Management Systems for Creative Product Development[1]

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A consideration of various routes for creative product development has suggested that ambidextrous methods of management are most appropriate. This has led to an examination of how group vs. individual processing affects the individual engaged in creative product development. Based on certain scenarios and field experiences supported by the literature, it is postulated that participation in innovating groups can have positive as well as negative impacts. Thus, creativity may be facilitated or impeded, depending on the quality and duration of group involvement. This analysis suggests that management approaches should permit certain contingencies to inject variety into experiences of individuals responsible for new product development. A flexible management style allows for stimulation within groups as well as satisfaction of self-actualization needs of individuals engaged in the creative process.

In an earlier paper on creativity management, theoretical considerations were developed using the case analysis method and the literature to illustrate different modes for inventing new products (1). These modes or mechanisms included: linking with other systems through analogy; scientific measurement; pervasive understanding of dynamics, and serendipity or chance occurrences coupled with a recognition that something significant had occurred. There were periods both of slack and of intense efforts in which problems were penetrated by researchers. Key leaps of progress were made which can be attributed to connections by specific individuals. Creative individuals were perceived as progressing through a multistage process analogous to that of industrial technological innovation. Accordingly, ambidextrous methods of management were postulated as most appropriate for improving management of creative individuals. Such methods included flexibility in style, to allow....use of mechanistic structures of tighter controls as appropriate, or more open organic structures (or looser controls) and "loose/tight" approaches (2), depending on the context of the situation.

This paper considers processing by creative individuals as individuals in contrast with processing by groups. This analysis includes an examination of benefits and tradeoffs of each mode of action and again leads to a recommendation of style flexibility to allow for certain contingencies. Perhaps one of the most important contingencies is the need for individuals to self-actualize during the creative process (3).

The impetus for this work lies in the generally supported view that we need more creativity and innovation to increase our competitiveness in world markets. It is important to study existing organizational structure and processing and recognize that these may not stimulate or nurture creativity.

[1]Presented at the AOCS meeting in Philadelphia, PA in May 1985.

RESULTS AND DISCUSSION

In today's highly competitive markets with rapidly changing technology, product life cycles are more and more compressed and product life spans are shorter. As a result there is considerable pressure to originate new products to maintain a continuing flow of profits for the enterprise.

Some key assumptions are made in this paper. First, appropriate styles of management depend on the stages involved in innovation, and even on situational attributes within each stage. Second, product life cycles are being compressed such that situation needs change more rapidly than before; therefore we need to be more sophisticated and flexible in management. Finally, from our knowledge of creativity, we should recognize that researchers need to decouple from traditional patterns in order to develop products which are *first-to-market*.

According to various motivation models (5), commitment and imperatives stem from three levels: the corporate level in setting strategic goals, operating groups or departments, and the individual. Especially important factors in the realm of creativity are individual motivation, feelings of self-actualization and appropriateness of reward systems.

Self-actualization was emphasized by Maslow in discussing motivation (3). According to Maslow individuals seek self-fulfillment and have a need to achieve in a productive sense everything possible. He postulated very strong congruence between creativity and self-actualization (3). According to Braun and Linder (6), self-actualizing people are realistic, spontaneous, problem-centered, independent, somewhat resistant to enculturation and greatly creative. It is important, therefore, to keep in mind these characteristics when modes of interaction are considered for creative individuals within organizations.

Behavior in organizations is complex and open-ended, arising from inputs of individual values, group dynamics and environmental influences. There are both benefits and trade-offs of such inputs relative to creative new product development. There are several benefits to involvement in groups such as brainstorming groups, project teams and task forces. Generally recognized is the cross-fertilization of ideas and different viewpoints. There are inevitable pressures from peers that tend to promote action and speed results. Mutual support systems and a spirit of collegiality may develop. Implementation of ideas is facilitated by participation in decision making.

Some features of group processing are potentially negative. Groups tend to reflect the operating culture of the larger organization. Accordingly, group decision making patterns can become locked into traditional lines. Elements of "groupthink," as conceptualized by Janos and described by Szilagyi and Wallace (5) may be present. In "groupthink" situations, highly cohesive groups are captives of feelings of solidarity and invulnerability and may make inappropriate decisions.

Pressures to conform may discourage valid new ideas and relevant arguments by creative group members who become reluctant to speak out. Group decision making generally is more time consuming. Such involvement can limit concentration time on a particular problem and be de-energizing. Individuals may experience a reduced sense of personal urgency to solve a particular problem as the group instead absorbs the responsibility.

These elements require a reconsideration of some individual needs in creativity. First, a feeling of necessity must be coupled with an opportunity to create. The individual has to perceive that the resources required are available or obtainable in sufficient quality (although creative individuals can be incredibly innovative in operating with less-than-ideal resources and equipment). There also needs to be variety, uncertainty and the freedom to choose among alternatives. Individuals need time and energy to concentrate to establish unusual links and make significant advances. There needs to be a champion to push implementation; frequently that is the individual inventor. There should be the perception of adequate rewards, which often include feelings of self-actualization.

It also is important to recognize that prolonged uniformity of the operating environment may be dysfunctional or have negative consequences. Conditions of either stress or relaxation at first may stimulate creativity, but if continued for long periods may result in downside effects. Similar effects may be observed if the processing and implementation of ideas are done solely by groups or by individuals. To sustain high performance, variety in operating style is recommended.

We suggest a balanced approach model for creativity management. In such a model, the decisionmaker (who ideally also is the inventor) considers current operating conditions such as the processing mode, quality of performance, degree of motivation, imperatives for new products and the existing state of variety. A decision then is made as to whether the individual or group mode is more appropriate and that mode is put into operation. In so doing, there is a conscious effort to impart needed variety into the environment of creative individuals.

In this paper, the choice of processing or problem solving by groups or an individual has been considered in relation to the needs of the creative new product specialist. The message is that, while processing by groups has advantages, there are also negative effects to recognize and avoid. Variety should be introduced to enable individuals to "self-actualize" and to motivate them toward higher efforts and greater accomplishment in creative new product development.

REFERENCES

1. Ginn, M.E, *Creativity Management: Systems and Contingencies,* presented at ORSA/TIMS national meeting, Dallas, TX November 1984.
2. *In Search of Excellence*, by T.J. Peters and R.H. Waterman Jr., Harper & Row, New York, 1982.
3. *Motivation and Personality*, by A.H. Maslow, Harper & Row, New York, 1954.
4. *Fundamentals of Research Management*, by W.G. McLoughlin, American Management Association Inc., New York, 1970.
5. *Organizational Behavior and Performance*, by A.D. Szilagyi and M.J. Wallace, Scott, Foresman & Co., Glenview, IL, 1983.
6. *Psychology Today*, 4th ed., by J.J. Braun and D.E. Linder, Random House, New York, 1979.
7. *Victims of Groupthink*, by I.L. Janos, Houghton Mifflin, Boston, 1972.