# Chapter 3
# Innovation Leadership: A New Kind of Leadership

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## 3.1 Introduction

The previous chapters on innovation and the innovation ecosystem lead us to the central topic of this chapter: Innovation Leadership. Despite the many variables influencing creativity and innovation in organizational settings, leaders and their behavior represent a particularly powerful influence (Mumford et al. 2002; Sarros et al. 2008). Traditionally, leadership has implied a position of power, carrying out executive functions and delegation of tasks to subordinates in hierarchical organizational structures. Currently, leaders emphasize risk-averse decision making and efficient management of resources, resulting in incremental changes rather than radical pathbreaking innovations.

As we have seen in Chap. 1, innovation is not simply the creation of a novel concept or an extemporaneous reaction to a situation (Banerjee 2009). It has a distinctive theoretical basis, a structured process and a unique cognitive style and epistemology (Cross 2006), which give it the power to transform systems and their trajectories. The next generation of leadership will not only be defined by characteristics that are importantly different from current forms, but will be framed by an entirely different paradigm that shifts the focus from the "individual as leader" to individuals occupying "leadership modalities". In order to solve complex challenges innovatively, we need a "step change" in the concept of leadership, moving far beyond the traditional references to military-like hierarchy, or centralized business management towards a more distributed model of leadership that

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B. Banerjee, S. Ceri (eds.), *Creating Innovation Leaders*,
Understanding Innovation, DOI 10.1007/978-3-319-20520-5_3

unlocks the capacity for an organization or a community to innovate in entirely new ways.

Innovation Leaders have the vision, competencies, and skills that would not only make themselves effective, but also be important in scaling innovation capacities. They have agency and are in a position to influence the vision, the strategic direction, and the value systems, practices, decisions, and actions. Innovation Leaders are responsible for shaping alternative futures rather than simply managing the present problems with normative methods. Hence Innovation Leadership needs to emerge as a discipline that embodies heterogeneous teams (Somech 2006), trans-disciplinarity, creating new cultures, and catalyzing synergy across institutions and organizations in ways that generate new possibilities, forging pathways out of decision gridlocks. Both deep and broad knowledge are implied in a leadership that nurtures plurality of approaches, modes of inquiry, and conceptual underpinnings. It falls on the Innovation Leader to draw on a broad diversity of disciplines, theories of success, tools, and techniques in order to build bridges between current challenges and desirable futures.

## 3.2 Next Generation Leadership

The term leader has been often characterized by an attitude of a commander, imposing ones vision and decision making power upon subordinates, which propagates hierarchically in organizations. (Stogdill et al. 1957) In contrast, today's leaders must not only be brilliant strategists, creative decision makers, and effective motivators regardless of the field they are engaged in; they must be also able to imagine new scenarios and creatively conceive solutions that go beyond established ideas and norms. They must identify the right questions. Moreover, they must be able to achieve their leadership on the field, through an ability to interact with project teams and by successfully promoting their ideas in the context of open and cooperative processes which go beyond hierarchical lines of command. Furthermore, innovative leaders must be sensitive to the complex social and environmental issues that now represent the grand challenges, and develop the means of co-creating solutions with members from different disciplinary or agency domains.

If we look at some of the most remarkably successful leaders across sectors such as Steve Jobs, Momammad Yunus, or Martin Luther King, their behavior often does not map with traditional models of what is considered leadership in the context of an organization or institution. Transformational leaders inspire, energize, and intellectually stimulate others (Bass 1990).

Figure 3.1 is a depiction of Innovation Leadership as a simultaneous increase in the ability to address more and more complex challenges that are marked by scale, urgency, and importance along with the ability to influence deeper and broader impact. We will discuss the nuances and implications of this shift later in the chapter, but this framework is an important lens with which to view leadership in the future because it casts leadership in its ability to transform, rather than in terms of a position in a hierarchy. We believe that the emphasis on impact and


**Fig. 3.1** Innovation Leadership catalyzes and enables creative approaches increasingly scaled and complex challenges with deeper and more scaled impact

transformation is a key pivot in the way leadership is perceived and a fundamental driver of all thought and action carried out downstream of having the shift in mental model.

If the role of the leader is not just to excel in the current paradigm, but also to replace the current paradigm with more appropriate ones, it has some deep implications. It implies that the leader has a responsibility to *disrupt* current models and paradigms with more appropriate ones. This in turn implies an ability to escape the current paradigms and to question conventional wisdom amidst power structures that are built around conventional wisdom. This can only be done with a great deal of original critical thinking and systems thinking. If a new kind of thinking is a dimension along which the capacity is expanded, then the other side of the coin is *a new kind of action*. Current processes and implementation methodologies are built on top of deeply entrenched mental models and beliefs of the conventional ways of thinking, and consequently carry with them the *theoretical limits* that a new kind of action would have to transcend.

### *3.2.1 Innovation Leadership as a Modality*

The next generation of leadership is not going to be simply embodied in an organizational position or necessarily be a function of seniority, but a modality that involves fulfilling certain functions in the context of an organization, institution or project, as shown in Fig. 3.2.

Innovation Leadership is not simply an ability to manage, administer, and make executive decisions, but involves an enhanced emphasis along a number of other dimensions listed below:


**Fig. 3.2** Innovation Leadership is a modality that any individual can occupy by exhibiting the various capabilities that are emblematic of this emerging type of leadership

- **Envisioning alternate futures:** The ability to think in original and creative ways about desirable futures, both in the short term and the long term, that one can then direct one's action towards.
- **Reframing intentionality and success**: The ability to escape conventional wisdom and redefine the goals, the objectives and the thinking around what constitutes success.
- **Creative judgment**: The ability to assess and judge in ways that are sensitive to multiple perspectives, so as to deal with complex multi-dimensional challenges with nuances and subtle implications.
- **Strategic Decisions:** The ability to drive processes towards highly strategic decisions that are sensitive to human behavior, social systems, economic or business systems, environmental sustainability, and resilience of systems in the face of changes.
- **Inspiring action:** The ability to create a bias for action as a basis for thought, alongside thought being the basis for action.
- **Organizational transformation:** The ability to change the culture, values, practices, position, purpose, and efficacy of an organization.
- **Transforming an ecosystem:** The ability to have a secondary influence on the entire ecosystem of stakeholders and interrelated outcomes rather than on just one's own organization.

**Adam Lowry and Eric Ryan From Method**
**Revolutionizing the home cleaning products industry through human-centered innovation**

The home cleaning products sector is a multi-billion dollar industry. Many of its central ingredients were adapted from chemicals developed during the World War II and repurposed for other applications. Thus, conventional cleaning products have a high toxicity and negative environmental impact. Laundry detergents in particular are significant contributors to a deteriorating stream of profit and the coastal ocean ecosystem health. But, with a reliable consumer base and comfortable profit margins, "innovation" wasn't a common word in the industry and there was very low impetus for change.

When former college roommates Eric Ryan and Adam Lowry looked around the sector, they saw that a few "green" cleaning products already existed. But it was a tiny percentage of the market the catered to a niche of self-identified environmentalist consumers, and aesthetics wasn't their priority. "Back in 2001, green cleaners were just hideous looking", the 38-year-old Ryan says. And the conventional wisdom was that green didn't clean. "Simply using more eco-friendly ingredients and labeling it as 'green' wasn't going to change consumer behavior in any significant way." Ryan and Lowry posed themselves a challenge: create an eco-friendly cleaning product that a wide diversity of customers would actually desire. They dove into product development with the intuitive insight that people's homes are deeply tied to a sense of personal identity and aesthetics.

Could they create a cleaning product the reflected that? Lowry, with a degree in chemical engineering and a background in environmental science, formulated a dish soap and a line of all-purpose cleaners that were nontoxic and biodegradable. The sprays had pleasant fragrances like cucumber, a rarity at that time. "To be successful, we needed to bring the mainstream into green cleaners. The big idea was to blur the lines between personal care and home care. That's where a lot of the design, the fragrance we use, the personality comes in. We wanted to bring fun into it. At the end of the day, the environment doesn't care what your motive for buying it was", explained co-founder Eric Ryan. "Method is now the fastest growing eco-friendly home products company in the world".

(continued)

The team prioritized sleek, minimalist design and soothing color palettes, drawing heavily from principles used in personal cosmetic products. Through talking and testing with consumers in Method's early days, Ryan and Lowry realized that people weren't choosing their products because of the ingredients, they were choosing them because they matched the color of the soap with the color of their bathroom walls, or the scent reminded them of the relaxing luxury of a spa. A partnership with the designer Karim Rashid led to Method's big break, a 2002 distribution deal with Target. Next year, Method debuted a hand soap in what would become the brand's distinctive teardrop-shaped bottle which earned Method their first break into the home products market. Ryan and Lowry demonstrated leadership throughout their work, from setting up a small initiative to driving it to worldwide success, by changing the paradigm of the cleaning product and by being able to attract collaborators and build partnerships.

Framing Innovation Leadership as a modality implies a radical frame shift that implies that Innovation Leadership is not just exercised by people of political or organizational seniority, but could be exhibited by anyone in any context. Given that Innovation Leadership is a modality, it can be assumed by different people at different times in the same team or organization in such a way that everyone can be expected to be a leader, instead of the role of a leader being associated with an individual. This model opens up the door to a distributed model of leadership where multiple agents assume the leadership modality, and the sum of their efforts could be far greater than what could be achieved by one individual.

In a hierarchical organization, much of innovation capacity remains underleveraged because individuals lower in the ranks do not have the agency to exercise it. They are expected to follow rules, conform to the decisions coming in from the top, and toe the line, thus undermining a culture of co-creation (King and Anderson 1990). Hierarchical leadership is not only wasteful in leadership capacity but it is also inefficient. Each step for leadership command carries the potential for *"drift"*. When the concept of *leadership* is dissociated with *organizational seniority,* then everyone has the license to exercise the leadership modality and the organization or community is far better geared for focusing on solving challenges of increasing complexity (Banerjee 2014).

An approach known as Complexity Leadership Theory argues that three types of leadership can be observed in organizations: administrative, adaptive and enabling. The third perspective builds upon the evolutionary theory of the firm (Uhl-Bien et al. 2007) and looks at leadership as an organizational meta-capability that manages other capabilities that in turn are engaged in both exploration and exploitation. In particular, Complex Systems Leadership Theory defines leadership as a system function that operates to "changes the rules of interaction" among both people or groups within a complex adaptive system of interactions, in terms both of ends - where the system is going - and means - how to get there (Hazy 2007; Goldstein et al, 2010).

**Leila Janah and SamaSource**
**Innovation Leadership adopting innovation as a new modality**

We live in a world with vastly unequal distribution of opportunity, with 1.4 billion people living on less than $1.25 a day and several more billion people living on less than $2 to $3. Development programs aimed at poverty eradication find it difficult to create employment where the economies do not support any livelihood or employment opportunities.

Leila Janah, 29, is a social entrepreneur who uses technology and lean business methods to promote social and economic justice in a new innovative way. She got inspired by her experiences with the World Bank and in conducting fieldwork in Mozambique, Senegal, and Rwanda. In 2008 she launched Samasource, a non-profit social business that gives digital work to impoverished people around the world.

Rather than using traditional development models, Leila Janah is harnessing the power of the Internet to change lives across the world: she realized that one way to impact sourcing is to take outsourced digital work from developed economies and give it to people living in poverty in underdeveloped regions around the world. Her innovative model uses the internet to bridge the gap between people in desperate need of livelihoods, and to established markets in the west. Samasource finds companies struggling with online tasks such as comment moderation, transcription, and tagging and connects them with workers living in places with extremely high unemployment and trains them to carry out these digital tasks. Since the most complex projects are composed of small tasks, they can be simplified, distributed and performed by workers who can be trained in basic computer skills through a technology platform.

In this way Samasource provides income and educational opportunities for marginalized workers in slums, refugee camps, and impoverished communities across Africa and Asia, moving more than 20,000 people over the poverty line.


Leila Janah's company, Samasource, is changing lives of unemployed people in India, Uganda, Kenya, Ghana and Haiti

(continued)

Janah, thanks to her great innovation leadership, was named one of the Most Influential Women in Technology by Fast Company in 2009 and received a World Technology Award for Social Entrepreneurship. Innovation Leadership here is not just exercised by people with organizational seniority. Leila demonstrated Innovation Leadership by creating a highly innovative paradigm to address the intractable challenge of people caught in poverty traps in regions without economic opportunities.

### *3.2.2 Innovation Leadership as Maximizing Innovation Capacity*

At the most abstract level, the job of the Innovation Leader is to amplify impact with the greatest sphere of influence possible, and raise the innovation capacity within the system, whether it is in the context of a project, a team, an organization, an institution or a large transformative initiative. In order to fulfill their fundamental purpose (which is to create a continued capability of bringing about appropriate transformations with disproportionate efficacy), Innovation Leaders have to worry about two interrelated but separate issues: The first question for an Innovation Leader to pose is "How to bring about amplified impact", quickly followed by the question "How to create the continued capacity to create amplified impact". The fundamental pathways through which an Innovation Leader carries out this function thus fall in these two categories:

1. **Amplify the impact**
   (a) By crafting transformative visions, proposing new directions, reframing success, creating a space for transformational discourse, crafting new paradigms, and developing new conceptual bridges.
   (b) By creating new ways for actualizing concepts and driving impactful transformations.
   (c) By amplifying the scale, nature, depth, and the pace of system-wide transformation and the nature of impact.
   (d) By influencing what types of challenges are targeted, setting the direction for actions, driving new outcomes, generating new theories, models, processes, platforms for advancement, and resources to drive impact, thus having an impact beyond this direct scope of influence.
2. **Amplify the** *innovation capacity* **of the system**
   (a) By catalyzing a culture of innovation and building an ecosystem that fosters innovation.
   (b) By diversifying the types of innovation to more unbounded challenges (moving from Class A challenges to Class C Challenges as introduced in Chap. 1).
   (c) By creating the scaffolding for innovators to gain expertise and raise the average level of innovation expertise across the ecosystem.

### 3.2.3 *Innovation Leadership as a Mindset*

A mindset is the larger frame of assumptions, entrenched methods, decision and motivational stances; in general systems theory; it also refers to the larger set of background assumptions by a group of people who influence choice or behavior. Thus, seeing Innovation Leadership as a mindset has many implications along with the purpose of making continued impact, which is the central purpose of an Innovation Leader.

The term "Perceptual Lens" was originally proposed by Egon Brunswik (Brunswik 1952) and later developed by Kenneth Hammond (Hammond 1980), among others. It is a profound construct that is an implicit component of any field and is a critical factor to consider, especially in a context in which there are multiple motivations and epistemologies at play.

It is important to understand that any discipline or organization develops a certain bias for what it cares about and what it doesn't. Along with the bias for what it cares about, it develops a selective ability to see certain things and be oblivious to others. This bias of being perceptive of some things and not to others creates a "Preceptual Lens" and has a deep impact on process, decision making, goals, and definitions of success.

Imagine a scene in a movie where there is a tense moment depicting an altercation between the captain of a submarine and a subordinate about a critical decision in the midst of mechanical malfunctions and broken communications. Even while being immersed in the movie, a mechanical engineer will speculate about hull integrity, the communications person will note the signal to noise ratio, the cognitive psychologist will recognize confirmation bias in the captain, the fashion designer might note the authenticity of the World War II uniforms, and a historian might be aware of the historical context in which this battle is being waged. It is unlikely that the cognitive psychologist will worry about stresses in the hull, or the mechanical engineer about the psychological nuances. We notice what we are looking for, and what our perceptions are honed to observe at the cost of other details. To a person who does not care about color, the sky in a given moment might be blue. To a painter, it might be powder blue, with a hint of cobalt blue and with tones of cyan.

One of the biggest issues arising out of members of a discipline trapped in their own Perceptual Lenses is that in a cross-disciplinary setting, since they are less perceptive to other people's points of view, there is a tendency to devalue the other person's opinions with an assessment that they cannot see the more important concerns. The Innovation Leader needs to internalize the concept of Perceptual Lens and be adept at working with multiple Perceptual Lenses in a trans-disciplinary context and create a space where the different perspectives can exist in a pluralistic, non-oppositional manner. Instead of different Perceptual Lenses being a problem to contend with, it is to be seen as an advantage, since the presence of different perspectives creates a "*parallax*" and allows a more multifaceted understanding of a complex situation.

While Innovation Leadership represents a unique mental model and approach, it can be overlaid onto any discipline or specialization. The ability to create a bridge

between an open-ended question and an implementable solution requires a mindset that establishes a certain set of dualities: inquiry with action, sensitivity with gumption, analysis with synthesis, critical thinking with hands-on ability, theoretical thinking with hands-on exploration. The mindset is the fundamental operating system of the creative thinker; hence creating the right attitudes and philosophical stance becomes a very important function for an Innovation Leader.

The innovation mindset requires a willingness to "see" possibilities and imagine scenarios that are different from the current ones. It requires a drive for impact, while maintaining a comfort with ambiguity. Innovators play at the nexus of concerns, so they must understand the implications of research content, how technology might be leveraged, how to unpack unstated human needs, see ways in which business or market opportunities can be leveraged, understand the implications of broad socioeconomic backdrops, and know how to "make it happen". Above all, the Innovation Leader drives change from the status quo to a preferred state, and hence the fundamental role of an Innovation Leader is to be a change agent and a catalyst for change agency. This implies that an innovator's worldview, and ethical stance is as relevant as the capacity to innovate. The innovator leader's mindset is comprised of and should emphasize the following stances:

1. **Duo-temporal**: A view that places importance on both the short-term exigencies and the long-term resilience and sustainability of the solution.
2. **Systemic**: A perspective that embraces the complexity of interlaced systems and seeks points of intervention that are leveraged and will cause systemic transformation (Shipton et al. 2005).
3. **Holistic:** An approach that looks at multiple aspects, objectives and the diversity of points of view that comes with trans-disciplinarity.
4. **Growth Mindset:** A drive for continuous personal growth and innovation capacity of the team or organization, by actively internalizing and embodying a "growth mindset" (Dweck 2008).
5. **Non-determinism:** Recognizing that the agent of change is acting within the context of change (Findeli 2001) as a catalyst open to a variety of possible interpretations and adjusting with emergent developments.
6. **Dyadic thinking**: Top-down meeting bottom-up, strategic meeting ground realities, global needs meeting local conditions, practicalities meeting aspirational goals (Banerjee 2014).
7. **Exploration/openness:** Solutions to grand challenges require that we look beyond the currently available solutions, join dots in new ways, and explore avenues that might have the potential for radical change (Rosing et al. 2011). Often these challenges fall in the category of "unknown unknowns" where an explorative, iterative prototyping is a way of understanding what the *problem really is*. This approach requires a commitment to new possibilities challenging conventional wisdom, and pivoting around emerging insights (Valkenburg and Dorst 1998)
8. **Value Creation:** A deep commitment to taking on the innovation challenge of creating genuine value in the face of competing or multifaceted demands.

9. **Co-creative:** An ability to *lead from behind* and enable diverse teams to co-create solutions leveraging collective wisdom while averting a reductive and combative discourse.
10. **Insight-Based:** The humility to make the team realize that "*we don't know what we don't know*", with a belief that good decisions can only be based on deep insights, at the human and system levels.

## 3.3 The Duality of Innovation Expertise and Leadership

Like any other discipline, innovation has an expertise ladder that any innovator has to climb (Cross et al. 1994). Gaining expertise at innovation is unlike gaining expertise in fields where amassing content knowledge can be equated with being an expert. Gaining expertise in innovation is like becoming an expert at a sport like soccer. There is the theoretical knowledge of the sport that is very important, but no amount of theoretical knowledge supplants the ability to actually play a world-class game of soccer. Similarly, expertise as an innovator is not just gained through reading books about innovation, but through the experience of actually having done innovation work in the face of complex challenges.

At some level, many humans have the capacity to be innovative or to bring innovation to their discipline. For example, highly trained software engineers with a lot of experience in software programming might become facile with the task of creating software programs, but whether they are being innovative in their approach is another story. Two software engineers who have an equivalent level of experience and expertise might display very different levels of innovation.

There are people who bring innovation to a discipline that already has an identity, such as computer science or material science. And then there are others who work in fields that are tightly associated with innovation itself; practitioners in these fields are expected to perform on the dimension of innovation. Fields such as product design, interaction design, automobile design, fashion design, and architecture require that the practitioner be innovative and this expectation is a defining component of their identities and roles.

Expertise can grow along many dimensions in any discipline: the content knowledge, theoretical frames, technical proficiency, knowledge about processes, a culture of practice, the level of craft, communication protocols, taxonomy, language of the discipline, the ability to frame the problem and solve it, and the tools to realize conceptual solutions are all dimensions along which expertise grows for any practitioner. This happens as practitioners go through their career journeys and amass more experience, knowledge, skills, and strategic vantage.

With greater expertise comes the formation of higher-order heuristics, the ability to see larger patterns, the ability to judge or sense where the better solutions lie, and ultimately the ability not just to follow the existing practice but also to advance it. Expert chess players not only possess a vast knowledge of chess theory, history, styles, and combinations, but they also develop meta-cognition for the game

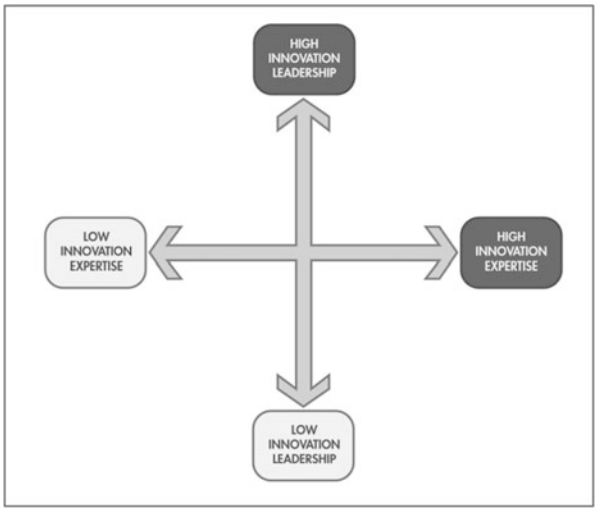


**Fig. 3.3** A framework depicting Leadership levels versus Innovation Expertise

leading to deep intuition about the larger patterns of the game. The higher order intuition and meta-cognition that comes with expertise is particularly important in the context of problem types that do not lend themselves to deterministic frames and demand more interpretive approaches.

Although most Innovation Leaders would typically have a high degree of innovation expertise themselves, the two terms *Innovation Leadership* and *Innovation Expertise* are not to be confused with each other (Fig. 3.3). It is certainly possible for someone to be a tremendously effective Innovation Leader and raise the level of innovation in an organization or initiative without being an expert innovator and conversely, it is also possible for someone who has a very high degree of innovation expertise in a given type of challenge to be a very poor Innovation Leader. It is akin to being an Olympic coach of a gymnastics team without being a gymnast oneself while on the other hand, not every Olympic gold medalist in gymnastics would make a good coach.

Therefore, the notion of *Innovation Expertise* is an important construct for an Innovation Leader to grasp and ultimately influence. An Innovation Leader has to manage and grow a portfolio of innovation expertise across different specific domains or responsibilities.

### *3.3.1 The Innovation Matrix*

Figure 3.4 is a framework that depicts the Innovation Matrix. In this diagram, the X-Axis represents the Challenge Class (as described in Chapter 1). Challenge Class A is “Implementation or Adaptation Type Problems”; Class B is “Open-Ended Medium Scale Design Challenges” and Class C is “Scaled Transformation

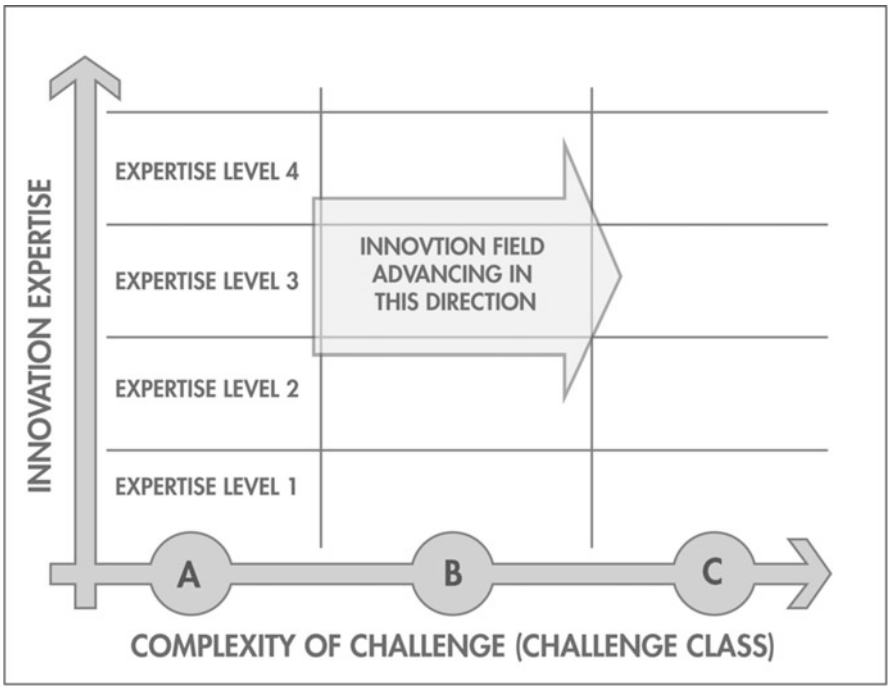


**Fig. 3.4** The Innovation Matrix depicting Innovation Challenge Types versus levels of Innovation Expertise

Challenges". As one moves from left to right in the matrix, the nature of innovation shifts from more domain-specific skills-based work to a more strategic and integrative type of innovation.

The Y-Axis represents the expertise level through four levels, with Level 4 being the highest level of expertise. Each class of challenge involves its own ladder of expertise that practitioners climb as they gain more skill and expertise. Expertise in one class of challenge does not equate to expertise in another class of challenge. An innovator who is an expert at A could be at a novice level in a class B challenge, and vice versa.

The innovation matrix is one of the key instruments of the Innovation Leader. As stated earlier, the two main dimensions of influence that the Innovation Leader exercises are in (a) Amplifying the Impact and (b) Amplifying the Innovation Capacity of the System. The Innovation Matrix is a framework enables the Innovation Leader to track the organization's innovation as well as impact amplification capacities. The tool can also be used to assess and evaluate the organization's strategic goals against its innovation capacity.

Let us say that the Innovation Leaders are looking at their organization in terms of its Innovation Capacity. There are many factors other than just expertise and challenge type that make up the Innovation Capacity, such as organizational

support for innovation, tolerance to exploration, tolerance to risk or failure, and tolerance to ambiguity (Surie and Hazy 2006); but for the purposes of this tool, we can roll them into the term "Innovation Capacity".

### *3.3.2 Pathways Through the Innovation Matrix*

Using the tool as a dashboard, Innovation Leaders can get a sense of the "spread" or the "portfolio" of expertise across challenge types in order to shape an innovation strategy. There are different paths for growing Innovation Capacity; the Innovation Leaders have to judiciously select the most optimal paths in order to increase the total innovation capacity in their organizations and their ecosystem.

In a sense, for an organization, managing innovation capacity is akin to managing a diversified stock portfolio. Some people will have deep expertise in relatively narrow areas that are strategic for the organization. Others will have to develop an expertise in dealing with a more expansive, complex and integrated type of challenge and similarly, there will be people who will be more suited to carrying out the more operational tasks at any expertise level. This portfolio is dynamic, as people entering the lowest rung are able to move horizontally or vertically in this matrix depending on their career paths (Fig. 3.5).

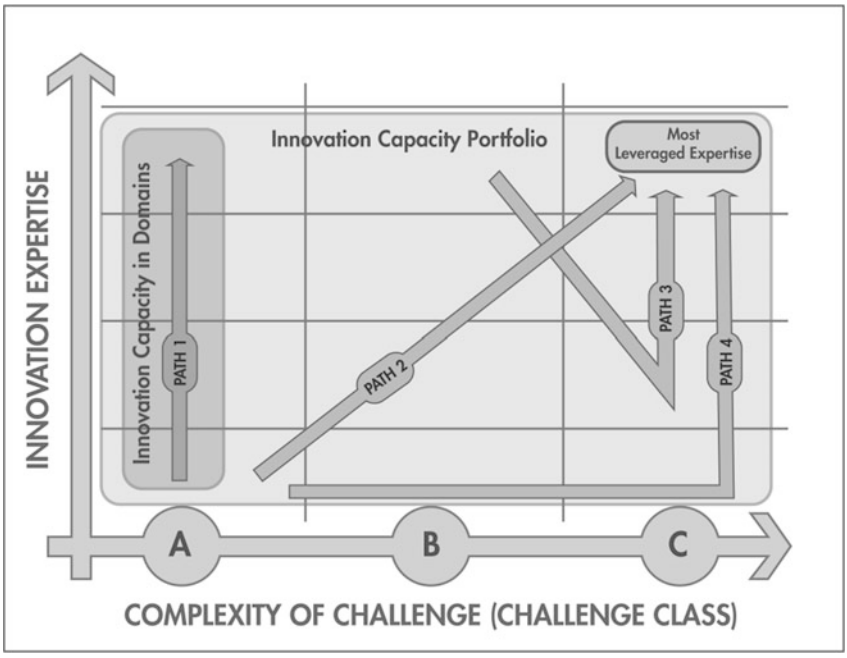


**Fig. 3.5** Pathways in the innovation matrix

The figure above depicts four different paths:

- **PATH 1**
  This is a more traditional vertical growth in expertise in a given class of challenge. In this path, the individual's growth is achieved through the ability to carry out innovation with higher and higher levels of expertise, while the ability to handle challenges of higher complexity is not increased. For example, an organization with a product development division would naturally have an expertise ladder for someone entering as a fresh graduate out of an engineering or product design program and rising up the ranks to becoming an expert product designer.
- **PATH 2**
  This path increases the ability for an individual or organization to tackle more and more unbounded, complex and scaled challenges simultaneously with an increase in expertise levels. An example would be a curricular program whose students design gadgets and interfaces in the first year, and by the fourth year they are trained to innovate at the policy, organizational transformation, and platform architecture level.
- **PATH 3**
  This path illustrates someone who has already been performing at a high level of expertise in one class of challenge moving to a more complex regime. Expertise in one class does not translate to expertise in another class, so this path shows the person who initially operates at a diminished level of expertise as the challenge becomes wider, and then gradually regains a higher level of expertise. But an expert in any domain has the advantage of being intimate with the *notion of expertise*. She knows what constitutes expertise, knows what to do to get there, and knows how to translate heuristics from one domain into another. This journey tends to be much quicker if there is willingness and talent for the new class of challenge compared to growing expertise for the first time.
- **PATH 4**
  This path is undertaken by those who first go across the challenge types so that they understand the different regimes and then climb up the expertise ladder of a given problem class. This path implies a "rotation" across different domains without the expectation of high innovation expertise in any of them before choosing a specific domain, and then more innovation expertise within that domain. This is a good path for people who want to gain expertise in a specific area, but they want to have a career path that gives them flexibility and an ability to explore different domains as they grow.

## 3.4 Amplifying Innovation Capacity

In the previous section we have stated that the Innovation Leader is responsible for raising the innovation capacity of his organization or institution. But the question is: what constitutes an increase in innovation capacity? What are the skills, mindsets,

capacities that constitute the various "Levels" and what attributes do we need to increase expertise as we move into handling more and more complex challenges?

This section illustrates the types of capabilities and skills that need to be developed or acquired in the expertise ladder. In the earlier section, we depicted multiple paths to enhanced Innovation Capacity. It is the responsibility of the Innovation Leader to increase Innovation Capacity through increasing the expertise level as well as the classes of challenges that their organization can address (A through C). As an illustration, we depict PATH 2 from the previous diagram – it is the path that moves diagonally across the innovation matrix, depicting a simultaneous increase in *both dimensions: innovation expertise and the challenge class*.

In Fig. 3.6, we identify four different levels of expertise, each associated with a particular set of skills, knowledge or attitudes. We considered and compared several alternative ways of characterization of innovation expertise for each level; eventually, we settled with the three dimensions along which the individuals will undergo transformation: (a) Skills, (b) Mindset, and (c) Impact frame.

An increase in expertise in innovation cannot circumnavigate an increased level of *Skills* in the various tasks involved in an innovation process. There are many skills to be mastered in innovation that require different cognitive modes (Christiaans and Dorst 1992) as the innovator becomes facile with the different stages of an innovation process, such as (a) primary and secondary research to understand the problem, (b) synthesis and framing to define the problem creatively and cast a visionary direction, (c) iteratively generating and testing concepts and prototypes with increasing levels of fidelity, (d) realizing and delivering tangible solutions that have the capability to make the desired impact, (e) amplifying the impact and building the capacity in the system to sustain the transformation.

In addition to a higher degree of facility, ease, and proficiency in the skills, it is also necessary for the individual to gain a *"meta-cognition"* of the skills and how

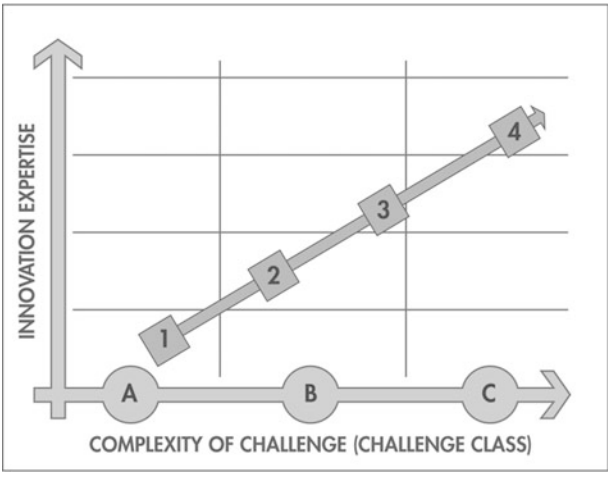


**Fig. 3.6** For expertise levels along PATH 2 in the innovation matrix

they fit in the process, so that they can be leveraged effectively in diverse contexts. The question to pose is, "Are we seeing a change in levels in all the diverse skills that an innovator must master to become an expert?"

Alongside an increase in the skill level, an increase in the expertise and the ability to address challenges of greater complexity is not achieved without a change in *Mindset*. The innovator's mindset is comprised of dimensions such as his or her philosophical frame, worldview, value systems, ethical stance, creative confidence, agency, and overall attitude. At each level, the question to ask is, "Are we seeing the right shift in the mindset of the innovator?"

Finally, we consider the *Impact Frame,* by paying attention to what is the nature and scale of the ultimate impact that the innovator makes, and what is transformed as a result of activity. What is his sphere of influence - does he influence the outcome of a project or does he influence the behavior of an entire ecosystem? The question we are posing here is, "What is the nature and scale of the impact that that level of expertise is structured for?" (Fig. 3.7)

As individuals enter the innovation arena, their skills might be rudimentary in scope and sophistication, their mindset might be applicable to simple innovation tasks, they might balk at more complex challenges, and their potential for impact might be limited in scope. As they gain training, experience, and confidence, their abilities on each of these dimensions feed on each other and they are able to take on more and more challenging innovation tasks with greater and greater ease.

The following section will list the necessary attributes along the three dimensions for the various expertise levels along PATH 2 in the innovation matrix; in this path, the three dimensions of expertise grow simultaneously, as the innovator is simultaneously being exposed to greater and greater complexity of challenges as he gains expertise; skills, mindset and impact dimensions will not only have to increase in degree but also in scope.

### *3.4.1 Level 1 Expertise + Class A Challenges [Challenge Class A is the "Implementation or Adaptation Type Problems"] (Fig. 3.8)*

Level 1 attributes:

(a) **Innovation skills**

i. Ability to carry out secondary research using multiple techniques.
ii. Analytical skills including numerical analysis and basic modeling of the broad scope of the challenge.
iii. Ability to carry out primary research and primary human factors' research using tools such as ethnography.
iv. Ability to ask the right questions.

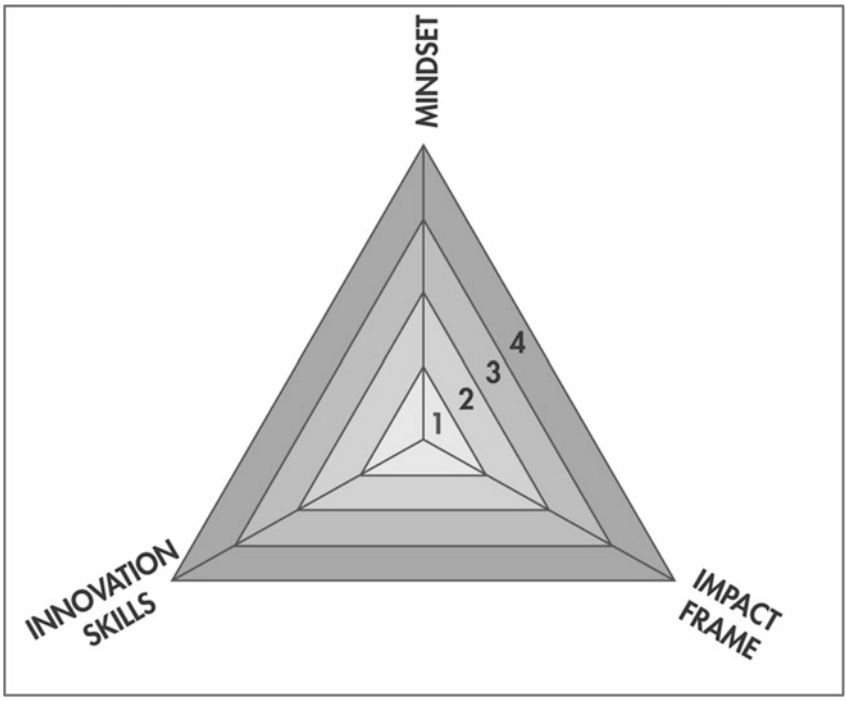


**Fig. 3.7** A framework depicting the three dimensions that constitute an increase in Innovation Capacity

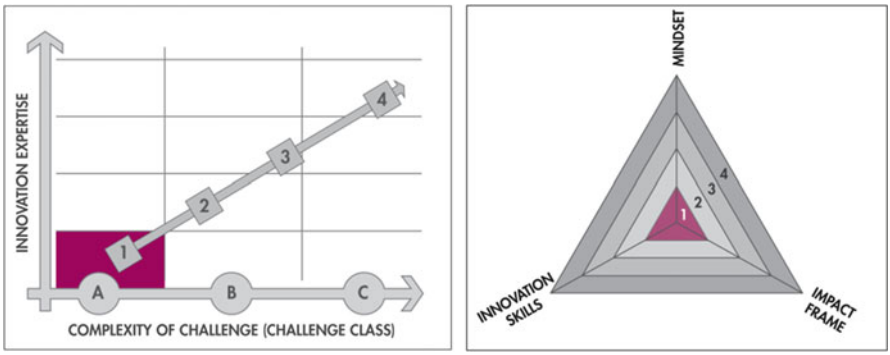


**Fig. 3.8** Level 1 innovation expertise for class A challenges

v. Ability to synthesize qualitative and quantitative data and identify root causes.
vi. Ability to alternate between divergent and convergent modes of thinking.
vii. Given a frame and design principles, ability to generate highly creative concepts for product and service type challenges in the Class A category.

viii. Ability to communicate and develop concepts visually (Tversky 1969, 2005).
ix. Ability to fabricate and express concepts in a variety of media.
x. Ability to use prototyping as a way of thinking and designing.
xi. Ability to test prototypes with subjects while maintaining a keen eye for failure modes.
xii. Excellent teamworking skills and an ability to co-create with different types of experts.
xiii. Ability to communicate concepts visually, verbally, text media and video. Understanding of the power of storytelling and narrative structure.
xiv. Ability to take part in innovation discourse within innovation teams and with external partners.
xv. Ability to manage resources, relationships, and communication channels.

(b) **Mindset**

i. Quick to orient, curious, and a fast learner.
ii. Agile, flexible, and quick to pivot.
iii. Generative.
iv. Explorative.
v. Co-creative and collaborative.
vi. Confident but maintaining a "low ego".
vii. Sensitive to human needs.
viii. Hands-on.
ix. Cultured Naiveté – seeks to understand with a beginner's mind.
x. Bias to action.
xi. Self-driven.
xii. Optimistic.

(c) **Impact frame**

i. Influences project outcomes at each stage from Understanding to Delivery.
ii. Influences team spirit, energy, and dynamics.
iii. Influences speed of progress by moving rapidly.
iv. Influences the discourse by generating many questions, directions, and propositions.

### *3.4.2 Level 2 Expertise + Class B Challenges [Challenge Class B is "Open-Ended Medium-Scale Design Challenges"] (Fig. 3.9)*

Level 2 attributes:

(a) **Innovation skills**

i. Ability to adhere to a high-level vision.
ii. Ability to shape research questions and direction of inquiry.

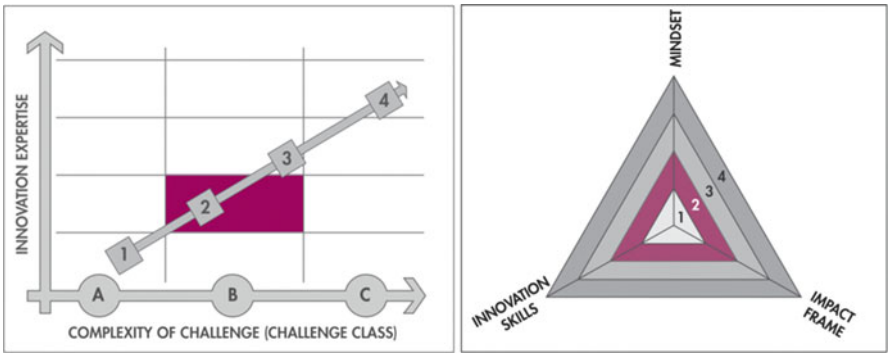


**Fig. 3.9** Level 2 innovation expertise for class B challenges

iii. Ability to carry out critical thinking and exercise judgment in relatively ill-defined challenges.
iv. Ability to create incisive frameworks to depict the complexity of the problem.
v. Ability to carry out top-down, bottom-up, breadth-first and depth-first thinking.
vi. Ability to judge when to get the team to pivot from divergent to convergent and vice versa.
vii. Ability to think at an abstract level and then drill down to a detailed level.
viii. Ability to ensure, at each stage of the process, that many creative options are generated before down-selecting to the selected paths.
ix. Ability to keep many pathways open and avoid converging too early.
x. Ability to generate solution sets that meet multiple criteria.
xi. Ability to prototype more complex user interactions.
xii. Ability to develop a design to a high level of detail and completion.
xiii. Comfort with the innovation process and the ability to defend the process when it might be compromised.
xiv. Ability to mentor, direct and manage LEVEL 1 team members.
xv. Ability to manage projects with greater size, complexity, and number of moving parts.

(b) **Mindset**

i. Comfort with ambiguity and shifting boundary conditions of the problem.
ii. Comfort with reframing the brief.
iii. Comfort with revisiting assumptions if necessary.
iv. Comfort with facilitating co-creative activity with people more senior.
v. Comfort with being the advocate for the strategic direction.
vi. Comfort with leading a direction.
vii. Co-creative with a broader array of experts who might not be innovators.

viii. Managing relationships with peers, subordinates, leaders, partners, and external stakeholders.
ix. Process-minded and able to influence the process with shifting contexts and resources.
x. The ability to propose out-of-the box ideas and use the innovation process to mitigate the risks involved.

(c) **Impact frame**

i. Influences project framing and decision frame.
ii. Influences innovation direction and success criteria.
iii. Influences the discourse by engaging multiple stakeholders and facilitating a co-creative process.
iv. Influences leadership on direction, process, outcomes, and resource deployment.
v. Shapes and articulates the value proposition with nuanced level of sensitivity and critical thinking.
vi. Creates trusted relationships with internal and external stakeholders (Tidd and Bessant 2013).

### *3.4.3 Level 3 Expertise + Class B Challenges [Challenge Class B is "Open Ended Medium Scale Design Challenges"] (Fig. 3.10)*

Level 3 attributes:

(a) **Innovation skills**

i. Ability to plan a research structure for an open-ended brief that can is efficient, and yet helps broad understanding.

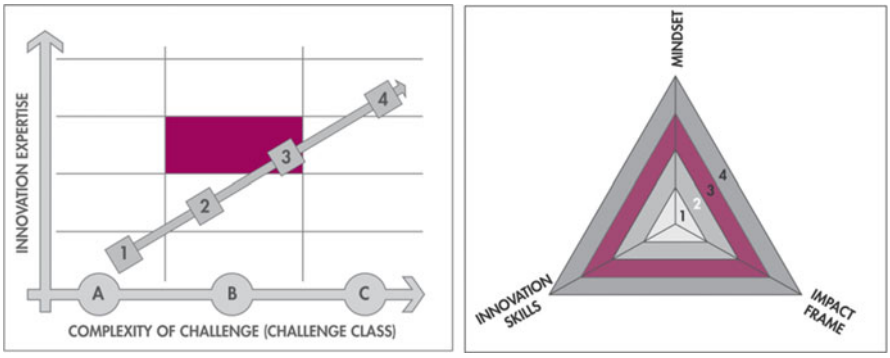


**Fig. 3.10** Level 3 innovation expertise for more complex class B challenges

ii. Ability to take a holistic view of the challenge and delve into the hidden complexities of the system dynamics.
iii. Ability to craft and articulate a higher-level vision.
iv. Understanding the pathway of a user or stakeholder through the system.
v. Understanding organizational behavior.
vi. Understanding business opportunities and have the ability to generate innovative business models.
vii. Ability to identify causal pathways in more complex scenarios.
viii. Ability to join the dots and see patterns between seemingly disconnected parts of the system.
ix. Ability to communicate not just what the innovation is, but the underlying theory, the value proposition, the use cases, and why it is meaningful.
x. Ability to manage the innovation process all the way to deployment and beyond.
xi. Ability to manage an innovation team with diverse skills.
xii. Ability to build a measurement and evaluation protocol; ability to create dashboards for strategic decisions.

(b) **Mindset**

i. Thinks in terms of systems and sees things with a system designer's eye.
ii. Is perceptive of potential future failure modes in the system.
iii. Is sensitive to organizational culture and how to influence it.
iv. Is process-sensitive, and discerning of when the process is being compromised or subverted.
v. Values conceptual integrity and strength of platform architecture.
vi. Is improvisational and expands on thinking continually.
vii. Has the instinct to create the right enabling conditions for rich innovation.
viii. Values agility of mind – keeps him from falling into familiar ruts.
ix. Continually combines short-term value creation with long-term vision.

(c) **Impact frame**

i. Influences the entire journey of a user through a system.
ii. Influences the culture of the team, the organization, and the other stakeholders.
iii. Transfers knowledge, methodology and tools to others.
iv. Drives highly innovative solutions to ill-defined challenges.
v. Creates impact-mindedness in the entire organization or value chain.
vi. Creates a disproportionate return on investment.
vii. Creates a broader acceptance of innovation approaches.
viii. Sensitizes all the stakeholders involved to the systems view, the human factor, and the user's experience as they move along different pathways in the system, interacting with various "touch-points" and contexts.
ix. Creates a co-creative culture and engages the users and other stakeholders in the innovation process.

x. Builds in innovation capacity to manage the innovation journey beyond the project scope.

### 3.4.4 *Level 4 Expertise + Class C Challenges [Challenge Class C is "Scaled Transformation Challenges"] (Fig. 3.11)*

Level 4 attributes:

(a) **Innovation skills**

i. Ability to envision scaled transformations in the future and alternate system behavior.
ii. Ability to disrupt the prevalent norms and formulate alternate paradigms.
iii. Ability to trace causal chains in a complex "system of systems" type of contexts.
iv. Ability to analyze the challenge from a systems perspective with an understanding of feedback loops and relationships between the system "actors".
v. Ability to synthesize the findings across multiple layers of a system (social, economic, infrastructural, etc.).
vi. Ability to understand the human behavioral patterns not only from a needs perspective but from larger patterns of mindsets, culture, and motivational frames.
vii. Ability to understand multiple motivations of different system actors.
viii. Ability to facilitate innovation processes involving a genuinely trans-disciplinary engagement of members from different fields.
ix. Ability to design win-win propositions for stakeholders with different motivations.
x. Considers both the short-term and long-term ramifications.

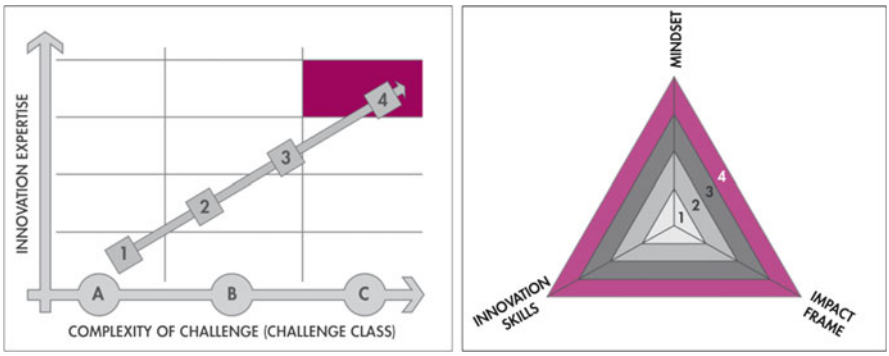


**Fig. 3.11** Level 4 innovation expertise for class C challenges

xi. Innovates at the level of high-level strategies, institutional structures, governance structures, and policy.
xii. Builds coalitions among stakeholders and creates a co-creative environment.
xiii. Drives impact towards social and environmental needs.
xiv. Ability to generate intervention pathways that would transform system behavior, norms, and behavior.
xv. Garners political support, generates resources, and drives commitments for support, particularly for the scaling stages.

(b) **Mindset**

i. A continual quest for scaled impact
ii. Very aggressive drive for change in system behavior
iii. A mindset that weaves theoretical frames and practical processes.
iv. Belief in holistic, integrative, and interpretive thinking.
v. Transformation-minded.
vi. Continually seeking opportunities for win-win propositions in seemingly impossible motivational gridlocks.
vii. Confidence in challenging highly established systems and institutions.
viii. Thinks in terms of platforms and paradigms rather than products and services.
ix. Willingness to "en-rupt" systems and replace them with creative alternatives.
x. Deeply concerned about values, ethical nuances, and fair play.
xi. Mental clarity and conviction about intentionality and the philosophical stance.
xii. "Scale-mindedness" and a continual quest to increase the sphere of influence.

(c) **Impact frame**

i. Causes impact to the entire ecosystem and its behavior.
ii. Changes the paradigm within which the challenge is considered and the solutions are framed.
iii. Influences the relationships between the stakeholders.
iv. Changes the nature of the outcome.
v. Influences the scale of the outcome.
vi. Alters the future trajectory of the system.
vii. Changes the structure and culture of the institution.
viii. Creates new models and approaches.
ix. Creates new win-win opportunities.
x. Creates innovation capacity in the institution and the ecosystem.
xi. Increases the level of resilience of systems at all levels against changes and shocks.

## 3.5 Innovation Capacity as a Key Organizational Attribute

In the last century, the competency of an organization was measured in terms of its operational excellence and its ability to create a big market presence; in the twenty-first century, it is going to be measured in terms of its innovation capacity. The goal of most organizations is not just to deliver services, but to foster, change and improve lives (Drucker 2002). An organization that outperforms others, creates genuine impact, creates new markets, shifts paradigms, forges new directions, and solves the problems of the day is going to attract the best minds, will be the one that builds the strongest brand, and will be the one with the ability to withstand the turbulent winds of time. The ground is shifting from under the feet of organizations built around traditional models. Even in standard manufacturing and production settings, the emergence of complex production and systems (CoPS) is creating a need for new models and concepts for innovation since the current ones are based on high-volume consumer production (Hobday and Rush 1999).

An organization also has the choice of being a platform leader, one that drives sector-wide change, in which case there is a greater need for innovation (Cusumano 2002). An innovative organization is going give people the agency to innovate, provide value that is distinctive, give meaning to its own role in the marketplace, and set the tone for others to emulate. An organization with innovation capacity will celebrate the unknown, leverage failure, and understand the value of experimentation. It will find new ways of striking powerful partnerships with other organizations and with citizens. And the innovative organization will find ways of engaging with important challenges of the time.

Shifting from "Business As Usual" to having deeply held values around the power of innovation is not a simple shift. Changing organizational cultures will be one of the most critical and yet the most difficult tasks for an Innovation Leader. Some of the difficulty lies in the entrenched beliefs of the "Business As Usual". It is difficult for the existing leadership of any organization to acknowledge that the rules of the game are shifting rapidly or that they are not being innovative enough. The Innovation Leader's role therefore has an external function as well as an internal function. They must shape the nature of the external impact that the organization will have, and they must also shape the innovation culture of the organization, and in doing so they transform not only the DNA of the organization in which they belong, but also the larger ecosystem in which they operate.

If innovation capacity is already the marker of the avant-garde organization, and is going to be increasingly seen as the "table stakes" to compete, what are the implications for organizations that have not fully engaged in this critical dimension? The notion of innovation as a modality not only applies to an individual but also applies equally to a team, a project structure, a discipline, an organization, the mode of research, the decision structures, the value systems, and the modes of action. In short, it changes everything!

The implications are deep. It means that even before an existing organization figures out a new set of roles, organizational structures, Key Performance Indices,

value systems, and altered bottom lines, it will need to find ways of increasing its innovation capacity. The path to this lies in *existing* members, at various levels, but most importantly at the top level, themselves adopting the role of Innovation Leaders. In a lot of cases, they will excel at operational excellence, business acumen, scholastic excellence, and general leadership, but might lack expertise in innovation expertise. It will be upon them to consider the innovation capacity portfolio of their organizations and their initiatives, and make the moves that would result in increased innovation capacity.

The first step for an existing leader is to endorse the value of innovation. It is important to initiate strategic innovation initiatives, to bring in innovative people, and frame innovation as a new dimension along which success is going to be measured. Existing members among an organization's leadership who adopt the role of Innovation Leaders will have to provide support and "executive air cover" for members who have displayed the talent for Innovation Leadership. They need to be empowered to explore, and be allowed to fail and propose directions that might be counter to conventional wisdom.

They will have to create "cultural enclaves" where people might have to go against the more prevalent company culture in order for them to feel safe in adopting innovation methodologies. The existing leadership will need to understand the need for innovation and will have to endorse new practices. The offices that handle the organization's strategic decisions will have to be most deeply involved in this transformation. Human Resources will have to use an entirely new lens to attract innovative people, incentivize innovation, reward innovative behavior, and train the entire workforce towards increased innovation capacity.

## 3.6 Conclusions: Implications for the Education Sector

For the education sector, there are even bigger implications. Education ought to be concerned with the shaping and preparing young minds for Innovation Leadership. Innovation and Innovation Leadership, instead of being another silo in the pedagogical system, need to be structured as a capacity across all disciplines.

But the educational institution as an organization, compared across other sectors such as industry and philanthropy, is not known for its agility and innovation. For the educational institution, in most cases, genuine innovation is not only an unfamiliar territory; it is often at odds with deeply entrenched institutional values. The University system celebrates scientific research in deep silos, publishing, and excellence in teaching, but does not tend to endorse creating innovative change agents who have a healthy disrespect for disciplinary silos. It claims to value multidisciplinary even when the reality is a very meager step towards genuine trans-disciplinary co-creation. There exists a lack of understanding of innovation methodology that giving institutions a false confidence in their level of innovation. The typical university not only fails to understand the value that innovation is going

to have in the future, but many of the dominant value systems directly impede a culture of innovation.

Often, academic institutions, especially those in the lower echelon, tend to adopt a "trade school" approach, preparing students for the current market, placing disproportionate value on what has been already tried and tested. Academics all over also tend to clone themselves, and define success in terms of what they themselves have done, even though the global context of what academia ought to be has changed radically. The university has been slow to create a cadre of leaders who would meet the complex challenges with a more integrated and radically innovative set of approaches.

It is incumbent on the Education sector to shape young minds in preparation for careers that may not even exist today, and prepare then with the right skills, mindsets, and agency so that they can be active in shaping their own paths to making impact. The implications for educational institutions are twofold: they need to create an entire pedagogy around instilling innovation capacity in their students (so that they can go forth and exercise leadership in that dimension); but, more importantly, they need to build innovation capacity in their own organizations! The culture of the university is nothing but the summation of the value systems of the people running the organization. If they undervalue innovation, or, worse, still mistake what is being done as innovation, then it would be unrealistic for that university to develop that capacity in its students - and inevitably some other university with a better understanding would start attracting the best students.

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