

The Problem of Defects in Modern Organizations: Preliminary Research Findings

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Abstract. This paper brings forth the author's serendipitous discovery of the relationship between defects and compressed organizational structures. The author discusses three organizational studies he carried out in 2007-2009, 2010, and 2011-2012 in the U.S. Federal Government, a privately-owned manufacturing company, and a large multinational corporation. The author identifies defects-creating structures in all three organizations, and suggests a framework for detecting organizational structures prone to produce defective products and services.

Keywords: General Theory of Managerial Hierarchy, Requisite Organization Theory, Management, Organizational Structure, Defects, Early Detection of Defects, Corporate DNA, Organizational DNA

1. Introduction

The author has conducted numerous organizational studies since 2000 in various American and European Corporations and the United States Federal Government. Serendipitously, the author discovered and collected evidence that defects relate to certain organizational structures. Identifying such structures may predict forthcoming product and service defects in a variety of business settings, from a government department developing a strategy, to manufacturing.

2. Theory

The author applied the General Theory of Managerial Hierarchy (Jaques, 2002) to collect data and conduct research in all organizational studies. The main principle of the theory is that work in any hierarchical organization is conducted through well-defined and distinct levels of work. The complexity of work in the organization grows from the very basic at the lowest levels of the organization to the strategic roles, such as CEO, CFO, or Government Executive. Jaques (1964, 1996, 2002), Brown (1971), Kraines (2001), Clement (2008), Lee (2007), and Ivanov (2011) describe and identify these levels of work as the backbone of every hierarchical organization. Ivanov calls this structure the *Organizational (Corporate) DNA*. The Corporate DNA (Organizational DNA) is the innate structure and dynamics of every organization. It consists of roles, relationships, and complexities that generate organizational dynamics and behavior. Discovering the Corporate DNA, it is possible to transform the organization by modifying its DNA structure and relationships.

The Organizational DNA template consists of the following levels of work:

Table 1: DNA Template of Hierarchical Organizations.

Stratum (Level)	Organization Type / Role	Timespan	Annual Revenue, Comments
9	N/A	Over 100 years / 5 or more generations	Organizations of this type have not been found.

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8	Large Multinational	50 – 100 years / 3 – 4 generations	Over \$100B/year	Strategic	
7	Multinational	20 – 50 years / 1 – 2 generations	\$10 to \$100B/year		
6	N/A (long-term)	10 – 20 years / 1 generation	Stratum 6 corporation exists in the context of a stratum 7 or 8 organization.		
5	Unit of a Multinational, or a Stand-Alone Company	5 – 10 years/ within 1 generation	\$100M to \$1B/year		
4	Small Business Unit or a Stand-Alone Company	2 – 5 years	\$10 to \$100M/year		Operational
3	Small Business	1 – 2 years	\$1 to \$10M/year		
2	Mom-and-Pop Shop	3 months – 1 year	up to \$1M		
1	Basic Organizational Role	1 day – 3 months	Smallest organizational role		

Timespan measures the complexity of work in the role. By identifying the longest task in the role, as assigned by manager to the subordinate, it is fairly easy to determine the actual level of work. This instrument is also objective because it identifies actual tasks, which both, the manager and subordinate confirm during the survey.

The lowest level of work is level/stratum 1. In this level the person is tasked to complete a set of assignments, with the longest targeted completion date just under 3 months. An example of such work could be of an intern, who could be learning new skills in the organization. This level of work also implies lowest decision-making in the role.

As complexity of work increases in higher strata, executives in top organizational roles handle large strategic issues that impact organizations 5, 10, 20, and longer years into the future. Examples of such work are creating new businesses for a new generation of services or products. Ivanov (2011) defines roles in levels 5 and above as strategic, and roles in levels 1 through 4 – operational.

3. Research Studies

Ivanov conducted three organizational studies, in the U.S. Department of Defence (2007-2009), privately-owned American Manufacturing Plant (2010), and a multinational corporation (2011-2012); this study is still in-progress. Ivanov collected a variety of data, including the level of work in the role for each employee. The following number of roles Ivanov studied:

Table 2: Three Organizational Studies: Number of Roles Studied.

Organization	Number of Roles Studied
U.S. Department of Defense	345
Manufacturing Plant	47
Multinational Corporation	1184 (this study is in-progress)

In all three studies, Ivanov examined a subset of the organization, from the top organizational role down to the entry-level employee.

4. Findings

During the study of the U.S. Department of Defence (2007-2009), U.S. government civilian and military senior leaders stated that the analysis work was not being carried out by their subordinate organizations. Often these people would attest that they would be receiving accumulation data from their subordinates or subordinate organizations. Afterwards, they would be personally conducting the analysis work.

Analysing the levels of work of this organization, Ivanov found that most “analysts” worked in levels 1 and 2 in the following government and military ranks:

Table 3: U.S. Government, Military, and Contractor Roles/Rankings Studied.

Level of Work	Government	Contractors (on-site)	Military
Stratum 2	SES GS 15	Contractor (10%)	1-star General Officer (BG)

	GS 14 GS 13		COL CSM
Stratum 1	GS 15 GS 14 GS 13 GS 12 GS 11/10/9 GS 8 GS 7/below	Contractor (90%)	COL LTC MAJ

Ivanov found that when the analysis work was pushed down into levels 1 and 2, it produced defects, in terms that the senior government or military leader had to redo the work himself. Table 3 above lists U.S. government and military ranks of roles Ivanov found to be carrying out level 1 and 2 work.

Conducting another organizational study in a small privately owned U.S. manufacturing plant (2010), Ivanov discovered that in one of the product lines, workers' and all managers' roles were also in strata 1 and 2. This product line similarly produced defective parts and products. These defects would often find their ways into company's customers' products, costing replacement expense, reputation, and winning new business.

Leading a third organizational study in a multinational corporation (2011-2012), and measuring the levels of work of key structures in the organization, Ivanov noticed a significant conglomeration of work in levels 1 and 2 in several main departments, for example, Human Resources (HR). All Vice Presidents, Directors, Managers, and Analysts worked in levels 1 or 2, as follows:

Table 4: Multinational HR Roles/Rankings Studied.

Level of Work	Rankings, HR, Multinational Corporation
Stratum 2	VP, Director, Senior Manager
Stratum 1	Manager, Supervisor, Analyst, Receptionist

Predictably, this organization produced defective work, evidence of which Ivanov collected from other parts of the organization, which were impacted by the work of this department.

5. Supporting Evidence

Supporting evidence of defects comes through reporting by members of the organizations. In government and military structures, senior leaders attested that their organizations could not produce trend analysis. These comments corresponded to the organizational structures where employees worked only in levels 1 and 2.

In the manufacturing plant, the plant owners did not volunteer information about defects. In fact, this factory received the highest quality certifications from the U.S. and European quality control bodies. Having identified that all roles were in levels 1 and 2, Ivanov made the following finding known to the factory owners that the plant was "producing defects by design." The defects were also accentuated by the fact that there was no 24/7 first-line accountability amongst the team. Several months later, the company admitted defects in their internal briefing, "*jobs short on materials.*"

In the multinational study, which is still in-progress, supporting evidence comes from Human Resources department employees, as well as employees in other parts of the organization. Inside the department, many employees comment about "turf wars," lack of collaboration, and that "all areas of HR do not work together." Conducting surveys in other corporate departments and in the field, HR was frequently mentioned as one of the corporate dysfunctions. For example, the corporation experienced difficulties in recruiting, winning new business because of inflexible HR policies, and did not have comprehensive and coherent policies and procedures that worked for the company globally.

6. Continuous Research and Conclusions

The Corporate DNA in all three organizations was suppressed into levels 1 and 2. Combined with the lack of accountability, this mixture produced defects by design. In government and military, this structure,

predictably, produced defective or no analysis altogether, which senior leaders had to redo themselves. In manufacturing, no continuous improvement work was possible, and the production line, predictably, produced defective products and parts. In the multinational corporation, the compressed work levels 1 and 2, coupled with a non-accountable structure, performed poorly for the company to achieve strategic goals for its worldwide workforce in various parts of the globe.

Ivanov did not plan to correlate or look for work defects in his organizational studies. Unexpectedly, collecting symptoms and comments from studied roles, it became evident that when all work was compressed into levels 1 and 2, this structure unambiguously produced defects. Ivanov encourages further research into this phenomenon as to why compressed organizations produce defects. A possible hint of the explanation comes from people working in these structures, "all areas do not work together." A similar observation came from the manufacturing plant where workers had to complete to achieve a certain production quota, rather than working with each other to improve quality and continuously improve the production line. Additionally, level 1 and 2 work is also possibly not strategic enough to integrate complex work that government, military, and multinational organizations require.

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