How to Deal With Complexity?

What is complexity?

Complexity is one of the main challenges' companies must deal with, but what do we really know about complexity? How do we handle something that we do not understand? This article will prepare you to better deal with complexity.

Oxford dictionary defines both complexity and complicated as "made of many different things or parts that are connected; difficult to understand", but to truly understand complexity, we must define how complexity differs from complicated.

Both the complex and the complicated are composed of many parts and therefore difficult to understand. The difference is that complexity is hard to predict. An old watch is complicated, has many parts and it takes time to understand, but its' behavior is always predictable. Humans are made of many organs, but our behavior is unpredictable.

To take the definition of complexity one step further and connect this part of the article to the next one as I share a more detailed definition. Complexity is the unpredictability of a system due to the autonomous, diverse, and interlinked parts that compose its' systems.

Understand what Creates Complexity and Why

Competition is a game of variety. In order to be on top of competition one needs to have at least the same variety as his opponents. This is a simplification of the Law of Requisite Variety, also known as Ashby's Law (name after W. Ross Ashby who discovered it in 1956 (https://www.athanassoulas.com/the-law-of-requisite-variety/).

Variety is a generic word, so let's try to define it in business terms. Variety is the number of resources and states that a business has. While it is easy to understand resources (people, equipment, cash, etc.) states are not as clearly defined as resources. In business terms, states are the capabilities that a business has. If one actor in the market sells on-line, at the store and provides hybrid service in the form of on-site delivery all other actors in the market must have these three capabilities to compete at minimum.

In most cases providing more business capabilities also requires having more resources. Also, to be able to compete, a company needs to continuously increase their variety and resources. These needs turn into never-ending loops as one player adds more variety, in turn forcing others to work to reach the same (or more) variety.

The result of the variety loop is an increase in the number of autonomous, diverse, and interlinked parts that compose companies. From the definition of complexity: as there are more autonomous, diverse, and interlinked elements the level of complexity increases.

Therefore, complexity is a byproduct of variety, which is a by-product of the need of companies to compete and stay relevant in the market.

Don't Fight, Adjust

If complexity is a by-product of variety the only way to decrease it is to decrease variety, but the decreasing variety has negative impacts on a company's ability to compete and stay relevant in the market. Therefore, reducing complexity is likely not a good option. A better alternative is to adjust organizations ability to deal and operate with complexity. Using this strategy means competitive advantage is not damaged and the difficulties associate with complexity will be reduced.

Complexity is not a new phenomenon. There are several relevant new sciences begun an effort to understand how complexity is created and how systems (including organizations) should adjust to optimize their operations in complexity.

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The fact that complexity is relevant to new science is probably one of the best illustrations of why complexity is so hard for people to understand. Most scientific history has been dedicated to simple, deterministic, and linear thinking. Most people see complexity as unneeded noise that can be simplified and ignored. But in reality, complexity is a common behavior of a system, so we must understand it.

The first step in understanding complexity is to accept it, not ignore it or try to simplify it. You must learn its' minute details, how it is created, and what conditions favor it. This approach requires acceptance that not everything is predictable because of past data. Almost everything around us operates in non-linear ways and to resolve some problems it is better to focus on the whole they created, instead of focusing on the parts.

After accepting complexity, the next step is to adapt to it. This can be done by adopting principles designed to help systems survive and thrive in complexity into the operating principles of organizations. I could (and should) write several books about this topic, but in this post, I will focus on the three elements that can be easily adjusted to deal with complexity.

Adjusting Structure

Whether a result of a long evolving process or decision made by executives all the systems and organizations which manage to better deal with complexity use a more decentralized structure.

The idea is not to give up management and centralization and replace it with non-hierarchical structure or anarchy. What you need to do is figure out how much decentralization you can add to your current organizational structure without causing damage. Regretfully there isn't a single solution that fits every organization.

Any distribution of authority with ability to make actional decisions will create the ability to better deal with complexity. The easiest way to achieve this is to give groups a certain level of autonomy with a clear set of boundaries they can operate within.

Adjust Management

Classical strategic management is keen on a top-down approach. This approach requires managers to spend time and effort trying to determine the direction a company needs to go, translate it into a strategy, turn it into a plan, and finally to make sure the plan is executed. This will work in a linear, ordered, and predictable environment but not in a complex and uncertain environment.

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The best approach is to enable people to deal with our non-linear reality from a bottom-up approach. Managers or leaders still define the objectives and goals. Once defined, they need to give their teams the ability to define how the goals are going to be reached and let them work towards the goal with the ability to adapt over time.

Bottom-up structures still strive to achieve stated goals. It enables different strategies to reach the goals and provides teams with the ability to adapt to business challenges more quickly, while keeping the same target in place. This approach separates the strategy from the tactic and grants more freedom to the people who are responsible for defining and executing the objective.

Complexity requires more resources to deal with it. One way to handle complexity without increasing resources is to change managerial and compensation models from supporting the "heroic" individual to promoting "heroic" team.

This approach puts the team in the center instead of individuals. It encourages a change from incentivizing individual performances into incentives that emphasize teamwork.

Teams have more eyes on what the group is doing. Encouraging people to work in groups allows more resources to deal with increasing complexity without the need to increase headcount.

Adjust Problem-Solving

Complexity creates complex problems. We have come a long way and improved our ability to resolve complicated problems significantly. But we still struggle and are missing the right methodologies and tools to deal with complex problems.

Complex problems introduce the element of unpredictability. Complicated problems require an understanding of all the parts of the system and how they come together into one solution (analysis), complex problems require a focus on how the interlinks between the parts create the whole (synthesis).

This approach does not break problems apart to understand how they work or what issues they have. Instead, complex problems require a focus on the interlinks to understand how the whole operates as one unit. Understanding of the whole enables a realization of opportunities and challenges introduced by interlinks and current management and leadership practices.

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This method requires new frameworks, models, and toolsets. The best model and toolset that exists right now is Systems Thinking. It is a collection of ideas, visual language, and tools that are designed to resolve complex problems.

To be clear, I don't recommend ending the use of analysis and simply focus on synthesis (understanding how parts grouped into one whole). For a complex issue I suggest beginning with synthesis and moving to analysis if problems continue.

Prepare for Exponential Complexity in the Next 2 Years

The world is becoming exponentially more complex and this trend will not change. As the world is evolves the business is impacted world as well. Complexity is not going anywhere, and we need to learn how to deal with it.

Complexity is a domain that science is exploring. It is a relatively new science that already has had great contributions that will continue to increase our knowledge. To be prepared for the future we must continue to uncover complexity's nuances and understand what drives it, what maintains it, and how better to operate within it.

Remember, todays complexity is tomorrow's success!

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