Time and Timing in Top Management Teams

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Executive Summary

Key predictors of the success of top executive teams are the speed at which executives make decisions, the timing of those decisions, and the ability of the top team to mesh its behavior with the cycle of the CEO and with key cycles in the environment.

Time and timing are so pervasive in the lives of top managers that they are often unaware of their effects. Yet phrases such as "window of opportunity" and "time to market" coupled with the ever present rhythm of the fiscal year and business cycle, provide evidence that time and timing play a major role in organizations. But how does one talk about these ideas? How does anyone do systematic analysis of them? And, most importantly, how can these ideas be useful to top management teams, and to the people responsible for the training and development of the executives on those teams?

A new concept called entrainment helps answer these questions. Entrainment examines the meshing of pace, cycles, and rhythm across individuals, groups, organizations, and environments.

Entrainment is a particularly useful tool in helping top management teams. The 1980's brought increased competition and complexity resulting in teams at the top. These teams of executives report directly to the CEO and collectively assume the role of the COO, while simultaneously helping the CEO with strategic and external issues. Time and timing are critical to explaining the success or failure of these teams.

From a training standpoint, entrainment should be taught, and the benefits of managerial action, as well as analysis, need to be stressed. Analyses of speed and cycles should be carried out through simulations and exercises, and the pitfalls of entrainment examined.
There is a tide in the affairs of men,  
which taken at the flood, leads on to fortune;  
Omitted, all the voyage of their life  
Is bound in shallows and in miseries.  
On such a full sea are we now afloat,  
And we must take the current when it serves,  
Or lose our ventures.

--William Shakespeare  
from Julius Caesar, Act IV  
Scene iii

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The concept of entrainment helps to answer these questions. Entrainment shows that the speed at which executives make decisions, the timing of those decisions, and the ability of the top team to mesh its behavior with key cycles in the environment, are key predictors of top team performance.

We begin with a description of top management teams. Then we introduce the concept of entrainment, and provide a framework and vocabulary for discussing notions of time and timing in organizations. Finally, we discuss how entrainment can be used to understand the dynamics and performance of top management teams, and to train and develop the executives on those teams.
Top Management Teams

During the 1960's an approach to structuring the top echelons of organizations emerged in the U.S.; the CEO/COO model. This structure, which became the dominant organization form, includes a board chair serving as the chief executive officer, a president serving as chief operating officer and reporting to the CEO, and a number of executives, each responsible for the operations of a particular unit, reporting to the COO. Work is allocated so that the CEO is responsible for strategic issues, external relations, and overall corporate governance, while the COO has primary responsibility for running internal operations. The executives' roles are to manage their own piece of the organization consistent with the strategies and direction from the top.

During the 1980's, a different type of design emerged. In this design, a team of executives reports directly to the CEO. This group collectively assumes the role of the COO in managing internal operations and helps the CEO formulate strategy and manage external relations. In the past few years Microsoft, Xerox, and AT&T have all announced new teams at the top. If designed effectively, such a group is more than a set of individuals working together; it is a truly interdependent, interacting team.¹

New team structures have evolved for several reasons. First, teams are now viewed as a more acceptable organizational form. Second, CEO's are looking for strategic and operational help as increasing global competition, technology based change, and turbulence in the financial markets all add to their burdens. Finally, CEO's feel the need for broader participation in organizational
leadership to carry out more frequent and fast-paced organizational changes. The new team structure is often initiated when organizations undergo major structural changes, e.g. Jamie Houghton's team at Corning, when a new CEO takes office, e.g., John Reed at Citicorp, or when a CEO is retiring and contemplating the choice of a successor, e.g. Reginald Jones at GE.

These new top management teams have the difficult task of aligning their organizations with the external environment; they need to match the pace of their industry, and make internal organizational changes that coincide with major technological and market changes in the environment. Yet we have all seen instances when this does not take place. We have all watched General Motors, IBM, DEC, and other large profitable firms make changes that are viewed as "too little too late". The only way that change seems possible is by ousting the CEO and much of the top management team. Entrainment explains why this occurs.

**ENTRAINMENT**

We begin with three examples of entrainment. Disneyland is a theme park in California that has been very successful. Attendance at the park follows a predictable annual cycle. Given that the park appeals in great part to school-age children, attendance peaks during school vacations (see Figure 1). This pattern of attendance poses fluctuating staffing demands. Disney has many options to alleviate the problem. They chose to hire college students for many of the jobs. While this choice affords many advantages including having a pool of young,
energetic, good-looking individuals who do not have to be paid very much, it also provides a labor pool whose schedule naturally meshes with (entrains to)
Figure 1: Synchronic Entrainment At Disneyland
the varying staffing demands. College students are available to work at precisely the same time that staffing demands at the park are highest. This entrainment allowed Disney to save on costs and improve efficiency and morale.³

In the second example we focus on the AIDS epidemic. We know that epidemics follow a fairly predictable fifty year cycle. The cycle (see figure 2) begins with a period of slow growth and spread of the disease, followed by exponential growth to a peak, followed by a steady state, which can be high or low depending on whether a cure is found. Different coping strategies are more successful and less costly at different points in time. In other words, there are phase-optimal interventions. While containment of the infected appears to be the best strategy at the beginning, later damage control and work with the susceptible group as well as the infected group seems best.

Unfortunately, legislation and funding are often not entrained to this cycle. By the time programs are approved and get under way they are no longer the most effective because the epidemic has moved on to another phase.

Finally, consider the dynamic nature of a mentor-mentee relationship. Individuals go through a series of career and life stages. Often a person entering the organization is anxious to learn the ropes, create a good impression, and discover the best career route to take. Such a person is often unsure about how to proceed. In contrast, a person who has been in the organization for many years knows the ropes, has a good sense of personal strengths and weaknesses, and has a good overview of the firm. Such a person is likely to be older and wanting to guide the next generation. These two individuals are in very different stages. In fact, these stages are "out-of-phase", but they somehow complement each other.
Figure 2: Epidemic Cycle of AIDS

NUMBER OF PEOPLE INFECTED

TIME (YEARS)

No cure is found

Cure is found
The relationship between mentor and mentee is not linear nor static. Over time the mentee may shift from appreciating, then resenting and moving away from, and then appreciating again what the mentor has to offer. A similar kind of dynamic may be seen in the alliances between young firms in the entrepreneurial stage who have many innovative new products and ideas, and older bureaucratic firms with many resources. This out-of-phase complementarity that exists as the firms trade innovation for cash and credibility, becomes less satisfying over time as the young firm matures.

The Vocabulary of Entrainment

Entrainment is the adjustment or moderation of one activity either to synchronize or to be in cycle or rhythm with another activity. A cycle is a pattern over a specific time period and a rhythm is a recurrent cyclical pattern. Thus, the Disney example illustrates "natural" entrainment, whereby the staffing needs of the park follow the same rhythm as that of the students. The AIDS example shows a lack of entrainment between governmental policy and the epidemic cycle. The pace of policy change is not fast enough to result in programs occurring when they are most needed. In addition, there is a limited time interval within which the programs are effective. Once the opportunity is lost legislators must figure out new programs to match a changed set of conditions. Finally, the mentor-mentee example shows that entrainment is dynamic. While the two different cycles may mesh at one point in time, as each follows its own trajectory entrainment ends.
We have identified three main types of entrainment. Tempo entrainment refers to the adjustment of one activity to have the same pace or speed as another. In the AIDS example, legislation is not fast enough to keep pace with the epidemic so there is no tempo entrainment. Synchronic entrainment implies having two activities with similar cycles or rhythm and the phase of each cycle has to be similar or at an in-phase state. The Disney example is a case of synchronic entrainment. Harmonic entrainment occurs when two activities mesh in an out-of-phase pattern; that is, they go together even though one is in one phase and one is in another phase. The mentee-mentor relationship is an example of this. Each type of entrainment can occur internally to a group or organization, or externally with the environment.

Entrainment complements existing organization theory by providing a new theoretical lens that emphasizes the existence and effects of pace, cycle, and rhythm on the behavior and performance of individuals, groups, and organizations. This lens differs from others in that it considers the interactions of the many activities within an organization, it emphasizes the impact of time, and it offers a non-linear, non-causal, and dynamic perspective.

Background of the Entrainment Concept

Huygens was the first to write about entrainment in the 18th century. He observed that when two clocks that separately ran at different speeds were both hung on the same thin wooden board, they became synchronized and kept the same time. Evidently very feeble interaction caused by the ticking from one clock to the other through the board were capable of synchronizing the two
clocks together. Since then the concept has been used in a variety of fields to explain the alignment of pace, cycle, and rhythm, both within and between systems.

In physics, the most obvious and spectacular example of entrainment is the synchronization of the orbital pattern of the moon to its rotational period causing the moon to present the same face to the earth at all times. In biology, the most often studied example of entrainment is the circadian (meaning about a day) rhythm. In a truly extraordinary feat of coordination, hundreds of processes within the human body, having periodicities that range from seconds to weeks, synchronize to entrain to the 24 hour light-dark cycle of the earth. Anyone who questions the utility of such entrainment quickly learns of its importance when travel across time zones results in jet lag. The light-dark cycle is either advanced or delayed. Because different physiological processes re-entrain at different rates, they lose their synchronization and performance decrements occur. The fact that most of these cycles free-run at periodicities longer than 24 hours helps to explain why re-entrainment takes longer following an eastbound flight rather than a westbound one.

What has all of this to do with organizations and top management teams? This same meshing of pace, cycle, and rhythm that allows the moon to present the same side to the earth at all times, and that allows us to live our lives on a 24-hour cycle, exists in organizations. Entrainment and lack of entrainment have particular consequences for individuals, groups, and organizations. We now apply the concept of entrainment to top management teams.
Top Management Teams and Entrainment

The applications of entrainment to top management teams are many and varied. We offer a few examples here that use existing studies and illustrate different aspects of entrainment.

Matching Pace With the External Environment

Not only are technologies, markets, and products changing, but the pace of change itself is increasing. Top management teams must therefore make more frequent large-scale strategic and organizational changes and adopt a fast pace of decision making.

For top management teams tempo entrainment, or the meshing of the pace of the team with the pace of the environment, is critical. In an in-depth study of top management teams in "high-velocity" environments, Eisenhardt7 showed that the speed at which top management teams made decisions was central to their success. Teams operating in the fast-moving micro-computer industry had to make decisions quickly. Those that could not keep up showed poor firm performance.

Decision making in high-performing teams is not speeded up by limiting the number of alternatives considered, nor by limiting conflict, nor by relying solely on autocratic leadership. Instead, teams maintain constant and vigilant watch over real time operating information, they simultaneously compare multiple alternatives rather than moving sequentially, and they favor quick resolution of conflict that airs issues but maintains cohesion. These teams rely
on external advisors, use tactics that maintain group confidence, and integrate across decisions. Executives on these teams keep a constant pulse of the organization, meet often and intensively, and let the CEO make a decision if consensus is not achieved and progress is blocked.

Thus, entrainment occurs when the team matches the pace of its environment. Entrainment results in high performance when speed is increased and the quality of decision making is maintained.\(^8\)

Some teams naturally entrained to the fast-paced micro-computer industry. A top management team may also choose to shift its pace to match that of the environment, or it could shift the pace of the environment to better match its own, if it is powerful enough to do that. Changing pace is difficult, however, because teams seem to set a pace early on in their existence, and to maintain that pace over time.

In a series of studies Kelly and McGrath\(^9\) show that teams tend to set up their pace to meet the demands of their initial task, and then once they have developed a particular pace of work, that pace becomes inertial. That is, the pace remains even when the task changes and the team could work faster or slower than it had previously. Thus, top teams that come into existence when the pace of change is slow naturally operate at a slow pace and find it difficult to speed up. Even new teams may make decisions slowly if most of the members learned to work at a slow pace.
Interlocking Cycles at the Top

The new top team management structure makes decision making at the top even more complex. We now must understand the linkages among the CEO, the top team, the organization, and the external environment. The entrainment concept offers a way to mapping this complexity and some of its consequences. For this mapping activity we will draw on the work of Virany, Tushman and Romanelli on top management teams.

These authors showed that natural cycles exist in the environments of the cement, airline, and minicomputer industries. They found that these industries followed a pattern of alternating periods of inertia and revolution. During the inertial period the environment remains relatively stable. Then, due to technological, legal, regulatory, or market forces, a major change in the environment occurs. One example of a revolutionary change would be the advent of a new technology such as the transistor. With the advent of this technological breakthrough comes an era of ferment whereby many new entrants compete as entrepreneurs come in to take advantage of the new opportunity. The era of ferment is punctuated by the choice within the market of a dominant design, which signals the exit of many of the competitors. Those that are left enter the era of incremental change characterized by elaboration of the dominant design, and retention of technological and organizational knowledge (see Figure 3). The rate of revolutionary change differs across industries with more stable industries having fewer changes within the same time period.
Figure 3: Technology Cycle

Era of Ferment

Technological Discontinuity

Era of Incremental Change

Dominant Design

Technological Discontinuity
We look first at the behavior of the CEO and top team during the era of ferment. CEO's have been shown to go through five stages: response to mandate, experimentation, selection of an enduring theme, convergence, and dysfunction. At each stage, the CEO has distinct patterns of attention and behavior. Task knowledge and power start at a minimum level in the initial stages and gradually increase over time. Information for decision making is initially from many sources and largely unfiltered. At the dysfunctional stage, information is from few sources and highly filtered. There are different outcomes for the firm depending upon the stage of the CEO at the time of the era of ferment (see Figure 4 for illustrations of some possible combinations).

Top management teams also move through stages. When a team is first formed, it will typically consist of individuals with diverse perspectives who have not yet established patterns of internal communication and coordination. After a brief time together members develop clear norms as to how to behave and make decisions, engage in moderately frequent and fluid communication, but their world views remain diverse. Over time members who are most different from the others leave the team, resulting in a gradual homogenization of values, outlook, and experience. Members interact less and less perhaps out of total familiarity with one another. This pattern remains until performance suffers causing attempts at change.

Virany, Tushman, and Romanelli show that high performance results from the entrainment, or matching across these cycles. They found that the performance of a firm is heightened when major changes in the environment are coupled with major changes in the internal workings of the firm, and CEO
Figure 4A: Entrainment Across CEO, Top Management Team and Environment

NEED FOR ENVIRONMENTAL SCANNING (Technology Cycle)
RECEPTIVITY TO NEW INFORMATION (CEO & Top Team)

Era of Ferment               Era of Incremental Change
Technological Discontinuity  Dominant Design  Technological Discontinuity

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CEO Cycle
Top Management Team Cycle
Technology Cycle
and/or top management replacement (see Figure 4a). Thus, entrainment occurs, and performance is heightened, when all are in the first phases of their respective cycles. While some CEO's can effect change and do not have to be replaced, this pattern is less frequent than CEO change, which is often accompanied by major changes in the top management team.

To develop this entrainment argument further, let us examine why many firms show performance decrements during revolutionary change. First, this kind of change represents a shift in cycle to which the CEO, the team, and the organization must entrain. However, entrainment may be difficult since each entity is following its own cycle. That is, a CEO in the convergence stage and a team in the homogeneity/infrequent interaction stage, are less likely to be motivated to initiate major change within the firm (see Figure 4b). Tushman and Keck argue that this phenomenon can be thought of as each entity, CEO, top team, organization, and environment operating according to its own clock. In entrainment language, the CEO, top team, organization, and environment may each be operating at its own pace, and on its own cycle, which are different from the pace and cycle of the environment. Thus, entrainment does not take place.

A second reason that entrainment does not take place is that the environmental change is not perceived. Later CEO and team stages exhibit less monitoring of the external environment. The ability to entrain to a new cycle, however, depends on exposure to external cues that signal that adaptation is necessary. In the absence of exposure to such cues the CEO and top team may not have the information necessary to adapt and old patterns remain.
Figure 4B: Lack of Entrainment Across CEO, Top Management Team and Environment

NEED FOR ENVIRONMENTAL SCANNING (Technology Cycle)
RECEPTIVITY TO NEW INFORMATION (CEO & Top Team)

Era of Incremental Change  Era of Ferment

Dominant Design  Technological Discontinuity  Dominant Design

CEO Cycle
Top Management Team Cycle
Technology Cycle
A third reason that entrainment to environmental change may not occur is that change occurs too slowly. As mentioned earlier, entrainment is inertial. That is, once the CEO and top team develop a pace it becomes habitual and automatic. The organization, too, has many interdependent processes that operate at a given speed. Speed can be changed, but this change requires time; perhaps more time than the slack in the organization can support.

The entrainment model also provides some possible explanations as to why changing the top team, and the CEO, has such positive outcomes. When teams are first forming they are establishing the norms and procedures that will stay with them for a long time. At this point they are open to new information, and they can easily adapt to environmental conditions. Similarly, the CEO at the beginning of his or her term is very open to external information. Thus, CEO and top team change provide a mechanism to have the CEO and top team open to change when it is needed to entrain to the environment.

Thus, the entrainment lens provides an explanation for why inertia may exist and why CEO and team change succeed. This example demonstrates the power of mapping the cycles and rhythm across individuals, groups, organizations and environments during the same time period. We find that synchronic entrainment across the CEO, top team, and environment may be difficult to obtain, with possible negative consequences.

TRAINING

Thus far we have identified the concept of entrainment and illustrated some of its uses for top management teams. We now turn our attention to some
of the implications of entrainment for the training and development of top executives.

First and foremost for training would be exposure to the entrainment concept. It is all too common for those studying top management to examine a single variable such as industry changes, team composition, or CEO personality. Seldom are these variables melded together in a dynamic model that looks at each variable separately and all variables together. Yet, it is often the effects of the interaction of these variables, rather than their sole impact that is most important. The entrainment lens helps executives to focus on these interactions. It forces top teams to ask the questions, "Are we moving fast enough in this marketplace?" "Are we matching our interventions to what is most needed in the environment, or are we making decisions with a dated view of the environment?" "What stage is the CEO in, and what stage are we in?" "How do these stages fit together with each other and with the current environmental situation?"

Also central to the entrainment concept is the notion contained in the quote at the beginning of the chapter. That is, that there is often a time period when you must take action or lose the opportunity forever. In a cyclical, as opposed to a linear perception of the world, it is not always the case that you can always do it later. The world at a later point in time will not simply be more of what it is today, it will be different from what it is today. Getting into a market when a new technology has been discovered, is very different from getting in when a dominant design prevails. The strategies for the firm are quite different. Thus, the notion of wait and see could have dramatic consequences. From a training standpoint this phenomenon stresses the importance of training people
to take action, not just to analyze a situation. It also requires executives to pay attention to the match between the problem they are trying to solve now and the solution when it is implemented, not when it is conceived.

The entrainment concept stresses cyclical rather than linear thinking, the use of systems-dynamics models rather than regression models, and the use of simulations to demonstrate the impact of cycles on business practice. In economics, for example, the macroeconomy generates multiple cyclic modes such as the business cycle, construction cycle, and long wave, which may then entrain to one another such that they may tend to peak simultaneously from time to time. The roughly twenty year construction cycle in the oil tanker industry seems to be entrained at a ratio of about 4:1 with the business cycle in oil demand, leading to predictable periods of deep depression in shipbuilding. Similar dynamics exist in the real estate industry. Top teams can be helped to recognize and act upon these cycles.

Entrainment seems to be a very embedded process that is responsible for many underlying assumptions within the organization. Training can help top managers to analyze some of these assumptions. For example, the rhythm in business firms that mirrors the Academic semester and the four-year term political system, is the fiscal year. The fiscal year determines the timing of performance and budget reviews, sales closings, and accounting deadlines. It breaks the year up into four quarters, each with a pattern of its own. This rhythm repeats itself year after year and other rhythms entrain to it. Customers learn to wait until the end of the quarter to buy goods because they know that salespeople will be more likely to provide discounts as the deadline for quotas approaches. While entrainment of some activities to the fiscal year is necessary,
to facilitate coordination, other activities should be uncoupled from this yearly rhythm.

Entrainment explains why the introduction of a new CEO and top management team enable organizations to speed up top decision making and make necessary changes. This mode of change is very costly for individuals and firms alike. An examination of the overlapping CEO, team, organizational and environmental cycles can help top team executives to change the normal stages, break the inertia, and keep pace with change in the external environment.
References


2. Ibid.


*Academy of Management Review,* 16: 719-742.


14. Ibid.

