A Survey of Knowledge Work Productivity Metrics

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ABSTRACT

This paper presents a unique comparison of work on productivity metrics in the literature and that in use in practice, with the aim of identifying gaps, and opportunities for researchers and practitioners to meet the challenge of improving knowledge worker productivity. Methods used include surveys, group interviews, and in-depth interviews. The authors conclude that several metrics including effectiveness, efficiency, profitability, innovation, and customer satisfaction may need to be given more attention when considering productivity evaluation. It is also important to identify knowledge work intensity, and select metrics that are most appropriate for each worker’s knowledge intensity level. Results provide insights for enterprises to identify useful metrics for evaluating the knowledge workforce. Specifically, for high intensity work, effectiveness is a valuable metric, but for lower intensities, efficiency may be more practical.

Keywords: Effectiveness, Efficiency, Knowledge Intensity, Knowledge Work, Measurement, Productivity Metrics, Profitability

1. INTRODUCTION

Labor productivity is a predominant source for generating wealth and provides a foundation for economic growth. Krugman (1997) asserts that productivity isn’t the only important metric, but when considering the long run it may be the largest indicator of an organization’s success. A nation’s ability to improve its standard of living over time depends in large part on its ability to improve its per-capita productivity.

Since Taylor, manual workers’ productivity has been increasing steadily at an average rate of approximately 3% compounded per annum, equivalent to a fifty-fold increase over this period (Drucker, 1999). During the 20th century, an important contribution of management science has been the improvement of manual worker productivity, and the concomitant economic growth and development.

With the more recent ubiquity of information technology, advances in education, and global economic development, Knowledge Work (KW) has become a leading driver of economic growth. Judy and D’Amico (1998)
noted that 60% of the new jobs in the early part of the 21st century will require high KW skills. Lee and Mather (2008) determined that the number of workers in professional and technical and related occupations increased by more than a factor of four from 1910 through 2000. Bisson et al. (2010) similarly note that 85% of the new jobs created in the past decade required complex knowledge skills, including analyzing information, problem solving, rendering judgment and thinking creatively. There are several straightforward questions that occupy many organizations’ executives: Are we doing the right things in right ways? Have we made an effort to improve work effectiveness and efficiency to enhance productivity? Do we know how to improve team performance? Nonetheless, KW involves often-idiiosyncratic activities making standardization, and procedural codification difficult (Matson & Prusak, 2010).

Drucker (1991) posed a 21st-century challenge: that the single greatest issue facing managers in the developed world is to raise the productivity of knowledge and service workers. Käpylä et al. (2010) discuss future productivity challenges, identify KW productivity research questions, definitions, measurement methods, management, design and development work, and suggest future directions for productivity research including quantity, quality and efficiency. Drucker (1999) further remarks that measuring and improving knowledge worker productivity would be the most important management task in the 21st century. This is, largely because KW constitutes such a large component of the economy, as well as value-added aspects of organizations’ products and services. Health care is an important emergent domain where due to accelerating costs, there has been increasing attention to improving productivity (see e.g., LaGanga & Lawrence, 2007; Hollingsworth, 2008).

Thomas and Baron (1994) highlight the need to evaluate KW productivity and that this need grows greater each year. There has similarly been increasing research in the general area of KW productivity measurement, methods, practices, and approaches. Ramirez and Nembhard (2004) provide a survey of many measurement methodologies, such as function point analysis; efficiency, standard times and operation efficiency; multi-factor productivity measurement model; and data envelopment analysis. Drucker (1974) notes that without productivity objectives, organizations do not have direction, and without productivity measurement, they do not have control. More acutely, productivity as the primary metric provides balance among the production factors that may give the greatest return. KW is often non-procedural, non-standardized, non-repetitive, complex, intangible, and independent of other processes. That is, the work process is difficult to supervise, and the results are not easily quantified, since KW tasks are not as clearly defined as those for manual work. There is also perhaps a greater need for continuous learning and innovation. It is because of these special characteristics of KW, that traditional quantitative performance metrics are often inadequate, particularly if taken one at a time.

Eccles (1991) reminds that what gets measured gets attention, particularly when rewards are tied to these measures. Balk (1975) also suggest that people would have to learn how to handle “softer” productivity measurement information and recognized this would affect the way people manage things. Tuttle and Romanowski (1985) note that the shift to service and information-based organizations present a serious challenge to management strategies and traditional approaches to productivity management, and KW demands new ways to assess and improve performance and productivity to sustain productivity gains. Bridges (1992) suggests that a key to implementing productivity improvements is putting everything in directly measurable terms. Similarly Frazelle (1992) notes that detailed aspects of productivity must be well understood before they can be effectively measured. Nonetheless, there remain considerable challenges for measuring and improving KW productivity, as this field has shown relatively little empirical improvement historically (Davis, 1999).
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