

Neuroplastic Capability Development: Extending the SHAPE Framework for Learning, Cognitive Adaptation, and Expertise

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Abstract

Neuroplasticity provides a biological basis for continued learning and adaptation across adulthood, yet its implications for the development of professional expertise remain underdeveloped in workforce capability models. This conceptual paper extends the Strategic Human Ability and Profile Enablement (SHAPE) Framework by introducing neuroplastic adaptation as a foundational dimension linking experience-dependent learning with changing patterns of specialist depth, integrative breadth, multi-domain expertise, and adjacent capability development. The framework retains four heuristic capability profiles: I-shaped specialists, T-shaped integrators, M-shaped multi-specialists, and V-shaped adaptive specialists, while reframing them as evolving behavioral configurations rather than neural types or fixed employee categories. Drawing on research on neuroplasticity, cognitive flexibility, expertise development, social cognitive theory, psychological safety, person-environment fit, and the Job Demands-Resources model, the revised framework proposes a multilevel pathway in which learning experiences and work demands interact with neurocognitive processes, psychological enablers, and organizational conditions to shape how expertise is maintained, integrated, extended, and applied. Neuroplasticity is treated cautiously as a theoretical foundation for experience-dependent change, not as evidence that capability profiles correspond to brain structures or neural phenotypes. The paper develops twelve propositions for future empirical testing and proposes a neurobehavioral research agenda combining behavioral measures of capability with validated measures of cognitive flexibility, executive control, learning, cognitive load, and, where appropriate, neuroimaging or physiological methods. The extended SHAPE Framework offers a bridge between cognitive neuroscience and workplace capability development while preserving a human-centered principle: adaptive capability should emerge through meaningful learning and supported development, not through unlimited expectations for versatility.

Keywords: Neuroplasticity, Experience-Dependent Plasticity, Cognitive Flexibility, Expertise, Adult Learning, Capability Development, Shape Framework, Executive Control, Workplace Learning

1. Introduction and Organizational Problem

Human capability is often discussed as if expertise were a stable possession, yet neuroscience increasingly describes the adult brain as responsive to experience and learning. Neuroplasticity refers to the brain's capacity to reorganize and modify neural connections in response to experience, environmental stimulation, learning, injury, and disease, and it contributes to learning, memory, and adaptation [1]. Recent evidence from adult skill learning also illustrates that sustained experience can be associated with measurable neurostructural adaptation, while emphasizing that such change may

be nonlinear rather than a simple accumulation process [2]. These observations invite a different question for capability research: if learning and experience can alter the systems supporting cognition, how should professional capability be understood as it deepens, broadens, and adapts over time? Contemporary organizations need specialized knowledge and the ability to connect that knowledge across changing problems. Interdisciplinary work requires people to bring different disciplinary perspectives together and integrate them meaningfully, rather than simply placing them side by side [3]. Effective knowledge sharing, in turn, depends not only on an

individual's willingness to contribute but also on organizational conditions that encourage and support such exchange [4].

Yet workforce development is frequently organized around a single ideal employee: adaptable, collaborative, innovative, technically accomplished, and ready to perform across multiple boundaries. Yet this ideal can overlook an important behavioral reality. Employees contribute through different configurations of depth, breadth, and adjacent capability, and those configurations are not interchangeable. Shape-based descriptions provide a simple language for this diversity. The academically developed T-shaped formulation combines disciplinary depth with broader boundary-spanning capabilities, including teamwork, communication, networks, and organizational perspective [5]. Building on the established T-shaped model, practitioner discussions have expanded the visual vocabulary to include I-, M-, and V-shaped configurations, although these additional forms have not yet achieved the same level of conceptual clarity and consistency in scholarly research. This paper therefore treats the four shapes as heuristic capability profiles rather than validated personality types. Personality concerns relatively enduring patterns of thought, feeling, and behavior, whereas a capability profile represents an evolving arrangement of knowledge, skill, experience, and work exposure.

The shape metaphor is appealing because it makes complex capability patterns easy to understand, but this simplicity can also hide important differences in how people develop and contribute. First, the profiles can be arranged into an implicit hierarchy in which broader profiles appear more advanced than specialists. Second, the vocabulary may encourage organizations to classify employees without considering job requirements, resources, motivation, or career preference. Third, capability breadth may be celebrated while the workload involved in sustaining several areas of competence is ignored. Finally, the prevailing descriptions say little about the psychological conditions that allow employees to cross boundaries, ask for help, attempt unfamiliar work, or maintain confidence while learning. This paper addresses those limitations by developing the Strategic Human Ability and Profile Enablement (SHAPE) Framework. SHAPE is an integrative, cyclical capability-enablement framework rather than a new personality taxonomy or psychometric instrument. It explains how configurations of expertise become organizationally valuable through psychological enablers, contextual resources, and repeated profile-role alignment. Its contribution lies in connecting shape-based capability language with established behavioral theory while refusing the assumption that broader profiles are inherently superior to specialist depth.

The paper has five objectives: to clarify the four capability profiles, to introduce neuroplastic adaptation as a theoretical foundation for experience-dependent capability change, to explain how cognitive, psychological, and organizational conditions support learning and expertise development, to propose an extended alignment and development process, and to generate propositions for empirical examination. The paper therefore asks: (1) How can neuroplasticity

inform a dynamic understanding of professional capability without reducing capability profiles to biological categories? (2) How do the four profiles differ in patterns of specialist depth, integrative breadth, multiple-domain expertise, and adjacent expansion? (3) Which neurocognitive and psychological processes may support their development and effective use? (4) How do organizational conditions facilitate or constrain experience-dependent capability development? And (5) How can future research test the proposed links between learning, cognitive adaptation, capability change, and work outcomes?

2. Literature Review and Conceptual Background

Capability reflects not only what employees know and are able to do, but also their ability to apply that knowledge and skill effectively within the conditions in which they work. Expertise is developed through sustained, domain-relevant learning and practice, not simply through accumulating job titles or isolated skills [6]. At work, employees' ability to put their capabilities into practice also depends on the opportunities their roles provide, the relationships around them, access to necessary resources, and whether their contributions are recognized by the organization. The same specialist may thrive in a role that values deep expertise but may be less effectively utilized in a role that requires broader collaboration across functions and disciplines.

Capability development is shaped by more than the accumulation of knowledge or individual skills. It reflects the continuing interaction between specialist expertise, broader and complementary knowledge, professional identity, learning opportunities, and changing work demands. As careers develop, employees may deepen expertise within a particular field, extend their knowledge into related areas, or learn to connect knowledge across disciplinary and functional boundaries. These pathways are not necessarily competing forms of development, they represent different ways in which employees build and apply capability over time. Professional identity and career experience also influence which forms of expertise employees choose to strengthen, while opportunities such as mentoring, cross-functional assignments, and continued learning affect what development is realistically possible. In contemporary workplaces, adaptability should therefore be understood not as an expectation that every employee continually becomes broader, but as the capacity to develop and apply capabilities in ways that remain relevant to changing roles, technologies, career aspirations, and organizational needs.

2.1. Evolution and Conceptual Boundaries of Shape-Based Profiles

The shape metaphor uses a vertical dimension to represent disciplinary depth and a horizontal or widening dimension to represent breadth across domains. Scholarly treatment is strongest for the T-shaped professional. Martin and Rees (2024), drawing on earlier professional-development work, describe T-shaped professionals as combining deep disciplinary knowledge with broader competencies that enable them to collaborate effectively and apply their expertise across different roles, disciplines, and work situations [5]. Research on interdisciplinary learning

similarly shows that spanning of boundaries involves working with different disciplines, obtaining specialist knowledge, and facilitating inclusive dialogue [3].

By comparison, I-shaped language functions mainly as a contrast category for concentrated specialization, while M-shaped and V-shaped labels are more visible in practitioner discourse than in validated organizational-psychology research. M-shaped is commonly used to represent meaningful depth in more than one domain. V-shaped is used here to represent graduated expansion from a specialist core into adjacent domains. Because definitions vary, SHAPE does not claim discovery of natural employee types. The profiles are analytical configurations created to examine how depth and breadth may be aligned with work. The paper's contribution is therefore not the letters themselves, but the behavioral and organizational mechanisms assembled around them.

These dimensions can vary from person to person and should not be treated as fixed categories.

An employee's capability profile is not fixed. Someone may have deep expertise in one area, reflecting an I-shaped profile, while gradually developing broader T-shaped capabilities through involvement in cross-functional projects and new responsibilities. These profiles can continue to evolve as employees move through different career stages, take on new assignments, respond to technological changes, and reconsider their personal and professional priorities. This flexible view is consistent with professional identity research, which suggests that how people see themselves at work develops through their roles, experiences, and relationships with others [7]. Depth and breadth should therefore not be understood as opposite ends of a hierarchy. Depth allows employees to develop specialized knowledge and judgement, while breadth allows that knowledge to connect with other areas, perspectives, and work demands. Their value depends on what the role requires and how effectively each form of capability is supported and applied. SHAPE therefore treats depth and breadth as complementary dimensions rather than competing indicators of employee development.

2.2. The I-Shaped Specialist

The I-shaped specialist possesses substantial knowledge and judgement in a defined domain. Such depth is essential when work requires precision, professional standards, or diagnosis of problems that cannot be solved through surface familiarity. Research on the development of professional skills suggests that high-level performance is built through sustained, domain-specific practice supported by meaningful feedback [6]. The specialist's contribution therefore lies in depth, reliability, and disciplined attention. Organizations weaken themselves when specialist mastery is treated as an outdated limitation rather than a strategic resource. For an I-shaped employee, development should not automatically mean becoming broader. The more important question is whether the role requires stronger connections with other areas, better communication and collaboration, or knowledge beyond the employee's core specialism. Where broader capability

would add value, it should be developed without weakening the depth of expertise that makes the specialist distinctive. Mentoring, communities of practice, and carefully chosen cross-functional assignments can provide exposure to other perspectives while allowing employees to retain and deepen their specialist strengths.

2.3. The T-Shaped Integrator

The T-shaped integrator combines one area of deep expertise with sufficient breadth to understand neighboring functions, communicate across professional languages, and connect specialized contributions. T-shaped professional development is associated with disciplinary depth and boundary-spanning competencies such as teamwork, communication, organizational perspective, and networks [5]. Breadth does not mean equal expertise everywhere. Its value lies in translation, coordination, and informed collaboration across knowledge boundaries. A possible vulnerability is role diffusion. Because T-shaped employees can communicate across boundaries, organizations may repeatedly position them as informal connectors without recognizing the additional relational work involved. T-shaped development therefore requires role clarity, protected time for maintaining the specialist core, and recognition of integrative contribution.

2.4. The M-Shaped Multi-Specialist

The M-shaped multi-specialist is defined here as an employee who possesses meaningful depth in two or more domains together with broader contextual knowledge. This configuration can integrate perspectives that are usually separated, which is relevant to interdisciplinary problem solving [3]. However, M-shaped capability should be treated as a proposed configuration rather than an established psychometric construct. What matters is not how many qualifications a person has, but how effectively they can bring different areas of knowledge together to understand problems and make well-informed decisions. The main risk is cumulative demand. Maintaining credibility in several fields requires continuous learning, and versatile employees may become default problem-solvers for unrelated organizational needs. Without prioritization and workload protection, the profile can produce fragmentation, identity strain, and burnout. Development should therefore be selective rather than endlessly additive.

2.5. The V-Shaped Adaptive Specialist

The V-shaped adaptive specialist is defined here as developing graduated breadth into domains adjacent to a strong specialist core. Unlike disconnected familiarity, V-shaped expansion follows the logic of the original expertise. A sustainability professional, for example, may extend into behavioral communication, data interpretation, or stakeholder engagement because those areas increase the usefulness of the specialist base. Like the M-shaped capability, the V-shaped concept has largely emerged from practitioner thinking and requires further empirical research to establish how it differs from the broader capabilities associated with the T-shaped profile. The distinction between T- and V-shaped capability is therefore important. T-shaped capability uses breadth to connect and integrate knowledge across different areas, while V-shaped capability develops outward from a strong specialist

core into related or adjacent areas that strengthen the value of that expertise. In simple terms, the T-shaped profile emphasizes integration across areas, whereas the V-shaped profile emphasizes purposeful expansion from an established area of specialization. V-shaped development requires learning agility and a clear direction of travel. Unfocused expansion can produce shallow accumulation without usable integration. Organizations should help employees identify adjacent capabilities that strengthen both present performance and future mobility.

2.6. Neuroplasticity and Experience-Dependent Capability Development

Neuroplasticity describes the capacity of the brain to reorganize and modify neural connections in response to experience and learning [1]. For SHAPE, the importance of this concept is not that a capability profile can be read directly from the brain. Rather, neuroplasticity provides a biological rationale for treating capability as developmental and experience dependent. Repeated practice, new learning demands, feedback, and sustained engagement can alter the cognitive systems through which knowledge and skill are acquired and used. Evidence from adult learning shows that experience-dependent plasticity can accompany skill acquisition and that structural adaptation may follow nonlinear trajectories as proficiency develops [2]. Evidence from human neuroimaging further indicates that learning can be accompanied by structural changes in both gray and white matter, although the cellular processes underlying these imaging changes cannot be inferred directly [8].

The extended framework therefore introduces neuroplastic adaptation as a foundational dimension beneath the observable capability profiles. Neuroplastic adaptation is defined here as experience-dependent change in neural organization or functioning that may support learning, skill refinement, cognitive adjustment, and behavioral adaptation over time. It is not measured by the SHAPE Alignment Tool and should not be inferred from an employee's profile. Its role is theoretical: it explains why repeated learning and experience can plausibly support continued change in capability across adulthood. This distinction also sharpens the role of cognitive flexibility. Cognitive flexibility concerns the ability to adapt thinking and behavior to changing contextual demands and has been studied using neuropsychological, self-report, and neuroscientific approaches [9]. It therefore provides a useful bridge between neuroplastic capacity and observable adaptive behavior. Within SHAPE, cognitive flexibility may help employees shift perspectives, integrate unfamiliar information, and apply existing knowledge in new contexts, but it should not be treated as interchangeable with neuroplasticity. Neuroplasticity concerns experience-dependent change in neural systems, whereas cognitive flexibility describes adaptive cognitive and behavioral functioning.

The four capability profiles can consequently be interpreted as different developmental pathways rather than stages of neural advancement. I-shaped development emphasizes refinement and

consolidation within a domain, T-shaped development preserves depth while supporting integration across domains, M-shaped development involves sustained learning across more than one domain, and V-shaped development extends an established specialist core into adjacent areas. The framework does not predict that these pathways possess unique neural signatures. That question remains empirical and would require direct neuropsychological, physiological, or neuroimaging investigation. Research on adult learning similarly indicates that changing experiential demands can be associated with structural brain adaptation, reinforcing the view that development remains possible beyond early life [10].

3. Capability Profiles Are Not Personality Types

The four shapes should not be used as psychological diagnoses. Established personality approaches, including the Five-Factor Model, describe broad dispositional tendencies such as openness, conscientiousness, extraversion, agreeableness, and emotional stability [11]. On the contrary, capability shapes describe the architecture of work-related expertise. A conscientious employee might develop any of the four profiles, an employee high in openness may favor exploration, but openness does not constitute a V-shaped profile. This distinction is important because capability profiles should describe how employees currently use and develop their strengths, rather than define who they are as people. Treating these profiles as personality types could create the impression that they are permanent and may lead to employees being placed into fixed categories. The SHAPE Framework therefore treats each profile as a flexible guide to understanding an employee's current balance of specialist depth and broader capability. It does not attempt to define the whole person or make judgements about an employee's intelligence, future potential, or individual worth.

4. Neurocognitive, Psychological, and Organizational Foundations of SHAPE

4.1. Neuroplastic Adaptation and Cognitive Flexibility

The extended SHAPE Framework places neuroplastic adaptation beneath its psychological and organizational mechanisms. Neuroplasticity supports the general possibility of experience-dependent change, while cognitive flexibility helps explain adaptive shifts in thinking and behavior when contextual demands change. Contemporary cognitive neuroscience emphasizes that flexibility emerges through interactions among cognitive processes and distributed neural systems rather than from a single mechanism [9]. SHAPE therefore uses neuroplasticity and cognitive flexibility as complementary concepts: the first concerns the capacity for experience-dependent neural change, while the second concerns adaptive cognitive performance that can be assessed behaviorally and neuroscientifically.

4.2. Person-Environment Fit

Person-environment fit concerns compatibility between an individual and the work environment. Person-job fit includes the match between abilities and job demands and between employee needs and the supplies available from the job [12]. This perspective supports the central SHAPE argument that no capability profile is

universally superior. An I-shaped specialist can be highly effective where the role demands concentrated expertise, while a T-shaped integrator may fit work requiring coordination across domains. Misfit may occur when organizations demand broad contribution from employees whose roles, resources, or career preferences support depth, or when integrative capability is confined within narrowly designed jobs.

4.3. Social Cognitive Theory and Self-Efficacy

Social cognitive theory explains human functioning through reciprocal interaction among personal factors, behavior, and environment [13]. Self-efficacy reflects an individual's belief in their ability to organize and carry out the actions needed to succeed, shaping how much effort they invest, how long they persist, and how they respond when challenges arise [14]. Within SHAPE, self-efficacy helps explain whether employees apply expertise beyond familiar routines, seek adjacent knowledge, or retreat when early attempts are difficult. Capability development is therefore supported by mastery experiences, credible role models, constructive feedback, and manageable developmental challenges.

4.4. Psychological Safety

Psychological safety is a shared belief that a team is safe for interpersonal risk taking [15]. It is especially relevant to capability development because learning often requires employees to step beyond what they already know, ask questions, experiment with new approaches, and learn from mistakes. Employees must be able to say that they do not know, ask questions across professional boundaries, request feedback, and offer incomplete ideas. Edmondson's research linked team psychological safety with learning behavior, indicating that supportive team conditions matter for how people engage with uncertainty [15]. In SHAPE, psychological safety does not guarantee competence, but it creates an environment in which employees are more willing to ask questions, seek feedback, experiment, and learn, thereby strengthening their capabilities over time.

4.5. Learning Orientation and Cognitive Flexibility

Learning orientation directs attention toward developing competence, understanding difficulty, and improving through effort rather than merely demonstrating existing ability [16,17]. This orientation supports movement into adjacent areas and continued renewal of specialist knowledge. Cognitive flexibility complements learning orientation by enabling people to shift perspectives and adapt mental representations when circumstances change [18]. Together, these mechanisms help explain how breadth becomes genuinely integrative rather than an accumulation of disconnected information.

4.6. Job Demands-Resources Model

The Job Demands-Resources model distinguishes aspects of work that require sustained effort from resources that help achieve goals, reduce demands, or stimulate growth [19,20]. Developing and maintaining breadth can be energizing when employees have autonomy, time, feedback, learning access, and supportive

leadership. However, versatility can become harmful when it creates an expectation that employees should continually do more and adapt to every new demand. SHAPE therefore recognizes breadth-related overload as a foreseeable organizational risk rather than an individual failure.

5. Conceptual Review Design and Framework Development

This paper adopts an integrative, theory-building review approach because the literature relevant to capability profiles is spread across established academic research, professional-development scholarship, organizational psychology, and emerging practitioner terminology. Consistent with Snyder (2019), the purpose of the review was not to provide an exhaustive systematic assessment of all available studies or to estimate the size of effects [21]. Instead, the aim was to bring together relevant bodies of knowledge that could clarify the meaning of shape-based capability profiles and explain how different patterns of depth and breadth may develop, interact with workplace conditions, and contribute to organizational outcomes. The literature search was guided by the main concepts represented in the proposed framework. Search terms included combinations of I-shaped, T-shaped, M-shaped, V-shaped, skill profile, professional capability, expertise, neuroplasticity, experience-dependent plasticity, adult learning, cognitive flexibility, executive control, cognitive load, skill acquisition, person-job fit, psychological safety, learning orientation, self-efficacy, mentoring, work design, and Job Demands-Resources. The search also followed relevant concepts identified through literature as the framework developed, particularly where additional theoretical explanation was required for neuroplastic adaptation, capability development, role alignment, learning, and organizational support.

Greater weight was given to peer-reviewed journal articles, established theoretical works, scholarly books, and review papers when developing the theoretical foundations of the framework. Because I-, M-, and V-shaped terminology is less consistently established in academic research than the T-shaped concept, practitioner literature was considered mainly to understand how these emerging labels are used and interpreted in professional settings. Such sources were not treated as evidence that the profiles represent validated psychological or employee types.

Sources were considered relevant when they contributed to at least one of four purposes: clarifying the meaning of capability depth and breadth, explaining how expertise develops, identifying psychological or organizational conditions that influence capability development and use, or explaining how employee capabilities may be aligned with work requirements and outcomes. Literature was given less emphasis when shape terminology was used only descriptively, without sufficient explanation of the underlying capability, developmental process, or workplace relevance. This approach allowed the review to remain focused on the conceptual questions underpinning SHAPE rather than simply collecting different uses of shape-based terminology. The synthesis was developed through four connected stages. First, descriptions of the

four capability profiles were compared according to the nature of specialist depth, the extent and direction of breadth, connections with adjacent areas of knowledge, and the presence of expertise across more than one domain. Second, neuroplasticity, cognitive flexibility, and adult learning research were synthesized to identify a cautious neurocognitive foundation for experience-dependent capability change. Third, recurring psychological and contextual mechanisms were organized into psychological enablers and organizational conditions. Fourth, person-environment fit was used to connect capability, developmental experience, work demands, and outcomes through a cyclical alignment process. This sequence distinguishes neural-level explanation from behavioral capability description and avoids assuming that the four profiles are neurological types.

The resulting Strategic Human Ability and Profile Enablement (SHAPE) Framework is therefore an interpretive and proposition-building framework rather than a validated classification or measurement instrument. The review does not claim exhaustive coverage of the literature, nor does it assume that the four profiles represent naturally occurring or mutually exclusive employee categories. Instead, the synthesis provides a theoretically

grounded basis for examining how different configurations of capability may develop, where they may create value, and under what psychological and organizational conditions they may be sustained. The framework and its proposed relationships are intended to provide a foundation for subsequent empirical testing, refinement, and measurement development.

6. Conceptual Findings: Development of the SHAPE Framework

SHAPE stands for Strategic Human Ability and Profile Enablement. In its extended form, the framework links six connected layers: neuroplastic adaptation, employee capability profiles, psychological enablers, organizational conditions, profile-role alignment, and employee and organizational outcomes. Neuroplastic adaptation provides the foundational possibility for experience-dependent learning and change, while the remaining layers describe how capability is behaviorally expressed, psychologically supported, organizationally enabled, aligned with work, and translated into outcomes. A continuous feedback loop recognizes that new experiences and outcomes can generate further learning and reassessment.

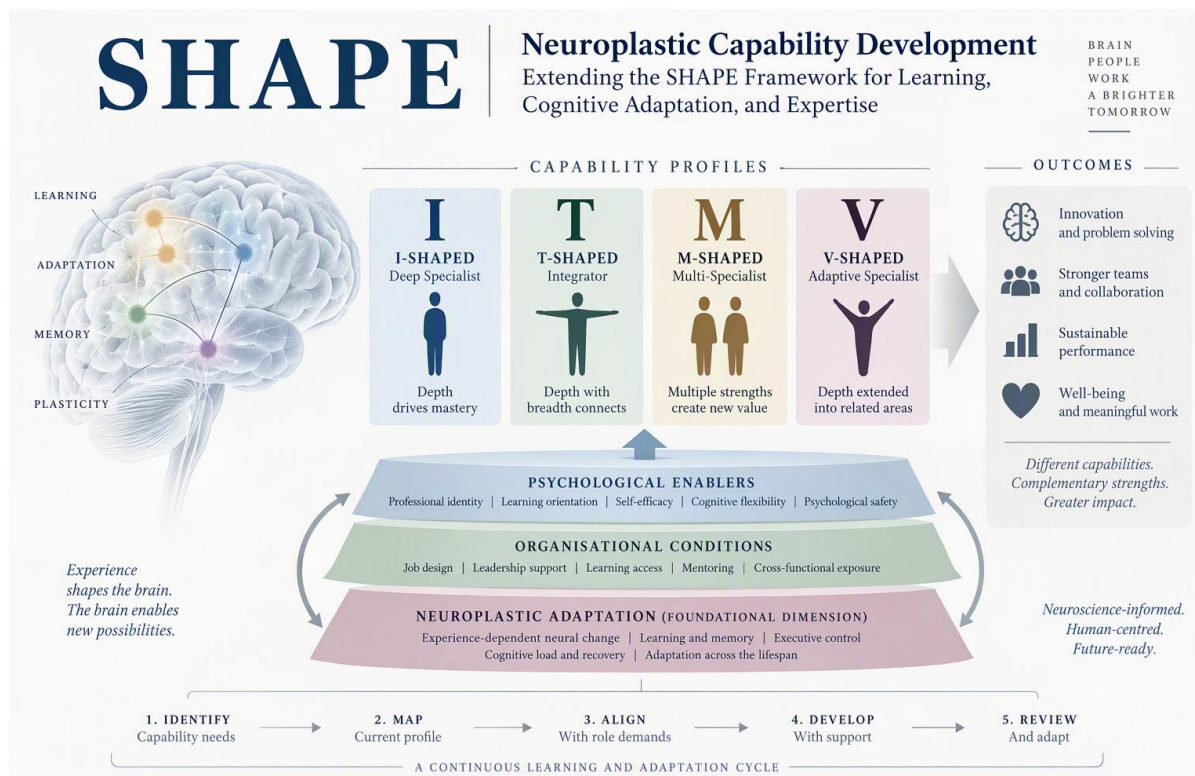


Figure 1: The SHAPE Framework: Strategic Human Ability and Profile Enablement. Conceptualized by the author, graphic prepared with generative-AI design assistance.

6.1. Component One: Neuroplastic Adaptation

The new foundational component represents the capacity for experience-dependent neural change that supports learning and adaptation. It does not classify employees neurologically and is not directly assessed through capability profiles. Instead, it positions learning, practice, feedback, novelty, and sustained engagement as experiences that may contribute to both behavioral development and underlying neurocognitive adaptation. The central proposition is that capability profiles are evolving outcomes of learning and experience, not permanent descriptions of an employee.

6.2. Component Two: Employee Capability Profiles

This component focuses on understanding the employee's current mix of specialist depth and broader capability. This understanding should come from actual work experience, demonstrated skills, career history, personal reflection, and future development goals rather than from a short personality-style questionnaire. These capability profiles are not rigid or mutually exclusive, employees may show different strengths in different roles, projects, or assignments. The aim is therefore to provide a common language for understanding contribution and guiding development, not to place people into permanent categories.

6.3. Component Three: Psychological Enablers

Five key enablers shape how employees develop their capabilities and how effectively those capabilities can be applied in the workplace. Professional identity provides continuity by helping employees understand what they know and how they can contribute [7]. Learning orientation sustains improvement. Cognitive flexibility supports movement among perspectives. Psychological safety enables questions, experimentation, and voice [15]. Self-efficacy supports persistence in unfamiliar situations [14]. These elements work together in shaping capability development: breadth may feel disconnected when employees lack a clear sense of professional identity, while confidence without a willingness to keep learning may make them less open to new ideas and feedback.

6.4. Component Four: Organizational Conditions

Capability cannot be separated from the environment that invites or constrains its use. Job design determines whether employees can apply depth, collaborate across boundaries, and exercise judgement [22]. Leadership support legitimizes learning. Learning access provides formal and informal resources. Mentoring connects emerging capability with experience and developmental guidance [23]. Cross-functional exposure creates opportunities to understand adjacent domains. Knowledge becomes valuable across an organization when it is shared, interpreted, and developed through interaction, rather than simply possessed by individuals. These conditions therefore play an important role in helping employees develop their potential and demonstrate what they are capable of.

6.5. Component Five: Profile-Role Alignment

The alignment process contains five recurring actions. First, identifying the configuration of depth and breadth the role requires.

Second, understanding the employee's demonstrated profile and preferred direction. Third, aligning existing strengths with current responsibilities while locating meaningful gaps. Fourth, developing capability through targeted interventions rather than indiscriminate training. Fifth, reassessing the profile, the role, and the organizational context. This cycle prevents development plans from becoming fixed documents detached from changing work.

6.6. Component Six: Outcomes and Feedback

When profiles, roles, and enabling conditions are aligned, outcomes likely include stronger expertise utilization, collaboration, adaptability, innovation, role effectiveness, and workforce resilience. These are proposed outcomes, not guaranteed effects. The framework also anticipates negative outcomes when alignment is weak, including underutilized specialists, role ambiguity, dependency on versatile employees, fragmented learning, and overload. Outcome evidence should inform future job design and development, completing the feedback loop.

6.7. The Distinctive Contribution of the Extended SHAPE Framework

SHAPE makes four contributions. First, it reframes shape categories as dynamic capability configurations rather than fixed employee types. Second, it rejects a developmental hierarchy in which breadth is automatically superior to depth. Third, it connects capability profiles with psychological mechanisms and organizational resources, explaining why similar expertise can produce different outcomes across contexts. Fourth, it introduces a repeated Identify-Understand-Align-Develop-Reassess cycle, moving the discussion from static classification to responsible enablement. SHAPE therefore complements rather than replacing person-environment fit, social cognitive theory, psychological safety, and the Job Demands-Resources model.

7. Conceptual Propositions Derived from SHAPE

The following twelve propositions translate the extended framework into behavioral, organizational, and neurocognitively informed relationships that can be examined empirically. The propositions do not assume that capability profiles are direct measures of neural change.

- **Proposition 1:** Congruence between an employee capability profile and role requirements will be positively associated with role effectiveness.
- **Proposition 2:** Learning orientation will be positively associated with the development of capability breadth and the renewal of specialist depth.
- **Proposition 3:** Psychological safety will strengthen the positive relationship between cross-functional exposure and integrative capability development.
- **Proposition 4:** Self-efficacy will be positively associated with employees' willingness to apply expertise in adjacent or unfamiliar contexts.
- **Proposition 5:** Learning access, mentoring, and leadership support will facilitate movement toward employee-preferred capability profiles.

- **Proposition 6:** Breadth expectations will be associated with strain when job demands expand without corresponding resources, role clarity, or workload adjustment.
- **Proposition 7:** Teams with complementary capability profiles will demonstrate stronger knowledge integration than teams designed around a single preferred profile, when coordination conditions are supportive.
- **Proposition 8:** Periodic reassessment will improve profile-role alignment by accounting for changes in employee capability, role demands, and organizational priorities.
- **Proposition 9:** Sustained, appropriately challenging learning experiences will be positively associated with behavioral indicators of capability development over time.
- **Proposition 10:** Cognitive flexibility will mediate the relationship between varied learning experiences and employees' ability to integrate or extend expertise across domains.
- **Proposition 11:** Relationships between developmental experience and capability change will be stronger when challenge is accompanied by feedback, recovery, learning resources, and manageable cognitive and job demands.
- **Proposition 12:** Longitudinal capability development associated with sustained learning experience may be accompanied by measurable changes in neurocognitive functioning, the nature and extent of such relationships require direct examination using validated behavioral and neuroscientific measures.

8. Discussion

8.1. Theoretical Interpretation

The synthesis suggests that capability development is both experience-dependent and relational. Neuroplasticity provides a biological basis for continued change through learning and experience, while cognitive flexibility helps explain adaptive shifts in thought and behavior. Person-job fit explains alignment, social cognitive theory explains confidence and action, psychological safety explains interpersonal learning behavior, and the Job Demands-Resources model explains when developmental challenge is supported or becomes excessive. The extended SHAPE Framework connects these levels without assuming that organizational capability profiles can be reduced to brain structure or neural activity.

8.2. Workforce and Role Planning

Organizations can use SHAPE to move workforce planning beyond headcount and generic competency lists. Roles can be mapped according to the depth, breadth, and adjacency they require. A highly regulated technical role may need concentrated I-shaped depth. A cross-functional program may require T-shaped integration. A transformation role may benefit from an M-shaped profile that combines substantial expertise across multiple domains, while an emerging field may require V-shaped expansion from a trusted core. The mapping process should begin by understanding the requirements of the work, rather than assuming that one type of capability profile is best suited to every role.

8.3. Development Conversations

The framework can structure a developmental conversation around evidence and aspiration. Managers and employees can discuss: Where is the employee's strongest depth? Which adjacent areas increase the value of that depth? Does the employee want deeper mastery, broader integration, a second specialism, or adaptive expansion? What resources and assignments are realistic? Such questions respect employee choice and reduce the tendency to equate promotion with continuous breadth.

8.4. Team Composition

SHAPE encourages organizations to bring together different but complementary strengths, rather than expecting every employee to develop the same capabilities. A team addressing a complex problem may need specialists who protect technical quality, integrators who connect functions, multi specialists who combine knowledge systems, and adaptive specialists who extend expertise into emerging areas. Knowledge sharing is shaped by both individual and organizational factors, and interdisciplinary integration requires deliberate communication across boundaries [3,4]. Complementarity alone is therefore insufficient. Teams also need clear interdependence, psychological safety, and mechanisms for locating and coordinating expertise.

8.5. Learning and Career Architecture

Learning portfolios can be designed around four developmental routes: deepening, integrating, combining, and extending. Deepening strengthens specialist mastery. Integrating builds boundary knowledge and collaborative fluency. Combining develops a second or third area of substantial expertise. Extending links a specialist core with adjacent future capabilities. Employees may move along these routes over time, and none should be treated as the only route to advancement. Career development should therefore allow employees to build different portfolios of capability over time. Some may choose to deepen an established specialism, while others may broaden into related areas, develop a second field of expertise, or combine knowledge across functions. These pathways should reflect both changing work requirements and the employee's own aspirations rather than an assumption that career progress always requires greater breadth.

In this sense, workforce adaptability does not mean expecting every employee to become increasingly versatile. A more sustainable approach is to build a workforce in which different forms of expertise can respond collectively to changing needs. Adaptability may come from deepening some capabilities, extending others, and bringing complementary strengths together, rather than continually expecting every individual to do more.

8.6. The SHAPE Alignment Tool

The SHAPE Alignment Tool can be applied at role, team, or function level. The organization first defines the work challenge and the capability configuration it requires. Employees then assemble evidence of current depth and breadth, including outputs, problem-solving examples, qualifications, and cross-functional experience. Managers and employees compare role requirements

with current capability, identify strengths and gaps, and agree on one or two focused interventions. Progress is reviewed using work evidence rather than abstract labels. The SHAPE Alignment Tool

should be used to support employee growth and development, not as a means of ranking or comparing individual performance.

Profile	Principal contribution	Suitable development	Watchpoint
I-shaped	Deep specialist judgement	Advanced practice, communities of practice, selected boundary exposure	Underutilization or forced breadth
T-shaped	Translation and cross-functional integration	Rotations, project work, stakeholder communication	Invisible coordination work
M-shaped	Integration of several specialist domains	Dual-domain assignments, protected learning, portfolio planning	Overload and fragmented identity
V-shaped	Expansion from a specialist core into adjacent areas	Adjacent-skill pathways, experimentation, mentoring	Unfocused or shallow expansion

Table 1. Practical Interpretation of the Four Capability Profiles

9. Ethical Considerations in Capability Profiling

An accessible framework can become harmful if convenience replaces judgement. Organizations should avoid treating the profiles as measures of intelligence, commitment, promotability, or human value. Employees should have an opportunity to describe their own aspirations and challenge a profile assigned by others. Capability information should be handled openly and responsibly, while recognizing that employees may not have equal access to developmental opportunities such as challenging assignments, mentoring, education, or opportunities to demonstrate their strengths. The framework also cautions against coercive versatility. Requiring every employee to become broader can devalue deep expertise and shift organizational skill shortages onto individuals. Development should be negotiated, relevant, resourced, and compatible with sustainable workload. A profile should open developmental possibilities rather than narrow careers.

10. Research Implications and Future Validation

The first research priority is measurement. Studies should distinguish depth, breadth, adjacency, and multiple-domain expertise and examine whether the proposed configurations can be measured reliably. Person-centered methods, including latent profile analysis, may be more appropriate than assuming four predetermined categories. Qualitative research can examine how employees experience profile labels, how professional identity changes during boundary crossing, and whether V-shaped development differs meaningfully from T-shaped breadth. The framework also invites multilevel research. Individual learning orientation and self-efficacy may influence development, while psychological safety operates as a shared team belief and organizational systems determine access to assignments and resources. Longitudinal designs are needed because capability formation unfolds over time. Field studies can test whether profile-role alignment predicts effectiveness after accounting for experience, job complexity, and personality. Intervention studies can evaluate mentoring, rotations, protected learning time, and job redesign.

Team-level studies should examine complementarity rather than average breadth. A team with varied profiles may benefit from more complete knowledge but may also face coordination difficulty. Psychological safety, transactive memory, and integrative leadership may determine whether diversity of capability produces synergy or fragmentation. Cross-cultural research can further test whether professional boundaries, authority relationships, and expectations of career mobility affect how the profiles are interpreted.

10.1. Neurobehavioral Validation Agenda

Future neuroscience-oriented validation should separate three levels of measurement. Capability profiles should be assessed behaviorally using work evidence and validated capability measures, cognitive adaptation should be examined with established neuropsychological measures of cognitive flexibility, executive control, learning, and cognitive load, and neural adaptation, when relevant, should be investigated independently using appropriate neuroimaging or physiological methods. This multimethod separation is important because cognitive flexibility itself is measured differently across self-report, neuropsychological, and neuroscientific approaches, and these measures should not be assumed to be interchangeable [9]. Neuroplastic development should not be interpreted as simple or continuous expansion. Models of skill acquisition suggest that learning-related structural change may involve initial expansion followed by selection and partial or complete renormalization as learning progresses [24].

Longitudinal designs would be especially valuable because neuroplasticity and capability development both unfold through repeated experience. Research could test whether changes in work-related capability co-occur with changes in cognitive performance and, in selected studies, neural structure or function. Evidence from adult skill learning indicates that experience-dependent brain adaptation can be nonlinear, reinforcing the need to avoid if more training or more breadth necessarily corresponds to a simple linear increase in neural or behavioral capability [2]. The aim should be to test relationships across levels, not to use neuroscience as a decorative explanation for workplace behavior.

11. Practical Implications for Organizations and Employees

For leaders, the principal implication is to replace the search for a universally ideal employee with deliberate alignment. Leaders should ask what the work needs, what strengths are already present, and which conditions allow those strengths to connect. For human resource functions, SHAPE offers a language for differentiating career routes without ranking them. For learning and development professionals, the framework links programs to specific capability transitions and requires follow-up through work application. For employees, SHAPE can support career development by helping them consider whether they wish to deepen, broaden, combine, or extend their existing capabilities. The framework validates the decision to deepen expertise as well as the decision to broaden, combine, or extend it. The relevant question is not, 'Which shape is best?' but 'Which configuration allows this person to contribute meaningfully to this context, and what support is needed for sustainable growth?'

12. Limitations

The framework has several limitations. The four shapes are simplified representations and may not capture nonlinear, collective, or rapidly changing forms of competence. Boundaries between T-, M-, and V-shaped profiles may be difficult to establish empirically. The model also focuses on knowledge and capability architecture and does not fully represent motivation, values, power, occupational regulation, or structural inequality. In addition, the proposed outcomes are theoretical and should not be interpreted as established causal effects. Most importantly, the present paper does not provide neuroimaging, electrophysiological, clinical, or other neurological data. Neuroplastic adaptation is introduced as a theoretical foundation for experience-dependent capability change, not as evidence that I-, T-, M-, or V-shaped profiles possess distinct neural signatures. Any claim linking a capability pathway to a specific neural mechanism would require direct empirical testing.

Future research should first confirm that the capability profiles are clearly defined and can be measured reliably before they are used as a practical management tool. Researchers should examine whether employees and managers understand the profiles in similar ways and whether the profiles offer useful insights beyond factors already known to influence performance, such as experience, cognitive ability, proactive personality, and job complexity. Research should also consider possible negative effects, such as placing employees into fixed categories, unequal access to development opportunities, excessive work demands, and specialists feeling that their expertise is no longer sufficiently valued.

13. Conclusion

Human capability is not static. Learning, practice, feedback, and changing demands can reshape how expertise is maintained, connected, and extended across adult life. The extended SHAPE Framework interprets I-, T-, M-, and V-shaped profiles as evolving behavioral configurations of depth and breadth, while introducing neuroplastic adaptation as a foundational explanation for why experience-dependent change remains possible. The framework connects neuroplastic adaptation with cognitive flexibility,

professional identity, learning orientation, psychological safety, and self-efficacy, while recognizing the enabling roles of job design, leadership, learning access, mentoring, and cross-functional exposure. It therefore proposes a multilevel account in which biological capacity for change, adaptive cognition, psychological experience, and organizational context interact without being treated as equivalent levels of explanation. Its practical and scientific message is equally cautious: neuroplasticity should not be used to label employees or to justify unlimited expectations for adaptability. Development is most meaningful when learning is purposeful, capability pathways remain responsive to individual aspirations, and challenge is matched with adequate feedback, resources, recovery, and sustainable workload. The future of capability development lies not in making every brain or every employee adapt in the same way, but in understanding how experience, cognition, expertise, and supportive environments can enable different strengths to develop and contribute over time.

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