Implications of Complexity Theory for Organizational Design

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Abstract

The business world is experiencing change at an unprecedented rate and this state of turbulence is characterized by heightened volatility, uncertainty, complexity and ambiguity, popularly called VUCA. Organizations are not only bracing to take on the challenges posed by this environment, but are also evolving new practices that can help them thrive in these times. These new practices, however are a definite departure from existing, established organization principles. In this paper, we take a critical look at these existing principles of management as articulated by Urwick and propose that Complexity Theory shows the promise to enable us to come up with new principles that are attuned to the practices of today's successful organizations. We further substantiate this perspective with the help of two short case studies.

Keywords: Adaptive Systems, Complexity Theory, De-centered Organizations, Emergent Organizations, Self-regulation

1. Introduction

Organizations are problematic with the best of plans going awry despite having rigorously followed traditionally established principles of management. On account of this we regularly see many firms failing despite having gone by the rulebooks of management[1] classical industrial organization (IO). We see major disruptions in the business environment with new business models powered by innovative technologies, deep penetration of high end technologies, a changing political environment and an unprecedented pandemic engulfing us. This is representative of a new order which is characterized by very high levels of volatility, uncertainty, complexity and ambiguity (VUCA). These terms were first used in the US Military and then emerged as a popular acronym in the business world too[2] and they are defined as follows. Volatility is about wide fluctuations and sustained instability in variables. For example, local prices of commodities can fluctuate widely due to change in export regulations. Uncertainty is about the lack of information about the impact a known event can have on the business. For example, the launch of a competing product might have a definite impact on the business, but the information available about the product might not be able to signal the impending challenges in advance. Complexity is about a system with many interconnected parts and variables and the impact of the changes in the variables would be difficult to assess owing to the inherent unknown non-linearities. Ambiguity is about a complete lack of clarity about the causal relationships between variables of importance. It is not merely about not knowing the variables, but also about the ignorance about the relationships

between them. In summary, the system needs a new ways to deal with.

Work on succeeding in a VUCA world[3] is evolving and there is agreement that for success in a VUCA world, an organization ought to have competencies to adapt and respond to change quickly[4]. In keeping with this, areas related to business performance[2], leadership[5–7], product and marketing[8] and organizational learning[4] have been addressed. But not much has been understood about organizational design.

With organizations responding to and thriving in a VUCA environment, contemporary practices in organizations show that traditional organizational design principles are being violated and there is a paradigmatic shift in the thinking about organizational design and has been a cause for exasperation among practitioners as well as researchers. This paper critiques traditional principles of management and argues that Complexity Theory provides sound theoretical underpinnings for current realities in organizations. The paper concludes by showing how two successful contemporary organizations in India have used design principles that are in concurrence with Complexity theory.

2. Urwick's Principles – A Representation of Traditional Design Principles

The earlier notion of organizations as mechanistic was envisaged by Frederick Taylor, Henry Fayol and other contemporaries and was christened 'scientific management' primarily to understand wasteful processes and bring about productivity[9]. In keeping with this thinking, several traditional management thinkers formulated rules of organizational design to achieve organizational efficiency and effectiveness, of which Urwick is one of the foremost. Urwick's exposition of organizational principles can be taken to represent what traditional organizational theory has come to represent[10]. According to Sadler, Urwick's exposition can be represented by eight main principles.

- **Principle of correspondence** – Formal authority and responsibility must be coterminous and co-equal.
- **Principle of responsibility** – The responsibility of the higher authority for the acts of its subordinates is absolute.
- **Scalar principle** – There must be a clear line of formal authority running from the top to the bottom of every organization.
- **Principle of span of control** – No superior can supervise directly the work of more than five, or at the most, six subordinates whose work interlocks.
- **Principle of specialization** - The work of every person in the organization should be confined as much as possible to the performance of the single leading function.
- **Principle of definition** – Every position in every organization should be clearly defined in writing.
- **The principle of objective** – All organizations and each part of an undertaking should be the expression of a purpose, either explicit or implied.
- **Principle of coordination** – The final object of all organization is smooth and effective coordination

It is evident that, of these principles except the principle of coordination, all seek to develop a control on the activities in the organization. These have been effective over the years and therefore have survived the tests of time. However, with disruptions of today and VUCA becoming the new reality, these principles are being questioned. It is in the same breath suggested[10] that the opening up of markets and intense competition in the business environment, organizations today are responding with flatter structures, flexibility in roles and responsibilities, reporting to multiple superiors and communicating across teams, functions and organizations. Though these practices are a departure from Urwick's principles, they are seen to be working well. We are in a state of established practices, but without adherence to established principles. No wonder there is exasperation. The exasperation of contemporary practitioners and researchers could be possibly resulting from

violation of principles that have been deemed 'scientific'. It would only be fitting therefore, to address this issue with an approach that is rooted in science. These new practices seem to exhibit a common pattern and it appears that Complexity Theory offers the theoretical basis for these practices and has the potential for formulation of new age organization design principles.

3. Complexity Theory

The idea of complexity in the organizational context is not new. It has been suggested that a complex organization is one with many interacting parts[11]. Based on the meaning of the word in Greek, Complexity means "many things interwoven together"[12] combining and bringing together literature sources. Findings – The concept of unique equilibrium has been seriously disputed – the selection process is shown, as is the path dependent process using probability theory. Practical implications – A location theory as case study is outlined – great for those fond of unique equilibrium. Originality/value – To show another theory, which is dynamic, non-linear, and complex as reality; to apply it to management underlying at the same time the role of historical accidents (random process. Thus complexity Theory holds that systems are a network of agents guided by rules. Thus organizations too are systems of people interacting with each other and design principles are the rules of interaction. The important aspect of these systems is that the rules of interaction are not apparent and therefore the systems appear to be a complex whole. Some of the pertinent concepts and terminology related to Complexity Theory are discussed below.

3.1 Systems and Systems Theory

A system is a set of parts that interact with each other and function as a unified whole[13]. The qualities or characteristics evident only at the level of the whole and different from those of its parts create the system's distinct identity. Boundaries demarcate a system from the rest of the world, and rules govern the interrelationships among elements.

Thus, Systems Theory is an abstract model through which we view organizations[14,15]

4. Feedback and Learning

Feedback is the mechanism by which, a system learns about the change it has undergone[16]. Stability occurs when negative feedback damps changes in variables, pushing the system back to its original state producing predictable behavior. On the other hand, systems exhibit chaos, or explosive instability, when positive feedback amplifies many small changes. As the system moves away from equilibrium, positive feedback will cause the system to move further away at an escalating rate leading to explosive instability, or chaos[17].

5. Self Organization

All living systems have the capacity to self-organize, to sustain themselves and move toward greater complexity and order as needed. They can respond intelligently to the need for change. They organize (and then reorganize) themselves into adaptive patterns and structures without any externally imposed plan or direction[18].

6. Complex Adaptive Systems (CAS)

Complex Adaptive Systems (CAS) are described as systems that exhibit complex, adaptive and emergent behaviors due to multiple interacting agents[19]. Agents in such systems change the way mutual interaction takes place in order to evolve into new systems that can effectively respond to turbulence in the environment. Meanwhile subunits too self-organize. In this sense, self organization and CAS and synonymous. Complex Adaptive Systems continuously and instantaneously change the rules of mutual interaction and keep on re-organizing to respond to external environmental threats and opportunities[18,19]. Complexity Theory model suggests all organizations as complex adaptive systems that continuously self-organize and co-evolve.

7. Edge of Chaos

Complex Adaptive Systems by their very definition thrive in a zone called the edge "the edge of chaos"[20]. In this zone, new information centers, learning happens and with the new information along with existing knowledge, change occurs, but not with the loss of the identity of the organization. If a system is closed it can atrophy and die. If it slips into chaos, then it loses its identity. Thus organizations are open to information, learn and retain their identity without slipping into chaos[18].

8. Emergence

When organizations function as Complex Adaptive Systems at the edge of chaos, learning from information within and across the system boundaries, organizations evolve. This evolution is a characterized by preservation of the organization's identity and simultaneously accompanied by emergence of newer patterns of interaction within the agents[21]. Emergent phenomena within organizations observable at the aggregate level cannot be isolated at the individual agent level. They are result of interactions and/or relationships alone[22].

9. Efficiency of Systems

Complexity theorists have proved that systems that are self-organizing are the most efficient systems i.e. they consume minimal resources to undergo change[17,23]. For instance, in his research on South African firms Mason shows how self organization causes higher efficiency[17].

10. Urwick's Principles of Management Through the Complexity Theory Lens

The description of system characteristics of a complex system does not seem palatable unless it is explained in the light of existing principles and how these concepts translate into new

principles that can be used by practitioners for designing their organizations. As an effort in this direction, we critique each of the principles of Urwick and provide a reality that substantiates our paradigm. The same is further substantiated by references from extant literature and case studies.

10.1 Principle of Correspondence – Formal Authority and Responsibility must be Coterminous and Co-equal

The approach of authority preceding responsibility occurs only in situations that are predictable. Predictability is way too higher in environments that change slowly. But when environments are characterized by rapid, unpredictable changes, the predictability is hard. So, a system that holds authority to be fundamental to processes would be less efficient as compared to a system in which actors or employees take responsibility without restriction by people in positions of authority. The system therefore transforms into one of ownership. The classic example of workers deciding on buying a space and building a plant on their own in the case of Semco[24] is a classic example of ownership. While such absolute transfer of ownership to workers might seem iconoclastic, in organizations that tend to be "learning organizations"[25], the role of the manager would explicitly be teaching, learning and co-development and the employee develops a sense of ownership. It is clear that the principle of correspondence thus gets deeply questioned by the "**Sense of Ownership**".

10.2 Principle of Responsibility – The Responsibility of the Higher Authority for the Acts of its Subordinates is Absolute

If a manager has to be answerable he or she better be in complete control of the subordinates, the argument went. This principle is no more tenable in complex organizations that give its members much autonomy for decision-making[26]. Broad

guidelines direct the actions of employees. What positively binds an employee to the boss would be social capital or trust[27] In such a situation, the act of delegation acquires a deeper meaning. Higher authority taking absolute responsibility for the actions of its members becomes an impossible and futile task. In fact, even terms like "higher authority" turn out to be inadequate. Agents freely act, interact, learn from sources other than the higher authority and react based on feedback leading to evolution. This is fundamental to the ways of the world today. In terms of the traditional paradigm, any dependence on self-organization may result in "everybody's responsibility becoming nobody's responsibility". But we live in a world of 'Uberization'[28], where the service delivery is entirely the responsibility of the driver, so much so, that Uber calls itself merely a platform. The Principle of Responsibility would be replaced by the "**Principle of autonomy**".

10.3 Scalar Principle – There Must be a Clear Line of Formal Authority Running from the top to the Bottom of Every Organization

Flat structures with fewer hierarchical levels have proven to enable people working by interacting across levels and teams, people being part of multiple cross functional teams and contribute to the organization at a much higher level of efficiency thereby adding more value[29]. No more does bypassing levels in an organization entail trouble for its constituents. An individual at a level can be reporting to more than one supervisor if she is a part of multiple teams. The explanation from the perspective of Complexity Theory for this contemporary practice is that agents interact in unique ways with other agents and these relationships lead to emergence of system attributes. An agent might react in one way in one context and in another way in another based on the need. The Scalar Principle does not stand ground in the case of **"Multiple Supervisors for One Employee."**

10.4 Principle of Span of Control – No Superior can Supervise Directly the Work of more than Five, or at the most, Six Subordinates whose Work Interlocks

When individual members in a team engage in knowledge work, it is important that they enjoy autonomy to execute. A restricted span of control was deemed necessary in situations in which the subordinates would be engaged in complex tasks and the manager would be responsible because of the principle of responsibility. While there is an appreciation of span of control being expandable based on declining task complexity of the subordinates[30] the situation in a knowledge organization has individual workers knowing more than the manager. The role of the manager is about mentoring based on his or her awareness about the task or its contextuality and not it is not so much about the nitty gritty of the task itself. Sense making and throwing light so that the subordinates feel empowered, or displaying servant leadership to tread ahead becomes important[31] Since this type of leadership is not about getting involved in the individual's task, the limitation of the span of control to five or six becomes irrelevant in today's **"Flat Structures".**

10.5 Principle of Specialization - The Work of Every Person in the Organization should be confined as much as possible to the Performance of the Single Leading Function

Flexibility and multi-disciplinary orientation is the prevalent trend in organizations. This facilitates enhancement in productivity by reducing inefficiencies and additional supervisory requirements[32] From a Complexity Theory perspective, if a system has to respond to the changes in the external environment, it has to be adaptive and lesser the number of people involved in a task, the better and therefore, self-organizing systems

are the fastest and most efficient in undergoing change. Adaptability requires unlearning and learning almost instantaneously and only then will emerge adaptive solutions for a changing environment. Thus skill building for adapt to the needs of the environment is a must. The Principle of Specialization thus makes way for **"Multi-skilled Workforce"**.

10.6 Principle of Definition – Every Position in Every Organization should be clearly Defined in Writing

When the workforce in an organization is multi-skilled, knowledgeable and autonomous, a clearly etched out job description might be stifling. The way agents behave emerges as a result of repeated interaction as demanded by the purpose and the prevailing realities of the external environment. This iterative interaction also leads to emergence of order as demanded by the needs at a particular point in time. Thus complexity in organizations means that roles and responsibilities, akin to order in systems emerge as a result of interactions, learning and feedback. The Principle of Definition is thus questioned by the practice of having a **"Broad Definition of Roles"**.

10.7 The Principle of Objective – All Organizations and Each Part of an Undertaking should be the Expression of a Purpose, either Explicit or Implied

The current challenge comes from the thinking that organizational members should give emphasis on an overarching purpose rather than on fixed objectives[33]. Each part need not have a clear stated purpose, but the part acts so as to live up to the overarching organizational purpose. People learn by imitating and emulating others in organizations. The properties and the direction in which systems move and metamorphose are emergent and not pre-decided. Purpose is a much broader term and is learnt by an agent by learning from other agents. Though the word 'purpose' is used in the statement of the principle, it appears as

though it is being used interchangeably with the word 'objective', which is pretty rigid. But purpose, as per the current thought implies a broad definition which allows flexibility in action. Thus Principle of Objective may be inappropriate as against **"Purpose"**.

Table 1 provides a summary of the discussion on how Complexity Theory explains most of the contemporary practices in today's organizations.

11. Case studies of organizations conforming to Complexity Theory

Two organizations, Oust Labs India Pvt. Ltd, located in Bangalore and the Society for Promotion of Indian Classical Music and Culture Amongst Youth (SPICMACAY) have been identified for study. Basic information on these companies was collected from their websites and interviews were conducted with the leaders of these organizations. The study reveals that these organizations not only run successfully violating traditional principles as laid down by Urwick, but are also functioning with contemporary practices that are in conformance with the concepts of Complexity Theory as elucidated above.

12. Oust Labs India Pvt. Ltd. - The Pivot and Organizational Redesign in Chaos

Oust Labs Inc. was founded in 2016. The company started off with a product for competitive gaming on mobile phones that could help students practice for their competitive exams using social gaming. The product was very well received by the market of students in the K-12 segment. But there were challenges. The market was too crowded with as many as 8 competitors in the same space. Nevertheless, the founders believed in the product and went ahead though. For a business that aimed to base itself on advertising revenues, virality is a must and somehow despite great reviews for the

Table 1. Urwick's principles vs. contemporary practices rooted in complexity theory

Principle No.	Traditional Management principles (Urwick, 1952)	Contemporary practices that challenge traditional principles	The rationale for contemporary practices located in Complexity Theory
1	**Principle of correspondence** – Formal authority and responsibility must be coterminous and co-equal.	**Sense of Ownership** – A member who has a sense of ownership takes responsibility first and authority comes as a result of the responsibility assumed rather than the opposite	Agents are owners of information or knowledge and therefore responsible and act and interact in accordance with the need of the same.
2	**Principle of responsibility** – The responsibility of the higher authority for the acts of its subordinates is absolute	**Demand for Autonomy** - Individuals are empowered and are given broad guidelines for decision-making and are allowed to experiment and make mistakes to foster innovation and quick responses to change	Innovation in organizations is analogous to evolution in systems. Agents freely act, interact, learn and react based on feedback leading to evolution
3	**Scalar principle** – There must be a clear line of formal authority running from the top to the bottom of every organization.	**Multiple reporting** – Reporting to more than one superior for different tasks takes place. Multiple functions and projects might require skilled individuals to play different roles for optimum resource utilization. Also people can bypass hierarchies to express views	An agent can be involved in multiple activities in based on the need of the system and these interactions result in learning and evolution with new emergent patterns
4	**Principle of span of control** – No superior can supervise directly the work of more than five, or at the most, six subordinates whose work interlocks	**Flat structures** – Organizations can have 12 to 15 members under a superior. Moreover, flat structures have very thin lines of demarcation between multiple levels.	If a system has to be allowed to self-organize, then it requires no control. In natural systems there are no supervisors. Systems self organize all by themselves. E.g. Ant hills and termites
5	Principle of specialization - The work of every person in the organization should be confined as much as possible to the performance of the single leading function.	Multi-skilled workforce - Organizations want people with multiple skills so that they can be moved to different roles without much effort as per requirement of challenging needs of the turbulent environment	If a system has to respond to the changes in external environment, it has to evolve. What was true earlier may not be true now. Adaptability requires unlearning and learning almost instantaneously
6	Principle of definition – Every position in every organization should be clearly defined in writing.	Broad definition of roles - Allowing mutual adjustment between supervisor and subordinates and among peers	The way agents behave emerges as a result of repeated interaction and order emerges. Thus in organizations, roles and responsibilities emerge as a result of interactions and learning
7	The principle of objective – All organizations and each part of an undertaking should be the expression of a purpose, either explicit or implied.	Purpose – Emphasis is on an overarching purpose rather than on fixed objectives. Each part need not have a clear purpose, but the part acts so as to live up to the overarching organizational purpose. People learn by looking at others	The properties and the direction in which systems move and metamorphose are emergent and not pre-decided. Purpose is a much broader term and is learnt by an agent by observing and learning from other agents.

product, virality never kicked in. Imagine that you have a product which gets rave reviews publicly, but has no advocacy! The market was not as the founders expected it to be. The K-12 situation is one of very high competition. Students therefore used the application for their own practice and not to help others owing to the competition. A student having access perceived himself as having an advantage over his peers. Therefore, virality never kicked in. So marketing budgets had to be jacked up and they ended up being far too higher to hit the critical volumes that would allow the business to negotiate deals for ad revenues. Increase in short term costs and postponement of revenue streams was a double whammy exacerbating the burn rate as well as sustainability. The business had to pivot and look for monetization opportunities.

The learning about the nature of the market resulted in a quick decision to pivot into a B2B model from a B2C model. Businesses with large number of people on the field who needed to get access to key learning and business information was identified as the potential segment. Serving a business is way too different from serving end consumers and. While Retail, Financial services, E Commerce and FMCG businesses all had such requirements, the requirements of the buyer and end user were different because the buyer and the end user were different. The end user needs a great mobile experience, but the buyer needs higher levels of adoption; the end user needs content that is rudimentary, the buyer needs content that is more refined; the end user and the operations team need individual user level analytics, the buyer needs aggregated dashboards with insights. But despite this diversity of requirements, Oust did well. It was all because of the agility displayed by the team that had a sense of ownership at the root. The question of somebody assigning responsibility never arose. At the edge of chaos, individuals in the organization assumed new responsibilities without having to be told to so and authority obviously followed. New functions had to be evolved. The business required dedicated people for customer success, support, account management and frontline sales. A shift from a low customer touch to a high customer touch business saw readjustment of responsibilities. Each person became responsible for more than one function, defined new processes and new functions, hired and built teams to run a successful B2B business.

While new processes were defined and new roles carved out, the market would always spring surprises. It always needed product customization, varied levels of involvement by the customer success teams to drive technology adoption and varied mix in service delivery. Ultimately, what was of value to one client was of no value to another. Initially, it appeared that the business would at some point arrive at a stage in which minor and incremental changes would alone suffice. Interestingly, that hardly happened. So the teams realised that effective functioning had to always be laced with agility and adaptability and a traditional approach of a well-oiled machine with each part performing a specialised repetitive task became almost irrelevant.

With new technologies get developed and COVID crippling people's movement, mobile learning saw a new dawn. Oust was doing brisk business with its clients asking for more features. The thought that software development would reduce into more of maintenance and less of new development was again questioned. So, it's never stable – the product has a core no doubt, but it keeps undergoing metamorphosis every now and then and the roadmap too is fluid. Essentially, the product architecture too is built in a way that such chaotic changes in requirements can be handled.

To be able to get to a point of a stable sustainable business, a formal mechanistic structure of the past wouldn't have helped. Emergent structures have to be recognised and welcomed and encouraged, as the market structure is chaotic. Individuals turn problem solvers with initiative resulting from ownership and management takes a backseat leading from behind rather than from the front. The purpose of the business was to make a difference by taking learning to where it was needed most and the members in the organizations rallied to make it a success.

13. Society for Promotion of Indian Classical Music and Culture Amongst Youth (SPICMACAY)

SPICMACAY is a non-profit organization founded in 1978 with a purpose clearly stated in the very name. Indian art forms were badly affected by the increased popularity of Western music and art forms. There were several art forms that were almost becoming extinct and needed attention. The organization's strategy was twin pronged. It provided a platform for the artists and at the same time, it brought the youth face to face with these art forms to inspire them and take up learning of these art forms with more seriousness thereby providing a lease of life for the traditional Indian art forms. The organization began to grow and spread across the world. The growth has been mainly a chain reaction with almost no interference from the headquarters. It has more than 200 centers worldwide and about 1000 programs are organized every year. There appears to be a hierarchy with Delhi being the headquarters, but this is to manage the geographical spread and not to control any activity. Individual centers enjoy all the autonomy and freedom to have their events. The center helps the local centers with artists and funds. Impressed by the service being rendered by SPICMACAY several corporate houses and even the Government have come forward to assisting it with funds. Members join with a spirit of voluntary service and are not forced to be with the organization. There is complete freedom to work in the chosen area – may it be the media, artist coordination or fund generation, coordination with different states or event management. There is complete freedom for interaction among the members at all levels and individuals work almost autonomously.

Over the period, the role of women in the Indian society has been undergoing a change and with more and more working women, children seem to be deprived of the Indian way of upbringing. To fill this gap, SPICMACAY is now embarking on new events for children like yoga

workshops, excursions with historians to places of importance, traditional theatre to provide awareness about the Indian lifestyle and its merits. This shows how SPICMACAY came out with new offerings as an adaptive feature of the organization.

The choice of SPICMACAY, a non-profit organization was a deliberate one. A not for profit organization by definition depends on grants and to be successful, it has to manage with minimum grants and very high levels of efficiency. It has been an organization that is not involved in business in the real sense of the term, but is certainly an organization which has been growing at an alarming rate with minimal resources, so much so that it does not even have a formal office of its own. There are hardly any full time employees and the entire organization works in a well-orchestrated fashion just by voluntary service with no tangible remuneration for the volunteers. That such an organization is in existence for the past four decades and is thriving in an almost self-organizing way is reason enough for other organizations to learn and incorporate some of these practices to become more efficient.

Table 2 below, is a summary of the practices in these two organizations that validate the Complexity Theory explanation in Table 1.

14. Conclusion

We live in a connected world today. In the past few decades, we have seen extremely high levels of advocacy for globalization and we are also witness to moves for protectionism now. Political, social and economic changes in one part of the world are affecting businesses across. We have seen oil prices skyrocket to unprecedented levels and nosedive to the lowest levels in a century. We have seen regulations in some sectors like telecom making it almost impossible for business to even surviveand we have seen disruption in the very sector that has taken the industry by storm. We have seen corporations with entities in emerging markets feeding valuable business insights to their headquarters to thrive in the rest of the markets and also seen a global pandemic which has changed the face of the world. VUCA is a reality that cannot be denied and

Table 2. Contemporary practices validated by complexity theory in two organizations

Principle	Contemporary practices	Oust Labs	SPICMACAY
1	Ownership	There are no fixed rules for the extent of responsibility. A person can assume responsibility for multiple activities and can perform multiple projects and functions like customer management and content development	People in one function can easily slip into another's area. Though departments are broadly defined, the line of demarcation is very thin and people work together in overlapping roles for ensuring the success of events
2	Autonomy	The leader is not involved in nitty gritty. New ideas are tried out and delivered. More importantly, failure in experimentation is treated as a learning rather than as a loss	Events keep happening worldwide and they are conducted at the local level with no interference of the HQ. Furthermore, ideas from the local level are welcome and that is how SPICMAMCAY is foraying into new areas
3	Multiple reporting	There is no absolute hierarchy. Anybody at any level can interact with the any other person. Discussions lead to knowledge creation and the organization grows with it. This kind of interaction amongst employees gives it strength to accept challenges in assignments	A volunteer in a location can be reporting to the local head as well as interacting with other locations and with the center. There are no rules for interaction though there seems to be a structure
4	Flat structures	The leader does not direct anybody. He leaves it to the best judgment of the people in the team to decide and grow. Even accepting or rejecting a project is the decision of the team	Such a large organization cannot be controlled centrally. The structure is completely decentralized and decisions are taken at the local level. There is no directing from the top.
5	Multi-skilled workforce	Employees are encouraged to learn and amass as many skills as possible. More the skills, more is the ability for the organization to innovate and evolve. New skills have to be built. Market demand requires the organization to be adaptive	The very origin of the organization shows adaptive nature. Dying art forms needed a revival and a new way of achieving this was created. It is continually adding new art forms and activities to preserve them by spreading awareness about them.
6	Broad definition of roles	Roles are defined broadly. An individual's role is not cast in stone. The person in one role can easily slip into another role based on the needs of the business. Therefore, though it seems chaotic it is the best way.	A volunteer decides the way in which she can contribute. One might want to merely be there during the event, or one might want to be a part of a function. The same person might do more work, based on priorities.
7	Purpose	The purpose of this organization is last mile training and engagement using mobile technology. Individuals in the organization are charged to take ownership and deliver to achieve the goals set	The purpose is to promote Indian classical music and culture amongst youth. It aims at disseminating Indian culture and values amongst the youth in times of onslaught of Western media and culture

the struggle to survive essentially implies adaptability. Traditional management principles have limitations and they restrict the speed of speed of change for organizations. But change they must, for their very survival is at stake. This contradiction and the resulting chasm between practice and principles has lead researchers to look for an explanation. We show how Complexity Theory can form a theoretical premise for explaining this gap. In this paper, we use Urwick's principles as a surrogate for traditional management principles and shown how these principles are being questioned by contemporary practices. We further substantiate this with the help of two case studies. It is important to note that such practices are not new. The case of SPICMACAY amply proves this. It should be noted that organizations following such practices have not chosen such structures based on their awareness of complexity theory, but as a natural response to needs of the changing external environment. Thus, the current explanation of such practices based on Complexity Theory is not only an effort to understand organizations better, but also a contribution towards the understanding of behavior of systems at large. From a business perspective, it would be apt to conclude that organizational design in the future would soon find a theory with its roots in Complexity Theory.

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