

Creating 4th Gen Organizations: The Quest Towards an Effective Adaptation and Co-Evolution with the Business Environment

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Abstract

The increasing complexity in business environments makes strategic organization a paramount function to ensure sustainability and growth in corporations. However, organizational strategies, often defined with imperfect information, will normally follow economic drivers and managerial perceptions. As a result, architectures that are dissonant with the external context make organizations vulnerable to unanticipated factors emerging from changes in the external context. By adopting an evolutionary perspective, the antecedents of modern architectures are explained in this paper by building on the progressive advancement and incorporation of attributes, structures and coordination mechanisms in the different organizations' "generations", setting the stage to formally define 4th Gen organizations as entities that strategically intrude the business environment, with the capacity of absorbing and assimilating knowledge to effectively navigate uncertainty and generate readiness for external changes. As a result of this analysis, an organizational framework is proposed to design 4th Gen organizations that integrates three theoretical orientations: open strategy, structured networks and scenario planning. This framework ensures an effective interplay with the ecosystem and external forces that ultimately leads to a successful co-evolution with the overall business environment.

Business Environment and Strategy: Overview and Research Orientation

Global trends and market turbulences permanently test capabilities, resources and practices of organizations jeopardizing their value generation potential and sustainability. Business ecosystems and market forces emerge and influence the organization from different directions and at different speeds, driving strategic planning activities as mechanisms for growth and subsistence. Therefore, strategic organization has become a paramount function in today's business environment, irrespective the industry or sector.

The business environment, as defined by Duncan (1972), includes all physical and social factors that that influence decision-making and behaviors in the organization and encompasses two broad domains: a- the general environment, formed by external forces (e.g.: social, political, economic and technological), and b- the task environment, or directly interactions with the organization's activities (such as competitors, suppliers, regulatory bodies etc.). On the other hand, organizations will naturally react to what they perceive (Miles, Snow and Pfeffer, 1974). As a result, factors perceived in the general environment drive primary (corporate) strategies focused on markets selection and industries to allocate resources, while the elements in the task environment frame secondary (business) strategies that define the organization's "unique" capabilities and competitive advantage (Bourgeois III, 1980).

By adopting an evolutionary perspective, the antecedents of modern organizations are explained in this paper, defining generations of organizations as a function of attributes, architectures and coordination mechanisms. This set the stage to formally define 4th Gen organizations as entities that strategically intrude the business environment and have the capacity to absorb and assimilate external information, adequately navigating uncertainty and reaching readiness for external changes. This analysis sets the stage to formally propose a design framework for 4th Gen organizations that amalgamates open strategy, structured networks and scenario planning as theoretical orientations. The central objective of this framework is to seek the effective interplay between the organization, the business ecosystem and external forces to ensure a successful co-evolution with the external environment.

Organizational Antecedents: From 1st to 3rd Generation

1st Gen Organizations: Maximizing outputs through vertical integration

The most basic organizational architectures base organizational growth on the aggregation of the internal units' outputs. As such, 1st Gen organizations were those designed on economic theories and capitalized on specialization, the division of labor (Smith, 1776) and the reduction of transaction costs (Coase, 1936). Vertical integration and robust hierarchical structures set how internal divisions should work and deliver results. Subsequent advances in the field of scientific management, notably the study of human motion in the industrial setting (Taylor, 1911), substantially helped increase operational efficiency and improved resource allocation, ultimately increasing outputs. There's little doubt that these approaches were essential in the emergence of corporations in the 20th century.

With limited competition, 1st Gen organizations set linear growth expectations and established highly centralized control mechanisms and result-oriented performance indicators. Units were rewarded for the outputs they produced so inter-organizational cooperation became subordinated to individual output, incentivizing internal competition and silo-based behaviors. As a result, internal inefficiencies started to appear and the overall corporate value generation potential progressively eroded. When competition increased, excessive modularization in hierarchical structures impeded adequate reactions to threats and, in the most dramatic cases, differences in units' performances generated asynchrony and cannibalism within the organization, progressively taking firms to obsolescence.

One of the most recent failures, associated to this type of organizations was the rapid deterioration of Sears' competitive advantage. Following a "free-market" management approach, Sears' CEO, Eduard Lampert, decided to run the corporation as a set of independent units competing against each other for resources and performance. With the time, interdepartmental cooperation disappeared, causing units to turn against each other. As a result, substantial losses started to soar and the company was unable to reconfigure itself to address external constraints emerged from turbulences in the evolving business environment (Peterson, 2017)

2nd Gen Organizations: Increasing process efficiency by adding horizontal integration

With the evolution of business environment and the increasing industrialization and technology, corporations were obligated extract more value from their operations and become

competitive. Companies engaged integrative strategies to protect operations and satisfy growing demands from clients, decreasing costs and ensuring excellence, incorporating integration to the controls learned from 1st Gen organizations. These 2nd Gen organizations capitalized on the exploitation of internal complementarities and successfully producing results that exceeded the simple sum of outputs from the individual units.

By incorporating horizontal integration to 1st Gen attributes, 2nd Gen organizations became robust output maximizers that rapidly translated in substantial reductions to operational costs, progressively incorporating new practices that optimized processes and activities. This triggered important advancements from diverse academic fields that observed the behavior of organizations from different perspectives (including industrial engineering, strategic organization, operations research and project management), framing the design of managerial approaches that are used today in world-class organizations to unlock value from internal operations. Notable examples of these advancements include Theory of Constraints, Deming's PDCM, Kaizen, Six Sigma, Lean Management, Total Quality Management (TQM).

Albeit the significant advantages of these methodologies, the crescent dynamism of the business environment continued affecting organizations. Companies were focused on increasing the efficiency of internal operations but unaware of changes in competitors and market forces, endangering their subsistence. A notable case of a corporation that succumbed to the new business ecosystem was Xerox as reported in a study conducted in the University of Pennsylvania: The corporation was a pioneer in implementing TQM and rapidly became a leader in product excellence and process improvement, gaining a competitive edge in the industry. However, it was precisely this focus on excellence what impaired Xerox to identify changes in competition and customers tastes, developing technologies that did not commercialize on time and were later taken by competitors (Wharton, 2000).

3rd Gen Organizations: Understanding the external environment

The problems in 1st and 2nd Gen architectures affected internal organizational processes and questioned the main purpose of integration as a strategic instrument of growth, suggesting the need of a more dynamic analysis of the business ecosystem, encompassing all actors involved in providing value either by competition or collaboration. As in the case of Xerox explained in the previous section, internal processes became sources of organizational rigidity rather than legitimation mechanisms that move the corporation to its vision (Tain, 2016a). With this in mind, organizations started to incorporate knowledge acquisition and management as key strategic activity that stimulated adaptation and drove forecasting. With these new attributes, 3rd Gen organizations emerged as entities that, oriented by movements in external factors, optimized processes and activities to satisfy customers and generate competitive advantage.

With the advancements of organizational theory, multiple frameworks were designed to effectively structure the acquisition and analysis of information external to the organization, notably the well-known SWOT, PESTEL and Porter's five forces frameworks normally used in most strategic planning efforts. The increasing dynamism in the external environment also led to the development of Contingency Theory based on the premise that there's no single best way to organize but to address constraints as they emerge (Donaldson, 2001). As a result, companies progressively increased their ability to react and adapt to certain external

variables and to prepare for future events. Past experiences were extrapolated as data became available, implementing robust change management and forecasting methodologies that lead the path through the corporate strategy to the organizational vision.

The key challenge faced by 3rd Gen organizations stems from the reactive nature of strategies designed to respond to the external environment, combined with limitations of traditional forecasting. A tunnel vision creates inadequate responses unanticipated changes, inhibiting adaptation and organizational evolution. For instance, one of the instinctive reactions of corporations to market turbulences includes reducing innovation and increase centralization, asphyxiating initiatives that can lead to innovation or increase efficiency and intensifying organizational rigidity (Jansen, Van Den Bosch and Volberda, 2006; Volberda et al., 2012). For instance, we all have seen how R&D lines are one of the first elements to be reduced (or even removed) from budgets cut when external variables start emerging as threats, a reactive strategy that puts organizations in a trap of rigidity and makes unable to capitalize in hidden opportunities.

On the other hand, the “momentum” created by previous success makes organizations vulnerable to unanticipated changes that are not included in traditional forecasting, often derailing strategic plans. Suddenly, companies are forced to change from profitable business to survival mode, rapidly engaging unplanned efforts in reconfigurations and “balance sheet repair” strategies to sustain operations. Recent examples in multiple firms, such as Sears, Barnes & Noble, Block Buster, and several oil sands operators in Canada, demonstrate that organizational learning based on past experiences is of little help when new scenarios materialize. Prosperity created a “tunnel vision” in these organizations, inclining them to satisfy their most profitable clients and ensure continuous sales growth, ignoring the emergence of value networks with new consumers in new business platforms that disrupt old business models and / or the evolution of consumers’ tastes (Christensen, 2011).

To summarize, table 1 describes the key elements that form of 1st, 2nd and 3rd Gen Organizations, highlighting the theoretical foundations, key enablers and value generation mechanisms as well as the potential deficiencies to embrace adaptation

Organization	Strategic Orientation	Foundations	Key Enablers	Value Generation Mechanism	Deficiencies
1st Gen	Vertical Integration	Division of Labor & Specialization	Hierarchy & centralization	Aggregated results of units’ outputs	Rigidity Potential for organizational cannibalism
2nd Gen	Vertical & Horizontal Integration	Operations Research Quality Management Process improvement	Process Improvement Quality Management	Process efficiency Reductions in operational costs	Isolated from the external environment

3 rd Gen	Vertical & Horizontal integration + Knowledge Management	Situational Analysis (e.g.: SWOT, PESTEL, Five Forces) Contingency Theory	Change Management Traditional forecasting	Adjustment of configurations to satisfy clients and address external constraints	Reactive nature is insufficient in modern environments with turbulences and sudden changes.
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Table 1: Key Attributes of 1st, 2nd and 3rd Gen Organizations

4th Gen Organizations: Dynamic interactions and co-evolution with external environment

Dynamic adjustment to external constraints and the ideation of future situations are strategic imperatives to succeed in modern business environments. It is not enough just to observe the external environment and adapt to changes as they occur, as it is the case of in 3rd Gen organizations. Instead, a more “intrusive” approach is required to stimulate learning, creating dynamic capabilities that integrate, build and reconfigure competences addressing rapidly changing environments (Teece, Pisano and Schuen, 1997). To achieve this, it is necessary the construction of chains of competences that are rapidly adjustable in the organization (Nadler and Tushman, 1999). In other words, it is essential to optimize first-order competences (those that form part of the organization) while continuously stimulating the generation of second-order competences in the form of capabilities to generate new competences to succeed in new domains. (Danneels, 2008).

Proactive and continuous assimilation and absorption of external information for strategic are key strategic attributes that distinguish 4th Gen organizations from previous generations. The combined effect of previous learning and knowledge from other contexts and industries assists in the early detection “weak signals” from the environment that help predicting changes in external factors before they emerge as surprises (Ansoff, 1975), successfully addressing turbulences (Dixon, Meyer and Day, 2014) and enabling companies to distinguishing between valuable data and “noise”. Furthermore, these learning capabilities break “path dependences” by rapidly discarding practices that, although drove success in the past, become irrelevant when the business environment changes. This was evidenced in IBM that rapidly transitioned from electro tabulating machines to mainframe computers, and in in Apple that expanded operations by creating technology-based products and features highly valued by consumers (Helfat, 2013).

One of the main tasks of 4th Gen organizations is to exploit existing capabilities while permanently exploring new competences (March, 1991; O’Reilly III and Tushman, 2016), in order to accurately sense the business environment, seize opportunities and rapidly transform themselves as new situations emerge (Teece, Pisano and Schuen, 1997). In other words, the right set of capabilities must be developed to navigate turbulences and successfully co-evolve with the external environment.

Based on these ideas, it is possible to propose a framework that considers recent advancements in strategic management and guides the design of 4th Gen organizations, with capabilities that originate from the interplay of processes and configurations in 3 domains:

- **An Interacting Domain**, defines the level of intrusiveness of the organization in the business environment, providing interacting and absorptive capabilities to the organization
- **A Structural Domain** guides internal efforts in terms of interactions and collaboration, providing assimilative capabilities
- **A Strategic Planning Domain** capitalizes on interactions, structures and capabilities from the interacting and structural domains to generate organizational awareness and readiness

Interacting Domain: Dynamic intrusiveness in the external business environment through Open Strategy

Understanding and interpreting external factors is essential for the organization's subsistence and organizations design strategies for subsistence and growth as a reaction to their perceived environment (Miles, Snow and Pfeffer, 1974; Smircich and Stubbart, 1985). However, the intrusiveness of the organization in the external business environment is often limited. Executives, with individual preconceptions mostly rooted on their past experiences and own beliefs, complement organizational information with a mix of personal and impersonal sources of information when evaluating the external business environment (Choo, 2001). By the same token, organizational processes originated from specific past events become self-reinforcing ultimately locking-in the organization and impairing its potential for adaptability, "creating a strategic corridor of limited scope of action that is strategically inefficient" (Sydow, Schreyogg & Koch, 2009). As a result, strategic decision-making processes will be dangerously driven by incomplete and imperfect information that is framed on bounded rationality (Simon, 1955).

While traditional corporations have focused on protecting against forces of competition and power in the value chain (Chesbrough and Appleyard, 2007), 4th Gen organizations must promote openness, understanding that knowledge is created, captured and disseminated based on how social relations are recreated, coordinated and cultivated in the corporate context, ultimately becoming the vehicles to organizational growth (Kogut and Zander, 1992). In turbulent business environments, organic initiatives based on individuals naturally emerge (O'Reilly III and Tushman, 2013) to navigate uncertainty hence open coordination produce results that are superior to those created by a small number of minds clustered in a single firm (Chesbrough and Appleyard, 2007). As a consequence, the fastest advance of technology requires organizations to increase the reliance on external sources as in-house R&D efforts become insufficient (Schuen, Feiler and Teece, 2014).

The concept of Open Strategy, developed by Chesbrough and Appleyard (2007), appears to actively integrate external environment with organizational processes, ensuring knowledge creation through open invention and ecosystem creation through open coordination. Open Strategy allows one to respond to contingencies by organizing a set of practices to capitalize on similarities between external and internal actors and move joint-research (Hatusz, Seidl and

Whittington, 2017). 4th Gen organizations would therefore leverage on *boundary-spanning* where individuals at all levels interact with the external environment, bringing information and creating knowledge that will ultimately lead the organization to co-evolve with the external business environment and its ecosystem. As a result, the organization is enabled to co-evolve with its ecosystem, creating value by having access to inputs of others without exerting exclusive rights over the resultant product (Chesbrough and Appleyard, 2007).

In essence, Open Strategy balances the features of traditional business strategy with the promise of open innovation by incorporating contributors from different ambits (Chesbrough and Appleyard, 2007). Recent observations (Baptista et al., 2017; Appleyard and Chesborough, 2017) indicate that open strategy revolves around transparency and inclusion as key enablers. While transparency refers to the free access to project results by outsiders and a wider access to content and information, inclusion involves the reliance on assets outside of the firm's boundaries and a broader involvement of the stakeholder. Evidently, the adoption of open strategy will also bring some challenges that need to be carefully addressed as a function of the corporate values and culture. Some of these challenges have been identified by Hatz, Seidl and Whittington (2017) in the form of five organizational dilemmas:

- *Dilemma of process*: balancing access to knowledge and speed in decision-making processes
- *Dilemma of commitment*: motivating employees by involving them in strategic-decision making versus creating frustrations by discarding irrelevant contributions.
- *Dilemma of disclosure*: reducing information asymmetries while granting access to sensitive strategic information to outsiders
- *Dilemma of empowerment*: encouraging individuals to participate in strategy development versus imposing a burden with the pressures of strategy in terms of the additional work and time required
- *Dilemma of escalation*: the difficulty to control the opening of selective domains without triggering opening other elements in the organization

Since learning and adaptation must be sustainable processes in 4th Gen organizations, boundary spanning is an important contributor in scanning the business environment and bringing valuable knowledge from other contexts to the organization for strategic adaptation. An alternative to stimulate boundary spanning is the strategic involvement in spaces where knowledge is generated by the shared perspectives and experience of individuals from different organizations is especially beneficial in environments with high uncertainty and regulatory constraints. For instance, the Canadian Oil Sands Innovation Alliance (COSIA) (www.cosia.ca, no date) is an inter-organizational research initiative that gathers individuals from from major Oil Sands operators to work in a common space with the objective of “accelerating the pace of improvement in environmental performance in Canada’s oil sands through collaborative action and innovation” (www.cosia.ca/about-cosia).

Structural Domain: Optimizing knowledge assimilation through Structured Networks

Modern organizations need a structure that optimizes knowledge assimilation and transmission as it becomes available, understanding the hinderances of basic organizational attributes and how strategic knowledge flows across the organization. For instance, excessive centralization promotes bureaucracy, hindering the acquisition potential of the organization to properly capitalize on information from external environment (Teece, Pisano and Schuen, 1997), ultimately inhibiting innovation. In contrast, indiscriminately flattening and excessive autonomy leads to organizational chaos where individual agendas are likely to prevail over the interests of the corporation (Felin and Powell, 2016). On the other hand, the exploitation of existing capabilities is stimulated when knowledge flows top-down, but it is necessary a lateral and bottom-up flow of knowledge to stimulate exploration (Mom, VanDen Bosch and Volbedra (2007). With all these challenges, how do we then design an organization whose structural attributes don't inhibit to the flow of information, optimizes knowledge assimilation and promotes collaboration without losing autonomy?

Structured Networks, as presented by Goold and Campbell (2003), are essentially optimized matrix structures where collaboration is achieved primarily through self-managed networking between units, strategically decentralized but with enough control to ensure success and the right kind of self-managed behaviors in individuals and units. These structures stimulate both initiative and accountability, replacing “silo-thinking with openness to ideas from outside the unit”. In other words, structured networks are a dynamic equilibrium between self-contained business units (SBUs) and matrix organizations, where optimality and stability are achieved by capitalizing on functional properties of each other.

Designing of a Structured Network requires important adjustment of key organizational attributes, strategically framing processes and activities within the SBUs and Matrix structures continuum to reach a balance that is sustainable. Five key organizational attributes are evaluated below as instruments for enacting a structured network architecture (Goold and Campbell, 2003):

- ***Hierarchy***: In structured networks, hierarchical configurations are set based on their potential to add value, without adding redundant costs and/or interferences. The existence of each hierarchical level is permanently challenged and responsibilities tested based on how they benefit the overall organization.
- ***Allocation of Responsibility***: Responsibilities must be clearly set without excessive detail. It is necessary to establish the base role of each unit and provide flexibility where responsibilities can evolve or expand based on emerging situations. This can be built based on the incompleteness of the employment contract as suggested by Simon (1995)
- ***Interdependence and Mutual Learning***: In order for knowledge to effectively flow across the organization, mutual learning must be promoted without affecting distinctive differences from the units. Separated units can be set cutting across the main line of reporting to support knowledge transmission and strengthen interdependencies, mitigating potential dominances of a unit over the other one. At General Electric, for example, their concept of “*boundarylessness*” focused on

maximizing mutual learning across units, establishing a learning culture framed in an operating system whose central objective is “sharing and putting into action the best ideas and practices from across the company and around the world”. The key mandate is to “*remove organizational and functional obstacles to the free and unimpeded flow of ideas*” (GE, no date)

- **Coordination and Linkages:** Cooperation among units must be maximized without unnecessary synergy initiatives. This means understanding how units trade with each other to achieve their objectives and how service units satisfy customer units. This was successfully achieved in a major international oil company operating in the Canadian oil sands: Formal engagement plans were designed and implemented in each unit as a result of a restructuring process. These plans followed a detailed relationship planning process, identifying inputs, outputs and interdepartmental interfaces at the function level, carefully describing streams of information. Ultimately, this made possible a rationalization of interface efforts that ultimately strengthened inter-organizational linkages.
- **Accountability:** Since decentralization is a predominant attribute in structured networks, one of the main objectives is to avoid dilution of accountability in the instances where responsibilities are shared by different units. Performance metrics must be designed therefore around unit-specific, bottom-line results, while ensuring upper management correctly interprets the contribution of each entity. In the same oil operator mentioned above, strategic KPIs were designed along with an engagement plan for the engineering unit that facilitated the mapping of results to the organizational vision, with conventional and unconventional metrics that clearly described inputs and interfaces with other units. As a result, resource utilization was optimized and interdepartmental interactions were legitimized, allowing senior management to understand how results contributed to the overall strategy.

Strategic Planning Domain: Assessing perceptions and ensuring readiness through Scenario Ideation

As previously mentioned, organizations react to what they perceive from the external environment (Miles, Snow and Pfeffer, 1974). Therefore, the incorporation and permanent validation of perceptual information from multiple sources is a key evolutionary characteristic present in modern organizations. In 3rd generation organization, strategic planning was based on facts about the environment to produce forecasts that set the course of the organization. However, the demands from modern contexts require practices that go beyond traditional forecasting, making challenging (if not impossible) set predictions that simply derive from past situations (Wack, 1985a). Adaptation and co-evolution require one to “perceive futures in the present” and “transform information of strategic significance into fresh perceptions” (Schwartz, 1996). It is not about predicting the future but embracing uncertainty in a structured way instead.

The ideation of future scenarios is a critical task in to navigate in turbulent business environments. For this reason, 4th Gen organizations need to institutionalize scenario planning as a formal function to capitalize on collective intelligence and detect weak signals and trends that could impact the corporate strategy if materialized (Ansoff, 1975).

Essentially, scenario planning deals with two worlds: the world of facts and the world of perceptions (Wack, 1985b) and uses multi-stakeholder's perspectives to a- visualize driving forces that "often seem obvious to one person and hidden to another", b- understand which elements are truly predetermined (or factual) and c- discriminate uncertainties that are truly critical to the organizational strategy (Schwartz, 1996).

One of the most prominent examples of the institutionalization of scenario planning as a formal practice is Shell. As explained by Pierre Wack, a pioneer in scenario planning, incorporating multiple views during strategic planning exercises help Shell to systematically predict how the global business environment was evolving in the 70's and 80's, developing a level of readiness for key eventualities such as the 1973 oil crises and the outbreak of the Iran-Iraq war in 1981. Furthermore, when major oil operators stockpiled reserves, Shell sold off their excess avoiding substantial losses associated to the collapse of oil prices. Scenarios enabled Shell to successfully navigate uncertainty, moving away from a forecast-dependent behavior of other organizations that trusted in predictions that did not anticipate pivotal events such as the recession in 1973, the acceleration of the inflation rate in 1978, the early recovery in 1980 or the severity of the recession in 1982 (Wack, 1985a, Wack, 1985b)

The incorporation of multi-level perspectives diminishes the potential for a "dominant logic" in the corporation to impose narrowed-view strategies that, in some cases, intentionally ignore emerging trends. The dilution of this dominant logic naturally stimulates to "think the unthinkable" and avoid the legitimization of "taboo scenarios" (Shoemaker and Tetlock, 2012) that has been catastrophic in multiple organizations. For example, US car makers focused on the raising of the automotive industry and ignored global trends, underestimated Toyota in the 1980's (Schwartz, 1996). Another example occurred in PDVSA (Venezuelan national oil company) when oil executives ignored a scenario where the industry declined due to the possibility that Chavez's could implement a populist dictatorship in the years to come (Shoemaker and Tetlock, 2012).

The dynamic ideation of scenarios protects the organization by anticipating and understanding risks and generates entrepreneurial capabilities that enables the discovery of strategic alternatives that otherwise would not have been perceived by management stakeholders (Wack, 1985b). Furthermore, scenario planning is strongly supported by the combined results of structured networks, boundary spanning and open strategy, and it serves to ensure organizational readiness and accelerate the organizational clock speed to understand and anticipate future states (Nadler and Tushman, 1999). Pure internal analysis rarely stimulates breakthrough thinking, hence it is necessary to incorporate external sources of information within the organization (Schwartz, 1996).

Table 2 summarizes the key attributes of each domain of 4th Gen organizations, depicting the theoretical foundations, strategic orientation and the corresponding enabling mechanisms key enablers:

4 th Organization Domain	Foundations	Strategic Orientation	Key Enablers
Interacting Domain	Open Strategy	Information Absorption	Boundary Spanning, Inter-organizational collaboration
Structural Domain	Structured Networks	Information Assimilation	Optimized Matrix organizations
Strategic Planning Domain	Scenario Planning	Readiness and organizational clock speed	Scenario Planning

Table 2: Key Attributes Domains in 4th Gen Organizations

Concluding Remarks

Successful co-evolution depends on meaningful interactions with the external environment and the recognition of knowledge as a key catalyst for organizational readiness and strategic adaptation. This means designing mechanisms to effectively transmit and assimilate knowledge across the organization, processes that screen internal and external information and the stimulation of diverse perspectives to anticipate multiple modes of evolution of external variables. As depicted in Figure 1, 4th Gen organizations therefore capitalize on the aggregate results of three key constructs:

- The strategic intrusiveness in the external environment, by adopting open strategy and stimulating boundary spanning (Interacting Domain)
- Enhanced matrix structures framed on structure networks (Structural Domain)
- The use of the collective intelligence to ideate future scenarios, creating a capability to timely identify signals and modulate the strategic potential of new information (Strategic Planning Domain).

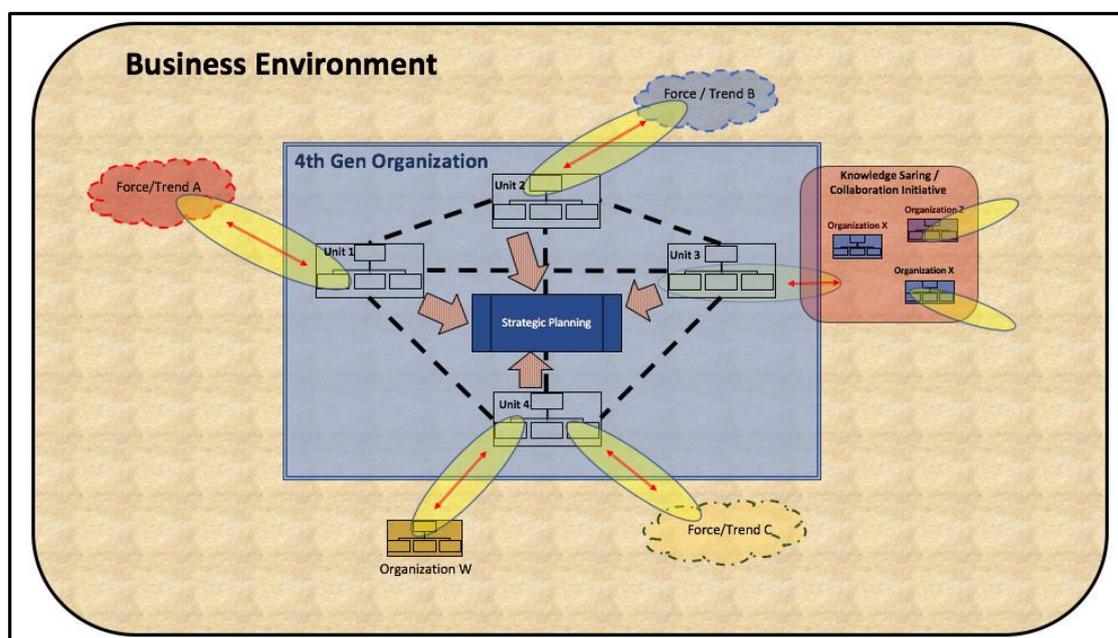


Figure 1: 4th Gen Organizations and the Business Environment

Recent studies (e.g.: Rivera-Rodriguez, Garcia-Merino & Santos-Alvarez, 2017) provide evidence of firms that have successfully co-evolved with the external environment, navigating turbulences with structured processes that couple strategic behavior in the organization with variables external to the organization. Building in the four modes of organizational cope with the external environment proposed by Ackoff (1970), it is possible to see that while 1st Gen tend to continue business as usual due to their rigidity (inactivity mode), 2nd and 3rd gen organizations focus on increasing the efficiency of internal processes and observe the external environment, adjusting as changes occur (reactivity mode) and attempting to predict potential moves of competitors and market forces (pre-activity mode). However, only 4th Gen organizations actively engage and co-evolve with the external environment (proactivity mode).

One of the key lessons learned from observing organizations failing to adapt to the external environment is that what is good for organizations today may be eroding the potential of generating value when conditions change (Christensen, 2011). It is necessary therefore to synchronize strategies with the external environment for the survival and growth of a corporation in modern business environment. Internal units must become “organizational radars” (Tain, 2016b) that leverage in the specialized knowledge of individuals, making the organization a value maximizer that, by proactively interacting with the external context, adequately enact assimilating processes and engagement mechanisms that timely trigger co-evolutionary processes. As Pierre Wack said, “an animal suited to one environment must become a new animal to survive when the environment undergoes severe changes” (Wack, 1985a).

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