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## **INFORMATION ECONOMY AND WORK IN THE SPHERE OF KNOWLEDGE**

The pace of the present technological revolution is far more rapid than any of the fundamental shifts of the past. The shift of labor from agriculture to manufacturing took over 100 years. We are still undergoing the shift from manufacturing to services which started almost 50 years ago. And now we face an ever-accelerating shift from service and manufacturing labor based on the speed and higher level of service sector employment based on the ability to acquire, synthesize and manipulate knowledge and data.

The term "knowledge worker" was coined by Peter Drucker some thirty years ago to describe someone who adds value by processing existing information to create new information which could be used to define and solve problems. Examples of knowledge workers include lawyers, doctors, diplomats, law makers, marketers, software developers, managers and bankers etc.

Sociologist Manuel Castells presents us that there will be no shortage of job opportunities in the knowledge sector – that knowledge work will be available for all who have the intelligence and the education to perform it. Let us examine the meaning of such an assumption. For the number of knowledge-work jobs to remain the same, the demand for the output of knowledge workers must increase as fast as the productivity of knowledge workers. For the knowledge sector to absorb the retrained cast-offs of other labor markets and to absorb the high percentage of the young who will acquire the requisite knowledge and skills, the demand for the output of knowledge workers must increase much faster than the productivity of knowledge workers [2].

Knowledge workers presently make up 20 percent of the labor force and will make more than 30 percent of the labor force within 20 years. If the labor force grows by 1 percent per year (which is the approximate growth rate of the US labor force over the last ten years), and there is no increase in the productivity of knowledge workers the demand for the goods and services produced by knowledge workers will increase by slightly over 3 percent per year. If we add the assumption that the productivity of knowledge workers will grow by 2 percent per year, then the demand for their goods and services would need to grow by over 5 percent per year.

There is clearly a rosy scenario afoot: the knowledge sector – with much higher productivity than other sectors of the economy – will expand rapidly in terms of employment as well as output; as most workers become high-productivity knowledge workers our incomes will rise proportionately [6].

Evaluating productivity is never more difficult than when evaluating knowledge work. Consequently, this type of productivity evaluation is poorly understood. Work must be categorized by its content, and work content is not one-dimensional, as implied by the old white-collar/blue-collar distinction. We must propose categorizing work by eight components, as detailed in Table 1. It show the components of work arrayed on a horizontal scale [4,5].

**Table 1. Table of Work Component Descriptions**

<b>Component</b>	<b>Description</b>
Decisionmaking	The application of knowledge in the determination of how to process the work. This application of knowledge differentiates decisionmaking from simple choices such as "stamp" or "do not stamp."
Complexity	The difficulty of the job. This component involves the number and difficulty of decisions, and the amount of knowledge needed.
Knowledge Use	The amount and complexity of information required to do the work.
Structured	Structure involves constraints on how, when, where, and what is done. Both complex and simple work can be very structured. The assembly-line job is usually fairly simple, but very structured. A legal case can be very complex, but it also is very structured.
Repetitive	A function done the same way every time, and will always be done the same way. If the job changes each time, then it is not repetitive.
Volume	The number of times the profiled activity will occur in a given time cycle. This can be expressed in many ways, which will affect the gauge of high-low.
Time per Job	The total time spent completing the job, from start to finish.
Skilled Activity	The physical difficulty of performing the work. This inversely relates to the mental difficulty or complexity. There are activities that require both skilled physical and mental activity-surgery, for example.

Source: [7]

This proposed methodology is expected to be refined over time. This approach demonstrates that the best way to describe work is by its component content. Using this approach gives a true picture of the work structure, which will allow a match of measurement techniques to the knowledge work.

In 2015 just over 40 per cent of the European workforce was employed in knowledge-based industries. The Nordics and the UK had the biggest shares of employment in the knowledge economy. Sweden had 54 per cent of employment in knowledge-based industries, followed by, Denmark, the UK, and Finland with close to 50 per cent of total employment in knowledge-based industry. By comparison, Germany had 44 per cent of total employment in knowledge based industry, France 43 per cent and Italy 37 per cent. The vast majority of jobs, unsurprisingly, were in knowledge-based services – 35 percent of total employment across the EU. Technology based high to medium tech manufacturing contributed just under 7 per cent of employment, with high tech manufacturing accounting for just over 1 per cent of total employment.

**Table 2. Employment in knowledge based industries in EU15 in 2015**

	<b>Manufacturing</b>	<b>Services</b>	<b>Total</b>
Sweden	6.5%	47.8%	54.3%
Denmark	6.3%	42.8%	49.1%
UK	5.6%	42.4%	48.0%
Finland	6.8%	40.5%	47.3%
Neth'lands	3.3%	41.9%	45.2%
Belgium	6.5%	38.3%	44.8%
Germany	10.4%	33.4%	43.8%
France	6.3%	36.3%	42.6%
Ireland	6.0%	33.9%	39.9%
Austria	6.5%	31.0%	37.5%
Italy	7.4%	29.8%	37.2%
Spain	4.7%	27.0%	31.7%
Greece	2.1%	24.5%	26.6%
Portugal	3.3%	22.7%	26.0%
EU	6.7%	34.7%	41.4%

Source: [6]

Critics of the European social model might say that one reason why Europe has not got the economic benefits of the information revolution is the degree of regulation labour markets that slowdown the economic restructuring required to get the full benefits from ICT diffusion and prevent the necessary increase of number and quality of knowledge workers. At least part of the problem is that measurement of European productivity potential in knowledge sphere is being under-estimated.

### Literature

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