

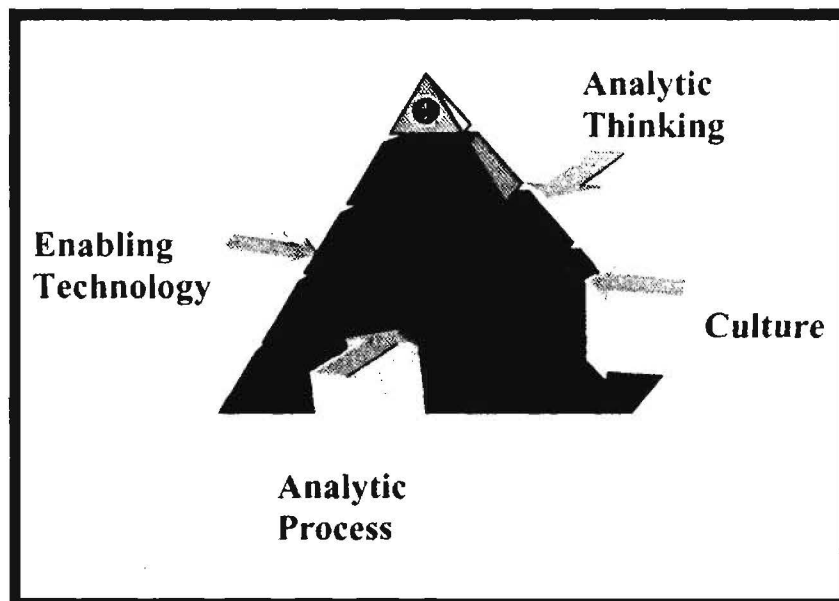
The Pyramid of Excellence for Intelligence Analysis and Production: A Maturity Model

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Pyramid Overview

The Pyramid of Excellence for Intelligence Analysis and Production grew out of an undertaking to describe how NSA can move closer toward its goal of achieving "information superiority for America and its Allies" by improving SIGINT analysis and production. It stems from the realization that any complex undertaking of this magnitude will have a greater likelihood of success if it is divided into a set of smaller, achievable milestones. This divide-and-conquer approach led to the delineation of specific steps to be taken in four major areas: analytic thinking, culture, analytic process, and enabling technology.

It is in the nature of human cognition that we understand concepts better when we can liken them to some object in the physical world that is within our realm of experience.



The four facets of excellence in analysis and production

Since the path to excellence had been divided into four, the metaphor of a pyramid was chosen as an aid to comprehension. Consider the attributes of a pyramid:

- **Dependence:** It rests on a broad, strong foundation.
- **Sequence:** It must be built from the bottom up, layer upon successive layer.
- **Interdependence:** Everything in its structure is load bearing; nothing can be removed from the structure without damaging its integrity.
- **Uplift:** It points heavenward. It continually inspires those on the ground to look up and to consider something greater than themselves.

These same attributes also apply to the pursuit of excellence in intelligence analysis and production: practicing organizations depend on others to build a foundation for success; they must start with the basics and build upwards; they cannot neglect any one of the facets of success; and they will be most successful if they are motivated by a lofty purpose.

As indicated earlier, the pyramid indicates steps to be taken on each of four paths, in the form of a maturity model. A maturity model shows the characteristics of an organization at each step on the path to excellence. Each side of the pyramid

actually describes a separate maturity model as follows.

- On the **analytic thinking side**, increasing levels of complexity of analytical thought are exercised as one moves from the base of the pyramid to the apex.

- On the **analytic process side**, an organization gradually becomes more self-aware about how it does its business and more deliberate about its process focus.

- The **culture side** has to do with why people behave as they do in the workplace. As an organization's culture matures, change becomes less and less painful as it becomes a way of life.

- The **enabling technology side** describes a continuum of the degree to which machines are actual participants in analysis, in which they go from being useful but dumb work adjuncts to being intelligent and integrated with the analyst.

The following sections describe each of the facets of the pyramid in detail.

The Pyramid Base

A pyramid is not constructed directly on sand. For the sake of stability, any large masonry structure must be supported by a strong foundation. The Pyramid of Excellence for Intelligence Analysis and Production presumes a foundation consisting of the following elements:

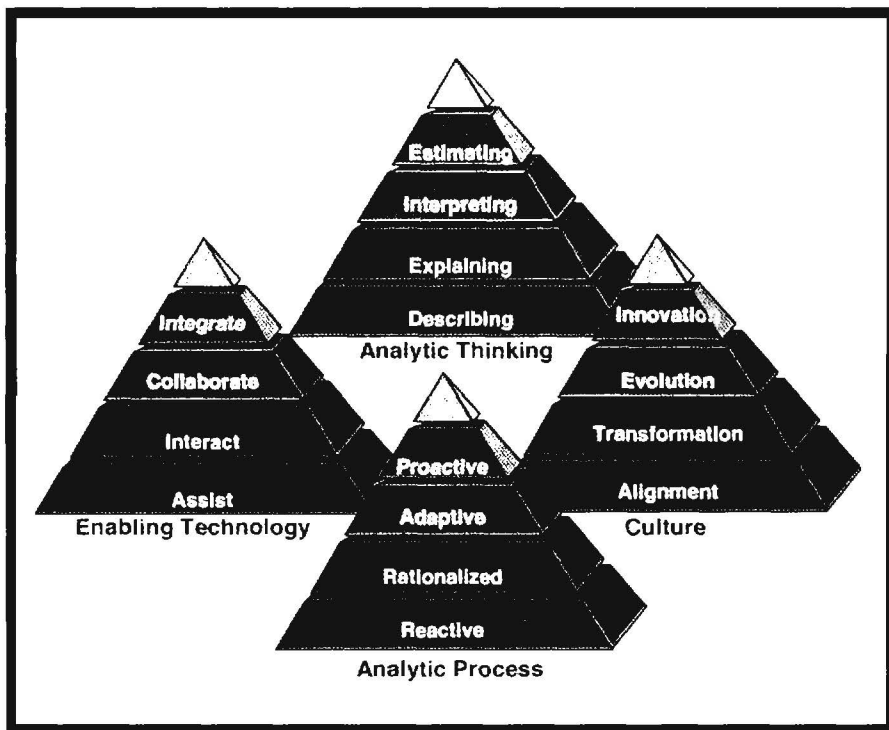
- a robust and flexible information technology infrastructure
- a critical mass of people with the skills and attributes needed for analytic excellence
- a productive physical work environment
- partners, both within and outside NSA, who understand their roles and responsibilities

These are the prerequisites for success in any intelligence analysis and production endeavor.

Analytic Thinking

The purpose of intelligence analysis and production is, in the words of intelligence production textbook [redacted]

"to reveal to a specific decision-maker the underlying significance of selected target information." Excellence in analysis means employing thinking skills that add value to information, to the extent desired by intelligence consumers. Thus the analytic thinking side of the Pyramid uses [redacted] hierarchy of



The pyramid of excellence for intelligence analysis & production

thinking skills to describe the value-adding tasks that analysts must be able to do, listed in ascending order of complexity:

- **describing** facts and events
- **explaining** the context for those facts and events, including observations about patterns or changes in observed behavior
- **interpreting** the significance of the observed phenomenon, making judgments about what has happened
- **estimating**, or making judgments about what might happen in the future as a result of observations and interpretations

Workplace Culture

Culture is “a particular way of life among a people or community,”² according to organizational theorist Mary Jo Hatch of the Cranfield School of Management in England. Hatch explains that every organization has a set of beliefs and assumptions that are widely shared among its members. Those beliefs and assumptions shape the organization’s values and behaviors, and those values and behaviors are expressed in observable cultural “artifacts” such as rituals and ceremonies, rewards and punishments, stories and myths.

The goal on the culture side of the Pyramid is to become a continuously adaptive and innovative organization in which diverse communities of interest can coexist and still work together toward the common goal of “information superiority.” To achieve the desired state, we must re-examine our values and assumptions, and consciously and creatively use artifacts to express a new organizational identity. According to research on organizational culture,³ the set of values for a high-performance culture includes the following:

- clear organizational direction (vision, strategy, goals and objectives)
- employee involvement (team orientation and empowerment)
- adaptability (customer focus and organizational learning)

The culture side of the Pyramid describes a process for implementing culture change and instilling the high-performance values as described above.

- The basis of a healthy organizational culture is the existence of a unified corporate vision and direction. Everyone in the organization must have a clear and common understanding of that vision (i.e., all the visions and strategies are in alignment).

- The organization can really start its transformation by adopting changes designed to alter behaviors. In the transformation stage, actions are centered on changing incentives and disincentives, instituting meaningful metrics, revamping policies, removing barriers, and building trust.

- The organization that has matured to the evolution stage is actively monitoring its progress toward its objectives, allowing learning to occur (viewing mistakes as an opportunity for improvement), and managing risks rather than avoiding them. The new values are starting to take hold.

- Finally, at the pinnacle, the organization can be said to be exhibiting the qualities of the truly innovative and adaptive culture: systematic problem solving, active experimentation, learning from experience, enthusiastically borrowing ideas from others, and transferring knowledge readily and efficiently.

Analytic Process

“An organization is only as effective as its processes,” say performance improvement experts Geary Rummler and Alan Brache.⁴ They observe that organizations have processes for getting work done whether or not they are made explicit. So we have two fundamental choices: 1) ignore our processes and hope they do what we want them to do or 2) understand them and manage them.

On the analytic process facet of the Pyramid, organizational excellence means choosing option two. Drawing upon the Rummler & Brache methodology, reaching the apex on the process side involves the following:

- An organization in the reactive stage is largely event-driven. It may have many good individual and group processes, but they exist in isolation from one another.

- At the rationalized stage, an organization's existing processes are documented so that they can be studied, repeated, and/or modified. Best practices and inefficiencies are identified.

- The adaptive stage is characterized by process management. This means that the organization performs continuous process monitoring and improvement. It routinely reviews existing processes to determine continued applicability to new conditions.

- Finally, at the proactive stage, the organization is managed as a complete system. The interdependency of different subprocesses of the whole system is recognized; when changes are considered to one process, the potential effects on other processes are considered as well.

Enabling Technology

We must have appropriate technologies to augment human analytic thinking, support a

high-performance organizational culture, and streamline analytic processes. This is often the aspect of attaining excellence in intelligence analysis and production that is given the most attention, although it is by no means the most important. Best-selling author Jim Collins (*Built to Last* and *Good to Great*) has found through extensive research that, of the companies known to have gone from being merely good to being great, none of them accomplished that feat by focusing on technology first. Hence the enabling technology facet brings up the rear in this roundup of factors to consider.

The technology needs for analysis and production are described on the Pyramid as a continuum of increasing sophistication. This mirrors the tendency toward increasing computer sophistication or even “sentience” noted by prominent thinkers such as Ray Kurzweil (*The Age of Spiritual Machines*) and James Martin (*Alien Intelligence*), which will allow humans to accomplish more and more in conjunction with machines.

The continuum of sophistication can be divided into the following levels:

- At the lowest level, technology is there to assist the human in performing basic tasks rapidly, such as viewing, storing, and routing data.

- At the next level, the technology begins to interact with the human. Data can be manipulated and displayed in new ways, yielding analytic results not previously possible. The machines notify humans about patterns and anomalies in data.

- Technology can collaborate with humans by tracking their needs and preferences, then alerting them to new opportunities.

- When it is fully integrated into the business, technology anticipates humans' wants and needs, proposes analytic conclusions or courses of

action, and makes rational decisions on their behalf, if desired.

Using the Pyramid

The maturity models represented by the Pyramid of Excellence show the organization a plan for building from the ground up. The Pyramid has two primary uses:

1. It can guide the corporation in setting strategically oriented priorities for investing money, time, and energy. It constantly reminds decision makers that we need to ensure that the basic business needs are taken care of before we train our efforts on reaching the apex.
2. Tied to a set of measures, it can provide a benchmark for estimating and tracking organizational performance. Product lines can use the Pyramid to set goals (e.g., "we intend to achieve at least level two performance in all facets across the entire product line by the middle of next year"). Individual business unit progress toward those goals can then be recognized and rewarded.

Acknowledgments

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Notes

[Redacted]

2. Mary Jo Hatch, *Organization Theory*, Oxford University Press, 1997, 204.
3. W. Mathew Juechter, Caroline Fisher, and Randall J. Alford, "Five Conditions for High-Performance Cultures," *Training & Development*, May 1998.
4. Geary A. Rummler & Alan P. Brache, *Improving Performance*, Jossey-Bass Publishers, 1995.

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