

It's Only Rocket Science

~A Stratified Systems Theory Teaser~

~Mark Goodall

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The thing about Stratified Systems Theory, and Requisite Organization, that is most difficult is the underlying human capability assessment methodology. While wired-in capability manifests, in work, 7 identifiable levels, or strata, the world that most people see is a world of capability in the first 3 levels. Beyond that, people tend to jump to the statistically irrelevant genius, or an outlier, without realizing the implications of the several levels of capability above stratum 3, and certainly without understanding the significance of the jump in abstraction from 3 to 4 that makes larger initiatives possible.

What people experience and understand, the production and delivery of goods and services, occurs at levels 1, 2 and 3. That is the world that people grasp. While doctors, lawyers, scientists, PhDs, and engineers are seen as the brightest, SST has determined most such roles to be level 2 or 3 and include middle managers. The role of CEO of a global business may require capability four levels above such roles. Biographers struggle to describe higher capability while unable to visualize the system of capability levels between stratum 3 and genius.

The claim, "It's not rocket science," derives from the view of the world in only those first three levels. The expression implies that rocket scientists are among the brightest, failing to understand that placing a languaging hominid on the moon was an initiative requiring at least stratum 5 capability employing so-called rocket scientists at levels 2 and 3.

The development of atomic energy illustrates such over-estimation of the capability of scientists. Oppenheimer is sometimes incorrectly referred to as the head of the Manhattan Project. He was not. He was the scientific director of the Los Alamos Lab, one of many components of a much larger project which required capability several levels above. General Groves developed, managed, and integrated the work of various huge initiatives. Some of the scientific areas started at the theoretical level, including the

production and delivery of the fissile material needed by Oppenheimer, in concert with ordinance experts, to build the bomb.

Stratified Systems Theory and Requisite Organization deal with organization design, management practices and human capability assessment. The human capability assessment science of SST is exciting in that it also provides a lens to better understand behavior in areas of human endeavor outside of management theory. However, viewing human capability in the context of employment is illuminating because ninety percent of us are employed by management accountability hierarchies. Employment, the largest part of our waking lives, is key to our identity and self-awareness.

Consider an organization chart. SST, and RO (Requisite Organization), examines, and improves, organization design. Essentially, there are as many as 7 main levels in business organizations. Most businesses are small enough to require only 3 levels: line worker, boss and boss's boss. A large global corporation requires all 7 levels – CEO at stratum 7 and line worker at stratum 1.

Management practices deals with handling relationships between managers and subordinates, hiring, training and advancement – areas thought of as management science or theory. SST/RO also develops the role of manager once removed (MOR) and sorts out cross functional working relationships (CFWRs).

SST's human capability assessment methodology attempts to determine an individual's present, and future, potential applied capability as it relates to the requirements of a role and succession planning.

The level of a role is often referred to as the size of a role, and the size of a role implies the size of the person occupying the role as in "...big enough for the role." In SST, "big enough for the role," suggests assessment in two basic areas: skilled knowledge, and innate capability of information processing (CIP). In addition, success in a role requires valuing the work and ability to bring the required attitude and behaviors. The goal of such assessment is to place a person in a position, the size of which matches that person's capability, and to predict growth in capability. People are happiest, obviously, in a role that suits them and includes compatible advancement opportunity.

The role of a stratum 7 CEO will usually require the ability to process information (CIP) effectively on initiatives unfolding beyond 20 years into the future. A line worker is typically working toward the end of the week or the end of the month. This Time Span of Discretion (TSD) component of a role is key in capability assessment. Big enough for the role means having sufficient CIP, with such time horizon, to be successful. It is a fair starting point to assume that a person occupying a role has CIP equal to the size of the role. Of course, that is too often not the case.

The capability assessment methodology of SST is based on the finding that each of the levels of information processing capability occurs within separate bands or modes of capability that mature with age – and this capability is largely wired in. We are born into a mode and experience increasing CIP within that mode as we age, regardless of formal education and experience. Thus, if one can determine a person's wired in mode of information processing capability, one may determine levels of working capability that can be attained (with corresponding education, experience, skilled knowledge and ability to value the work) into the future. This becomes an important part of succession planning.

There may be some fuss, within SST, about measurement of General Groves' capability. Absent a personal assessment, we look to the size of the role. The Manhattan project, with a massive budget and employing over 120,000 people around the globe, would suggest stratum 7. Using TSD, the fact that the Manhattan Project was accomplished in under five years would suggest level 5. But experts expected such developments, many starting at theoretical, to take as much as 20 years. The tremendous pressure to get ahead of any competition, and to end the war, resulted in what is referred to in SST as time compression, requiring a more insightful assessment.

Another factor in assessing Groves' capability is complexity. While separating fissile material from U-235 is complex, it is complexity in narrow fields where capable level 3 scientists are adequate. Complexity for Groves crossed many areas of study, production, numerous global work sites, diplomacy, governance, and strategy, including military strategy. Such complexity requires the ability to use higher abstraction in information processing. Groves was often required to call shots, in global scale, with

respect to which rocket science pales and with no higher authority available that could add value to his analysis.

It is unlikely Oppenheimer could have tackled more than one key component of the project. For example, he could not have managed the production of plutonium while also directing the Los Alamos scientific work. Nevertheless, General Groves could see that Oppenheimer had enough familiarity with issues of other project areas that he would understand, and be of some assistance, in what SST/RO characterizes as required cross functional working relationships. Groves was able to synchronize those working relationships using complex critical path analysis. Scientists don't do critical path.

Roles above stratum 3, which permit planning, development, and production in national and global scale, are occupied by people with capability found in less than 10% of the population. The several levels of CIP between stratum 3 and (ill-defined) genius are, for most people, not identifiable, and certainly not understood. A global CEO is thought to be no more inherently capable than a stratum 3 engineer or middle manager. This limited view of capability may be problematic, for example, in the context of voters asked to select a president.

Those considered to be near-genius are likely high functioning 3 capable, working hard in a single field, like Nobel prize winners. SST would instead look to someone like Leonardo da Vinci as an example of genius – perhaps stratum 9 abstract information processing capability in many fields.

Each ascending level, or stratum, not only represents a higher level of abstraction in information processing, but also identifies a different mechanism of processing information. A stratum 4 manager processes information differently than a stratum 3 manager. It is a move from serial to parallel processing of information. It is the first level of separation from a working recognition of all subordinates and its implications are profound. Movement in capability from 3 to 4 is movement from concrete to abstract, where expansive innovation begins.

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