

Hickson D J, Pugh D S & Pheysey D C. Operations technology and organization structure: an empirical reappraisal. *Admin. Sci. Quart.* 14:378-97, 1969. [Industrial Adm. Res. Unit, Univ. Aston, Birmingham, England]

Technology is not the primary influence upon organization structure which many believed it to be following Woodward's¹ pioneering research. A multivariate study of diverse organizations in England shows it to be related only to variables directly impinged upon by the work flow, and not to the wider administrative structure. [The *Social Sciences Citation Index*[®] (SSCI[®]) indicates that this paper has been cited in over 185 publications since 1969.]

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"An open question in the 1960s was whether the technology of a firm, indeed of any kind of organization, is primary in shaping how it is set up and run. This was a provoking possibility. If by just knowing a firm's production technology its management structure could be predicted then two sweeping consequences followed. First, researchers would hold a ready key to understanding. Second, teaching should be specific to each technology and not be about 'organizations' or 'management' in general, a teaching revolution.

"The question had arisen from the pioneering research of Woodward¹ in Britain. This interested me, but it was not the focus of the Aston Programme of research in Birmingham, under the leadership of Derek Pugh. This aimed at testing a multivariate explanation of organization structure.

"The team worked at desks all together in the same room; physical proximity and an understanding that publications would be multiauthored being designed to maximise collective commitment. The team process is described in the introductions to the series of Aston Programme volumes commencing with that of Pugh and myself.² At the time of the work on technology some of the members in addition to Pugh and myself

were Kerr Inkson, Roy Payne, and Diana Pheysey.

"As drafts of journal papers began to take shape it was agreed to concentrate them (if accepted) in a single journal, the then quite new *Administrative Science Quarterly*. As there were several simultaneously being worked on we came to know them by numbers, ASQ 0 (in 1963),³ ASQ 1 (in 1968),⁴ ASQ 2 and 3 (in 1969),⁵ and eventually ASQ 4. This last was the technology paper.

"The other papers dealt with theory and results generally, indicating the balance of predictive capability between a range of 'contextual' variables including technology. ASQ 4 singled out that variable. This was because of my interest, which was shared by Pheysey, but also because the results contradicted my expectations, if not everyone's. I had thought that with better samples and methods we would 'prove Woodward right' on the primacy of technology. As it turned out, our results did nothing of the sort. Discouraged, we examined them every way round we could think of, with me hoping that we had overlooked something. What this forced thoroughness led to was a paper that may have been widely cited because it is an example of careful step-by-step analysis and point-by-point buildup of argument. My name went first because of my particular interest but it was very much a joint effort. The results qualified the assumptions that had been derived from Woodward's work. They suggested that technology has notable effects on only aspects of organization most immediate to it, and that over the wider organization its influence is overwhelmed by other factors. This is an outcome supported by numerous researchers since, so that it puzzles me how frequently textbooks reference the paper and yet continue to deal with technology as if the view that others had taken from Woodward had never been modified.

"The most lasting impression on me was that here were results that were persistently opposite to what I hoped for: it is not so that social science results can always be twisted to anything the researcher wants them to be."

1. Woodward J. *Industrial organization: theory and practice*. London: Oxford University Press, 1965. 281 p.
2. Pugh D S & Hickson D J. *Organizational structure and its context: the Aston Programme I*. Farnborough, England: D.C. Heath, 1976. 231 p.
3. Pugh D S, Hickson D J, Hinings C R, Macdonald K M, Turner C & Lupton T. A conceptual scheme for organizational analysis. *Admin. Sci. Quart.* 8:289-315, 1963.
4. Pugh D S, Hickson D J, Hinings C R & Turner C. Dimensions of organization structure. *Admin. Sci. Quart.* 13:65-105, 1968.
5. _____ . The context of organization structures. *Admin. Sci. Quart.* 14:91-114, 1969.
6. Pugh D S, Hickson D J & Hinings C R. An empirical taxonomy of structures of work organizations. *Admin. Sci. Quart.* 14:115-26, 1969.