics), their indirect and unintended effect on staffing may cause overall organizational productivity to decline.

Stagnant growth and traditional personnel policy compound the problem. Concerned with competitiveness, companies have attempted to control personnel costs by not hiring additional white-collar workers, and not replacing many who leave. However, routine pay raises and career track promotions move some professional-level workers into management-level positions and at least a few support-level workers into professional-level positions. As new duties and responsibilities are defined for these new professionals and managers—who must now draw on a diminished support staff—a top-heavy organizational structure is created or exacerbated.

The final, and perhaps the most conspicuous, cause of top-heavy organizations is the efficiency drive. As companies strive to cut costs, office support workers often are released while managers' and professionals' jobs are protected. Numerous rationales are invoked to support this strategy. One line of thinking is that the volume of needed office support work will somehow diminish as the support staff diminishes. Another line of thinking is that support work is less important and less necessary than management and professional work, and that the organization can get along with less of it. Another rationale is that managers and professionals, representing substantial investments in training, have high replacement costs, whereas support workers represent little investment and are easily replaced. The net effect, regardless of the rationale, is top-heavy staffing and diminished intellectual specialization. This situation has persisted because, until now, there has not been a statistically based method to confirm its presence, measure its extent, or determine the changes that are needed.

What are the costs of the lack of intellectual specialization in white-collar work? While the study data are too narrow to lead to sweeping conclusions, they do shed light on the magnitude of these costs. The results of a comparison of a "typical" department, with a department with a reasonably high level of intellectual specialization were startling. The typical office could save over 15 percent of its payroll costs by restructuring

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The typical office could save over 15 percent of its payroll costs by restructuring its staff and increasing the intellectual specialization of its workers.

its staff and increasing the intellectual specialization of its workers. For the typical office, the restructuring involves having fewer managers and senior professionals, and more support personnel. This allows the managers and professionals to offload support-level work, and to devote more time to management- and professional-level work. Thus, the same amount of management and professional work is accomplished by fewer managers and professionals. The cost of the increased number of support workers is far less than the savings from the fewer managers and professionals. The bottom line is that by having managers specialize in management and professionals specialize in professional work, the same total amount of work can be accomplished at considerably less cost. As a rule of thumb, the study found that the typical office can save about *\$7,400 per employee per year* by restructuring its office staffs and improving its levels of intellectual specialization. Comparing this potential saving per employee to the levels of corporate profits per employee in the major economic sectors of the U.S. economy puts this figure in perspective. Using data for the Fortune 500 companies for 1988, I found that an annual savings of \$7,400 per employee would more than double the net earnings of major companies in many industries. Clearly, improving the intellectual specialization of office workers offers a major productivity and profit opportunity for many—perhaps most—businesses.

GETTING TO THE BOTTOM OF THE PRODUCTIVITY PARADOX

Over the past decade, U.S. businesses have invested many hundreds of billions of dollars in information technology. A significant fraction of that investment involved purchasing, installing, supporting, and upgrading office information systems. At the same time, it is generally accepted that average office productivity did not improve markedly, if at all. What happened? Why was there so little apparent productivity payoff associated with such massive investment? We can begin to understand these events by identifying and analyzing several common business scenarios:

- Some firms, as discussed previously, have attempted to control costs by reducing the number of office support personnel.
- Some firms have installed office technology to enhance professional workers (for example, engineering work stations) while reducing the number of support personnel.
- Some firms have installed office technology to enhance support personnel (for example, word processors) while reducing the number of support personnel.
- Some firms have installed office technology to enhance professional workers (for example, engineering work stations), and have left the number of support personnel unchanged.

Pursued by many organizations during the past decade, these office resource allocation strategies have actually caused office productivity to stagnate. In short, extracting overall office productivity improvements from

technology depends on more than simply buying and using it. It depends on balancing the impact of technology on support workers and on professionals, and it depends on re-calibrating the office staffing to at least maintain, but preferably to increase, the level of intellectual specialization. Many organizations have invested heavily in technology, but they have not made the essential adjustments in staffing to take advantage of the technology. Indeed, in many instances, firms have used technology to decrease, rather than to increase, intellectual specialization.

An effective office productivity strategy involves three elements. Two have already been mentioned: *re-calibrating the staffing mix*, and *using technology to improve the efficiency* with which work is accomplished. The third element is, perhaps, the most obvious: using technology or other means to *eliminate part of the workload*. As part of the study, the following four scenarios, which incorporate these successful strategies, were analyzed:

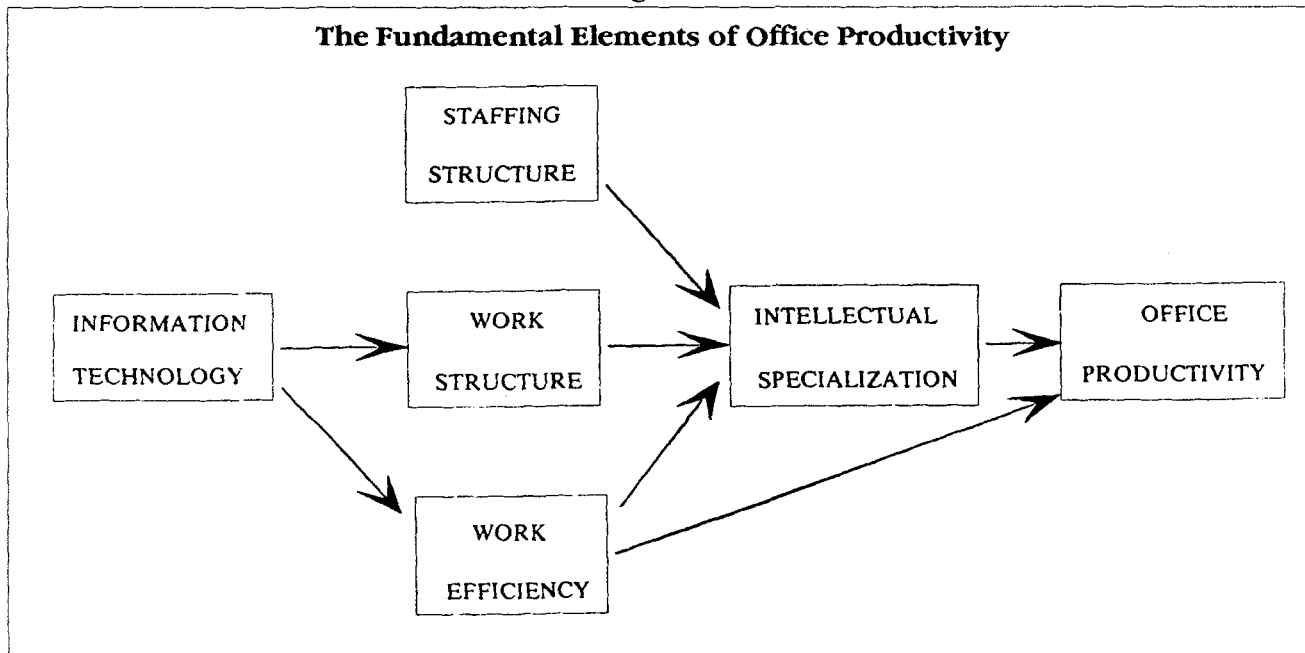
- Suppose an office increases the number of support workers.
- Suppose an office successfully implements office information technology which enhances everyone's efficiency .
- Suppose an office finds a way to eliminate some of its previously required support work, perhaps through eliminating the preparation of redundant or low value reports.
- Finally, as a best case illustration, suppose an office implements all three of these improvements.

The results of the analysis: In each of these scenarios (and especially the last), there is an increase in intellectual specialization and productivity, and a corresponding decrease in unit (or average) costs.

Figure 1 can be used to review the main points of the model of office work. Starting at the right side, office productivity (which can be defined as professional output divided by total office hours or as the unit cost of professional output) is determined by the level of intellectual specialization (that is, the work profile matrix, which shows how much time workers devote to tasks of differing intellectual content and the resulting total amounts of management, professional and support work accomplished in the office) and by work efficiency (how much management, professional and support output is produced by each hour devoted to management, professional and support work, respectively). Intellectual specialization, in turn, is determined by the staffing structure (how many managers, professionals and support staff are employed in the office), by the work structure (how much management work must be done, and how much support work is required by each hour of professional and management work), and by work efficiency (mentioned above). Both the work structure and the work efficiency are affected by the use of information technology (electronic data, text, image and voice processing). In this model, there is an equilibrium level of intellectual specialization toward which the office

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Figure 1



will gravitate, and this equilibrium is determined by the supply and demand for support work.

IMPLICATIONS FOR MANAGERS

Based on the study findings, these tips can help managers boost the productivity of their offices:

Learn to understand, measure, and track the intellectual content of office work, and learn how to staff the office accordingly. In every one of the twenty departments studied, there was a top-heavy staff. That is, as compared with the most efficient mix of managers, senior- and junior-level professionals, and technical and administrative support workers, every department had more than the desirable number of managers and/or senior professionals, and fewer than the desirable number of support workers. The financial cost of this misallocation of resources is very significant, averaging over 15 percent of the total white-collar payroll. The annual savings associated with correcting this misallocation of resources could double the net earnings of many companies.

Focus on intellectual specialization. Managers must learn and focus on the concept of intellectual specialization, which is the key to productivity in the professional office. An office cannot achieve a high level of productivity unless its managers and professionals are devoting most of their time to professional-level work.

The importance of the specialization of labor was pointed out more than two hundred years ago by Adam Smith in his account of the operation of a pin factory. The success of the manufacturing assembly line is based on the concept of specialization. Perhaps in our haste to conceptually

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disassociate the office from the plant floor, the useful concept of specialization was too quickly abandoned. Of course, specialization on the plant floor means *physical* specialization (repetitively performing the same physical tasks), whereas specialization in the office means *intellectual* specialization (devoting a high percentage of time to work of the highest intellectual level that the worker is qualified to perform).

Recognize that intellectual specialization leads to job enrichment. Intellectual specialization does *not* mean task specialization. In achieving intellectual specialization, managers and professionals free themselves from many of the tasks that can be performed by lesser skilled workers. The variety and diversity of the management and professional tasks performed by managers and professionals need not diminish, and might well expand, as they have more time to devote to those activities. Intellectual specialization tends to enrich management and professional jobs, and it tends to reduce the time spent on the tasks that managers and professionals find least enjoyable.

Similarly, intellectual specialization in the office can enrich the support jobs as well. As managers and professionals offload some of the support tasks that they used to perform, they increase the diversity and the level of responsibility of the support jobs. In general, the support tasks performed by managers and professionals are the tasks that support workers would most prefer to do. This is hardly surprising, since managers and professionals—even when circumstances force them to handle support tasks—have some discretion in selecting which support tasks they will do and which they will delegate. Of course, they tend to delegate the more dreary tasks and to keep the more interesting ones. In terms of job quality for both professional and support workers, then, intellectual specialization is a win-win strategy.

Do not use a production office strategy in a professional office. In formulating office technology strategy, it is critical to clearly distinguish between “production” offices and “professional” offices. A production office is one whose function and primary work are clerical. Typical production office functions are payroll, accounting, order entry, billing, and claims processing. In a production office, the clerical work is generated external to the office; in a professional office, the support work is generated by the managers and professionals working within (and performing the function of) that office. Unlike the largely successful experience with production office automation during the sixties and seventies, the substitution of information technology for support labor in today’s professional office is not necessarily a winning strategy. In a professional office, technology is both a substitute and a complement for labor. Depending on which aspect dominates in a particular office, technology may demand more, rather than fewer, support workers. Unfortunately, the idea that technology is always a substitute for labor still survives in many businesses. The notion is encouraged by technology vendors who can point to past instances of successful production office automation, and who suggest that

their current offerings can be similarly cost-justified.

Develop an integrated rather than piecemeal office productivity strategy. Perhaps the primary reason that the past decade's massive investment in office technology has not yielded significant widespread and visible productivity results is that concurrent and short-sighted staffing decisions were inadvertently mitigating the positive effects of the technology. In other words, labor resource allocation decisions and capital resource allocation decisions were unwittingly working at cross purposes. The lesson is that piecemeal office strategies are dangerous. The office is a complex work system where the staffing structure, the work structure, the professional-work enhancing technology, and the support-work enhancing technology all simultaneously affect how the staff members spend their time and how much work gets accomplished. Thus, managers need to develop a holistic vision of office resources, and to develop integrated office productivity strategies. The model of the office presented here is a technical implementation of such a holistic vision. By providing a way to measure, forecast, and track office productivity, this model can guide managers in improving office staffing and technology decisions. ❖

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