

The impact of transaction economics

Paul A. Strassmann continues his discussion of the foundations of information economics

Subsequent to my retirement from Xerox I started collecting data from clients who were interested in obtaining a valid diagnosis of their IT spending effectiveness. Though IT and any other indicator of profits or productivity continued to show up as scatter diagrams, I came up with a surprising discovery.

Transaction costs (mostly the expense for sales, managerial and administrative personnel) showed a statistically valid correlation with IT spending, provided consideration was given also to other factors¹. I used a linear equation with terms that included: profit after taxes; headcount of professional personnel; headcount of administrative and managerial personnel; headcount of executive personnel; number of desktop and laptop computers and the ratio of transaction costs (defined by accountants as sales, general and administrative costs) to cost of goods sold². This showed that the relative importance of IT in a firm is not a reflection

of its revenues or its capital, but of how a firm deploys IT in support of or for control of its transactions.

The tendency of every growing bureaucracy to acquire computers for the purpose of strengthening its influence was thus established. Excessive bureaucracies would give rise to excessive IT spending which in turn would mirror standard operating procedures in the form of incredibly complex software code. In this way

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IT drifted from being a purely technological tool to becoming a reflection of the economic and behavioural characteristics of an organisation. Variety could not be abolished through standardisation of systems, which was the most frequently tried measure and destined to fail if lodged into a dynamically changing environment. Local politics, relationships with suppliers and customers, and competitive challenges were sufficiently

different for everyone to seek unique solutions – except for the bureaucracy that could enhance its power by suppressing variety through uniform procedures.

With the rise of a global economy the forces seeking variety gained strength. The need to manage rising chaos during the transition bred meetings, consultants, accountants, lawyers, analysts, software designers, advertising and personnel experts. As a result, in a typical corporation the number of personnel in the headquarters always exceeded the number of workers in the factories. Each new source of control added to the costs of transactions as well as to the associated computerisation. This led to the sixth and seventh ‘laws’ of information economics:

- IT spending is related to transaction costs.
- Transaction costs rise with the ratio of bureaucrats to operators.

The reason why there is absolutely no correlation between transaction costs and profitability or between sales and IT or between assets and IT can be found in the many ways

in which organisations carve out for themselves a defensible competitive

position. The estimated IT spending per employee for firms in different economic sectors, with different medians of ratios (cost of goods/sales; transaction costs/sales; profit/sales; equity/sales and sales/employee) will result in IT ratios within ranges that do not distinguish readily as to economic sector, origin or country in which the firm is registered (see Table 1, p51, for a sample of 1,287 international firms).

TABLE 1: Diversity in economic ratios results in a wide range of estimated IT costs

Economic Sector	Cost of Goods/ Sales	Transaction Costs/ Sales	Profit Sales	Equity Sales	Sales/ Employee	Estimated IT/ Employee	Range in Estimated IT/ Employee
Materials	76.4%	15.1%	1.3%	46.0%	\$263,291	\$4,085	\$800 to \$11,774
Consumer Disc.	70.7%	18.8%	2.0%	29.7%	\$104.810	\$2,401	\$404 to \$13,831
Consumer Staples	53.7%	31.7%	4.3%	31.4%	\$196.167	\$6,095	\$1,252 to \$18,014
Health Care	53.7%	44.6%	1.8%	57.1%	\$153,206	\$10,637	\$1,045 to \$35,138
Energy	60.2%	12.5%	5.2%	54.6%	\$789,720	\$8,762	\$1,012 to \$32,173
Financials	37.6%	27.4%	14.6%	127.5%	\$220,265	\$6,958	\$2,002 to \$26,108
Industrials	69.3%	19.7%	0.5%	27.3%	\$162,758	\$3,814	\$1,118 to \$16,760
IT	57.7%	46.3%	-17.8%	58.6%	\$139,683	\$9,475	\$1,136 to \$25,853
Telecomms	48.6%	22.0%	-11.8%	95.6%	\$290,995	\$7,450	\$322 to \$29,528

That enormous variability in estimated IT costs per employee leads to the eighth and ninth laws of information economics:

- The right level of IT spending cannot be derived from public data.
- The diversity in IT calls for portfolio methods to calculate payoffs.

If executives wished to find out if a firm was over-spending or under-spending on IT they would have to resort to financial modelling to see how various elements that make up IT budget would yield returns that have different risks and different timing.

The formulation of principles for guiding further explorations in information economics still left open the question whether we are dealing here with an applied practice, or if such research connects to the main body of economic theory, which is now recognised as one of the social sciences. In my search for such

connections I discovered the newly recognised academic discipline of transaction economics developed by Ronald H. Coase.

Focusing on why organisations are formed, what guides their growth and what leads to their demise, Coase formulated what is now recognised as Coase's law and becomes here our tenth "law" of information economics that governs the principles when to outsource an internal operation:

- The cost of organising an extra transaction within the firm becomes equal to the costs of carrying out the same transaction on the open market. Coase labelled all coordinating interactions as "transactions" which were necessary to get a product or service to pass through the entire sequence that connects raw materials to the ultimate consumer.

There are practical reasons why the transaction school of economics

could be of immediate value. An examination of the structure of IT budgets has led me to conclude that funding the upgrades to our rapidly obsolescent corporate and government IT infrastructures will be hard to justify.

Computerisation can be explained as stand-alone projects if there is a visibility of transaction costs so that Coase's law could be applied to determine if the charges are competitive.

Investment proposals will have to demonstrate that each step in an upgrading sequence can be financed by incremental charges for services. The problem arises when customers will be willing to pay only for the marginal costs that yield immediate benefits. Internal conflicts whether to outsource or not can be then resolved if infrastructure services from a computing 'utility' can be obtained at much lower costs and competitively priced transaction charges. This is why transaction economics theories need to focus on the rationale of outsourcing information work as a generally accepted routine investment decision ■

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ACTION POINTS

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FOOTNOTES

¹ See Chapter 6 in *The Squandered Computer*.

² This equation turned out to be statistically valid with a regression coefficient over 0.65 and with each variable significant with better than 0.05 probability.