

Ambidexterity: Dimensions for a new scenario

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Abstract – The effects of the VUCA world (stands for Volatility, Uncertainty, Complexity, Ambiguity) affect all kind of organizations and sectors. So, those related to Testing, Inspection, Certification cannot be oblivious. They face the enormous disadvantage of having remained focused on their technical competence having forgotten the importance of management one and its related aspects.

The new editions of the international standards of the ISO 17000 series, revised under the High Level Structure (HLS) of ISO Directives Part One, and in particular, the International Standard ISO/IEC 17025:2017 depicts a global approach to objectives and processes. So new challenges also appear in the horizon for sustainability in TIC organizations, especially oriented towards their organizational/managerial aspects where their staff must be focused on. Innovation-driven organizations will be their wide umbrella and a necessary evolution to achieve it is moving through two dimensions such as exploration and exploitation. When it is talking about ambidexterity, or its adjective ambidextrous, one is referring to the link between these two dimensions.

This paper introduces the vision chosen from a metrology center such as LOMG to select one combination of exploration and exploitation that allows to face the new scenario with solidity and ensure its sustainability and this, through the consolidation of its minimum-viable innovation system (MVIS) which refers to the essential blocks to move to a business-oriented organization.

Keywords – *Ambidexterity, Innovation, Sustainability, Business-oriented organizations.*

I. INTRODUCTION

Regarding the structure of sections of the paper, indicate that the rationale behind it follows from general issues to specific ones that shows the current LOMG commitment towards its ambidexterity and all this under the innovation [1] perspective.

The development of the paper stems from a description of the scenario that leads to a list of the challenges that are posed to organizations in the TIC

sector and the consequent particularization for LOMG case, a particular way to face them through the development of its minimum-viable innovation system (MVIS) [2].

Innovation has become a crucial issue for the competitiveness of organizations, if not for their survival. The global context of uncertainty (economic, social or consumer habits, to name just a few examples), the digital transformation and, as a result of it, the irruption of new and great technological actors with a multi-industry impact, it forces companies in each sector, not excluding TIC one to redesign continuously their way of operating and the offer that they bring to their market.

This need for permanent change also affects the way an organization and the relationship it establishes with its stakeholders or interest groups. The progressive implementation of a technology-based operations model and a ecosystem in which different collaborators enter and leave, internal or external to their own company, offers great advantages for driving innovation, which with it it is nourished by a greater diversity of talent, favors the generation of ideas and prints agility when a company reaches its market.

II. DEPICTING SCENARIO

Those companies that manage to mutate and achieve attributes that make them better adapted to the environment are the ones that will survive and grow. An unstoppable process of variation and selection is also what guides the dynamics of the economy: companies must offer enough variations of their basic structures and must generate enough alternatives, autonomous initiatives and innovations so that at least some of them are selected for their adaptation to the environment and allow the exploitation of the economic activity of the company to continue.

A. VUCA world

This is VUCA world (volatility, uncertainty, complexity and ambiguity), in which the old paradigm of strategic planning is replaced by a new concept of strategic adaptation

V for Volatility

It is reflected in a world that's constantly changing,

becoming more unstable each day, where changes big and small are becoming more unpredictable – and they’re getting more and more dramatic and happening faster and faster. As events unfold in completely unexpected ways, it’s becoming impossible to determine cause and effect.

U for Uncertainty

It is becoming more difficult to anticipate events or predict how they’ll unfold; historical forecasts and past experiences are losing their relevance and are rarely applicable as a basis for predicting the shape of things to come. It’s becoming nearly impossible to plan for investment, development, and growth as it becomes increasingly uncertain where the route is heading.

C for Complexity

The modern world is more complex than ever. What are the reasons? What are the effects? – Problems and their repercussions are more multi-layered, harder to understand. The different layers intermingle, making it impossible to get an overview of how things are related. Decisions are reduced to a tangled mesh of reaction and counter-reaction – and choosing the single correct path is almost impossible.

A for Ambiguity

“One size fits all” and “best practice” have been relegated to yesterday – in today’s world it’s rare for things to be completely clear or precisely determinable. Not everything is black and white – grey is also an option. The demands on modern organisations and management are more contradictory and paradoxical than ever, challenging their personal value systems to the core. In a world where the “what” takes a back seat to the “why?” and the “how?”, making decisions requires courage, awareness, and a willingness to make mistakes.

Faced with this scenario, two ways of response or two basic strategic options:

- One, do the same as competitors (and offer it cheaper to attract consumer attention).
- Two, do different things (and ask for a premium for that difference).

B. Accreditation: HLS standardization for ISO 17000 series

Accreditation in itself does not represent any obstacle for companies in the TIC sector. But the rules are not static, standards undergo periodic reviews and it is in the orientation of these ones where the scenario is modified.

Some of the concepts of the high-level structure that stand out the most are:

RISK, which is conceived as an evolution of the concept of preventive action and is become a source of opportunities.

STAKEHOLDERS or interest groups talk about what should be considered when studying the context of the organization.

DOCUMENTED INFORMATION groups the documentation and records of the system, although the procedures of the management system are no longer mandatory.

III. CHALLENGES FACING TIC SECTOR

In general, they are not different from those proposed by companies in other sectors. In the above-depicted scenario four concepts are highlighted: Risk management; Business model; Technology and Data-driven strategy and they can be grouped around four words whose initials set up, and it is also at least curious, a new VUCA acronym. In summary the new challenge is to design organizations fluid, fast, adaptive to change.

V for Vision

Risk management helps strategy to paint a picture of the future you want. Together; as a compass and for orientation; in order to confer meaning and spark motivation – and to forge internal and external identity and effectiveness

U for Understanding

Searching and pivoting to achieve a new business model which understand interconnections and make them transparent. Reflect on the context. Think and plan meta-strategically. Start from the result and work backwards. Harmonise skills. Embrace and exploit behaviours and reactions. Convert anxiety and resistance into productive energy.

C for Clarity

Technology for simplicity. Focus on what counts and what it's really about. Trust, transparent connections and processes. Apply energy and force exactly where they will be most effective.

A for Agility/Adaptability

It is based on data-driven strategy. Flexibility. Agility. Scrutinise hierarchical management techniques. Promote a consistent culture for making decisions and accounting for mistakes. Interact transparently with objections. Facilitate innovation and build up resilience. Guide Laboratory Information Management Systems (LIMS) to data-driven..

IV. SOLUTION FROM AN AMBIDEXTROUS PERSPECTIVE

When planning and designing a solution, it is advisable to know what situation we are starting from and where we want to go. Then the answer to the question of

how it will be achieved and who is the maximum responsible for leading and achieving the expected results will continue.

Talking from a metrology centre like LOMG which innovates systematically and efficiently; it is based on the firmly developed competence within an accredited Management System (e.g.: ENAC accreditation – Spanish National Accreditation Entity, according to international standard ISO / IEC 17025: 2017) and a look towards the organization that offers the EFQM [3] - European model Foundation for Quality Management and the application of the LEAN Management methodology for the improvement and optimization of its work / measurement processes, LOMG proposes a reorganization of its organizational structure that includes the figure of the CIO (Chief Innovation Officer) to lead the process of executing an offensive strategy.

A. Ambidexterity: Exploration vs. Exploitation

The most accepted definition of ambidexterity is a balance between exploration and exploitation. James March [4] refers to this as the exploration of new possibilities and the exploitation of old certainties

Exploitation includes such things as choice, refinement, production, selection, execution efficiency and implementation. While exploration encompasses knowledge creation and analysis of future opportunities. In other words, the tension between two different models: running-the-business versus changing-the-business.

- Running-the-business is about efficiency, productivity, speed; in academic terms it is about exploitation. It is akin to writing with the right-hand.
- Changing-the-business is more strategic and the benefits are only achieved in the medium and long-term, and, as such, are less tangible and quantifiable than operational objectives. It is highly risky and there is no certainty that benefits will be achieved at all. In academic terms this is exploration. It is akin to painting left handed.

B. LOMG towards ambidexterity

According to LOMG scope of activities it is possible to distinguish exploration from exploitation in the way of:

Exploitation is related to advanced technology and measurement services, innovations that expand its current business, either improving existing offerings or improving internal operations.

Exploration is related to research and industrial technology, innovations that generate new growth, when reaching new customer segments or new markets or through new business models.

The strategic choice, selected by LOMG, to response to depicted scenario and within an offensive response combines and pursues differentation and low cost simultaneously.

The basis of this one is a blue ocean strategy [5]. Creating blue oceans is not a static achievement but a dynamic process. This brings with it considerable barriers to imitation. Some of these are operational and others are cognitive.

Value innovation is the cornerstone of blue ocean strategy. It places equal emphasis on value and innovation.

Value without innovation tends to focus on value creation on an incremental scale, something to make the company stands out in the marketplace.

Innovation without value tends to be technology-driven, market pioneering or futuristic, often shooting beyond what buyers are ready to accept and pay for it.

Value innovation (see Fig. 1) is created in the region where LOMG's actions favorably affect both its cost structure and its value proposition to buyers. Cost savings are made by eliminating and reducing the factors LOMG competes on. Buyer value is lifted by raising and creating elements the industry has never offered (e.g.: business model)

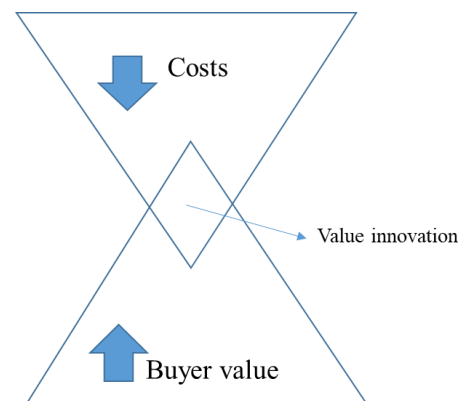


Figure 1. Value Innovation

Alligned to principle of blue ocean strategy: *Focus on the big picture, not the numbers*, a list of projects have been identified.

These projects are closely-key enabling technologies-related. So:

1. Termography
2. Smart Grids
3. Health – Medical Devices
4. Sustainability – Solid state lighting
5. Advanced manufacturing – Remote calibration

Figure 2 shows individual project classified in a return/risk matrix

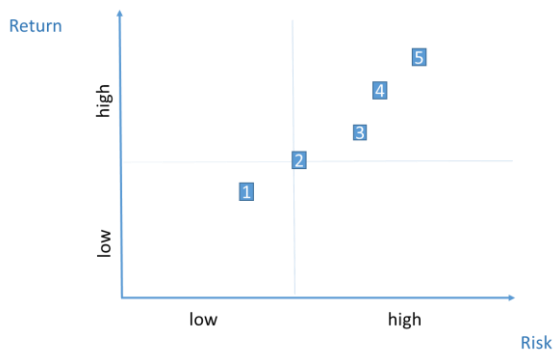


Figure 2. LOMG Return/Risk Matrix

The step forward is made possible through giving answers to What? For what? How? and/or Who? questions.

They comprise from a business orientation: preparing the way forward for the organization to be seen as a leader in its ecosystem and well positioned to execute its plans for the future; achieving and sustaining outstanding results that meet or exceed the expectations of its stakeholders it is necessary but not sufficient and measuring what the organization has achieved in the Direction and Execution, including the forecast for the future.

On the other side, from its business model transforming it to ONE-STOP-SHOP Metrology-Innovation Hub.

One-stop shops that help company become more competitive with regard to its business/production processes, products or services using digital technologies. Hub which provides access to technical expertise and experimentation, so that company can "test before invest". It also provides innovation services, such as financing advice, training and skills development that are needed for a successful digital transformation.

Finally, developing an described path through its Minimum-Viable Innovation System (MVIS).

It is borrowed the language for this term from the world of lean start-ups, where "minimum viable product" denotes a stripped-down functional prototype used as a starting point for developing a new offering. "Minimum viable innovation system" refers to the essential building blocks that allow a company to begin creating a reliable, strategically focused innovation function. An MVIS ensure that good ideas are encouraged, identified, shared, reviewed, prioritized, resourced, developed, rewarded, and celebrated.

The pillars for it are:

- a) Creating a corporate ecosystem [6] of open innovation like a constant contribution of new ideas and knowledge. The deal flow (contribution of ideas) is the hand that rocks the cradle of innovation. To standardize these flows, it is important to surround the

company with a constellation of insiders and especially outsiders (e.g.: universities, entrepreneurs, RTO's, experts, consultants, opinion leaders, ...)

- b) The establishment of innovation focuses aligned with the corporate strategy. Some of the questions to be answered Where does it start? Does it try to innovate in product? In process? In ways of communicating? In business model? In consumer experience? In technology? And what fields of the future will it explore? Does it want to develop opportunities on environmental sustainability that position its company in this field? Does it want to be the first to work and expand the possibilities on the Internet of Things? Or in artificial intelligence? Does it want to develop a new market niche, for different age profiles than the ones it is currently dealing with? Or does it want to approach other markets, outside the current ones, pivoting on its essential capabilities? All these questions were answered from a strategic approach to innovation, determining its direction through focal areas with special growth potential on which to focus the exploration process.
- c) The systematic generation of ideas. The objective is to generate systematic portfolios of ideas that can be converted into new innovation projects, once priority areas to explore have been determined (see figure 2), cluster is activated through a system conscious and deliberate search of opportunities.
- d) The prospect of new future technologies. The goal is to be the first to capture the opportunities of emerging technologies. Tools like technological watch, data mining, etc are used to evaluate their potential impact on the core business as well as the possibilities of leveraging new opportunities based on them throughout whole business dimensions.
- e) The selection of ideas to turn them into real business opportunities. The CIO must establish decision matrix. The idea selection processes go through evaluations of the size of the market, the degree of differentiation of the proposal, the possibility of obtaining recurring income, the existence of synergies with the core business, or the possibility of protecting innovation, among others.
- f) The constitution and monitoring of innovation teams is capable of attracting talent to innovation processes. Innovation teams are made up for individuals with an entrepreneurial mindset and initiative, action and sometimes improvisation-oriented.
- g) Dosing of resources as corporate risk capital. The initial phases are testing and prototyping, and significant investments (if any) should be made in the final phases of proximity to the market.. The project advance logic must be stage-gate (a system of evaluations or control gates), with a logic similar to that of venture capital. The innovation budget (managed by the CIO) is a corporate venture capital

budget. For some projects, in incubation and acceleration phases, joint ventures with other possible partners and the creation of corporate spin-outs will be considered.

- h) Leveraging innovation support systems. Optimize the resources and financial returns of the innovation, knowing and using the map of existing instruments.
- i) Generation of an innovative process monitoring scoreboard. Set of input indicators (e.g.: budget, involved people, dedicated resources respect to the sector average, ...); intermediate ones (e.g.: generated ideas, ongoing projects, budget deviations, time to market, ...) and finalist ones (e.g.: turnover, new business units benefits, return on investments, ...).
- j) Feedback to the core business of synergistic opportunities. The innovative process, led by the CIO, has to become the great process of information, knowledge and competitive intelligence in core business.

And finally, who leads ?

A new role in the organization called CIO (Chief Innovation Officer).

Through the consolidation of a new profile as head of the innovative process, named Chief Innovation Officer (CIO), who is responsible for the generation of new knowledge and new ideas as well as business development of units for the future (often far from the operational core and current markets). This organizational deployment solves the exploitation / exploration dilemma which is known it requires leadership profiles, organizational cultures, systems and processes of different natures.

V. CONCLUSIONS

As a dynamic capability, ambidexterity embodies a complex set of routines. Although theoretically compelling, research on dynamic capabilities and ambidexterity is still at an early stage. Conceptually, the need to both, explore and exploit is convincing.

To develop the described scenario consider the following aspects:

It's not just about technology [7]. It is about reimagining the company. It is the necessary but challenging journey of operating digital-first with the speed and nimbleness to change or introduce new products and experiences rapidly, exploit technology to create lean operations, and free people to do more complex tasks that create value. It is necessary a radical plan to make business technology a point of differentiation and an engine of growth that create value for customers and change the game for the organization.

It can be summarized in the following question: Can you convert innovation to enterprise-wide norms and value?

Managerial evolution. CIO vs. CEO. Exploration versus exploitation. Innovation versus operational excellence. Two dimensions of business activity, both essential, which must coexist, interpenetrate and support each other, maintaining different cultures, processes, systems and leadership profiles. The emergence and consolidation of the figure of the CIO, complementary to that of the CEO, is pointed out as the great solution to the dilemma of organizational ambidexterity, one of the great controversial issues of the 21st century management.

Focus to bring real business value. Achieving the right balance between SPEED and SMART.

Increase speed by introducing more agile teams which are endowed with a higher degree of entrepreneurial freedom. Also create capabilities for deployment: a well-thought-through operating model provides the basis for establishing the cross-functional setups and new capabilities that ensure effective deployment; communities of practitioners; combine new and existing capabilities.

Using smart capabilities, placing talent into the most critical and value-generation-roles and scaling technology: a company needs robust governance of innovation; successful structures; an innovation hub for ideation of new ideas; three stages: in development, ready for industrialization, or scalable; its situation and maturity

Balance Outsiders vs. Insiders [8]. In a heterogeneous world, companies must increasingly come to terms with the fact there is not a "one size fits all" model. A dual operating model, or even a multiple operating models, may be required to maneuver and conquer the more granular opportunities of the coming decades.

It is essential to open innovation networks abroad. This is the principle of open innovation. Initially, providing the company with external advisory councils or open innovation councils, accompanied by external agents who provide early information and new knowledge on a constant basis.

Subsequently, developing new capabilities away from the current business core, and avoiding backlash from the bulk of the organization, which will perceive any attempt at disruptive innovation as a threat to its traditional activities.

Create and manage a projects portfolio [9]. Focus on business value with formal targets linked to real business needs and cascaded throughout the organization.

Look for an early impact. Foresight to transform through an integrated approach: enhance sustainability; new roles and capabilities; build minimum viable products.

REFERENCES

- [1] **Drucker, P.:** La disciplina de la innovación, *Harvard Business Review*, August 2004

- [2] **Anthony, S.; Duncan, D.; Siren, P.:** Build an innovation engine in 90 days, *Harvard Business Review*, December 2014.
- [3] The EFQM Model, European Foundation for Quality Management, 2019
- [4] **March, J.:** Exploration and exploitation in organizational learning, *Organization Science*, Vol. 2, 1991, pp. 71-87.
- [5] **Chan Kim, W.; Mauborgue, R.:** Blue Ocean Strategy, *Harvard Business School Press*, 2005
- [6] **Ferrás, X; Nylund, P.:** Clusters as innovation engines, *European Management Review*, 2018
- [7] **Tabrizi, B.; Lam, E.; Irvin, V.:** Digital transformation is not about technology, *Harvard Business Review*, March 2019
- [8] **Christensen, C.:** The Innovator’s dilemma, *New York Harper Collins Publishers*, 2011
- [9] **Nagji, B.; Tuff, G.:** Managing your innovation portfolio, *Harvard Business Review*, May 2012