BY *JOHN ZYSMAN*

We are in the midst of the fourth services transformation. The core story is the application of rule-based IT tools to service activities; it is not about the growth in the quantity or the value of the activities we label as services. The application of IT has the potential to transform the services component of the economy, altering how activities are conducted, and value is created. Services were once seen as a sinkhole of the economy, immune to significant technological or organizationally driven productivity increases. Now the IT-enabled reorganization of services, and business processes more generally, has become a source of dynamism in the economy.

There are four interconnected service stories that must be separated and clarified. The first is an accounting error, or perhaps better, a matter of financial engineering. Activities outsourced from manufacturing are relabeled as services. The GM window washer is a manufacturing employee; but when contracted by GM he becomes a service employee. The same window is washed, perhaps by the same window washer. Initially, at least, we should assume the activities stay the same, just conducted by different organizations.

The second story is that services become a larger part of the economy with the evolution of consumer and business purchases. Services have become a larger portion of both the consumer market-basket and of what businesses use to produce and distribute their goods and services.

The third service story is about the transformation in and changing role of women in the work force and, with that, the conversion of unpaid domestic work—washing floors, watching babies, and delivering groceries—into commercial services bought and sold in the market. It is a form of household outsourcing.

The fourth service story is the digital or algorithmic transformation. Service activities themselves are changed when they can be converted into formalizable, codifiable, computable processes with clearly defined rules for their execution. This is an algorithmic service transformation facilitated by IT tools. Much of the service innovation then is around the adoption and effective implementation of IT tools. Certainly business processes from finance and accounting through to customer support and CRM are altered when they can be treated as matters of information and data management. Routine and manual functions are automated, and fundamental reorganization of activities is enabled. Likewise, sensors and sensor-based networks change many personal services. Then, as service activities are conducted by and with IT tools, the worker skills required change as well. And of course, as information moves, many activities that were previously tightly linked to particular places can be moved.

Just as important, this algorithmic transformation blurs the line even further between product and service. For example, it is conventional to observe that products such as media products are simply encapsulated information. Conversion into digital format facilitates their online delivery to computers, cell phones, iPods, and the like. Slowly the particular product, the purchase of a CD, blurs into a service, a subscription to download music. IBM has transformed from a company selling a product in which service support provided competitive advantage into a service company embedding products in its offerings. The services that ride on the product platform become the differentiated asset that creates value for the firm.

The drama is that tools and technologies based on algorithmic decomposition of service processes may have the power to revolutionize business models the way manufacturing was revolutionized in the industrial revolution. The digitally implemented service processes and activities will displace people when it is embedded in automated processes, but often complement the effective use of human insight, intelligence, and knowledge in the choice, development, application, and effective use, of these tools will remain central. The crucial issue in this era will be how underlying knowledge and insight is developed and applied. C

JOHN ZYSMAN (zysman@berkeley.edu) is co-director of BRIE and a professor of political science at UC Berkeley.