

integrated design on a team with employees who focus on manufacturing, assembly, materials used, attributed costs, and marketing—are provided with numerous perspectives as the product is being produced. By identifying potentially damaging downstream aspects of a product's life cycle at an early stage, companies avoid delays and costs. Companies adopting this approach design the product right the first time. These products improve their quality and enable a competitive edge over competitors.

Likewise, concurrent design involves collaboration, coordination, and co-decision making within and between cross-functional teams. These teams share information, synchronize activity, and create an environment that supports a concurrent design approach. This approach must support individual cross-functional teams and allow them to work in different styles in different situations. These teams may work in the same place, or at different locations; they may work together or individually. Cross-functional teams cooperate to facilitate complex interdependencies between activities that different teams are working on.

This brief overview has provided a summary of the why, what, and how involved in implementing a concurrent engineering philosophy for the development of new products, services, and processes. It has outlined how introducing overlap during the execution of innovation project tasks and activities has become vital because of competitive pressures that force new product developers to be more time-conscious.

However, a final caveat is warranted. Although concurrent engineering is an important method for handling the time pressures that occur during new product development, rushing products to the market can sometimes be a mistake. First, markets need time to develop. Numerous examples exist where a new product was too early for the market to absorb it or where product variety has reached limits beyond which the product choice decision becomes too complicated for customers. Second, more revolutionary new product development, which often is based on significant technological advances, typically requires longer time horizons to reach completion. Putting too much emphasis on time compression may blind an organization to this basic fact. Third, the conceptual development of new product ideas requires time or "slack." In a high-speed development organization, time-compression imperatives may undermine this need. Therefore, both managers and new product developers need to find a balance between the paradoxical needs for speed and slack in their organizations. Despite its efficiency, concurrent engineering will only prove to be effective when this balance is achieved through the experience and leadership of an organization's senior management.

SEE ALSO *New Product Development; Time-Based Competition*

BIBLIOGRAPHY

- Boothroyd, Geoffrey, Peter Dewhurst, and Winston Knight. *Product Design for Manufacture and Assembly*. 2nd ed. New York: Marcel Dekker, 2002.
- Cooper, Robert G., and Scott J. Edgett. "Portfolio Management in New Product Development: Lessons from the Leaders-I." *Research Technology Management* 40, no. 5 (1997): 16–52.
- Debackere, K. "Technologies to Develop Technology." *Nijmegen Innovation Lectures Monograph Series*. Antwerp: Maklu Publishers, 1999.
- ElMaraghy, H.A. and N. Mahmoudi. "Concurrent Design of Product Modules Structure and Global Supply Chain Configuration." *Concurrent Design of Product Modules Structure and Global Supply Chain Configuration*. Available from: <http://s.i-techonline.com/Book/Supply-Chain/ISBN987-3-902613-22-6-spc16.pdf>.
- Iansiti, Marco. *Technology Integration: Making Critical Choices in a Dynamic World*. Boston: Harvard Business School Press, 1998.
- Miao, Yongwu and Jorg Haake. "Supporting Concurrent Design in SCOPE." *Concurrent Engineering* 7, no. 1 (1999): 55–65. Available from: <http://cer.sagepub.com/cgi/content/abstract/7/1/55>.
- Parkinson, B., P. Hudson, and R. Senior. "A Virtual Environment for Concurrent Engineering using Artificial Intelligent Techniques." Available from: <http://www.ider.herts.ac.uk/ider/DESCON.HTM>.
- "Re-engineering Concurrent Design." *Cambridge Engineering Design Centre*. Available from: <http://www-edc.eng.cam.ac.uk/research/processmanagement/pm1/concurrentdesign/>.
- ReVelle, Jack B., John W. Moran, and Charles A. Cox. *The QFD Handbook*. New York: John Wiley and Sons, 1998.
- Ribbens, Jack. *Simultaneous Engineering for New Product Development: Manufacturing Applications*. New York: John Wiley and Sons, 2000.
- Skalak, Susan Carlson. *Implementing Concurrent Engineering in Small Companies*. New York: Marcel Dekker, 2002.
- Stalk, George, and Thomas M. Hout. *Competing against Time: How Time-Based Competition Is Reshaping Global Markets*. New York: The Free Press, 1990.
- Tseng, Mitchell M. and Jianxin Jiao. "Concurrent Design for Mass Customization." Available from: <http://ami.ust.hk/Archived%20Journals/Concurrent%20Design%20for%20MC.pdf>.
- Ulrich, Karl T., and Steven D. Eppinger. *Product Design and Development*. 3rd ed. Boston: McGraw-Hill/Irwin, 2004.
- Utpal, Roy, John M. Usher, and Hamid R. Parsaei, eds. *Simultaneous Engineering: Methodologies and Applications*. Amsterdam: Gordon and Breach Science Publishers, 1999.
- "What is Concurrent Engineering?" *Concurrent Design Facility*. 19 May 2004. Available from: http://www.esa.int/esaMI/CDF/SEM1OF1P4HD_0.html.

CONFLICT MANAGEMENT AND NEGOTIATION

The term "conflict" refers to perceived incompatibilities resulting typically from some form of interference or opposition. Conflict management, then, is the employment of

strategies to correct these perceived differences in a positive manner. For many decades, managers had been taught to view conflict as a negative force. However, conflict may actually be either functional or dysfunctional. Whereas dysfunctional conflict is destructive and leads to decreased productivity, functional conflict may actually encourage greater work effort and help task performance. Borisoff and Victor point out, "We have come to recognize and to acknowledge the benefits dealing with conflict affords. Because of our differences, we communicate, we are challenged, and we are driven to find creative solutions to problems."

THE EVOLUTION OF CONFLICT MANAGEMENT

The early approach to conflict management was based on the assumption that all conflict was bad and would always be counterproductive to organizational goals. Conflict management, therefore, was synonymous with conflict avoidance. This left the people experiencing the conflict with essentially only one outcome: a win-lose scenario. In such cases, the loser would feel slighted and this, in turn, would lead to renewed belligerence. Therefore, most managers viewed conflict as something they must eliminate from their organization. This avoidance approach to conflict management was prevalent during the latter part of the nineteenth century and continued until the mid-1940s.

In most cases, conflict avoidance is not a satisfactory strategy for dealing with conflict. Conflict avoidance usually leaves those people who are being avoided feeling as if they are being neglected. Also, conflict avoidance usually fails to reconcile the perceived differences that originally caused the conflict. As a result, the original basis for the conflict continues unabated, held in check only temporarily until another confrontation arises to set the same unresolved tensions into motion again. Therefore, conflict avoidance strategies are not especially useful in the long run.

The human relations view of conflict management dominated from the late 1940s through the mid-1970s. This viewpoint argued that conflict was a natural and inevitable occurrence in any organizational setting. Because conflict was considered unavoidable, the human relations approach recommended acceptance of conflict. In other words, conflict cannot be eliminated and may even benefit the organization. It was during this time period that the term "conflict management" was introduced, according to Nurmi and Darling.

Since the mid-1970s a new position on organizational conflict has emerged. This theoretical perspective is the interactionist approach. This viewpoint espouses not only accepting conflict, but also encouraging it. Theorists are of the opinion that a conflict-free, harmonious,

and cooperative organization tends to become stagnant and nonresponsive to market change and advancement. Therefore, it is necessary for managers to interject a minimum level of conflict to maintain an optimal level of organizational performance. For example, Shelton and Darling suggest conflict is a necessary condition for both individual and organizational progression. They encourage managers to "embrace conflict and use it for continuous transformation."

In the twenty-first century, conflict management is commonly viewed in the context of organizational culture. In "The Conflict Skilled Organization," Lynne Elsaguirre describes how companies that operate with a clear purpose can benefit from conflict. A business team in a successful corporate culture is able to engage in a high level of debate regarding substantive issues while avoiding disputes. Creating an organizational culture that encourages opposition can diversify a company's knowledge and maintain a balanced power structure.

SOURCES OF CONFLICT

According to both Daft and Terry, several factors may create organizational conflict. They are as follows:

- **Scarce Resources.** Resources may include money, supplies, people, or information. Often, organizational units are in competition for scarce or declining resources. This creates a situation where conflict is inevitable.
- **Jurisdictional Ambiguities.** Conflicts may also surface when job boundaries and task responsibilities are unclear. Individuals may disagree about who has the responsibility for tasks and resources.
- **Personality Clashes.** A personality conflict emerges when two people simply do not get along or do not view things similarly. Personality tensions are caused by differences in personality, attitudes, values, and beliefs.
- **Power and Status Differences.** Power and status conflict may occur when one individual has questionable influence over another. People might engage in conflict to increase their power or status in an organization.
- **Goal Differences.** Conflict may occur because people are pursuing different goals. Goal conflicts in individual work units are a natural part of any organization.
- **Communication Breakdown.** Communication-based barriers may be derived from differences in speaking styles, writing styles, and nonverbal communication styles. These stylistic differences frequently distort the communication process. Faulty communication leads

to misperceptions and misunderstandings that can lead to long-standing conflict. Additional barriers to communication may emerge from the cross-gender and cross-cultural differences of participants. Such fundamental differences may affect both the ways in which the parties express themselves and how they are likely to interpret the communication they receive. These distortions, in turn, frequently result in misreading by the parties involved. Moreover, it is common for the parties involved to be oblivious to these false impressions. The resultant misunderstandings subsequently lead the parties involved to believe that a conflict based on misunderstood behavior exists when, in fact, no conflict actually does exist. Miller and Steinberg call this misreading “pseudo-conflict,” that is, perceived conflict rather than actual conflict. Much of what managers take to be an actual conflict is the product of such pseudo-conflict.

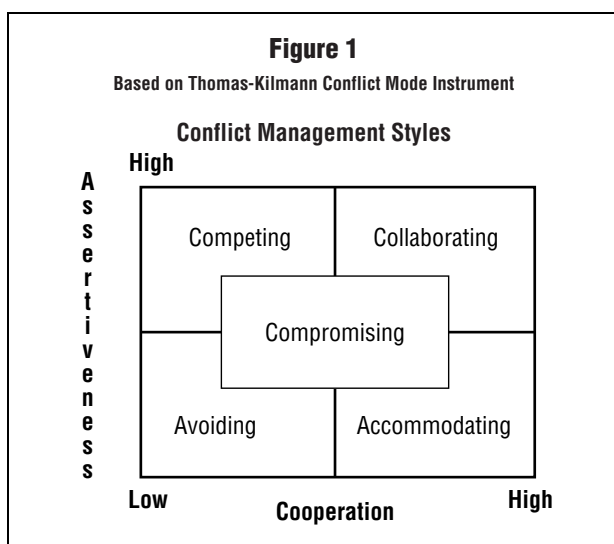
CONFLICT MANAGEMENT METHODOLOGIES

Management theorists have developed and suggested a range of options for handling organizational conflict. Figure 1 outlines the various components of the Conflict Resolution Grid, which is the result of widely accepted research presented by Thomas and Kilmann.

Thomas and Kilmann identified a conflict-handling grid comprised of five conflict management styles based on two dimensions: assertiveness and cooperativeness. Assertiveness is the motivation of an individual to achieve his/her own goals, objectives, and outcomes, while cooperativeness assesses the willingness to allow or help the other party to achieve its goals or outcomes. Any of the

five conflict resolution styles might be appropriate based on the circumstances of the situation and the personalities of the individuals involved.

1. **Avoiding Conflict Resolution Style.** The avoiding style is low on both assertiveness and cooperativeness. In other words, the manager is not very cooperative in helping the other individuals to achieve their goals, but neither is he/she aggressively pursuing his/her own preferred outcomes in the situation. The original problem, conflict, or situation is never directly addressed or resolved. However, avoiding behavior might be appropriate when the issue is perceived by the manager to be trivial. It might also be an appropriate approach to use when there is no chance of winning or when disruption would be very costly.
2. **Competing Conflict Resolution Style.** The competing style of resolving conflict is also known as the win-lose approach. A manager using this style, characterized by high assertiveness and low cooperativeness, seeks to reach his/her own preferred outcomes at the expense of other individuals. This approach may be appropriate when quick, decisive action is needed, such as during emergencies. It can also be used to confront unpopular actions, such as urgent cost cutting.
3. **Accommodating Conflict Resolution Style.** This style reflects a high degree of cooperativeness. It has also been labeled as obliging. A manager using this style subjugates his/her own goals, objectives, and desired outcomes to allow other individuals to achieve their goals and outcomes. This behavior is appropriate when people realize that they are in the wrong or when an issue is more important to one side than the other. This conflict resolution style is important for preserving future relations between the parties.
4. **Compromising Conflict Resolution Style.** This style is characterized by moderate levels of both assertiveness and cooperativeness. Compromise can also be referred to as bargaining or trading. It generally produces suboptimal results. This behavior can be used when the goals of both sides are of equal importance, when both sides have equal power, or when it is necessary to find a temporary, timely solution. It should not be used when there is a complex problem requiring a problem-solving approach.
5. **Collaborating Conflict Resolution Style.** This approach, high on both assertiveness and cooperativeness, is often described as the win-win scenario. Both sides creatively work towards achieving the goals and desired outcomes of all parties involved. The collaboration style is appropriate when the concerns are complex and a creative or novel synthesis of



ideas is required. The downside of this approach is that the process of collaborating mandates sincere effort by all parties involved and it may require a lot of time to reach a consensus.

Of the five modes described in the matrix, only the strategy employing collaboration as a mode of conflict management breaks free of the win-lose paradigm. It has become almost habitual to fall back on the win-win alternative, but this was not the authors' original intention. They did not reject win-lose configurations out of hand. Instead, strategic considerations for managing conflict according to varied circumstances were identified. For instance, in a conflict centered on bids by two alternative suppliers, the best choice might well be a competing strategy with a winner and loser. After all, the objective in such a situation is to win the contract for one's own company. In most cases, winning the contract can be accomplished only at the expense of the competing supplier, who by definition becomes the loser.

In contrast, a competing approach almost never works well in the interpersonal conflict of people working in the same office (or even the same organization). Unlike the case of competing suppliers, coworkers—both the winner and the loser—must go on working together. Indeed, in many conflicts revolving around office politics, an accommodating strategy may actually enable individuals to strengthen their future negotiating position through allowing themselves to lose in conflicts over issues they do not feel particularly strongly about. In such situations, accommodating can be seen as a form of winning through losing. For instance, a manager may choose to concede an issue to an employee who is experiencing considerable stress as a means to motivate him or her. Similarly, an individual might choose an accommodating strategy to add balance to negotiations in which one's counterpart has already had to give up several other points. Indeed, a winner in a win-lose scenario who fails to put forth some effort to accommodate the other party may even provoke a backlash in the form of lack of commitment or open resistance.

Even the traditional approach of conflict avoidance has its place as an occasionally acceptable strategy. While conflict avoidance has justly been the subject of considerable condemnation, it can be rather useful in allowing both parties to cool off or in buying time until all the facts of a matter have been gathered. A manager might choose to avoid an employee in the throes of an emotional outburst, for example, until the employee has had sufficient time to calm down.

Finally, compromise is often a useful strategy when dealing with relatively small concerns. This differs from an accommodating strategy, in which the conceding party finds an issue unimportant that the opposing party considers comparatively important. A manager might enlist a

compromise approach most effectively when both parties consider the issue to be of moderate or little importance. In such cases, compromising saves both parties the time required to employ problem-solving techniques to address the fundamental core of the conflict.

While all of these modes have their place among the strategies available to the manager, the collaborating approach to conflict management represents the most beneficial mode for most types of conflict management. In the collaborating mode, conflict itself acts as a managerial tool. The manager utilizes the conflict to guide the conflicting parties to address what essentially are obstacles faced by the organization. Through collaborative behavior, the conflicting parties pool their creative energies to find innovative answers to old problems.

It is in this key respect that the collaborative mode of conflict management differs from the other four conflict-handling modes. Accommodating, avoiding, competing, and compromising—as permutations of the win-lose scenario—are simply forms of conflict interventions. Collaboration as a conflict-handling mode, on the other hand, represents an attempt to channel conflict in a positive direction, thus enabling the manager to use conflict as a tool to resolve otherwise incompatible objectives within the organization. In other words, this method of handling conflict acts less as a conflict intervention and more as true conflict management.

However, any of the five conflict resolution styles may be appropriate and effective depending on the specific situation, the parties' personality styles, the desired outcomes, and the time available. The key to becoming more prepared is to understand the advantages and disadvantages of each method.

THE FIVE A'S TECHNIQUE

Borisoff and Victor identify five steps in the conflict management process that they call the "five A's" of conflict management: assessment, acknowledgement, attitude, action, and analysis. They assert that these five steps allow for a sustained, ongoing process of problem-solving-oriented conflict management.

Assessment. In the assessment step, the parties involved collect appropriate information regarding the problem. The parties involved also choose which of the conflict-handling modes is most appropriate for the situation. The parties collectively decide what is and what is not central to the problem. The parties involved also indicate areas in which they may be willing to compromise, and what each party actually wants.

Acknowledgement. The acknowledgement step is one in which each party attempts to hear out the other.

Acknowledgement allows both parties to build the empathy needed for the motivation of a synergistic solution to the problem. The acknowledgement acts as feedback to the other party and it demonstrates that one understands (without necessarily agreeing with) the other party's position. Acknowledgement goes beyond merely responding to what is said, however; it involves actively encouraging the other party to openly communicate its concerns. This is aided by the use of active listening techniques and overt, nonverbal encouragement.

Attitude. The attitude step tries to remove the foundation for pseudo-conflict. Stereotypical assumptions about different, culturally-based behaviors are uncovered. For example, a member of a high-context culture may misinterpret what a member of a low-context culture says as being needlessly blunt or even rude. Conversely, a member of a low-context culture may misinterpret what a person from a high-context culture says as being needlessly indirect or even outright deceptive. Such communication variations (as the works of Edward Hall have explained) have little to do with the actual intent or content of the messages, but represent instead culturally learned approaches to using implicit versus explicit communication styles. Similarly, in the attitude step, one acknowledges differences in the way that men and women are generally conditioned to communicate. Experts such as Borisoff and Merrill, for example, have delineated clearly differentiated communication styles between men and women, which are compounded by sex-trait stereotyping regarding issues of assertiveness, interruptive behavior, and perceptions of politeness. Finally, in the attitude step, one analyzes potentially problematic variations in styles of writing, speaking, and nonverbal mannerisms. Such differences may blur meanings. It is the role of the effective conflict participant to maintain an open mind toward all parties involved.

Action. The action step begins to actively implement the chosen conflict-handling mode. If the selected mode is the problem-solving approach, the manager conveys the opportunity for a conflict resolution based on trust and ongoing feedback on those points on which the parties have already agreed. Simultaneously, each individual evaluates the behavior of the other parties (often, little more than subtle hints) to ascertain where potential trouble spots might arise. Also, each individual must remain aware of his or her own communication style and general behavior. Finally, all parties must stay alert to new issues that are raised and look for productive solutions.

Analysis. In this last step participants decide on what they will do, and then summarize and review what they have agreed upon. Part of the analysis step is to ascertain

whether every participant's requirements have been addressed (and met, if possible). Finally, the analysis step initiates the impetus for approaching conflict management as an ongoing process. Analysis enables participants to monitor both the short-term and long-term results of the conflict resolution.

QUANTUM SKILLS

Shelton and Darling suggest a new set of management skills, more appropriate for the ever-changing, conflict-ridden contemporary organization. They refer to these skills as the quantum skills. The suggested managerial skills are derived from the field of quantum physics. They are as follows:

1. **Quantum seeing.** This skill is defined as the ability to see intentionally. When conflict occurs, managers must explore their own assumptions about the parties and search for the underlying intentions that are creating the conflict. Each party must then come to recognize the relationship between individual thought processes and perceptions, and set clear intentions for positively resolving the situation.
2. **Quantum thinking.** This skill involves the ability to think paradoxically. Effective conflict resolution is a paradoxical process. "Win-win solutions require paradoxical thinking. They require the ability to find a fully acceptable solution to divergent points of view" (Shelton and Darling 2004, p. 30). In other words, collaborative solutions to conflicts that involve diametrically-opposed positions are unlikely to be achieved through linear problem-solving processes and thus require more unorthodox thinking.
3. **Quantum feeling.** This skill is defined as the ability to feel vitally alive. It is based on the premise that the level of organizational conflict is influenced by the negative emotions pervasive throughout the business world. As schedules have become more fast-paced and jobs have become more stressful, the level of organizational conflict has increased. Managers committed to the quantum feeling technique of conflict management must train themselves to view even negative events positively. They must challenge all parties in conflict to utilize creative, brain-storming techniques in an effort to construct "impossible" win-win solutions.
4. **Quantum knowing.** This skill is the ability to know intuitively. Managers wishing to develop this skill must integrate times of relaxation and reflection into their work routines. This skill focuses on staying mindful or aware of the organizational environment. Managers involved in conflict situations must guide

all parties towards a more centered response to the negative emotions.

5. **Quantum acting.** This skill is based on the ability to act responsibly. Quantum acting is predicated on the belief that everything in the universe is a part of a complex whole in which each part is influenced by every other part. Therefore, a manager's thoughts affect the entire organizational unit. Thus, if managers want to encourage more creative responses to conflict, they must begin by modeling this behavior themselves.
6. **Quantum trusting.** This skill is the ability to trust life's process. It is derived from chaos theory. This theory suggests that without chaos organizations will become stagnant and, if left alone, they will return to a non-chaotic state. This skill may be appealing to managers experiencing conflict. It suggests that managers must simply "ride the rapids of conflict, fully participating in the dance without attempting to actively manage the course of resolution" (Shelton and Darling 2004, p. 37). The organizational unit will eventually self-organize.
7. **Quantum being.** This skill is the ability to be in a relationship, specifically, "the ability to literally become so connected to another that one can see the world through the other's eyes" (Shelton and Darling 2004, p.38). This skill provides the foundation for all parties to learn from and understand each other. It is a relationship of continuous learning.

This set of skills is grounded in a new science: worldview. These skills provide a whole-brained alternative for managing people and conflict.

Conflict management is an ongoing procedure. It entails continual communication and supervision. "Conflict-handling behavior is not a static procedure; rather it is a process that requires flexibility and constant evaluation to truly be productive and effective" (Borisoff and Victor 1998).

SEE ALSO *Diversity; Management Styles*

BIBLIOGRAPHY

- Borisoff, D., and D.A. Victor. *Conflict Management: A Communication Skills Approach*. 2nd ed. Boston: Allyn and Bacon, 1998.
- Borisoff, D., and L. Merrill. *The Power to Communicate: Gender Differences and Barriers*. 3rd ed. Prospect Heights, IL: Waveland, 1998.
- Daft, R.L. *Organizational Theory and Design*. St. Paul, MN: West, 1992.
- Elsaguirre, Lynne. "The Conflict Skilled Organization." *Mediate*, November 2007. Available from: <http://www.mediate.com/articles/eisaguirreL2.cfm>.

- Emmons, Garry. "Encouraging Dissent in Decision Making." *Working Knowledge* Cambridge: Harvard Business School, 1 October 2007. Available from: <http://hbswk.hbs.edu/item/5746.html>.
- Miller, G.R., and M. Steinberg. *Between People: A New Analysis of Interpersonal Communication*. Chicago: Science Research Associates, 1974.
- Nurmi, R., and J. Darling. *International Management Leadership*. New York: International Business Press, 1997.
- Shelton, C.D., and J.R. Darling. "From Chaos to Order: Exploring New Frontiers in Conflict Management." *Organization Development Journal* 22, no. 3 (2004): 22–41.
- Terry, P.M. "Conflict Management." *Journal of Leadership Studies* 3, no. 2 (1996): 3–21.
- Thomas, K.W., and R.H. Kilmann. *Thomas-Kilmann Conflict Mode Instrument*. Sterling Forest, NY: Xicom, Inc., 1974.

CONSULTING

Management consulting is generally a contract advisory service provided to organizations in order to identify management problems, analyze them, recommend solutions to these problems, and (when requested) help implement the solutions. Although there are few formal educational or professional requirements to be a consultant, these services are ideally provided by individuals who are specially trained or qualified in a particular field, such as information technology or organizational change, and who strive to provide independent, objective advice to the client organization.

Only a moderate amount of research has been done on the management consulting industry, although the industry has experienced a phenomenal growth rate since essentially emerging during the 1980s. Management consultants perform a variety of services and use many different methods to complete their tasks. These external consultants do not take the place of managers and have no formal authority, although they are responsible for the value of their advice—occasionally in a legal sense.

The practice itself has existed since the early twentieth century. Management consulting pioneers such as Arthur D. Little and Harrington Emerson contributed much to the foundations of the concept. The two were also involved with the founding of the first consulting firms. In the first half of the twentieth century, consultants began to expand on the earlier work. They began offering what was termed "business research" and introduced such business practices as budgeting, divisionalized organization, merit-based compensation schemes, and forecasting methods.

During the early postwar years (and in many cases growing out of wartime experience), consulting experienced a big rush, with the formation of such firms as Cresap, McCormick & Paget, William E. Hill, Hay