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PRODUCTIVITY: OBSERVATIONS AND HOLISTIC PERSPECTIVES

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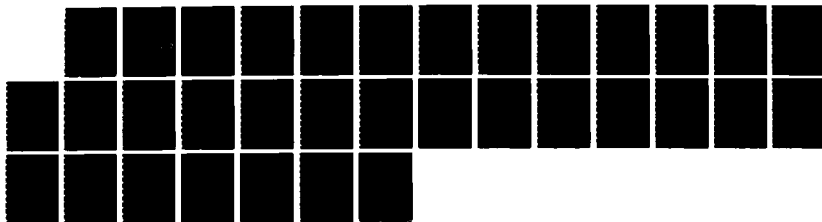
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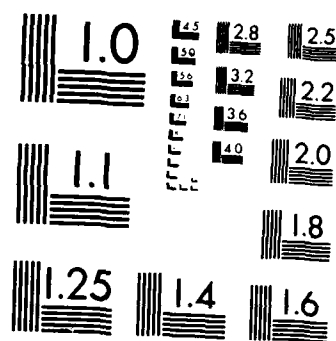
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The research sought to illuminate the subject of productivity. Findings suggest that the subject has not had the benefit of rigorous scientific scrutiny. This study indicates a need for multiple approaches, depending on nature of the organization, its goals and purposes. An extensive bibliography is provided.		

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**PRODUCTIVITY: OBSERVATIONS
AND
HOLISTIC PERSPECTIVES**

**Final Report
April, 1984**

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University of Idaho
Moscow, ID 83843**

**Report to Air Force Office of Scientific Research
Bolling A.F.B., D.C. 20332
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Introduction

This report is based on several years of peripheral research, one year of immersion into the multifaceted arena of productivity, and several years of subsequent study and reflection. Though sponsored by the United States Air Force Office of Scientific Research (AFOSR) under an Intergovernmental Personnel Act arrangement, the task was to examine productivity in a generic sense. The author contacted selected academic, governmental, and service researchers in the field and analyzed numerous reports and studies. Since returning to his academic institution, the author continued to pursue this topic along with his other research efforts and this final shortened version of the report represents holistic perspective and observations on productivity.

Historic Perspective

— Much of the published research on productivity borrows and builds on assumptions, traditions, parameters, and methodologies evolved in the industrial and business sectors. Input/output and time and motion studies established baseline data for production units, and these were then aggregated for entire factories, offices, companies, or industries. What applied to primary or secondary economic activities were inappropriate to the tertiary sector, governmental agencies, and military productivity. With few exceptions, baseline data for these latter categories must be suspect because of changing missions, alignments, personnel, goals, leadership, priorities, and products. There are different productivity approaches, emphases, and philosophies between and within agencies and organizations.



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Many laws, programs, and practices initiated in the name of productivity and intended to establish meaningful indexes and required of federal agencies contain strong counter productive components or generate wasteful counting and record-keeping justifications. Early productivity research was dominated by industrial engineers, business management specialists, or organizational psychologists. Each group had a favorite emphasis or series of approaches, but all were job or workplace oriented. They either focused on the job to be done, the worker, the work team, training, the work environment, routines and boredom, performance and job satisfaction, relations between workers or between workers and supervisors, management styles, or the cost or profit differences of alternatives.

Later studies added work on motivation, job enrichment, the non-work environment, the quality of the working life, types of recognition and rewards, and their impact on sustained productivity, organizational behavior, and organizational effectiveness.

Despite the broadened coverage, the research still concentrated on small units in the work place to establish experimentally acceptable target and control groups. Consulting firms proliferated to study individual firms or agencies or to institute changes based on research findings elsewhere. Basic research at various universities has tended to be oriented to specific academic disciplines and to underwrite a number of graduate students working towards advanced degrees. Some of the experimental work was done with college students, and the findings extrapolated to unlike situations.

Few studies recognized the impact of changing societal values and life styles, single family households, joint custody situations, and

their impact on absentee rates and one's willingness to relocate, working spouses with congruent or incongruent career objectives, the role of domestic strife, housing, support groups at home and in the community, inflation, family separation, and short and long-term differences.

Productivity--Approaches

--It can refer to workers, plants, skills, groups, products, management skills, organizations, systems, or some mix thereof.

--It can reflect a person, team situation, prevailing philosophy or attitude, installation, or institution.

--Assessments can be egocentric--identifying how others may or should alter their behavior but with little or no change in decision-maker behavior, benefits, responsibility, or accountability.

--Increased output per man hour means greater productivity only if the product is needed and it is produced competitively without defects or waste and with long maintenance-free performance.

--Emphasis on productivity may be viewed as a ruse or bargaining device in negotiations or in relocation or dismissal considerations.

--Productivity varies with time and circumstance. Under emergency conditions, maximum output despite high defects or waste may be productive, but if defects and high waste persist after the emergency, then it is counter productive. Thus, war or peace situations or emergency vs. normal operations require different parameters and measurement devices. The need for backup personnel and skills in high turnover situations hampers meaningful measurement.

--Unnecessary jobs or organizations or activities, no matter how well they operate, are counter productive but difficult to eliminate.

--Efficient working units can have their productivity lowered by inept management, obsolete or worn out equipment, demoralizing unnecessary rules or paper work, or the failure of an individual to be properly recognized and rewarded.

--An individual's productivity varies with time, work, and non-work influences. Most people know that they could work harder or more efficiently but rationalize that it is not necessary for them under these circumstances.

--One's productivity is not a linear function but an irregular wave or pulse function--productivity is rarely sustained but rises and falls. Wave depressants reflect an inability to cope with work, at home or in social situations. Common depressants are unsatisfactory home situations, commuting or environmental problems, and career uncertainties. Wave inflators include positive feedback, a sense of accomplishment, enough stress to generate adrenalin surges, acceptance, good home support despite poor work area relations and good work area support, and recognition during stressful home or external situations.

THE INADEQUACY OF TRADITIONAL MODELS

Industrial Model

In most studies, productivity is viewed as a measured family of ratios of "output" compared to "input." Private industry is the principal source of productivity models, and the "output" is generally viewed as something that is salable and usable plus the reusable waste, hence useful output. The input generally includes the capital, labor, resources, technology, time, and energy. In the industrial production

model, it is relatively easy to measure "gross" output, though there are problems with such externalities as the social and environmental costs.

The traditional aims were either to increase output per unit input or retain the same output with a reduced input. From this evolved the prevailing measurement approach based on the relationship of output compared to man hours of input. This is more a measure of the effectiveness of management decisions on the allocation of tasks than of worker output, yet this approach persists and it has become the basis for quarterly government statistics relating to productivity. It is discussed later in this report.

The Tertiary Sector

The thrust of early productivity models is geared to primary and secondary economic activities, but the bulk of our work force in this post-industrial society are employed in the tertiary or service sector. Here the notion of efficiency and effectiveness as service involves the quality, frequency, and reliability of a response which gives output and input a different meaning.

There are some similarities between the production and service models in the administrative side, wherein senior and junior management are judged by different criteria. In academic institutions, a good tertiary example, there are different productivity expectations for young faculty working up the ladder for promotions and tenure and for senior faculty who have already achieved status. In this example, the tenure system reduces the incentive for modestly motivated senior faculty to continue an earlier pace for increased productivity. There may be parallels in civil service and other seniority and titled positions

elsewhere. Continuing the academic example of the service sector, faculty productivity may be viewed in terms of the quality or quantity of their research, knowledge, or communication of subject matter; popularity and large class enrollment; challenging the more able students to do independent research, providing help, encouragement, and support to average or less able or less secure students; teaching content material or analytical techniques or successfully representing one's subject matter, department, or college before community, political, or professional groups. For the past two decades, another productivity factor was the individual's relative success in generating grant money to the department or institution for special programs, research, graduate students, or equipment.

From this one example, devoted exclusively to the work area of job effectiveness, the productivity scope widens considerably and the difficulty of selecting a universal, meaningful, measurement system becomes apparent.

This led to suggest different operational models of productivity for different levels and branches of organizations and the need for different approaches between productions, service, and institutional operations.

Earlier researchers who recognized the need to include non-work area factors sought to relate work productivity to the quality of life (QOL) but ran into difficulty in their search for a quantifiable quality of life data that included environmental, domestic, and social factors. There were significant differences in perception based on personalities and past experiences. This concept was later narrowed to the Quality of Working Life--meaning essentially the work place and it was reemphasized

when Congress, in the 1970's, created the short-lived National Center for Productivity and Quality of Working Life. The federal agency no longer exists but many of the similarly titled state groups still operate as well as a number of private sector consulting groups that provide seminars, workshops, analysis, and recommendations to private companies and governmental agencies. Their thrust is a mix of incentive programs, job motivation, satisfaction and enrichment efforts geared almost exclusively to work place situations.

In the 1970's, additional legislation required federal agencies to measure and improve productivity. Although federal agencies have diverse programs and activities, procedures, requirements, and traditions that affect productivity, there is no truly national productivity policy. Mixed messages seem to prevail. One objective of the federal legislation was to prevent each agency from massaging its data to present a most favorable productivity image. However, the legislation encompasses so many diverse entities that defy conventional measurement that numerous subterfuges have evolved to evade full compliance. Congress requires several counter productive efforts to comply with "productivity" legislation. Monthly reports are standard fare, and some agencies require personnel to maintain personal logs to be ready to provide data or comply with the next request. Affirmative Action, GAO, Equal Opportunity legislation, OSHA, EPA, GSA, the Inspector General, all require different time-consuming compliance forms. Consequently, a defensive posture permeates the system akin to all bureaucracies so that every action can be defended or the blame assigned elsewhere. In large procurement cost overruns, the blame may be assigned to contractors who point to inflation, new labor contracts, or late specification change orders. Rarely are

the political processes or the political leaders blamed. In most new state and federal agency efforts, the costs of new projects tend to be underestimated, the delivery time extended, and the benefits and reliability of the end products somewhat exaggerated.

When dealing with government agencies, one encounters a number of universal laws, directives, suborganizations, and prior programs designed to correct or favor certain situations that existed at a prior time or localized place. They may not be needed universally or currently or they may duplicate other efforts yet they persist, and compliance, though counter productive, is easier than attempting to bring about constructive changes.

Another significant external factor is the politics of budget construction. Every agency spends countless hours in building, prioritizing and justifying their budget requests several years in advance. Strategies may include asking for more than is needed or expected in order to have room for a compromise.

When the budget leaves the agency to compete with the request from other agencies in the political decision-making arena, it may be viewed not as logical evolutionary need, but as jobs that might be delegated to particular Congressional Districts and the possible reelection of the successful political incumbent. In many instances, the people best qualified to advise or make decisions lose out in the long drawn out counter productive political process. Agencies and political action groups may lobby to win support, but their concerns at that point may be more closely related to power, pending contract expansion, interagency rivalry, turf protection, or survival rather than productivity.

Within specific agencies, productivity is altered with changed leadership at several levels. Usually the new leader institutes a number of changes based on his/her view of a better organization and advocates more centralized or delegated authority. Subordinates leave or adapt with pleasure or irritation. Many changes are initiated in the name of productivity, though realignment or reorientation phrereology may be used.

Institutional productivity losses from annual political and intra-governmental confrontations, prioritizing, political, and budgetary exercises are rarely addressed or measured. Institutions, frequently defensive, try to justify themselves to special interest groups, legislators, taxpayers, and monitoring agencies. A sense of tension may prevail. All want to create or maintain an image of being worthy, understaffed, underfunded, responsive, fair, equitable, capable, and productive.

Training Programs

Government agencies operate many schools and institutes with specialized training programs to produce steady sources of qualified people. To acquire medical doctors or some special skills, the training may be subsidized at private institutions and repaid by several years of service with the agency.

Critics frequently point to the large number of people trained at high cost for specialty skills (pilots, computer and electronic technicians) who then leave the government for more lucrative jobs in the private sector or as employees working for government contractors. Their skills are not lost to the nation, but the prevailing accounting practice insists upon assessing these charges to the institution. The

criticism of these programs can be construed as praise of the excellence of the training that produces skilled and employable people. The problem could be partly resolved with longer enforceable payback time required.

Holistic Productivity and the Human Dimension

Most productivity studies deal extensively with limited aspects of the human dimension. If one were to assume a 40-hour work week, that leaves 128 hours a week away from work place. What happens to a worker in that 128 hours would seem to be of equal or greater importance than his behavior with peer, supervisory, and subordinate groups during the 40-hour week. A number of studies confirm the transfer of trauma from home to work and vice versa. People not fully able to cope with the problems at work have a way of bringing them home to infect the entire family, and the reciprocal situation is equally valid. Symptoms of poor coping mechanisms include alcoholism, drug abuse, absenteeism, poor work performance, verbal abuse of subordinates, peers, spouses, children, relatives, neighbors, and even dogs and cats.

In the industrial model of productivity, the pent up aggression may be vented by indifferent workmanship, a high rejection rate or defective end products. In the tertiary sector, it appears in faulty interpersonal relations, and the negative impacts tend to be more widespread. Some agencies and companies have recognized these important human dimension factors and provide diagnostic and corrective programs to improve the physical, social, and cultural qualities of the work and living experience yet respecting the privacy of the individual. Japanese paternalistic industries exhibited holistic tendencies with womb-to-marriage-to-tomb family involvement which has produced a positive feedback loop

and a lifelong sense of company identity and loyalty by the employee and his/her family. Many military programs provide similar benefits for service personnel. Whether the corresponding institutional identity and loyalty exists for most military personnel and their families has been open to some question (Moskos, Feb. 1981).

In the interplay of external forces on productivity, the military role is unique. Like police and fire department personnel, they are expected to periodically expose themselves to great personal danger and possibly the sacrifice of their lives. Additional descriptive conditions result from frequent or extended periods of temporary duty away from families for training, special exercises, or remote duty assignments. Not only do these separations prove stressful for all family members, but new stresses emerge upon the return of the separated household when he/she tries to resume the former influence role that some other member of the family had to assume during the absence.

Periodic family relocation and change of duty stations is becoming a larger problem as the two-income family is commonplace and both inflation and high interest rates make relocation and the sale of a house both difficult and stressful. If the domestic reassignment is to a higher cost of living area, the family cannot demand proportionately higher salaries. If the employed spouse is making significant advancement in a career or job, relocation usually involves accepting a new job closer to the bottom or a long delay period before finding a new comparable position.

The military illustration is not designed to be all inclusive but to show how non-work area situations influence the productivity (work place and retention) of military personnel. To these can be added a

number of other Quality of Life Components that include housing on and off military bases, time and cost of commuting including the friction of distance and traffic congestion, divorce, marital, custody, and children issues, the two-worker family, spousal careers and career priorities, interpersonal jealousies, domestic role reversals in the sharing of stereotyped male/female responsibilities, problems of foreign-born spouses, cross-cultural associations (Turner 1980), minorities, moonlighting, pressures for additional education, including degrees, and planning for a post military second career.

To focus productivity studies and measurement and organizational evaluation to the work area, performance on the 40-hour week addresses only a segment of the total process. The holistic approach involves the 168 hour week.

Other considerations--random observations. Recognition and Reward systems are well established in our society. These run the gamut from news stories, sometimes with pictures, through plaques, cups, framed awards with elitist types and signatures and imposing titles, special uniforms, decorations, ribbons, cash awards, trips, and promotions. Thus, advancement, promotions, and fringe benefits are sought to anchor the rewards for satisfactory prior performance. There is no assurance of continuing high performance,, but traditions and agreements make it difficult to remove the established rewards for mediocre or less-than-adequate performance. If losses are incurred in the private sector, some job shrinkage results but few individuals willingly accept pay cuts and security or job priority clauses come into work contracts or stock options or "parachute" arrangements become commonplace with mid and upper management.

Government cut-back responses have been towards more contract maintenance efforts and downgrading certain positions, but seniority and job classification regulations, rather than worker productivity, seem to be the basis for decisions. Again, the academic example is used. A professor or teacher may earn tenure and several promotions with six to ten years of highly productive work but can then generally coast for the remainder of a career without challenge. This pattern is slowly starting to change, but the illustration is still essentially valid. For some promotions and rewards may come from impressing the proper persons with authority, conformity, or by remaining neutral or low key during stormy controversies. Physical appearances, affiliations, strong supporters, spousal roles and community activities may also be factors--all unrelated to productivity yet part of a holistic appraisal.

Evaluating Productivity

Productivity must be evaluated by external investigators who are familiar with similar systems and privy to information on all aspects of an operation. People cannot be objective investigators in systems in which they are full-fledged members, have vested interests, or possible peer relationships (Alderfer 80-5-1980).

Self evaluations by organizations are beneficial but rarely can they be regarded as valid measures. In tight hierarchies, such as military organizations, even the self evaluation loses credibility as those lower in the hierarchy tend to echo sentiments of the existing leadership.

Measurement should always deal with comparable data, and organizations seem to be undergoing technical and personnel shifts thereby

limiting the significance of the results. One must be equally cautious in dealing with federal statistics including the quarterly announcements of the National Index-of-Labor Productivity. This is an "index of output per hour of all persons in the private business economy." It is a fairly reliable indicator of trends in real hour earnings which pay for improvements in our material standard of living. When viewed against changes in nominal earnings per hour, the index points up trends in unit costs. Through short hand, it has come to be known as the Index in Labor Productivity, and that is the source of much confusion. Although the index does not pretend to measure how well workers work, there are enough people who misinterpret any drop in the index to erroneously conclude that there has been a demise in the national work ethic (Zager 1980). During the 1982 recession, with mass layoffs and a tightening of many companies in both white and blue collar categories, there were significant increases in the index but little news coverage about it. The Federal Index tells not how productive workers are but how productively employers use them. It is employers and managers, after all, who determine which resources are combined in what ways to produce goods and services. Nothing is more common than to find workers conscientiously and effectively performing unnecessary jobs. A well-run organization raises productivity by eliminating such jobs and if possible, training and reassigning the job holders to needed work.

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