Methodological Flexibility in Systems Thinking: Musings from the Standpoint of a Systems Consultant

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Abstract

Systems thinking is armored with a range of methodologies to aid practitioners work in complex situations. However, systems methodologies are often associated with a niche research group in operations research, management science and systems engineering (OR/MS/SE) thereby making their popularity and acceptance in general management and engineering challenging. In such a situation, methodological flexibility can offer greater liberty to a practitioner to use systems methodologies in a more flexible and creative manner without having to be bound by the rigor of the methodology itself. This paper presents a discussion on methodological flexibility in systems thinking highlighting two consultancy case studies. An orientation to the development of systems thinking in OR/MS/SE is provided leading to the presentation of Holistic Flexibility, a recently developed conceptual lens in systems thinking that calls for a more egalitarian and democratic stance for the discipline. The case-studies presented are analyzed in light of Holistic Flexibility to articulate the benefits and practitioner limitations of methodological flexibility. Recommendations to address the limitations are provided. This paper has two main contributions: First, it presents the proposition that methodological flexibility can also mean that systems methodologies can influence the design and deployment of interventions in management consultancy, without directly deploying such methodologies. Second, the practitioner experience, drawing from the journey of the projects presented in the case-studies, will substantiate recent arguments that call for systems thinking to be a cognitive discipline without having to be methodologically bounded.

Keywords Systems thinking · Methodological flexibility · Systems consultancy · Holistic flexibility · Full-mixing

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Introduction

Systems thinking refers to a body of knowledge that is based on the understanding of inter-relationships and emergent behaviors. Systems thinking has benefitted from a wide range of methodologies through the journey of its evolution, which form part of a niche paradigm in operations research, management science and systems engineering (OR/MS/SE). This poses a challenge for these methodologies as they remain largely disconnected from mainstream approaches in management and engineering. This paper presents certain musings on methodological flexibility in systems thinking from the perspective of the author, who has deployed systems methodologies flexibly and creatively within the constraints of the consultancy industry.

The paper will begin with an introduction of the waves (or stages) through which systems thinking has developed and the methodologies these waves have influenced. This will be followed by a discussion on systems consultancy and flexibility. Next, a general note will be provided on a typical consultancy approach. This will be followed by an orientation to the systems methodologies that were used in the projects that will be covered in the case-studies later in the paper. Narration of two consultancy case-studies from India will be presented that will highlight methodological flexibility in practice. This will be followed by a detailed discussion covering the nature of the methodological flexibility in the case-studies, a reflection on the limitations of methodological flexibility for a practitioner, and a note on how these limitations can be overcome drawing from Holistic Flexibility, a recently developed conceptual lens in systems thinking.

This paper has two main contributions. First, it will present the proposition that methodological flexibility can also mean that systems methodologies can influence the design and deployment of interventions in management consultancy and engineering, without directly deploying such methodologies. Second, the practitioner experience, drawing from the journey of the projects, will substantiate recent arguments that call for systems thinking to be a cognitive discipline without having to be methodologically bounded.

Waves in Systems Thinking

There are three distinct stages or, as Midgley (2000, 2003), followed by Cabrera and Cabrera (2019), suggest, waves, in the history of systems thinking. The evolution of systems thinking through its three waves is described below.

The first wave in systems thinking was characterized by the realization of the importance of interconnectedness of social and organizational systems in-order-to manage complex problems in the post-World War-II scenario. This wave was influenced by developments based on the belief that social reality can be improved and managed with a functionalist mindset (LeLeur 2014; Mooney et al. 2007); this saw the rise of hard systems thinking. Methodologies in the first wave include Systems Analysis (Miser and Quade 1988; Optner 1973; Quade and Boucher 1968; Quade et al. 1978), Systems Engineering (Hall 1962; Jenkins 1969), System Dynamics (Forrester 1961), and Organizational Cybernetics and Viable System Model (Beer 1959, 1966, 1981). The first wave gained popularity during the 1950 and 1960 s (Midgley and Rajagopalan 2021) but it soon faced criticism for its emphasis on prediction and control with systems thinkers positioned as experts (Rosenhead 1989) and

neglect of human agency (Burton 2003; Checkland 1981; Flood and Romm 1995; Jackson 2000; Lleras 1995; Schecter 1991).

Criticism of the first wave led to a "significant paradigm shift in the theory underpinning the application of systems thinking" (Midgley & Rajagopalan, 2021) and the rise of the second wave through the works of scholars such as Ackoff (1981), Checkland (1981), Checkland and Scholes (1999), and Churchman (1979). These scholars emphasized on interpersonal relationships, intersubjectivity, learning, and a spirit of open dialogue and accommodation and created what came to be known as soft systems thinking. Methodologies associated with this wave include Strategic Assumption Surfacing and Testing (Mason and Mitroff 1981), Soft Systems Methodology (Checkland 1981; Checkland and Poulter, 2006; Checkland and Scholes, 1990), Interactive Planning (Ackoff 1981; Ackoff et al. 2006), Interactive Management (Warfield 1994; Warfield and Cárdenas 2002) and Structured Dialogical Design (Christakis and Bausch 2006; Laouris and Michaelides 2018).

Although the second wave sought to address the shortcomings of the first wave, it soon faced criticism from scholars for its inability to address issues of power and hidden dynamics, most popularly articulated by Jackson (1987). Rajagopalan (2020) notes that soft systems thinking neglects the multiple influences of social-structural factors and their effects. Clarke and Lehaney (1999), Mingers (1984, 1992), and Oliga (1988) talked about power-based ideological frames that create false consciousness amongst stakeholders that the soft systems tradition fails to address. Criticisms of the second wave and an attempt to bridge the growing fragmentation (Dando & Bennett, 1981) between hard and soft systems thinking gave rise to the third wave in systems thinking that had a focus on liberation and emancipation (Burton 2003) and employed recent developments from complexity theory (LeLeur 2014). The importance of human interaction and interrelationships were paramount (Ellis 1995; Thackara 2005). This wave came to be known as critical systems thinking (CST). The principle tenets of CST were characterized in its foundational methodologies – Critical Systems Heuristics (CSH) (Ulrich 1983, 1987, 1988, 1994, 1996), Methodological Pluralism (Flood and Jackson 1991a,b; Jackson 1987, 1990, 1991, 2019; Jackson and Keys 1984), and Systemic Intervention (Midgley 2000).

Having introduced the waves in systems thinking, next, a discussion on systems consultancy and flexibility will be presented.

Systems Consultancy and Flexibility

Consultancy is understood as the practice of an external advisor providing professional advice to a client (Leaman 2013; Shays 1988; Smith et al. 2003; Turner 1982). In this paper, the term "systems consultant" will be used to refer to consultants who use systems methodologies in their advisory practice. Dash (1994) argues that consulting is intimately linked with the well-being of human systems as it is a process through which human collectives engage in purposeful activities. Schein (2016) argues for the importance of humility, curiosity, self-awareness, and openness for consultants. Based on social identity theory, Gregory et al. (2020) highlight the fact that researchers and funders are stakeholders too and may be surrounded by their extended stakeholder cohorts with their own respective interests. Checkland and Scholes (1990) encourage the consideration of the range of actors in a systems-change process that include those designing and catalyzing the change. A great

deal of effort in a consultancy project and the intended outcomes can, therefore, depend on the role consultant the consultant is expected to play as an expert advisor or investigator, or as a facilitator who drives a participatory and empowering process (Ormerod, 2014).

Systems consultancy demands flexibility and empathy. Murthy (2000) talks about the operating environment of a consultant as a highly complex one existing as a "consultancy triad" between the client, the consultant, and the problem, where the consultant needs to work towards emancipation through learning (p. 94). Consultants need to be flexible and creative in how they approach a situation, overcome problems, collate, and interpret data, and in the way they understand the internal and external contexts with criticality and maturity (Bell and Morse 2013; Ormerod 2014). It is argued that systems consultants need to be flexible and complementarist in their use of methodologies and in their ability to navigate both intended and unintended consequences of their actions (Rioz and Suarez 2012). Grohs et al. (2018) talk about the importance of cognitive flexibility that is necessary in systems thinking along with the three dimensions of problem, perspective, and time that they refer to as "fluencies" (Grohs et al. 2018:111) necessary for a systems understanding. Similarly, Mingers and Brocklesby (1997) highlighted three fundamental reasons: (1) nature of problem-situation, (2) nature of outcomes, and (3) nature of mixing methods, for which, pluralism and working across paradigms are important. Morgan et al. (2016) note that "cycling between methods" (p. 174) can lead to fresh perspective of the system itself. This calls for the consultant to be flexible and adaptive through the journey and be able to work across paradigms reflecting what Taket and White (1996) would call Pragmatic Pluralism. Midgley (1989, 1990) proposed the extraction of specific aspects of relevant methodologies to be applied for specific purposes. Sushil (1994, 1997, 2015) builds his Flexible Systems Methodology (FSM) on spectral and integrative theories.

All complementarist methodologies implicitly assume the presence of flexibility as a quality. Scholars such as Dash (1994), Flood (1989, 1990), Jackson (1987, 2000), Midgley (1990, 1997), Mingers and Brocklesby (1997), and Schön (1983, 1987) have talked about the importance of flexibility. Taking a dedicated approach to flexibility, Sushil (1994, 1997) considers the study of flexible systems management. But none of the works have studied the nature of how different kinds of flexibility may be required for systems consultants to carry out their work effectively. To bridge this gap, Holistic Flexibility was recently introduced for systems consultancy as a conceptual lens that calls for the bringing together of flexibility of thought, methodologies, and resources – cognitive flexibility, formulative flexibility, and substantive flexibility, respectively – in a dynamic manner for systems consultants (Chowdhury 2019a, 2021, 2022).

Having talked about systems consultancy and flexibility, the next section provides a note on the typical process followed in a consultancy assignment.

Consultancy Approach

Consultancy projects can be of various kinds, involve varied degrees of complexity, focus on diverse problem situations, have different solution anchors (manufacturing, HR, technology, process, marketing, sales, strategy, supply chain, etc.), and involve multiple stakeholders. However, the overall lifecycle of a project can be typified into four stages: diagnosis, design, implementation, and evaluation (Bloomfield and Best 1992; McKenna 2006; O'Mahoney

2006; Ray 2011; Rider 2021; Schein 1969; Whittington 1993). These stages are described below:

- **Diagnosis**: This stage entails the consultant to obtain a comprehensive understanding of the client problem through research and analysis.
- **Design**: In this stage, insights generated from the diagnosis are used to craft a solution for the client. It is important to note that design is not a one-time activity, but it is iterative. In many consultancy projects, the mandate may end with the submission of design recommendations.
- **Implementation**: This stage entails the implementation of the recommendations and plan that has been created in the previous stage. This stage may not mean the serial implementation of the laid-out plan, but may involve changes, corrections, and readjustments through the process.
- **Evaluation**: Consultancy projects are accompanied by evaluation to ensure that agreed deliverables are achieved in line with the project contract. There can be two major kinds of such evaluation: (1) Tracking and monitoring: Ensures that the work stays close to the goals and course-correction is made. (2) Impact evaluation: Carried out at the end of the project to assess how the project has moved the needle for stakeholders.

The consultancy approach that was undertaken in the projects, covered in the case-studies later in this paper, was aligned to the four stages described above. In these projects, four systems methodologies were deployed flexibly and creatively. The next section provides an overview of the four selected methodologies.

Methodologies Deployed

Requisite Organization

Requisite Organization (RO) is a systemic framework to structure an organization based on a range of factors that can enable it to embrace and balance internal capability with respect to external complexity (Jaques 1998; Jaques and Cason 1994; Jaques and Clement 1991, 2002). RO considers the key dimensions for an organization to be requisite through structure, talent, accountabilities, and leadership practices (Dutrisac et al. 2007; Prinsloo 2019). RO and various tools to deploy the RO theory in organizations were developed in the Brunel Institute of Organization and Social Studies (BIOSS).

RO is based on the pioneering contribution of Elliott Jaques' (1990) Stratified Systems Theory (SST), the essence of which has been captured in the following discussion under three headings: (1) levels, (2) dimensions, and (3) capability.

Levels

An organization can consist of a maximum of seven levels, which are qualitatively discrete and adhere to the system principle of requisite parsimony (Adams et al. 2014; Miller 1956). As one moves from one level to the next level, the type of work, complexity, and scope of responsibility is progressively different.

The seven levels and the respective descriptions of the work pertaining to each level are provided below:

- **Level 1 (Quality)**: Carries out specific tasks within clearly defined quality, quantity, time, and resource parameters, within a concrete environment with known and measurable variables.
- **Level 2 (Service)**: Supports level 1 whenever called for to manage problems and issues, taking into consideration the organizational ethos and values.
- **Level 3 (Practice)**: Implements organizational systems and processes in their area of concern and takes decisions for individual departments taking into consideration how this will impact on the other departments.
- **Level 4 (Strategic Development)**: Brings about changes in products or services in the organization or with outside relationships, structures or systems that would ensure that the organization stays competitive.
- **Level 5 (Strategic Intent)**: Establishes a strong connect with the larger socio-economic environment and brings about strategic changes in the organization that would ascertain the long-term viability of the business.
- **Level 6 (Corporate Citizenship)**: Establishes and sustains strong national, regional, and international presence by integrating and aligning human sensitivities, cross-cultural needs, and global economic realities.
- **Level 7 (Corporate Prescience)**: Takes business decisions that redefines value systems at a global level that can shape current and future generations.

The nature of complexity changes as one moves from one level to the next, which is determined by a set of intersecting dimensions. This is discussed in the next section.

Dimensions

According to the SST, each of the seven levels is progressively distinct due to the intersection of seven internal and external dimensions that is definitive for each level.

The seven dimensions are:

- **Value Contribution**: Every level contributes a certain value to the organization with respect to dealing with complexity, future orientation, and span of relationships.
- **Resources**: Indicates access to resources and support required to fulfill the responsibilities at each level such as people, technology, budgets, skillsets, and knowledge.
- **Problems**: Whereas at lower levels, problems are visible, clear, and identifiable, at higher levels problems are ambiguous, discrete, and unclear.
- **Discretion**: The autonomy that a job-holder at a certain level receives to innovate and make changes in their functions.
- **Collaboration**: The extent to which a job-holder needs to interact and collaborate with teams within and outside their department or business laterally.
- **Context**: The extent to which the job-holder needs to interact with the outside environment including customers, suppliers, partners, regulatory bodies, and civil society organizations.
- **Time-span**: The time over which decisions of the job-holder can be seen to yield result.

See Fig. 1 for a snapshot of the SST covering the levels of work, time-span, theme, roles and contribution.

The nature of complexity and related levels of work demand progressive levels of human capability to work effectively at each level. This is discussed in the next section.

Capability

Capability refers to the job-holder's ability to effectively work and contribute at a particular level based upon the demands of the complexity that that level poses. According to research conducted as part of SST, human capability develops over a period of time as a natural progression (Jaques 1998). Out of several SST-aligned capability assessment tools available in the market, Career Path Appreciation (CPA) and Modified CPA (MCPA) are the most popular (Lewis 1993; Kitching 2004).

Along with capability, it is important that the job-holder also demonstrates the required competencies to accomplish their goals. Competencies are skills and attributes that enable a person to realize their potential. An often-used tool along with CPA/MCPA is Linked Psychometric Assessment (LPA) that helps assess a job-holder's current professional competency against the desired organizational level (BIOSS 2021). Unlike the CPA/MCPA tool, where the capability framework is considered generally valid of any organization, in the LPA tool, the competencies must be modified and validated for each organization.

Combined with CPA/MCPA, the LPA offers a uniquely relevant approach to understanding a job-holder's organizational alignment and ability to contribute in the work environment (BIOSS 2021).

Viable system model

The Viable System Model (VSM) was created by Beer (1972, 1985) based on the principles of neuro-cybernetics. He advocated that only when an organization presents variety from within, can it counter external variety and remain in a viable state. Every level in the organization can be understood to be in a viable state if the conditions of required variety are presented in context to its respective environment, and it is able to maintain a separate existence. The VSM suggests that every organization, or every system, can be structured

| Level	Time-span	Theme	Role	Contribution
Levels in the Stratified Systems Theory model				
7	20-50 years	Corporate prescience	International president	Values
6	10-20 years	Corporate citizenship	Group CEO / Vice President	
5	5-10 years	Strategic intent	CEO / GM	Adding value for the future
4	2-5 years	Development	Senior Executives / GMs	
3	1-2 years	Practice	Function heads	Service
2	3-12 months	Service	First line managers	
1	0-3 months	Quality	Front line staff / supervisors	

Fig. 1 Stratified Systems Theory (Image credit: Prinsloo 2019)

with five subsystems, which are themselves independent systems in their own rights. The system demonstrates the quality of recursiveness that indicates its ability to replicate itself within its subsystems with corresponding functionalities with respect to differing levels of complexity. Complexity decreases as one moves from the larger system to its constituent subsystems.

Following are the five systems in the VSM:

- **System 1**: This is the implementation system where the actual operation of an organization takes place. Therefore, there may be several systems 1 catering to several units of an organization. Each system 1 has its own responsibility and localized management and deals with its own operating environment.
- **System 2**: This is the coordination system, which is responsible for maintaining a harmonious balance of functions between the systems 1. Its tenets are information sharing, resources management, crisis management, and providing recommendations on course-corrections and organizational alignments.
- **System 3**: This is the control system which ensures the optimal alignment of policies and goals in the subsystems. Its tenets include reviewing, monitoring, target setting, progress tracking, and feedback and prioritization.

  - **System 3***: This is the algedonic link ($\alpha\lambda\gamma\circ\varsigma$, pain, and $\eta\delta\circ\varsigma$, pleasure, in Greek) that is meant to raise alarms and rewards that transcend the existing systems of communication and control at the time of crisis or any extreme happening. In an organization, system 3* also performs the audit function.

- **System 4**: This is the development system. It looks out for new developments in the operating environment and ensures that the organization can survive in the context of a changing external realities. Its tenets include environment scanning, research, insights generation, future planning, and projections and forecasting.
- **System 5**: This is the policy making and executive unit, the highest system that steers the organization in a strategic manner and has a long-term view of the enterprise. Its tenets are strategic planning, organizational viability, and competitive sustenance.

Fig. 2 Viable System Model (Image credit: Herrmann et al. 2007; p. 3)
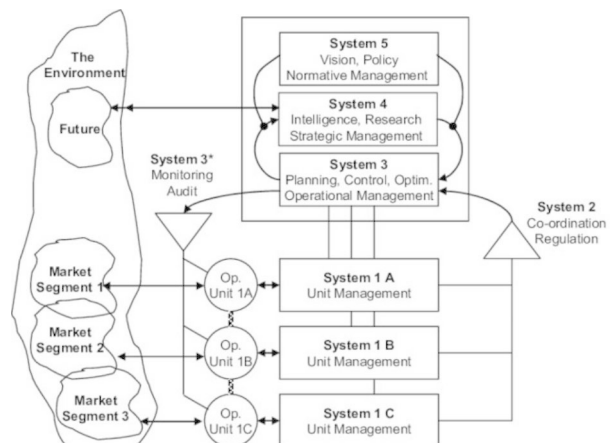
See Fig. 2 for a snapshot of the VSM covering the five systems, environment, roles, and communication and control flows.

A VSM-led structure can enable not only long-term viability, but also competitiveness for an organization in the wake of increasing internal and external complexities driven by rapid changes in markets, legislation, technologies, and customer demands.

Critical Systems Heuristics

Critical Systems Heuristics (CSH) was expounded by Ulrich (1983) to support reflective practice pivoted on the theory of boundary critique, i.e., the role system boundaries play in including and excluding stakeholders that in-turn affect the way a system and its behaviors are understood. Ulrich (1983) says that to be critical means "to discern or to judge carefully" (p. 19) the norms and values one is situated within. Ulrich (1983) regards the demarcation of a system with criticality as boundaries of a system are never fixed. Heuristics, according to Ulrich (1983), is the art of discovery — the art of the usage of problem relevant knowledge to problematize the problem itself.

Table 1 Boundary questions of Critical System Heuristics. (Adapted from: Ulrich and Reynolds 2010)

The involved – Motivation		
1. *Beneficiary* Who is/ought to be the intended beneficiary of the system?	2. *Purpose* What is/ought to be the purpose of the system?	3. *Measure of improvement* What is/ought to be the system's measure of success?
The involved – Control		
4. *Decision maker* Who is/ought to be in control of the conditions of success of the system?	5. *Resources* What conditions of success are/ought to be under the control of the system?	6. *Measure of improvement* What conditions of success are/ought to be outside the control of the decision maker?
The involved – Knowledge		
7. *Expert* Who is/ought to be providing relevant knowledge and skills for the system?	8. *Expertise* What is/ought to be relevant new knowledge and skills for the system?	9. *Guarantor* What are/ought to be regarded as assurances of successful implementation?
The affected – Legitimacy		
10. *Witness* Who is/ought to be representing the interests of those negatively affected by but not involved with the system?	11. *Emancipation* What is/ought to be the opportunities for the interests of those negatively affected to have expression and freedom from the worldview of the system?	12. *Worldview* What space is/ought to be available for reconciling differing worldviews regarding the system among those involved and affected?

Ulrich (1983) presents a set of twelve questions in the "is" and the "ought" mode that are known as the boundary questions. These questions can aid in unravelling the boundaries that circumscribe one's understanding of a reference system (Ulrich 2005, 2006). These questions are presented under four dimensions that offer a more holistic awareness of a situation from a range of perspectives and issues. The four dimensions are: (1) motivation (where a sense of purposefulness comes from), (2) control (where the necessary resources and power are located), (3) knowledge (where sufficient expertise and experience is assumed to be available), and (4) legitimacy (where social and legal approval is assumed to reside). The twelve boundary questions and a snapshot of the insights from the interactions are presented in Table 1.

The boundary questions immerse into judgements, perspective and worldviews that are shaped by deep-seated values.

Soft Systems Methodology

Checkland (1984) defines Soft Systems Methodology (SSM) as "a cyclic learning system which uses models of human activity systems to explore with the actors in a real-world problem situation their perceptions of that situation and their readiness to decide upon purposeful action which accommodates different actors' perceptions, judgements and values" (p. 98). It is a participatory methodology to bring together stakeholders of diverse perspectives and worldviews in an atmosphere of constructive deliberation, aspiring for convergence (Checkland 1981; Checkland and Scholes 1990; Checkland and Scholes 1999).

An SSM exercise consists of seven stages that is described below:

- **Stage 1 – Situation considered problematical**: This step involves a general recognition of the situation as considered problematical. It is concerned with the real world and is informed by data and insights about the problem.
- **Stage 2 – Problem situation expressed**: This step lets participants express the situation that they experience in a creative manner using visual representations called rich pictures while still in the real world.
- **Stage 3 – Root Definitions of relevant purposeful activity systems**: Root Definition is a condensed representation of the problem-situation covering Customers, Actors, Transformation, Worldview, Owners and Environmental constraints (CATWOE). Root Definitions shift the minds of participants into the systems world as one's mental models surface while phrasing it.
- **Stage 4 – Conceptual Models of the relevant systems named in the Root Definitions**: While still being in the systems world, conceptual models are used to depict what the system "does" when the root definition depicts what the system "is" (Jackson 2000). Conceptual models bring out case-and-effect relationships of the system based on the root definition.
- **Stage 5 – Comparison of models and real world**: This step brings the participants back to the real world where the conceptual models are compared with the real-world situation. Models from the previous stages are leveraged to provide alternative means of perceiving a different view of reality by testing assumptions.
- **Stage 6 – Changes systemically desirable and culturally feasible**: This stage involves participants in a debate on their worldviews to bring about an accommodation of

perceptions. Differing opinions are discussed and options are considered about how best these may be overcome.

- **Stage 7 – Action to improve the problem situation**: This is the final implementation stage where the derived plans are put to action supported by a project management office to track deliverables, responsibilities, and timelines.

The seven stages of SSM are depicted in Fig. 3.

SSM, can be regarded as a merger of both creative and logical processes shifting between the real world and systems world deliberations resulting in models for change that satisfices multiple stakeholders.

Prelude to the Case-Studies

Having expounded upon the selected methodologies in the previous section, two case-studies of organization design consultancy projects, that were based in India, will be presented. The case-studies will highlight the deployment of the methodologies in a flexible and creative manner, which, will be later argued as cases of demonstration of systems thinking as a cognitive discipline. For the sake of client anonymity, the clients have been called Potential PR (for which, the project was carried out during the year 2008 to 2009) and Potential Steels (for which, the project was carried out in the year 2013). During the time both the projects were carried out, the author played the role of the lead consultant. He was affiliated to two separate consultancy firms. For both case-studies, only discussions relevant to methodological flexibility have been provided. For a detailed narration of the first case-study, see Chowdhury (2011, 2019b), and for the second case-study, see Chowdhury (2019c).

Fig. 3 Seven stages of Soft Systems Methodology
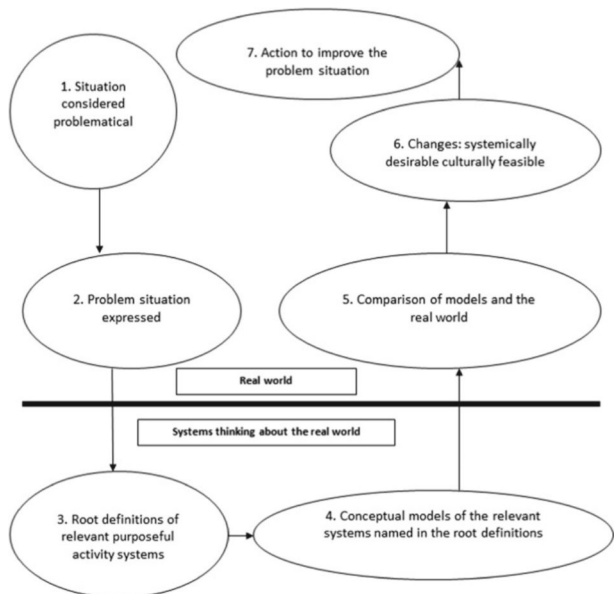
In both cases, a specific methodology was used as an overarching or primary one, referred to as "dominant methodology", and the other methodologies were used as support, referred to as "dependent methodology" (Jackson 2019). The dominant and dependent methodologies were different in both the cases, determined by the context of the respective projects.

Case-Study I – Potential PR

About the Client

Potential PR was a public relations (PR) firm with three offices across three cities in India – Bengaluru, New Delhi, and Mumbai. The company offered its services in four main industries – consumer, healthcare, technology, and social innovation. The company prided itself as a pioneer in crafting innovative PR solutions that was evidenced in several national and regional awards it had received. In the years preceding the intervention, the company witnessed rapid growth and was beginning to shift from a small boutique company to a mid-sized establishment. A need was felt to transform its business structure to enhance better intra-firm collaboration and enable better business focus in the dynamic Indian PR industry.

Project Mandate

The client's initial mandate was to redesign the organization structure to make it more effective to sustain the rapid growth of the firm through collaborative working, along with supporting the leadership team in developing its people skills so that the leaders were equipped to lead the firm into its envisioned future. The diagnosis stage of the project led to the surfacing of various issues.

The following areas emerged as the key project design imperatives:

- **Organizational structure**: The as-is geography-based structure was creating a silo working environment. Discussions surfaced the need for creating a structure that would enhance focus on specific market verticals, both from the point of new business development and solution delivery.
- **Capability**: Given the rapid transformation that the firm was going through, it was required to realign the right leadership capability in the right organizational scheme. Capability identification and enhancement to respond to the business environment emerged as clear needs. In addition, teams needed to be brought together and a process of self-appreciation and capacity building enabled.
- **Collaboration**: This was a stated need when the mandate was received from Potential PR. Collaboration is key in a professional services firm to enable innovation, teamwork, pride, and employee morale.

The consulting team agreed with the client that the intervention would be implemented keeping in mind the creation of a structure that would not only address the challenges that the organization was facing with team collaboration, but it will also enhance its leadership capability, and make the business more future-ready. The next section will reflect on how systems methodologies were deployed flexibly to this end.

Methodology

The emerging requirement at Potential PR demanded a methodology that could address structure, capability, and collaboration, for which RO was adopted as the dominant methodology. The dependent methodologies that were used in the intervention are CSH, SSM, and VSM. The intervention started with a detailed expectation setting with the top management that covered various areas including the strategic intent, as-is state of the business, future direction, strategic objectives, challenges, and human resources capability. The interactions also involved decoding the measure of success of the intervention. The discussions were led with an interview guide that was inspired by the twelve questions of CSH to approach the on-ground reality with a critical lens and explore not only the journey that the firm had made since its inception, but also to appreciate how the same was perceived by employees and external stakeholders.

As a following step, a cross-section of managers was interviewed for a deeper understanding of the norms of conducting business in Potential PR. The interactions delved into the business drivers that needed to be considered for arriving at various options for the to-be structure. Design of these interactions were inspired by the CATWOE framework, from SSM, to facilitate thinking about a wider range of variables. The respondents articulated a range of customers (C), both internal and external, who were involved and affected by the business. Perspectives on employees and subject matter experts were discussed who were the actors (A) in the organization's service delivery. The impact of the firm's service delivery was discussed to understand client impact through the transformation process (T). Perspectives and worldviews (W) of the team were explored, and their aspirations and career progression opportunities were understood. Respective ownership (O) for operations, value creation, and client management were clearly articulated. All of these aspects were explored in the wider environment (E) of the PR industry.

The top management and cross-sectional manager interactions helped understand the business drivers of Potential PR, which were scalability and growth, intra-firm collaborative spirit, process efficiency, and organizational integration. With these business drivers in context, a Levels of Work Audit (LOWA) was carried out. The LOWA framework was adapted to be in sync with the VSM in a way that the questions asked during the audit not only explored the seven dimensions of work as per SST, they also explored how the functions of unique job-holders aligned with the five systems of the VSM. Inspired by the cybernetic principles of the VSM, nuances of the organization's sustainability were delved into by understanding communication and control flowed between the functions, teams, and levels. Details regarding internal control and balance systems and how the schema existed in a recursive model were understood.

The following observations were reached with the study of the as-is structure:

- The as-is structure was based on location of the three offices in three Cities. This also dictated the reporting relationships creating an artificial divide between the employees in the three offices.
- Employees were being segregated based on the geography rather than on skills that negatively affected collaboration and teamwork.
- Various roles within the organization including leadership roles demonstrated a strong transaction focus.

- There were significant overlaps in expectations, roles, and responsibilities between the various levels. At times, the roles across the hierarchies were cramped in the same level or there were gaps in the structure leading to senior-level employees being pulled down to perform work at a junior level.
- Employees were being promoted across the levels often without any change in their role, leading to perceived sense of stagnation.
- The location-based structure was limiting cross-functional flexibility across teams across geographies.
- The LOWA showed that Potential PR was operating at three levels – Quality, Service, and Practice – with seven unique roles. With the organization stopping at the Practice level, it meant that it was operating with an overwhelmingly internal focus.

The study helped unravel processes that were repetitive and duplicative that were later recommended to be streamlined. This led to the proposal of a to-be structure that was industry-based, a shift from the erstwhile location-based one. It had four levels with Strategic Development being the highest; the new higher level would bring greater future orientation and external focus. The new structure also had seven roles that were crafted in line with the tenets of the LOW and the VSM, ensuring that every role and every level was unique in terms of complexity and contribution.

The MCPA and LPA assessments were administered with the leadership team members to understand their current capabilities and competencies and how the same could develop in the future. Insights obtained from the assessments were also used as developmental pointers for the team.

The next stage involved an organization-wide announcement of the new structure. A convergence workshop for the employees was organized at an off-site location. The workshop was designed to be dialogic, participative, and integrative. Inspired by the philosophy of the SSM, participants were asked to draw rich pictures to depict their beliefs and perceptions on the opportunities and challenges that could be posed by the new structure. This exercise enabled participants to enter a dialogic process and share their thoughts and feelings in an atmosphere of trust and transparency. Discussions that followed helped to bring the team closer and build an integrative spirit.

Project Outcome

The intervention paved the way for greater team spirit at Potential PR across its locations. The industry-based structure, that replaced the location-based structure, meant greater opportunities for the employees to come together, collaborate, exchange knowledge, and generate new ideas. New employees were then given opportunities to work across locations as part of their induction process. Advanced technology was procured for cross-location teams to collaborate that brought about a shift in the ways of working. Additionally, at an organizational level, the role of HR itself had a shift from being a transactional function to a transformational one.

Case-Study II – Potential Steels

About the Client

Potential Steels was a leading steel company based in Mumbai. The company had a customer-base in nearly one-hundred-fifty countries across the world. It emphasized on continual new product development to grow and maintain its customer base. Potential Steels prided itself in the quality of its products, manufacturing excellence, customer loyalty, and expanding international footprint. As part of its modernization program, Potential Steels made strategic investments to increase its production of higher value-added products. This meant that the company also started having a greater emphasis on customer-centricity and product innovation.

Project Mandate

Sales and Marketing (S&M) was considered a key function at Potential Steels to drive the Company's business through customer dialogue, industry intelligence, inputs for product innovation, and exploration of new markets. With a vision to transforming itself as an export-driven business, the company wanted to instill new energy in its S&M function. Following were the outcomes expected from the initial client mandate:

- **Restructuring**: It was believed by the top management that the as-is S&M team was overstaffed. Their mandate was to downsize the team in a way that the right competencies were retained and suggestions made on any additional competencies that may be required.
- **Alignment**: The company wanted to make a shift from its emphasis on products to customers. It was stated that the new structure should be staffed with team members who were aligned to the vision of the company.
- **Accountability**: Inculcating a sense of accountability was a key expectation. This would be brought about by establishing clarity in job roles, predictability in operations, and setting clear targets.

A 360-degree view of the situation was adopted by the consultants considering a wide variety of factors and voices from diverse stakeholders to arrive at a solution that would not only deliver value for the business, but also value for the affected employees. The next section describes how the methodological flexibility adopted lent a critical lens through the diagnosis and design stages.

Methodology

The standard consultancy approach was undertaken here with an organization restructuring methodology as the dominant methodology. SSM, CSH, and RO were used as dependent methodologies. A restructuring process, that includes a requirement of workforce downsizing, requires a thorough study of the as-is structure, unique roles, time spent by unique jobholders in carrying out activities, and any redundancies in the organization. The consulting team decided to expand the diagnosis stage to understand the situation from a wider range

of stakeholders and dig deep into the business processes of the S&M function. Considering the organization as a human activity system, the team drew inspiration from the CATWOE tool from SSM for the diagnosis and design of our project. A human activity system is a construct that approaches any system – be it an organization – as constituted by some purposeful human activity, rather than it being a descriptions of some actual real-world activity.

The following paragraphs outline how the intervention was deployed.

The consulting team began by understanding the views of the customers (C) of Potential Steels. Customers spoke positively about the quality and range of products and highlighted the technical acumen of the team. However, they also highlighted issues with delivery time and logistics. Customers perceived the Company to be working in silos separated by departments and not as an integrated team. They also talked about the competencies they would like to see in the S&M team.

To gain an understanding of the actors (A), three sets of internal stakeholders were interviewed – the S&M team, the Production Planning and Inventory Control (PPIC) team, and the IT integration team. The S&M team highlighted the need for support, both in terms of back-office administrative work and training on products, technology, and market. A lack of cooperation from the production team on timely delivery of orders along with a lack of responsiveness was highlighted. The team highlighted specific competencies they would like to see in themselves. Strategic thinking, necessary for the company to reach its desired business objectives, was not particularly observed in most of the team members. The PPIC team was responsible for ensuring timely production of orders as per targets ensuring optimum resource utilization, quality management, and cost savings. The S&M team expressed their dissatisfaction in dealings with the PPIC team. As a counter to this concern, the PPIC team opined that due to pressures of achievement of sales targets, the S&M team would agree to very short delivery timelines to customers that would in turn put unnecessary pressure on production. Further, the PPIC team expressed concerns about the S&M team regarding the latter's technical acumen, communication skills, and process adherence. As the company was going through a major SAP implementation during the time of the project, the consultants also interacted with the SAP team. It highlighted the importance of standardization in pricing, customer commitment, scheduling, and compliance to documentation, which was reportedly not consistent among members of the S&M team. Insights on the competencies expected from the S&M team, as will be required for the SAP implementation, was gathered.

Interacting with the actors provided an understanding of the human dynamics at Potential Steels. The next step was to delve into the transformation (T) process – the actual business of the S&M function through a thorough process mapping. This also included the understanding of unique roles, activities of each unique role, the time taken for completion of those activities, and how different activities across the roles interact and interface with one another. The LOW framework was applied for the same. A detailed workload analysis across three parameters of people, process, and technology was carried out and activities were allocated under three headings: (1) strategic (activities that were long-term and involved decisions that impacted the vision and business direction), (2) operational (activities that furthered the execution of strategy and decisions that enabled business operations), and (3) transactional (activities that were immediate output-oriented and tactical actions results of which, could be directly observed). Given the work complexity and outcomes of the as-is S&M function, three levels were identified, with the head of the function at level 3,

Practice. However, given the vision of the company, the head of the function needed to be at level 5, Strategic Development, where they would work in tandem with latest developments in the international markets and forging a wider network of stakeholder partnerships to facilitate new product development and acquire new high value clients. However, due to the wide prevalence of transactional work across levels, all the role holders were working at a lower level, which is also referred to as role compression. To overcome this challenge, each unique role was investigated to identify activities from a range of perspectives to consider how these could be streamlined and made more value adding. The consultants worked out a projection that revealed that by streamlining the as-is operating environment, non-value-adding work equivalent to over 130 h per day could be reduced. At the same time, the to-be design focused on enhancing activities that contributed towards greater value creation, capability building, aligning workforce to strategy, incorporation of best practices and competitiveness, and finally establishing a spirit of customer delight.

Through the journey, the design was inspired by the tenets of CSH that drove the consulting team to understand the worldviews (W) of both the involved and affected stakeholders from within the organization. Expectation from owners (O), responsible for the completion of the completion of allocated roles, was investigated. This understanding of the responsibilities of S&M team members was carried out through unique job-holder interactions within the ambit of the LOW framework. Further, opportunities and challenges of every unique job holder was understood, along with gaining insights on the competencies necessary for the success in the respective roles.

The recommendations for implementation of the design, worked on by the consulting team, were presented to the client in the context of the environment (E) that included materials availability, export regulations, and S&M talent realities for steel and heavy engineering industries. These insights were approached in the context of market benchmarks and best practices.

The methodology adopted lent a critical eye to the consultants in carrying forward the initial client mandate of downsizing the S&M team. Perspectives form the dependent methodologies – SSM and CSH – allowed for a more humanistic approach and enabled the consulting team to arrive at a set of recommendations that would lead to a qualitative shift in the team from transaction focus to value focus, closed communication to openness and transparency, task focus to people focus, and vertical thinking to horizontal thinking. A snapshot of the recommendations is provided in the next section.

Project Outcome

This project did not entail implementation and evaluation. A series of recommendations were presented at the end of the project. First, a new organization structure was designed and proposed that would enable more streamlined operations. Enhancement of value adding activities, both in terms of new outcomes and increase in time-spent of as-is value-based activities were recommended. The new structure would elevate the level of every role in the context of the LOW framework and the highest level in the S&M function would move by to Level 5, Strategic Intent. Second, a new scheme was introduced for the capability building and upskilling of employees who were found to be excess in number based on the analyses. Third, a behavioral competency framework was developed. Articulation of the competency framework shifted the focus from rightsizing to development. The consulting

team's advisory saw a shift from change immediacy that was the tone of the client brief to that of a learning orientation.

Discussion

Nature of Methodological Flexibility

The nature of methodological flexibility will be discussed with reference to the five different ways of integration of methodologies (Sushil, 1994). These are: (1) One-way integration in succession – deployment of different methodologies in sequence for the same problem. In such a case, the individual identities of the methodologies are be retained; (2) Different techniques for different parts – deployment of different techniques for different parts of the problem. Here, the problem can itself be broken down into parts depending on its complexity and scale, and an appropriate methodology can be used for each part; (3) Both-way integration – deployment of more than one methodology in a problem in a manner in which, identities of the methodologies deployed influence with one another through parts of the problem or the problem as a whole; (4) Submerging with identity – implies the deployment of one methodology within the philosophical paradigm of a different methodology and where the former's identity is submerged within the latter's; and (5) Full-mixing – implies the deployment of different methodologies in a manner in which, they are indistinguishable because they are amalgamated completely into one another through the deployment process. See Fig. 4.

In both the projects, a full-mixing of methodologies was undertaken. Specific tools from the dependent methodologies were extracted and amalgamated into the respective dominant methodologies in a manner where the former were indistinguishable in the deployment process.

In the case of Potential PR, RO was used as a dominant methodology. The interview guides used during the diagnosis phase drew inspiration from CSH that lent it a critical lens to include perspectives from employees and external stakeholders. To understand the business drivers of the organization, the CATWOE tool was extracted from SSM to include a wider range of variables. Although the to-be organization structure was proposed based on the RO theory, it was inspired by the cybernetic principles of the VSM. Finally, during the

Fig. 4 Ways of integration of methodologies according to Sushil (1994) (Chowdhury 2019d; p. 64)
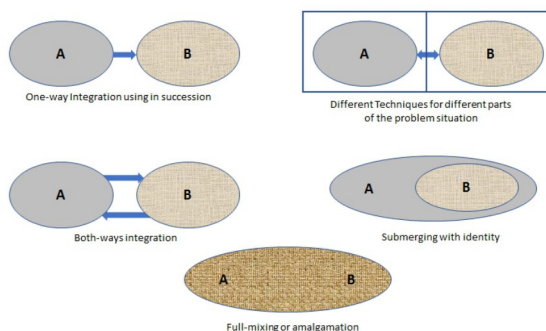
convergence workshop, participants were asked to draw rich pictures, a tool borrowed by SSM. See Fig. 5 for a representation of the full-mixing of methodologies in Potential PR.

In the case of Potential Steels, organization restructuring was used as a dominant methodology. However, the project flow incorporated the elements of the CATWOE tool from SSM. A workload analysis was carried out for the S&M team and a to-be structure was designed with inspiration drawn from the LOW framework from RO. CSH lent the critical
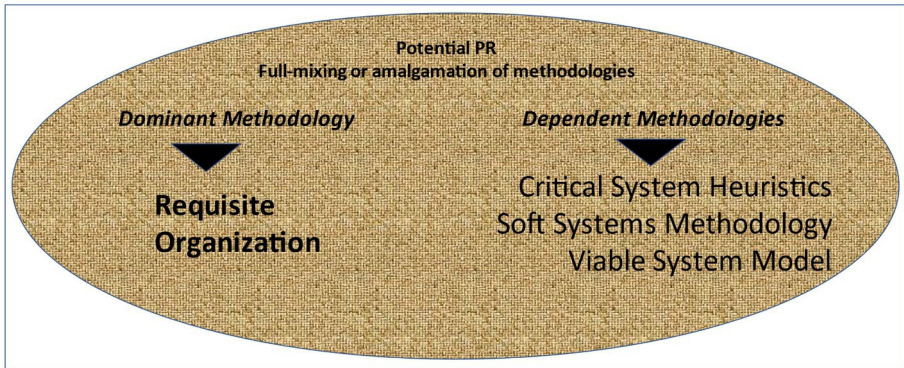
Fig. 5 Full-mixing of methodologies in Potential PR
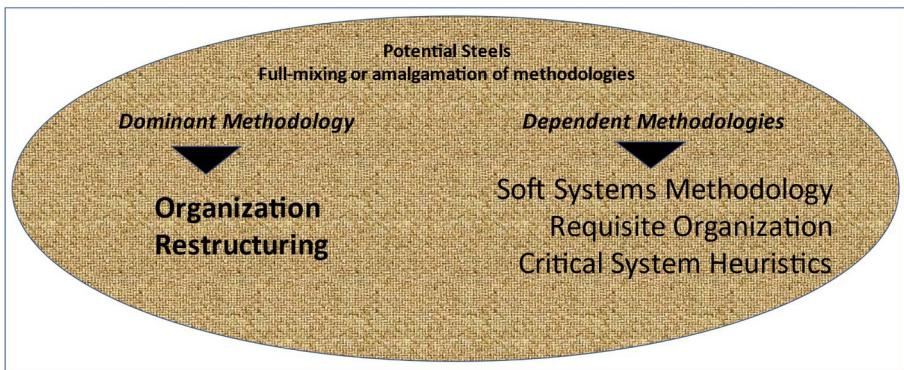
Fig. 6 Full-mixing of methodologies in Potential Steels

lens to understand the mandate from the context of the involved and affected stakeholders. See Fig. 6 for a representation of the full-mixing of methodologies in Potential Steels.

The next section will highlight the benefits realized as a result of the full-mixing of methodologies.

Benefits Realized Due to the Full-Mixing of Methodologies

The flexible and creative use of methodologies made the analyses of the problem situations more realistic. This led to insights and understanding that not only expanded the scope of the initial client mandates, but also challenged them. In the case of Potential PR, the client mandate of creating a to-be structure aligned to the vision of the organization was enhanced with the understanding of finer nuances by including and involving employees through systems methodologies not only delivered on the mandate, but also created a sense of bonho-

Table 2 Benefits of methodological flexibility in Potential PR. (adapted from: Chowdhury 2019b; p. 233)

Methodology	Perspective leveraged	How it was applied	Benefit
Dominant methodology			
Requisite Organization	An organization can remain competitive in its business environment by enabling progressive value addition as one moves up the levels	Mapping the levels in the organization as per industry benchmarks and in alignment with its operating environment	Evolving a to-be structure that is requisite and that is staffed with the requisite leadership capability
Dependent methodologies			
Critical System Heuristics	Inclusion of stakeholders who are involved in and affected by a project	Project design to make the process more inclusive using participatory techniques to embrace the involved and the affected	Greater buy-in of the recommendations across the organization
		Fairer representation of employees across levels in the design and implementation phases	Creation of trustful relationship between employees of the firm and the consulting team
		Design of questionnaires exploring critical areas of organizational context and culture	Recommendations closer to the organizational realities to make an actual difference
Viable Systems Model	Differential value creation across organizational levels can be largely determined by the structures of communication and information flows	Analysis of the organization to understand the as-is levels and value creation in the to-be levels	Detailed analysis exposing non-value adding activities across levels
		LOW framework to create a practical and adequate structure	Objective assessment resulting in significant role changes in the new structure with identified value creation in different levels
Soft Systems Methodology	People involvement can enable and enrich understanding of an organization and help create a collaborative environment	Use of rich pictures to appreciate employees' perspectives in a creative manner	Employees were facilitated to behave in a more natural fashion overcoming their inhibitions
		Use of CATWOE tool to understand the business context more comprehensively	Obtain a real picture of what could work closest to the situation under consideration

mie and engagement between the employees. In the case of Potential Steels, the approach

Table 3 Benefits of methodological flexibility in Potential Steels

Methodology	Perspective leveraged	How it was applied	Benefit
Dominant methodology			
Organization Restructuring	Organization streamlining can be enabled by identifying and eliminating redundancies	Analyses of work practices and processes to identify redundancies and understand interdepartmental workflows	Thorough understanding of the S&M function, identification of opportunities for streamlining, and recommendation of streamlined to-be structure
Dependent methodologies			
Soft Systems Methodology	Considering the organization as a human activity system can lend a more holistic and thorough understanding	CATWOE tool applied in designing the flow of the project to obtain and analyze information systematically	Offered deeper insights into the S&M function and its relationships with other departments in terms of both horizontal and vertical information flows
Requisite Organization	An organization can remain competitive in its business environment by enabling progressive value addition as one moves up the levels	Understanding of differential value-add of unique roles in different levels of the S&M function	To-be structure recommended to create greater value-add and enhance the overall competitiveness of the organization
Critical System Heuristics	Inclusion of stakeholders who are involved in and affected in by a project	Design of diagnostic tools to obtain an appreciation of the problem situation from different stakeholder perspectives	Served as valuable inputs to understand the organization culture and challenge the initial client mandate of organization rightsizing

undertaken brought about a significant shift in the project outcome itself – from rightsizing to development, and from change immediacy to learning orientation.

See Tables 2 and 3 for a summary of the benefits realized due to the flexible application of methodologies in Potential PR and Potential Steels respectively.

It is to be noted that in both the projects, systems methodologies were not used in their pure form, but they were used flexibly and creatively. This was possible because systems thinking, in a way, was deployed more like a cognitive skill by the lead consultant (the author of this paper) who was familiar with systems methodologies.

Having articulated the benefits of methodological flexibility, the next section will present the limitations from a practitioner perspective.

Limitations of Methodological Flexibility in Practice

Limitations

Limitations of methodological flexibility from a practitioner/systems consultant standpoint are provided below from five standpoints:

- **Knowledge**: Methodological flexibility demands the knowledge of a variety of methodologies, which can pose a challenge for a practitioner (Cabrera 2020; Cabrera and Cabrera 2019; Chowdhury 2022; Jackson 2019). It may not always be possible for a practitioner to have an understanding of the whole spectrum of systems methodologies.
- **Time**: Deploying systems methodologies can be time-consuming as they often call for extensive research, involvement of various stakeholders, and iterative approaches (Cabrera and Cabrera 2019; Chowdhury 2019e; Chowdhury 2022; Cordoba-Pachon 2010). However, clients often expect quick turn-around and project closures within shortly stipulated timelines.
- **Motivation**: Motivation of a practitioner can be an inherent challenge when they are operating as a private consultant. As a commercial contractor, a practitioner's focus may often shift from satisficing stakeholders to efficient utilization of consultant time and profit making (Alvesson et al. 2009; Chowdhury 2019a; Kitay and Wright 2004; Sturdy 1997a,b). This can lead them to blindly accepting clients' mandates without challenging them. Additionally, practitioners may tend to use methodologies that they are more familiar with or the institutions that they are affiliated to (Mingers and Brocklesby 1997; Munro and Mingers 2002). A problem may also be encountered if a practitioner is a consultant employed by an advisory firm who have their own proprietary consultancy approaches that do not encourage bringing into their fold an alien methodology (Chowdhury, 2019a, 2022).
- **Language**: The language used by systems thinkers is often difficult and may sound alien in the context of general management (Chowdhury 2019a, 2022; Cordoba-Pachon 2010). Therefore, amalgamation and integration of systems methodologies with general management and engineering approaches remains uncommon.
- **Education**: An overarching challenge is that systems thinking is not commonly taught in school- or university-level education (Chowdhury 2019e; Jackson 2019). With a lack of systems thinking in pedagogy, students are being left out from a critical skill that is

mandatory for understanding and managing complexities with the methodologies that systems thinking offers.

Having talked about the practical limitations of methodological flexibility, the next section will discuss how such limitations can be addressed.

Addressing the Limitations

Addressing the limitations calls for systems thinking to evolve as a cognitive discipline rather than one that is bound by frameworks and that demands practitioners to follow specific kinds of methodologies. In developing this discussion, reference will be drawn from the conceptual lens of Holistic Flexibility in systems thinking (Chowdhury 2019a, 2020, 2022). Holistic Flexibility does not propose a framework or a methodology but presents certain principles that practitioners can adopt for the flexible and responsible deployment of systems thinking as a state of mind. Holistic Flexibility advocates for a more democratic and egalitarian stance for the discipline arguing that systems consultants should freely borrow from different methodologies, experiment with them, and boldly adapt them to other consultancy frameworks as per the needs of a situation. Systems thinking as a state of mind or as a cognitive skill may also be considered under the ambit of the new fourth wave of systems thinking. For more on the fourth wave of systems thinking, readers may refer to Cabrera and Cabrera (2019), Midgley and Rajagopalan (2021), and Rajagopalan (2020).

Drawing from the principles of Holistic Flexibility, the following points are highlighted that can contribute towards overcoming some of the limitations outlined in the previous section:

- Systems thinking must be incorporated in the formative stages of education to educate and inspire children. At a higher education level, modules on systems thinking need to be made mandatory.
- Practitioners must orient themselves to perspectives that are unfamiliar. They need to proactively ask how an alternative worldview based on a differing set of assumptions may look like. They need to be open to risk-taking and critique.
- Practitioners must be open to complementing conventional ways of knowing with unconventional creative modes such as art, theatre, experience, memory, and informal interaction. Practitioners can borrow tools from systems methodologies and use them as alternative modes of knowing.
- Practitioners must question project sponsors, leaders, and boards regarding why something is being done and what are its implications for stakeholders and for the ecosystem in the short- and the log-run. They must involve diverse perspectives in project planning and implementation.
- Systems enthusiasts must work towards greater democratization of the discipline by showcasing how systems thinking can be realized in everyday practice without getting embroiled into the jargons and methodologies.

Conclusions

This paper presented a discussion in favor of methodological flexibility in systems thinking from a first-person standpoint of the author, who is a systems consultant. It was argued that methodological flexibility contributes towards greater egalitarianism and democratization of systems thinking, in the absence of which, systems methodologies remain esoteric and confined to those with specific training in OR/MS/SE. The paper began with an introduction to systems thinking and the journey the discipline itself traversed through three waves. This was be followed by a discussion that highlighted the importance of flexibility in systems consultancy. Next, a general note was provided on a typical consultancy approach that comprises of four stages. An orientation to four selected systems methodologies, that were used in the case-studies presented, was provided. These methodologies were Requisite Organization, Viable System Model, Critical Systems Heuristics, and Soft Systems Methodology. Narration of two consultancy case-studies from India were presented with an emphasis on methodological flexibility. A discussion followed that highlighted the benefits accrued through a full-mixing of methodologies that made the consultancy projects more inclusive, participative, and meaningful. Finally, a reflection on the limitations of methodological flexibility for a practitioner were presented, along with a note on how these limitations may be overcome with Holistic Flexibility, a recently developed conceptual lens in systems thinking.

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