Time to reset your clockspeed?

Businesses may have their own clockspeeds that vary according to the nature of their environments, says ***Thomas Jackson****, but how fast is fast enough?*

How fast does an organization need to be to stay ahead of its competitors? "Clockspeed" is a term for the speed at which a species must reset its biological clock – or reproduce and *mutate* – to survive. Businesses may have their own clockspeeds that vary according to the nature of their respective industries and environments. In the age of social marketing, the question is: How fast is fast enough? Toyota's eclipse of General Motors' (GM) global sales lead, followed by GM's bankruptcy and its subsequent mixed recovery, suggests an answer: no business can be fast enough. Toyota is famous for collapsing production "lead time" and other measures of organizational agility, and famous for pressing its suppliers to do likewise.

Of course, with its recent troubles, not even Toyota can be fast enough. What is the key to organizational fitness? According to Nobel Laureate economist Oliver Williamson, the answer is decentralization. The best-documented case of decentralization is, ironically, General Motors. GM once represented the gold standard of how to organize and run a large organization. In the early 1920s, GM's leader, Alfred Sloan, transformed a holding company into the most-admired company in the world. Chevrolet, Buick, Cadillac, etc, became corporate divisions of GM, each with its own president, empowered to make decisions with respect to their unique market segments. To mitigate the risks of decentralized power, Sloan and an army of financial specialists assigned GM's presidents with financial targets and audited them annually for return on investment. Thus was born management accounting.

How fast was Sloan's GM? We don't know precisely, but we know that in the 1920s, Henry Ford was slow to introduce large engines, colour and other options in its otherwise

dependable cars. By 1926-27, GM's rising sales of more powerful, colourful cars outpaced sales of the fabled black Model T and threw Ford into a tailspin. Ford did not straighten up and fly right until it decentralized its own structure in 1948.

We have described how GM overtook Ford. How did Toyota overtake GM? In 1963, Toyota won the Deming Prize for quality by taking decentralization to a new level: it empowered frontline assembly workers to stop the line whenever defects occurred. The same stop-the-line principle was later applied to processes in other areas including engineering and marketing. Scholars have labelled Toyota's innovation "radical decentralization".

How fast is "radical"? After adopting Toyota's system in the 1990s, Porsche was able to reduce its normal product development lead time from seven years to three. More recently, Toyota slashed its product development lead time for the Prius, bringing it to market in less than 18 months.

We can agree, the new organization is fast; but why? Simply put, lean organizations find and fix defects of all kinds faster than GM and organizations that still follow Sloan's model. In a radically decentralized organization, full of empowered marketers, engineers, operators and suppliers, defects do not stand a chance. Corrective action can bypass bureaucratic processes that all too frequently focus on fixing blame instead of problems. Toyota's control systems are so effective, even accountants are considered something of a waste.

There may be a more scientific explanation. Economists believe that human organizations are similar to large computers. Like computers, organizations are designed to process information and solve problems. Decentralization may have so-called "speedup" effects similar to the effects of "multicore" processing in computers. Computing speeds increase quickly as the number of cores processing the information increases. Organizational learning may likewise speed up as leaders decentralize, engaging and empowering more employees in finding and fixing defects.

Is this at all measurable? Computer scientists frequently apply a rule known as Amdahl's Law to measure the speedup available through writing programmes that involve more and more information processing cores. Applying the same law, we may hypothesize that the speed of an organization is inversely proportional (more or less) to its degree of centralization.

For the sake of illustration, assume that in 1926, the year of its near-bankruptcy experience, the Ford Motor Company was completely centralized under Henry Ford. In other words, P = 0. Unsurprisingly, Amdahl's law predicts that S = 1, which implies that Ford was seeing none of the benefit that might have ensued from letting go the reins of power. If, however, it could be established that Sloan had decentralized GM by, say, 50%, or P = 0.5, Amdahl's law would forecast S = 2, which means that GM would have been about twice as fast as Ford in finding and fixing defects or in finding and serving new markets. Subsequently, if it could be established that Toyota has decentralized by 75%, Amdahl's law would forecast S = 4, which means that Toyota would be twice again as fast as GM. As Ford, GM and Toyota have all learned painfully, there is no place to hide from the struggle for survival, even if you're currently Number One. Although the latest evolutionary mutation happened in Japanese manufacturing, all industries throughout the world will be affected eventually. It's do or die. Healthcare is the most recent industry to embrace the Toyota system. Initial results are quite promising, with rates of improvement in quality and cost (and patient safety) as impressive as those seen in manufacturing. But as manufacturing leaders found a decade ago, healthcare leaders are finding that sustaining initial gains from improvement requires new ways of organizing the problem solving – and new ways of leading an empowered workforce.

Computer science predicts that the sky's the limit. If you are willing to pursue parallel processing with multiple cores, computing can be sped up by orders of magnitude, hundreds even thousands of times faster than today. Think about that the next time your leaders argue in favour of reinstating command and control... Perhaps its time to reset your clockspeed.

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WHAT IS AMDAHL'S LAW?

Mathematically,

$$S = 1/(1-P)$$

Where:

S = the rate of speedup;

P = the degree of parallelization or decentralization;

(**1 – P**) = the degree of centralization or central processing.