



READINGS IN GLOBAL ORGANIZATION DESIGN

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CONTRIBUTIONS OF STRATIFIED SYSTEMS THEORY TO MILITARY LEADER DEVELOPMENT AND ORGANIZATION REDESIGN IN THE US ARMY

by T. Owen Jacobs and Stephen D. Clement

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Although this book is assembled primarily for the private sector executive, it is important to note that the initial 35 years of work to develop these concepts included extensive applied clinical consulting with governmental, not-for-profit, religious, and charitable organizations as well as private sector businesses. The careful developmental work demonstrated that the concepts were valid for managerial employment hierarchies in all sectors. The first of these non-profit applications articles is by T. Owen Jacobs and Stephen D. Clement and describes the extraordinary resource commitment, length, and scale of a project in a stratum VII organization (the US Army) starting at the top with the Office of the Joint Chiefs of Staff. The well-designed research program largely validated major Stratified Systems Theory concepts and their adoption led to substantial improvement in senior leader development. The article also describes the use of levels of work and human capability concepts in the redesign of elements of a major branch of the US Army.

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Organization Design, Levels of Work & Human Capability

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Contributions of Stratified Systems Theory to Military Leader Development and Organization Redesign in the US Army

T. Owen Jacobs and Stephen D. Clement

WHAT'S IMPORTANT

- Validated time spans in the top four levels and the extraordinary importance of cognitive power to deal with the increasing complexity of the work at senior levels.
- Catalyzed a major shift in leader development theory and practice from leader-centric to systems, including organizational processes and structure.
- Catalyzed policy documenting the responsibility that strategic military leaders have for shaping organizational culture, climate, and operational processes.
- Emphasized development processes for high-potential individuals.
- Provided the conceptual framework for redesigning major parts of the US Army.

...Dr. Jaques brought a rich understanding of the interplay between organizational structures and processes and the capabilities leaders at various levels required. Perhaps of even greater importance, he underscored the moral imperative that organizations provide opportunity for members to engage the full extent of their capabilities in the work they do. He thus was in the forefront of those who challenged the bureaucratic traditions of the Industrial Age form then prevalent.

This article reports a program of research and application employing Stratified Systems Theory (SST) in the US Army. In Part 1, T. Owen Jacobs describes research intended to validate the applicability of SST principles in a military organization. In Part 2, Stephen D. Clement describes significant further efforts, mostly his own work, in which these principles were applied to the transformative redesign of elements of a major branch of the US Army.

Part 1: The Impact of SST on Military Leader Development Theory and Practice

The collaboration between Dr. Elliott Jaques and scientists at the US Army Research Institute for the Behavioral and Social Sciences extended from 1979 to 1994, and had significant impact on military leader development theory and practice. To appreciate this impact, one must understand that, in the 1970s, military leader development was still viewed by most from a leader-centric perspective. Relatively little attention was paid to organizational processes and structure. Leader development thus was concerned with what needed to be “done to” leaders to make them more effective. US military leadership doctrine reflected this perspective strongly. In the U.S. and elsewhere, the scientific study of organizations as living entities had achieved substantial maturity, but an understanding of the interface between individual leadership and organizational behavior had not yet seen the light of day in military doctrine. More pointedly, there was little codified understanding of the responsibility that strategic military leaders have for shaping organizational culture, climate, and operational processes, so as to achieve organizational excellence. Clearly, many “great” military leaders did understand these responsibilities. However, the doctrine on which leader development practices were based at that time just did not address these organizational factors.

In addition, officer personnel management, analogous to management development in the private sector, was based on industrial-age concepts of questionable appropriateness for the evolving information-age, global society. While weeding out the less capable, these practices also discouraged many young officers of high potential, leading to early termination of their military service and rendering the military organization itself less capable of truly transformative thought.

It was into this context that Dr. Jaques brought a rich understanding of the interplay between organizational structures and processes and the capabilities leaders at various levels required. Perhaps of even greater importance, he underscored the moral imperative that organizations provide opportunity for members to engage the full extent of their capabilities in the work they do. He thus was in the forefront of those who challenged the bureaucratic traditions of the Industrial Age form then prevalent.

Initial Application: The Office of the Joint Chiefs of Staff

The initial application of SST was at the highest level of the US military establishment, the Office of the Joint Chiefs of Staff (OJCS). The OJCS was essentially a consensus body. In its organization and functions, it resembled the topmost levels, the strategic apex, of a super-scale private-sector corporation. The opportunity to work at this level was quite important, because it allowed a test of the theory. If SST principles hold up at this level, the way would be clear for a much larger effort, particularly within the US Army.

The first effort was quite successful. Jaques interviewed three-star, two-star, and one-star generals in OJCS, and was able to get descriptions of the work done by the four-star generals. Officer ranks compared with private sector civilians as shown in Table 3.4.1.

As Table 3.4.1 shows, the observed time spans were quite close to expectations, based on earlier findings in large-scale private sector companies. Of even greater importance, the observed time spans had practical significance with regard to the work involved in these positions. There were two broad timeframes. One, six to eight years, corresponded to the annual “hard” budget (PPBES) Department of Defense (DoD) request for Congressional funding. It provides specific funding over the following two-year period, and projections of funding for a subsequent five-year period.

Officer Rank	Theoretical Time Span	Observed Time Span	Comparable Civilian Managerial Roles
FOUR-STAR	20-50 years	20-25 years	Large-scale corporate chairman and CEOs
THREE-STAR	10-20 years	12-15 years	Corporate VPs and EVPs
TWO-STAR	5-10 years	6-8 years	Subsidiary CEOs
ONE-STAR	2-5 years	3-4 years	General management

TABLE 3.4.1: THEORETICAL AND OBSERVED TIME SPANS (OJCS)

The second, 12-15 years, corresponded to a concepts development cycle. The concepts document was policy guidance for funding research and development programs and incremental investments in capital-intensive systems. For SST, the separation of these two broad timeframes had extraordinary meaning. It corresponds to the point at which the use of analytic methods commonly used in mid-level management generate uncertainties so large that the predictions cease to have great utility. In essence, analytic tools were used at the two-star level as in running a business. At the three-star level, creative vision and imagination were used to project new business directions.

However, Jaques did not actually find the expected 20-plus year forward view in the OJCS, probably because the 20-plus year outlooks existed in separate services. He concluded that "... inter-services collaboration probably could be fully effective only in the context of 20-25 year programs which could be focused and directed from OJCS level."¹ In this conclusion, he was remarkably prescient. The Defense Reorganization Act of 1987 required the chairman to begin reviewing major systems acquisitions, the 20-plus year major decisions, proposed by the separate services. In 2000, the Chairman published the first joint vision, effectively requiring synergy among the services.

Whether Jaques's insights and recommendations led to these developments cannot be said. It is enough to know that SST principles generated conclusions about needed organizational change that eventually came to pass. SST principles were clearly applicable to more organizations than just the private sector.

¹ Jacobs, T. "Military Applications of Stratified Systems Theory." *Festschrift for Elliott Jaques*. Arlington, VA: Cason-Hall, 1992. P. 258

Army Strategic Leader Research

The OJCS work led to the study of strategic leadership in the Army. Improved understanding of strategic roles was needed to prepare officers for the huge step up from mid-level roles. Officers attending Joint/Senior Service Colleges (J/SSC) are at the last point at which education can materially influence their subsequent development. Students will have spent 17-20 years in the “production” level, an extremely long period of socialization by an overabundance of rules, procedures, precedents, and other constraints on dealing with complexity. The one-year sojourn in J/SSC institutions is designed to help graduates develop thinking and problem-solving skills more suited to the strategic arena. That is a relatively short time to become capable of dealing with multi-linear, abstract, and ill-structured strategic issues. Thus, deeper understanding of how to manage this transformation was of great importance.

A General Officer Coordinating Council (SLCC) was formed to oversee a broad set of initiatives to improve the Army’s commissioned officer development process. Under the aegis of the SLCC, a team was formed to do fundamental research on general officer roles, guided by SST. The team consisted of Dr. Elliott Jaques under contract from Brunel University, T. Owen Jacobs and Carlos Rigby from the Army Research Institute, and Stephen Clement from the US Army. This work was to develop fundamental understanding of general officer roles and responsibilities in a framework that would guide development of “growth” paths. The team interviewed 115 general officers, distributed across all ranks. Important findings emerged from this work, both for SST and for military leader development.

The mental frames of reference, what the generals thought about and how they did it, strongly supported SST predictions. Four-star generals were concerned about national and international politics, economics, and social structures, the role of the military in society. They were less concerned about “internal” matters. Officers who were two-star and lower were more concerned about “running” their elements or organizations. Table 3.4.2 shows these shifts. The three- and four-star transition from internal to external is shown by decrease in concern about systems understanding, and increases in concern about Joint and combined relationships, and external perspective.

Time perspective differences were evident from both the interviews and specific time-span responses. Planning/envisioning responses showed a strong trend, as did time-span measures shown in Table 3.4.3. Time spans did, in fact, seem to increase

COMPETENCY AREA	BG Level IV	MG Level V	LTG Level VI	GEN Level VII
Systems Understanding	60	90	42	38
Joint and Combined Relationships	25	45	54	73
External Perspective	40	60	61	88
Planning/Envisioning	25	40	64	88
Dealing with Uncertainty/Risk taking	19	29	54	54
Consensus Building	65	80	88	88

(Percent of those interviewed responding)

TABLE 3.4.2: COMPETENCY AREA MENTIONED IN INTERVIEW

with level in accord with SST. However, the increases were not always as expected. We concluded that (a) some officers were over-promoted, (b) some jobs were inappropriately assigned by rank, and (c) task complexity might need to be estimated by some other means than time span. (Jaques’s initial formulation related time span to felt responsibility and this may be a more appropriate linkage.) Time span for task completion may be more strongly correlated with resources flow, e.g., how much can be spent on a project in each unit of time. Thus, capital-intensive tasks might depend more on the availability of capital than on the conceptual capacity of those charged with executing them.

Jaques had postulated that top-level executives would operate in a “collegium” sort of way, and our data supported his expectation. Especially at the four-star level, persuasion and consensus-building were felt essential. We concluded that the four-star generals operated very much as a collegium.

YEARS	BG IV	MG V	LTG VI	GEN VII
0-4	10	27	5	0
5-9	9	12	7	2
10	2	6	5	2
11-14	2	1	6	0
15-20	3	0	6	0
20+	1	1	5	4

TABLE 3.4.3: TIME SPANS IN YEARS FROM INTERVIEWS

Finally, these interviews led us to question the SST proposition about the discrete nature of levels of human ability. Our thoughts on this will be shown later, in our conclusions.

What We Have Learned About Executive Leadership

If there is a single, “most important” theme in SST, it is that “cognitive power” is extraordinarily important. Our generals commented often about the complexity and uncertainty at the strategic level (Table 3.4.2). The critical tasks at higher organizational levels are simply more demanding than those at lower levels. Mastering them requires a threshold of capability to comprehend complexity, and that threshold level increases by level. This has extraordinarily important implications for succession planning and leader development.

Succession Planning

No modern organization can hope for competitive advantage unless it can identify young leaders with high potential and bring them forward as they mature. An assessment process pioneered by Gillian Stamp at Brunel University enables early identification of high potential. This foundation work has been used successfully in a component of the Special Operations Command to identify officers with high potential and is a part of the assessment process at one of the J/SSC institutions described below.

Development

Early identification of high potential is not enough in itself. Potential must be developed. The procedure Stamp pioneered suggests at least three key developmental dimensions.

1. *Concept Formation.* One part of the assessment is a concept formation task. People differ in how they approach the task. Some strategies are more effective than others. Rapid trial and error is much less effective than stopping to think more holistically about the task. This is a self-awareness dimension that appears critical to successful performance at the highest organizational levels.

2. *Curiosity and Openness to New Experience.* A second key part of the assessment is a measure of attraction to complexity and innovation. Most of our high-ca-

capacity general officers were interested in a broader range of topics beyond the military. They spent a lot of time “exploring” and their enhanced awareness frequently aided the performance of primary tasks.

3. *Reflective Awareness*. This is fundamental to learning from experience. The top-level generals were more reflective than the others. The Center for Creative Leadership at Greensboro, NC, found much the same thing in their study of executives. The developmental implication is that organizations should “grow” managers and leaders by encouraging reflective analysis of experience.

What We Have Learned About SST

- *Requisite Organization*. Our work does not challenge the SST postulate of approximately seven organizational levels when the complexity of the work requires it.
- *Time Span*. Time span may not always be a reliable method for estimating role complexity. The original time spans came from capital-intensive industry, which was subject to the flow rate of capital resources. They seem to apply reasonably to the US military in peace, because the military is hugely capital-intensive. However, Jaques himself noted that “time compression” occurs in combat, though complexity remains high. If time span, the time an incumbent is given to accomplish his or her longest task, can vary while complexity remains the same, it may not be unequivocal as an estimate of role complexity. Jaques’s first formulation of time span was that it related to felt responsibility.² This may be a better formulation.
- *Levels of Human Capability*. We concluded that while large-scale organizations may well have seven discrete levels, there may not be that many levels of human capability. We found three significant “paired” levels. Levels II and III have similar complexities, both concerned with essentially “hands-on” operations. Capable incumbents at level II could learn to perform level III roles over time, though not necessarily level IV roles. Levels IV and V were similar in this regard, as were VI and VII. We concluded that these pairs encompass three broadly differing levels of complexity and required cognitive skills. Not surprisingly, these three “pairs”

² Editorial note: There are a few roles, most notably in the fighting part of the military in combat, comprising only short, complex tasks. These roles tend to burn out their incumbents and time span does not measure their complexity accurately.

look a lot like the classical differentiation of levels in large, multidivisional organizations in the private sector. We consequently concluded that succession planning and management development (leadership development in the military) should be viewed from a “three frames of reference” perspective.³

- *Cognitive Power.* We also concluded that there were corresponding cognitive processes that are requisite for building these frames of reference: concrete representation and action; abstract representation and analysis; and abstract representation and synthesis. Where any given person finally “plateaus out” is determined by that person’s use of these processes, moderated by that person’s fluid intelligence. This is a highly simplistic statement, addressing a much more complex underpinning of cognitive theory that is beyond the scope of this paper. However, this perspective is remarkably facilitative in early identification and development of high-potential individuals.

How It Helped

Our research strongly confirmed the applicability of SST principles for leader development in the military services. We have made what we believe to be three important applications.

1. *Strategic Leadership Doctrine.* The research led directly to publication of a Department of Army pamphlet detailing the complex responsibilities we found at the topmost levels and the skills and abilities a general officer must have to be effective at these levels. Current doctrine now reflects awareness of organizational processes as a context for leadership and the essentiality of systems thinking in complex problem-solving.

2. *Joint/Senior Service School Curricula.* At the US Army War College (USAWC) and at the Industrial College of the Armed Forces (ICAF), our research results influenced both the nature of the topics covered by the leadership departments and the methodologies used to teach them. In both cases, a course in creative and critical thinking was developed for officers who were firmly embedded in rule sets and procedures, as opposed to open-ended problem-solving. At both institutions, the focus was explicitly on “how to think” not “what to think.”

³ Editorial note: These conditions have not been found in other organizations but are worth monitoring.

3. *Assessment.* At both institutions, a battery of assessment instruments was offered to students. While including broad evaluation of other personality dimensions, the strong focus was on conceptual skills and openness to new experience. The assessment process was intended both to increase self-awareness and to enable development plans aimed at strengthening the critical skills and abilities that would be needed for the future.

Conclusion

Stratified Systems Theory has contributed strongly to our understanding of the roles of strategic military leaders and to improvement in military leader development. It is an extraordinarily useful lens for understanding not only requisite organization, but also for understanding assessment and development processes to ensure a stream of “growing” leaders and managers who will regularly be prepared to assume heightened responsibilities as they are thrust upon them.

We see this as quite important. The pace of change is faster now than it was even two decades ago. Information technology not only enables the more rapid development of new technology, but also the faster employment of that technology. We see the next century as one filled with probably greater challenges than any previous century in recorded history. It is fortunate that tools such as SST may help meet those challenges.

Part 2: Application of Stratified Systems Concepts in the US Army

The true test of the lasting impact of any theory on organizational performance is whether or not it gets institutionalized in the culture of an organization. As described previously, SST concepts have made their way into Army doctrine and the Army School system. Students passing through that system have internalized many of these concepts. As a result, a number of significant organizational applications have occurred.

For example, in the early 1990s the newly selected Army Surgeon General elected to reorganize the Army Medical Department based on concepts taken directly from SST. The Surgeon General had learned of these concepts as a Brigadier General while associated with the Training and Doctrine Command (the Army School Command).

As a result of an extensive three-year study effort, the Army Medical Department reorganized itself into ten separate business-unit-sized organizational elements. These organizations encompassed separate product categories and different delivery systems. Each consisted of five organizational layers consistent with SST concepts. More important, however, was the clear differentiation between corporate work (strategic) and operational work (business unit). Significant improvements in operational effectiveness (approximately 30 percent) occurred as a result of this restructuring effort. The soundness of this effort is evidenced by the fact that this structure remains in the Army Medical Department to this day.

Several additional applications of SST concepts have emerged more recently. In 2005, the new Secretary of the Army embarked on a massive business transformation initiative. All facets of the Army's non-war fighting structure and supporting work processes and systems were scrutinized. Currently underway is one of the largest known applications of systematic organizational analysis and redesign and lean Six Sigma process reengineering. The organizational analysis effort is applying a number of basic organizational design principles whose origins can be traced back to the work of Dr. Jaques. The application of these principles to several Army organizations to date has led to increases in productive effectiveness on the order of 30 percent.

What is perhaps more significant, however, are the potential savings to be generated when organizational analysis efforts are paired with lean Six Sigma concepts.

Business Transformation Principles

1. Focus on the customer.
2. Concentrate on the core business.
3. Organize around the work.
4. Differentiate between strategic level staff work and operational work. The present will always drive out the future.
5. Establish the correct number of organizational levels.
6. Align functions at the correct organizational level.
7. Establish clear accountabilities and authorities. Delegate decision making authority to the proper organizational level.
8. Define the nature of required working relationships.
9. Develop and implement a change management strategy.

SST concepts have also been applied recently to managing the Army's senior executive talent pool. In the past, senior civilian leaders were generally left in place while all of the general officers were routinely reassigned as part of their ongoing development program. As part of the business transformation initiative, the Army is now developing its senior civilians much as it does its general officers. A talent pool "war room" has been established to facilitate the process of managing the career development of civilians. Implicit in the management process is an on-going assessment of the underlying complexity of the work assigned to all civilian roles. Currently under review are all aspects of the existing potential assessment process.

Finally, the Army is in the process of currently overhauling its entire education and training system. A recently completed study has recommended a number of changes to the existing school system. Many of these recommendations can be traced back to the earlier work of Dr. Jaques and his colleagues at the Army Research Institute.

What is clear from the efforts currently underway in the Army is that introducing change in a large organization is both difficult and time consuming. Most large organizations tend to resist rapid change. Yet, when concepts and theory are sound and thoroughly understood by operators in the organization, change will occur. In the case of SST concepts, that change is well underway.

Suggested Further Reading

Publications from the research program are available from the Defense Technical Information Center. A good integration of the overall program and its findings within the broader literature can be found in Stephen J. Zaccaro's book, *Executive Leadership: A Conceptual and Empirical Analysis of Success*—published 2001 by the American Psychological Association.

ABOUT THE AUTHORS

Stephen D. Clement is founder and president of Organizational Design, Inc. (ODI), a Texas-based consulting firm. He has been involved in the application of requisite organizational design principles and concepts for more than 20 years. Clement worked closely with Dr. Elliott Jaques and Sir Roderick Carnegie in a ten-year year

collaborative effort at CRA (a major Australian mining company) where many of the principles were first refined and tested in an operational environment. He is currently involved in applying RO-related concepts in several long-term industrial and government studies. He is the co-author of *Executive Leadership: A Practical Guide to Managing Complexity* with Dr. Jaques.

T. Owen Jacobs is co-founder and partner of Executive Development Associates, LLC. From 1997 to 2005, he held the Leo Cherne Distinguished Visiting Professor of Behavioral Science Chair at the Industrial College of the Armed Forces, National Defense University. He taught strategic leadership, and created the College's Executive Assessment and Development Program. Previously, at the US Army Research Institute, he collaborated with Jaques to identify strategic performance requirements and strategic leader developmental processes.

He authored *Leadership and Exchange in Formal Organizations* and *Strategic Leadership: The Competitive Edge*. He was leadership section editor and contributor (with Dr. Jaques) of *Handbook of Military Psychology*. In 2000, he received the John C. Flanagan Lifetime Achievement Award from the American Psychological Association Division of Military Psychology.



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* Note: inspired by the work of Wilfred Brown and Elliott Jaques

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