Notes

Strategic Planning: Different Aspects of Modes and Mode-switching
Dilip Roy

The logistic process of a firm comes in contact with different segments of its business environment not only at the two ends but at many intermediate points where the effects of interactions are both positive and negative in nature. These friendly or hostile attitudes of the environment call for appropriate action which in turn presents decision-making problems to managers at different levels. The most vital one among these problems relates to strategy planning and the top executives are mostly concerned with this complex and intriguing decision-making process.

Research studies on the manner in which executives handle strategic planning have resulted in multiple categorizations. According to Mintzberg (1973), there are three basic modes of strategic planning. These were termed by him as entrepreneurial mode, adaptive mode, and planning mode with underlying orientations as proactive, reactive, and systematic respectively. Mintzberg also referred to mixed modes for strategic planning based on different combinations of pure modes. Steiner, Miner, and Gray's (1982) categorization involves further subclassifications of Mintzberg's pure modes giving rise to five approaches for strategic planning. While the formal structured approach of Steiner, Miner, and Gray is comparable with the planning mode of Mintzberg, the intuitive-anticipatory approach and entrepreneurial opportunistic approach of Steiner, Miner, and Gray may be viewed as a risk based subdivision of Mintzberg's entrepreneurial mode. Similarly, the incremental approach and adaptive approach of Steiner, Miner, and Gray may be considered as further subdivisions of Mintzberg's adaptive mode based on risk. Thus, for the purpose of any theoretical development or study, one may consider Mintzberg's classification as the basis.

On the other hand, the empirical study of Miles and Snow (1978) based on textbook publishing, electronics and food processing industries, and voluntary hospitals on the active/passive dimension claimed that, historically, firms had been following strategic postures of four kinds — defender, prospector, analyser, and reactor. Their classification was mainly based on risk taking ability. As a result, they claimed

This paper by Dilip Roy deals with executives' preferences for different pure modes of strategic planning and the mode-switching behaviour of firms. Based on a survey, he points out that the adaptive mode plays a significant role under environmental turbulency and the most likely mode under environmental stability is the planning mode. The author also describes the mode-switching process through a three-dimensional approach and suggests three hypotheses on the switching pattern.

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that basic postures were those of defender and prospector representing the two ends of a continuum. But there is a point of conflict between the theoretical development due to Mintzberg (1973) and survey results due to Miles and Snow (1978). This conflict is centered around the adaptive/reactive mode of strategy making. On the one hand, Miles and Snow have claimed that the posture of reactor is an unstable one and vanishes out under stability. On the other hand, Mintzberg considered the reactive mode as a pure mode.

In the first half of this paper, we shall make an attempt to resolve this conflict and for this purpose a survey result will be used. This survey was conducted among a large number of top executives drawn from different parts of the country with a view to understanding corporate decision-making process under the changed economic scenario. In the second half, we shall examine the existing trend in mode-switching behaviour. Khandwalla (1977) in his study on some top management styles suggested that under environmental stability, conservative style of functioning was an ideal one and under environmental turbulence, entrepreneurial and neo-scientific styles of functioning were ideal. In the light of our survey results, we shall critically evaluate the merit of Khandwalla's suggestion in terms of a mode-switching matrix. In case we differ from what Khandwalla had suggested, we shall develop a theory for mode selection which will be positive and non-normative in nature.

Stability of Adaptive Mode

As pointed out earlier, we have carried out a survey on corporate decision-making covering nearly 450 executives drawn from different industries scattered throughout the country. The present paper deals with responses received against one item among several items studied in the survey work. Under this item, we have noted down the preferred modes of functioning for stable and turbulent states of the business environment. The number of executives giving complete information on this particular item is 426. When presented in a two-way classified table with classifications made according to the state of the environment and according to the mode of strategy making, the accumulated information gives rise to a mode-switching matrix which will be the main reference for all our subsequent analyses. This matrix is presented in Table 1.

Since Miles and Snow (1978) had cast doubts about the stability of the adaptive/reactive mode, let us take a close look at the proportion of executives following this particular mode under the two extreme states of the business environment. It may be noted from Table 1 that under environmental turbulency, the proportion of executives preferring adaptive mode is as high as 46.479 per cent and the other two modes are far behind in order of preference. We may, therefore, conclude that the most likely mode for a turbulent environment is the adaptive mode. We also note that the proportion of executives preferring entrepreneurial mode and planning mode is nearly equal under environmental turbulency.

In fact, if we consider a trinomial distribution (Johnson and Kotz, 1969) with 426 trials with theoretical proportions for entrepreneurial and planning modes as $p_1$ and $p_2$ respectively then the null hypothesis that $H_0: p_1 = p_2$ can be tested through likelihood ratio test following Lehman (1986). If we indicate $X$ for the likelihood ratio, we have

$$
\lambda = \frac{\text{Maximum of the likelihood function under } H_0}{\text{Maximum of the likelihood function (unconditional)}},
$$

where

$$
\begin{align*}
&= \frac{426!}{104! \cdot 198! \cdot 124!} \left( \frac{114}{426} \right)^{228} \left( \frac{198}{426} \right)^{124} \\
&= \frac{426!}{104! \cdot 198! \cdot 124!} \left( \frac{104}{426} \right)^{104} \left( \frac{198}{426} \right)^{124} \left( \frac{124}{426} \right)^{124}
\end{align*}
$$

and hence the value of $-2 \log_e A$, works out as 1.75664. The corresponding critical value is 3.841 obtained from $x^2$ approximation of the test statistic under the null hypothesis at 5 per cent level of significance. A comparison between the observed and critical values reveals that at this chosen level of significance the null hypothesis that $p_1 = p_2$ is acceptable in the light of the survey data. Now, if we accept their corresponding modes as pure modes which are equally likely for
adoption under a turbulent environment, then the adaptive mode, which is conceptually opposite to the entrepreneurial mode, cannot be considered as an unstable mode as its chance of adoption is much higher. In fact, if we test the null hypothesis that this proportion \( P_3 \) is as high as 50 per cent against the alternative that \( P_3 \) is less than 50 per cent by using a standard large sample Z-test, we observe that the value of Z works out as:

\[
Z = \frac{(0.46479 - 0.5)}{\sqrt{(0.46479)(0.53521)/426}}
\]

which is greater than the corresponding critical value -1.6449 at 5 per cent level of significance. Hence the null hypothesis is acceptable at 5 per cent level of significance indicating that at least on 50 per cent of the occasions, one observes an adoption of adaptive mode of strategic planning for handling environmental turbulency. Now, environmental turbulency being more common, the adaptive mode cannot be viewed as a transit mode.

On the other side, if we consider the stable state of the environment, the proportion of executives preferring adaptive mode may be found to be sharply coming down. Only 5.634 per cent executives prefer this mode under a stable situation. Therefore, one may tend to accept the view of Miles and Snow (1978) that the chance of preferring adaptive mode vanishes out with the environment approaching stability. However, two aspects are to be considered while examining this view.

Firstly, we need to verify whether this proportion, say \( Q_3 \), is insignificant or not. In other words, we need to examine the null hypothesis that \( Q_3 \) equals zero against the alternative that it is markedly away from zero. Here again, the standard large sample test is Z-test with the calculation for observed value of Z as the following:

\[
Z = \frac{0.05634}{\sqrt{(0.05634)(0.94366)/426}}
\]

\[= 5.04319\]

Since the observed Z value is greater than the critical value of Z (= 1.6449) at 5 per cent level of significance, we conclude that the proportion \( Q_3 \) may be small but not insignificant. Thus, we conclude that though the adaptive mode of strategy making gets converted to other modes to a large extent as the environment approaches stability, yet it does not completely vanish out. A small but significant proportion of executives still prefers adaptive mode as a suitable one for strategic planning.

The other point to be noted is that the concept of stability of a mode is different from the concept of stability of the business environment. A stable environment only means a predictable environment. One can observe from our survey results that the most likely mode of strategy making under a stable environment is the planning mode with estimated proportion of executives coming under its fold being 76.422 per cent. This is because, under stability, one can work systematically. But, consider the case of Pharmaceuticals and drugs industry where the environment is always turbulent because of short product life cycles. If environmental stability is equivalent to modal stability, then it means that for such an industry, the strategic posture does not converge as the environment does not stabilize. But, that is not the actual situation. Firms in this industry mostly behave as innovators for their long run survival as may be observed from the works of Miller and Friesen (1977). Thus, one can get an example of modal stability under environmental instability. Of course, we should remember that modal stability is not the same as strategic stability.

Changes in Strategic Postures

It has been observed by many researchers that mode loyalty is not a desirable characteristic of a firm facing environmental changes. A few have even termed it as the trap of inertia — may be an inertia of rest, may be an inertia of motion. From our survey, we have also noticed that the overall mode loyalty is to the extent of 15.728 per cent only.

For executives preferring entrepreneurial mode, the probability of remaining loyal is 8.824 per cent when the state of the environment changes from stability to turbulency, and is 8.653 per cent when the state of the environment changes in the reverse direction. These two chances being nearly equal, we can conclude that mode loyalty for entrepreneurial mode does not depend on the direction of the change.

For planning mode, the proportion of mode loyalists is observed to be higher than that for entrepreneurial mode but it changes with the direction of environmental changes. When the environment
moves from stability to turbulency, mode loyalty is measured at 17.667 per cent and when the environment approaches stability from turbulency, mode loyalty is measured at 42.742 per cent. This remarkable difference speaks for a third factor which we would like to identify with the risk taking attitudes of the business executives.

Thus, the entire process of mode adoption and mode-switching can be viewed as a three-dimensional one where the respective dimensions are the state of the environment, the mode of strategic planning, and the propensity to assume risk. Glueck (1980) made a reference to this risk aspect while dealing with strategic alternatives but failed to identify this 3D interaction.

That we have not jumped to such a conclusion can be seen from the mode loyalty structure of the adaptive mode also. Whenever the environment moves from stability to turbulency, mode loyalty for the adaptive mode is measured at 20.833 per cent but the same for a change in the environment from turbulency to stability is as small as 2.525 per cent.

The importance of risk as a major factor affecting the mode of strategic planning of a firm is also clear from Table 2 which depicts environmental state-wise preference for mode.

Table 2: Proportion of Executives Preferring Different Modes of Strategic Planning Under Two Extreme States of the Environment

<table>
<thead>
<tr>
<th>Mode of Strategic Planning</th>
<th>State of the Environment</th>
<th>Entrepreneurial</th>
<th>Adaptive Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable</td>
<td>0.2394</td>
<td>0.0563</td>
<td>0.76422</td>
</tr>
<tr>
<td>Turbulent</td>
<td>0.2413</td>
<td>0.46479</td>
<td>0.29108</td>
</tr>
</tbody>
</table>

Under turbulency, when the environmental uncertainty increases the level of risk, the most likely mode of strategy making is the adaptive mode with 46.479 per cent executives following this mode. This observation goes against the suggestion of Khandwalla (1977) that the ideal mode for a high degree of environmental turbulency is the entrepreneurial and neo-scientific mode. Under stability, significantly high proportion of executives (76.422%) prefer planning mode as observed from Table 2. This is contrary to what has been suggested by Khandwalla (1977). According to Khandwalla, the ideal mode for a stable environment is the conservative mode. However, not only our results but also our conclusions present the opposite view. This calls for a more detailed analysis of the mode-switching behaviour of the business executives.

For an indepth analysis, let us initially restrict ourselves to changes in the environment from stability to turbulency only. If we closely watch the switching overs from the entrepreneurial mode of strategic planning, we may note a marked preference for the planning mode. We would like to put forward a hypothesis that switching over from the entrepreneurial mode to entrepreneurial, adaptive, and planning modes is in the ratio 1:2:3. The validity of this hypothesis can be tested in terms of $X^2$ test for goodness of fit. From Table 1, the observed ratio of frequencies for entrepreneurial, adaptive, and planning modes is obtained as 9:35:58. Hence the $X^2$ value is observed as:

$$X^2 = \frac{(9-17)^2}{17} + \frac{(35-34)^2}{34} + \frac{(58-51)^2}{51}$$

$$= 4.751$$

The corresponding critical value at 5 per cent level of significance and for 2 degrees of freedom is 5.991. As the observed value is less than the critical value, we accept the hypothesis proposed by us in the light of the given data.

Next, let us examine the transition pattern from the planning mode of strategy making to other modes. As pointed out earlier, the inclination of this transition is towards the adaptive mode. Here again, we put forward a hypothesis that the transition from the planning mode to entrepreneurial, adaptive, and planning modes takes place in the ratio 2:3:1. To test this hypothesis, we adopt the earlier procedure and note from Table 1 that the observed ratio of frequencies for entrepreneurial, adaptive, and planning modes is 89:158:53. The observed value of the $X^2$ test statistic is obtained as:

$$X^2 = \frac{(89-100)^2}{100} + \frac{(158-150)^2}{150} + \frac{(53-50)^2}{50}$$

$$= 1.816$$

We have already noted that the corresponding critical value for 2 degrees of freedom at 5 per cent level of significance is 5.991. Hence we accept our proposed hypothesis with a high confidence.

Lastly, we examine the transition pattern from the adaptive mode of strategy making to other modes. We put forward a hypothesis that this transition is
of random nature assigning equal probability of transition to each of the three pure modes. Again, from Table 1 we obtain the ratio of observed frequencies of the entrepreneurial, adaptive, and planning modes as 6:5:13. The corresponding expected frequencies are in the ratio 1:1:1. Hence, the observed value of the \(X^2\) test statistic is obtained as:

\[
X^2 = \frac{(6-8)^2}{8} + \frac{(5-8)^2}{8} + \frac{(13-8)^2}{8} = 4.750
\]

The critical value of \(X^2\) for 2 degrees of freedom and 5 per cent level of significance is 5.991. We, therefore, accept this hypothesis of randomness in mode-switching from the adaptive mode of strategic planning.

Let us then combine all these three test results in the proposed three dimensional way. Along the first dimension, if we move from stability towards turbulency, we observe that firms with a high propensity to take risk and with the entrepreneurial mode of strategic planning switches over to the planning mode mainly reducing thereby the level of risk by one step. Similarly, firms with a moderate propensity to take risk and with the planning mode of functioning switches over to the adaptive mode in main and here again, the level of risk gets reduced by one step. Firms with a low propensity to take risk and with the adaptive mode of functioning go for a random selection of mode as the level of risk cannot be further reduced. One may like to describe the third situation as a trap of frenzy. A diagrammatic representation of the above observations is given in Figure 1.

In case the environmental state moves from turbulency to stability, one can in a similar way observe that a firm moves from the adaptive to the planning mode in main. But, from the planning mode it may either remain absorbed in the same modal state or switch over to the entrepreneurial mode with equal probability. Thus, the reversibility of the switching over process is not always ensured. It may, however, be kept in mind that the switching over process described by us is in terms of most likely switching-over.

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**References**


