

THINKING TOWARDS SUSTAINABLE BUSINESS SOLUTIONS

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ABSTRACT

Organizations think towards sustainable business solutions. In this conceptual study, four thinking types are discussed to reflect a possible pattern of organizational thinking process that could effectively lead to the objectives laid out by the organization's strategic goals. Each type of thinking has a purpose, and focus which leads toward the end result. The fulfilment of one type of thinking could be a strong input to the next. This process might evolve as a mature organizational thinking path. Literature of all four thinking types is discussed to highlight the domain and direction of the study. The literature is discussed in chronological order so as to reflect the evolution of the thinking process in each thinking type. This conceptual model is novel and there is scope for further study in dealing with multiple thinking types and interventions.

Keywords: Sustainability, Business, Thinking process, Organizational, Solutions

Introduction

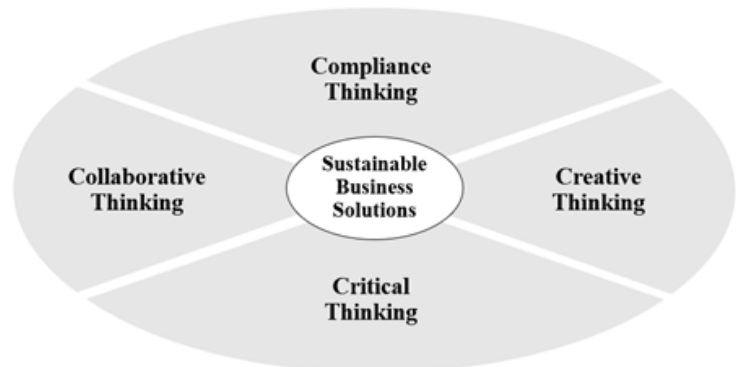
Organizations today need sustainable solutions. Sustainability must ensure the current and future generation's needs. Sustainability is central to an organization's existence, and formulating such solutions needs wider and deeper thinking. Thinking is a psychological act built on thoughts as well as generating new thoughts. This rapid cyclical process needs to be channelized for effective use in organizations towards attaining sustainable solutions.

Thinking has multi-dimensional types such as abstract, analytical, creative, critical, divergent/convergent, linear/nonlinear, etc. And thinkers also can be of different types such as Idealists, synthesists, pragmatists, analysts, etc.

In order to lay a thinking path for the organization with an end objective of providing sustainable solutions to customers, a few important thinking types are discussed in this paper. The context of thinking types is compliance, creativity, criticality, and collaborative perspective. Employees are supposed to adhere to the rules and regulations while they perform their day-to-day work activities. Hence, fundamentally compliance thinking is essential. Beyond compliance, in order to have a competitive advantage, creative thinking becomes essential so as to explore new ideas within the framework of compliance. However, novel ideas need to be explored for feasibility and viability. In this context, critical thinking is essential. And for wider acceptance of new ideas, it's important to have thinking in collaboration which brings in a multi-dimensional perspective before the idea/s qualities not only as a solution but as a sustainable solution.

In this paper, we explore the understanding of these four-thinking domain in the sequence. The objective is to have a clear understanding of these four thinking types which can then pave way toward a model formation as an independent, dependant, mediating or moderating variable.

Further scales and hypotheses to be tested can be explored.



Compliance Thinking

Organizations need necessary controls, procedures, fraud and corruption detection systems, and supporting systems along with handling chaos and building a robust corporate control facility. Drawing comparisons between traditional and new management control systems, Spenser Pickett (1999) highlights the existence of the vulnerability in the following process between these two systems in organizations in which employees and managers should internalize potential risks and inherent controls in their responsibilities in performing their day-to-day duties. Exploring risk management further, the risk-related responsibilities are not just confined to a risk manager but should be included in every employee's job description. This approach makes the employee accountable. This is a good beginning to combat any noncompliance security threats. In this regard, a holistic view needs to be taken against departure from traditional and enterprise risk management controls. The human resource manager can play a key role to ensure all employee participation (Woloch (2006).

Getting to the core in order to bring compliance, control, and risk management aspects into employee responsibility, employees need to internalize business ethics. Svensson and Wood (2008) have come up with a continuous and iterative model which considers the behaviour and perceptions of organizational employees.

The model covers social responsibility where employee perception of organizational beliefs, norms, and values are considered as well as the expectation of society. Further, the outcome is evaluated from society's perspective. All along the society's expectations, perceptions within the organization on business ethics, and evaluation by society, the compliance aspects in these categories are reviewed. Therefore, employees in organizations should act responsibly in matters related to compliance. The focus however could be more on the positive aspects of acting appropriately than the negative aspects of non-compliance. In this regard, Smith (2012) reminds the six-stage moral development model postulated by Kohlberg (1971) to be of great value. The model reflects on the individual perspective from childhood, individualism, relationships in teens, social order/ rules, social contracts, individual rights, and universal principles. Many organization employees perhaps are at stage 3 or 4. Therefore it is important for organizations to have a system or process in place that could give insights into possible employee behavioural aspects of compliance thinking.

In organizations, where ethics and compliance programs exist, regulatory mandates, legal efforts, risk assessment, and employee performance appraisal too are practiced. However, their effectiveness is questionable due to vulnerabilities, related to the availability of qualified and skilled resources to conduct risk assessment analysis. Further organization's initiative to have an ethics committee is poorly represented. In this regard, Weber and Wasieleski (2012) have discussed a few topics to be covered including educational approaches used in employee ethics training are discussed

In high political agreements of bilateral or multiparty nature, for instance, between multiple countries and multiple organizations, the complexity of adherence to compliance needs to happen as per the broader international regulatory regime. The agreements could be in detail or just umbrella agreements. Against such

a backdrop, it becomes mandatory to have compliance adhered to, through a combination of enforcement and persuasion (Chayes et al., 2015). So, on the one hand, to operate strictly within the framework of the agreement and on the other to be persuasive or be negotiating or be creative in continuing the relationship with the agreement is essential.

In exploring organization frontline regulatory engagement, Almond and Grey, (2017) emphasized individuals' rationality, responsibility, and ability to consider economic aspects as critical. Implementing compliance objectives at the workplace requires employees to communicate and interact. One of the goals of an organization is frontline safety. In order to achieve this, organizations need to consider multiple aspects like inculcating safety in their culture, establishing individual responsibility as an organization norm, promoting organizational citizenship behaviour, develop a sense of trust in compliance interpretation and experience at the local level. The frontline regulatory compliance approach traces the compliance process from the regulator to the compliance manager to individual employees. Looking at it from a holistic perspective, having a compliance program is indeed a difficult task. The purpose to have a compliance program stem from the fact that enforcing compliance programs have inherent deficiencies, overseeing the implementation of the program is a challenge, and organizations fail to establish a culture to adhere to compliance programs. Against this backdrop, organizations may improve their compliance adherence by way of making their employees think of compliance challenges from the perspective of cognitive psychology, behavioural economics, and behavioural ethics. With this knowledge as a baseline, new methods related to prevention, detection, investigation, and remediation are explored. Root cause analysis can be performed to find out the causes of compliance failures. Having a process framework for compliance supports compliance thinking and its implementation (Root, 2019).

A serious concern in an organization is employees' behaviour toward information security policy compliance; therefore, organizations put efforts into processes to transform employees from noncompliance to compliance. Such transformation at the behavioural level needs efforts not only toward information security awareness, management behaviour as well as deterrence adopt techniques (Ali et al. 2021). Taking the compliance policy matters at the highest level of national importance, post-pandemic, the United States Department of Justice (DOJ) and the United States Securities and Exchange Commission (SEC) laid emphasis on the importance of empowered and accountable organizations' compliance programs. The regulators stress compliance programs to be supported with sufficient resources, personnel, stature, and authority within the corporate. Moreover, the apex authority of the compliance function, the Chief Compliance Officer (CCOs) needs to be made accountable for the organization's compliance (Bargnesi et al. 2022).

A good example of how compliance adherence put in practice yields results can be seen in Argentina, where farmers in La Plata wanted to have their agricultural compliance practices respond to government stringent regulations to favourably impact production, storage, and sales activities. The farmers implemented a decision support system (DSS) to keep track of the performance of their crops and how to treat the crops to reduce potential compliance risks. Management of the project has applied design-thinking strategies, involving the end user in the development process (De Oliveira et al. 2022).

To understand compliance governance in developed nations, in the US, Process safety management (PSM) audits are governed by Occupational Safety and the Health Administration (OSHA) and Risk Management Programs (RMP) are governed by Environment Protection Agency (EPA). The goal of an effective process safety program is performed to

prevent serious accidents and injuries and to achieve other program goals. Although all important aspects of an effective process safety program may include in the assessment, a positive outcome of a PSM audit is not a guarantee (Klein and Thompson, 2022). In order to reduce such risk, organizations may enable employees to comply thinking conducting various awareness or training programs.

In the case of data privacy measures, in order to effectively implement the technical measures for data compliance, interactions between legal and engineering teams are critical. Organizations must undertake interdisciplinary measures where there is a seamless collaboration between organization functions. The lack of a systematic approach points towards organizations lacking compliance thinking. Therefore, technical measures for data privacy compliance need to be put into practice, the roles and responsibilities of employees must be made clear and both technical and legal teams need to collaborate to achieve organizational data privacy goals (Klymenko et al, 2022).

Li and Van (2022) have studied the impact of legal rules in organizations specifically how they shape individual behaviour. In order to operationalize, four processes are outlined from the law to the individual perspective – considering framed law to be applicable, organization enforcing the law at the core or corporate level, organization enforcing across subsidiaries and finally individuals responding to the compliance mandate. The frontlines these processes are to operate are regulatory, managerial, and individual. Adopting this framework, multi-sited participant observations can be conducted for all processes and all three levels. This approach enables compliance thinking across processes and levels.

In order to monitor business process compliance from operations and practice perspective, Seyffarth and Kuehnel (2022) laid out methods of interaction in IT compliance systems between requirements and compliance consequences

when there is a change introduced in the business. The changes in business processes can impact the relationship between compliance requirements, process elements, and IT components and therefore relationship analysis need to be done. Instead of manual analysis-enabled led automated analysis is preferred to be more efficient.

Soliman-Junior et al., (2022) have explored the application of automation in healthcare building projects in order to promote quality assurance for regulatory compliance. Mapping regulatory documents onto software application determine the regulatory framework to operate. The design of the software is based on the regulatory requirement document which can be the baseline to adhere to minimum standards of compliance. Compliance checking can be automated under quality assurance. The organization's employees can be trained on the software and its execution which enables compliance thinking through the mode of automation so as to achieve desired compliance objectives.

Based on the above discussion we can infer that compliance is at the core of an organization's existence. In pharmaceutical industry, we can come across compliance by design and compliance master plan where compliance thinking is not only considered from quality systems, good manufacturing practises but also in cross functional thinking for compliance (Pluta&Poska, 2010). Therefore, non-compliance is not an option. Employees are critical for an organization's existence. For organizations to provide quality services to customers, the products and services must be of high quality and from processes of compliance. In fact, ISO which is an international organization for standards has introduced risk thinking as one of the important requirements for organization to be documented for employees to follow for sake of compliance (Medic et al., 2016).The ISO standards can be applied across industries. Therefore, every employee across various industries organizations must be made responsible to adhere to compliance and provide quality products and

services to customers. Organization departments such as quality and human resources could anchor the ongoing compliance awareness to the employees by including compliance roles in the employee's job description as well as making employees undergo mandatory compliance training. Only then an employee will know where he can leverage some novel or innovative ideas which may be competitive and differentiators from a competition perspective and provide great value to customers. Now let us look at creative thinking.

Creative Thinking

It has been observed in general that people tend to produce qualitatively different solutions for similar problems encountered. From this perspective, innovators have devised an inventory comprising distinguishing adaptors. Those who do things better are adaptors and those who do things differently are innovators. This clear distinction between adaptor-innovator cognitive styles seems to have a clear and wider application as they are common to everyone and tend to manifest in multiple situations of creativity, decision-making, and problem-solving (Kirton, 1976). Looking from another dimension, focusing on four basic factors such as - new ideas, people, transactions, and institutional context, can be simple in managing innovations. This perspective is having a simplified process for the development and implementation of new ideas by people who constantly engage in interactions or transactions with others in an organization (Van de Ven, 1986).

The ultimate concern in the studies of creativity is the production of a novel, socially valued products (Michael and Gustafson, 1988). Cognitive structures have two forms, either they integrate and reorganize or consider the application of existing structures. Creative contributions are high in integration and reorganizations than in existing applications. However, both perspectives apply different knowledge, skills, and abilities. In case of any complex or enhanced understanding of the

context and prediction, a more sophisticated multivariate approach is required. In the same year, an integrated model was developed by Amabile, (1988) for individual creativity and innovation in organizations. The depicted organizational innovation model has four criteria which include the process of individual creativity, incorporating organizational aspects so as to influence innovation, the model having phases showing organization innovation, and then organization factors influencing individual creativity.

Ford (1996), integrated two dimensions of creativity and conformity. They are psychological and sociological descriptions. This dichotomy in an organizational context leads to describing a theory of individual creative action composed of intertwined group, organizational, institutional, and market domains. This consideration narrates how deliberation or intentional action and evolutionary processes that legitimize action interact to facilitate creativity and innovation. Whereas Oldham and Cummins (1996), examined characteristics in a personal and organizational context. On the personal front, the characteristic considerations were - patent disclosures written, contributions to an organization suggestion program, and supervisory ratings of creativity. On the organizational front, the characteristic considerations were - job complexity, supportive supervision, and controlling supervision.

It is important to distinguish between creativity and innovation. While creativity is to produce new or novel ideas either by one individual or a group of people or a team working together on the other hand innovation comes from a perspective of successful implementation of that idea in an organization by a team or group of persons. Clarifying further on creativity, Amabile (1998) provides a componential model comprising 3 elements as domain-relevant skills, creativity-relevant skills, and intrinsic motivation.

In the organizational application context of

creativity and innovation, and on the basis of person-environment fit theory and social exchange theory, when employees perceived effort-reward fairness rather than under-reward unfairness, Janssen (2000) discussed that a positive relationship exists between job demands and innovative work behaviour. A few years later, Farmer et al. (2003) tested a model for a sample of Taiwanese employees. They found that when a strong role of creativity was paired with the perception that the employing organization valued creative work, creativity was at its peak.

Researchers on creativity and innovation consider a simple natural routine that innovation follows creative initiation or adoption of a creative idea as an initiation towards innovation. The factors to consider from an individual perspective could be innovative personal values, positive attitudes toward innovation, and technical abilities for innovation. On the other hand, organizational factors for innovation could be the organization innovative culture, getting organizational support for innovation, getting technical support for innovation. Individual and organizational perspectives together operate to contribute to predict innovative use behaviour (Choi, 2004).

A job designed to handle multi-functions coupled with a human resource management system which is also designed to engage employees in innovative activities gives a feeling of ownership when it comes to providing solutions to overcome issues and problems. Therefore flexibility of job design on one hand and a committed, innovation-supportive human resource management promote innovative work behaviour (Dorenbosch et al., 2005). Psychological contracts, job design, and organizational justice also play a critical role to predict innovative work behaviour. These aspects consider both compliance perspectives with clarity in their job descriptions on one hand and orientation to work towards organizational goals and objectives (Ramamoorthy et al., 2005).

Of many attributes of individual creativity, an

employee's ability to take risks is a significant one. An employee who is willing to take risks can be predicted to be creative. When such an employee is given enough encouragement, the employee can engage in creative activities. Therefore, an individual willing to take risk is essential for creative behaviour. This ability to take risks underlines the willingness of individuals to take risks in work tasks, and think independently where necessary depicting creative behaviour to overcome any work obstacle (Dewett, 2006). Innovativeness in an individual can come from the interaction between internal motivation, rewards, and recognition on one hand and the organization's innovative climate on the other hand against demographic classifications of academic degree, age, and job post (Ruan et al., 2010).

Although creativity is considered for individual, group, and contextual factors, creativity at the organizational level is another important dimension or element, or function of organizational innovation. Organizational culture as an element comes in this dimension to impact employees' creative behaviour. The cultural dimension can play a moderating effect in employees' creativity (Gupta, 2011).

Employees must be mentally fit to be creative. And in this context, the establishment of trust in an organization plays an important role when it comes to employees' job satisfaction and alignment with innovative work behaviour and demonstrating self-monitoring behaviour too (Bysted and Hansen, 2013). Also, employees with higher psychological capital need less supervision. They do not depend on the leadership and are self-motivated. When it comes to day-to-day work, they do not wait for supervisors' direction. These employees also exhibit highly creative behaviours and work towards a successful outcome (Gupta and Singh, 2014).

The results of the study conducted by Jokisaari and Vuori (2014) are on the impact of social network role on individuals' innovative performance and creativity. The data gathered

from new and young employees in the organization seems to give some wider networking opportunities which come along with the newcomers and provide a fresh channel of thinking. Also, it is observed that the newly inducted employee seems to relay their network knowledge base more than the organization's knowledge base. This additional knowledgebase that the newcomers bring in can be channelized within the organization to leverage better ideas and explore better or novel opportunities.

Looking from an unconventional perspective, there is an alignment between dishonest behaviour and creative behaviour. What is common between them is that they both break rules which are made for a normal situation for everyone. Therefore any dishonest person tends to be creative and at the same time, a creative person may also tend toward dishonesty too (Gino and Wiltermuth, 2014). So, this understanding leads towards a situation in that, when one act dishonestly at the first instance, then the subsequent tasks associated with it tend towards greater creativity to maintain the first dishonest step taken. It all starts off with breaking rules or being non-compliant with the norms established. Hence, it's important to understand that the first step taken by an individual should be a compliant one, so that subsequent steps are in that line. Here there is no necessity of being creative to be dishonest.

The organizational employee must not just adhere to elements of compliance along the responsible process, but also be able to explore opportunities to think of novel ideas of value to customers within the framework of compliance or even suggest improvements in compliance space as well. Sometimes for similar problems emerge different socially valued solutions that can be explored within the organizational order of compliance. An important constituent of creative thinking in organizations is design thinking. The knowledge, skills and abilities of employees can be leveraged systematically (Savchenko, 2018). This approach can be across various organizations. And so, the organizations can include job creative thinking responsibilities

in the employee's job description and provide motivation as well. Looking at the competitive environment which organizations operate with Volatility, Uncertainty, Complexity and Ambiguity (VUCA), irrespective of industry, creative thinking as a part of organization learning through design thinking concepts is absolute necessity (Cousins, B. (2018)). Once the employee gets into the mould of thinking creatively, it's now important to have a novel idea to be critically examined for its value to customers. Thinking critically ensures validation and verification of the proposed novel idea, that is to say, whether the employee is able to evaluate the advantages and disadvantages of actions or ideas. Further, the utility of innovative ideas or solutions in order to make recommendations or decisions can be reviewed. Let us now explore critical thinking.

Critical Thinking

Activities of critical thinking happen as per some norms or established frameworks so that critical evaluation can be done. Within this framework, reasonable judgments can be made considering judgment standards as per the framework. This approach is analytical, highly rule-bound, evaluative, and selective. Hence it seems the judgments follow algorithmic patterns adopting appropriate techniques for reasoning, all within the framework (Bailin, 1987). A few years later, what distinguishes between critical from uncritical thinking was discussed to state that it is not the thought process involved but rather the norms, standards, and criteria that are adhered to. Critical thinking is associated with analytic, convergent, logical, and evaluative aspects on the other hand creative thinking is associated with synthetic, divergent, intuitive, and generative aspects (Bailin, 1993). The interface between creativity and critical thinking is mysterious. One cannot be certain of the outcome whether it is from the creative perspective or from critical thinking. This is due to the complexity of the brain/ mind and the way they biologically interact. Therefore, the process transition between creative and critical thinking and vice versa is complex and inseparable (Bleedorn (1993).

In the discussion on problem-solving and innovative behaviour, Scott and Bruce (1994), introduced two critical thinking modes, namely associative and bisociative. While associative is related to habit, routine, etc whereas bisociative is an intuitive problem-solving style stemming from overlapping domains. In this context, one can understand that innovative work behaviour is influenced by leadership style, individual problem-solving style, and work-group relations either directly or indirectly. In this regard, perception and climate for innovation do matter. In the next year, Facione (1995) outlined who an ideal critical thinker is. An ideal critical thinker is habitually inquisitive, who is well-informed on the subject, trustful of reason, has an open mind approach, is flexible in nature, and from an evaluation perspective is fair-minded and when it comes to personal bias the person displays honesty. Further, the critical thinker displays prudence in judgment making, is accommodative to re-consider, has clarity on issues, demonstrates orderliness in matters which are complex in nature, exhibits diligence in seeking any further information, shows reasonableness when it comes to the selection of criteria, highly focused during inquiry sessions and is very persistent on results and precise on the subject of inquiry.

And now let us look at what constitutes good critical thinking. Bailin and Siegel (2002) state that critical thinking should meet relevant standards and criteria of acceptability that qualifies to be good thinking. This perspective represents the normative character of critical thinking. Philosophically, critical thinking concerns two related dimensions, that is the ability to reason well and the disposition to do so. Coming to thinking styles, the results of the works of Zhang (2003) provided insights into the existence of individual differences when it comes to critical thinking dispositions. Some of the critical thinking dispositions of a critical thinker are the ability to seek truth, how the person is open-minded, how the person seems analytical or systematic, and also how the person exhibits self-confidence, inquisitiveness, and shows maturity. These dispositions roll up to the categorization of thinking styles.

Apart from independent and individual characteristics, contextual factors play an important role to predict innovation use behaviour. They can be in the form of mediation or moderation. Choi (2004) has examined the interplay between contextual factors and individual characteristics. The contextual dimension enhances critical perspective.

In a study to improve the quality of nursing practice, Riddell (2007) explored the learnability of critical thinking. Focussed learning on the approach towards critical thinking in any business or industrial context enhances the quality of the outcome of critical thinking, so it's important to critically think about critical thinking. This perspective leads to another dimension such as reflective thinking which is an activity to review the reasoning process of a reason before coming to a conclusion or an outcome of considering the reason. This approach is not only relevant in the academy but also in industry or with an employee of an organization. The critical thinking elements on which reflective thinking can be reviewed are understanding, interpreting, applying, analyzing, synthesizing, reflective thinking, communication, and evaluation. While there are many tools such as six sigma and the 5 why's approach, unless one applies critical thinking to these methods, the root cause analysis may not be complete as observed by Ayad (2010), who narrates that application of critical thinking provided significant success in business. On the flip side, notable failures were also the reason for not applying critical thinking processes or approaches. And this failure happens because of selective biases, being rigid in thinking, preconceived notions in following process steps, and localized or context-dependent approaches. Organizational processes are established firmly on rules and regulations both external and internal. Within the framework of rules and regulations, the process variations are explored by organizations to differentiate themselves from the competition and present to customers their value proposition. The employee's novel idea might be in alignment with customer desire but

one needs to check the viability and feasibility. These elements and other new elements need to be applied objectively to determine the idea and the form in which it can be considered.

Although from creative perspective, design thinking considers architectural, engineering aspects from customer perspective, in order to critically think though, care need to be taken to formulate a solution acceptable and sustainable. Therefore, ethics dimension into critical thinking may be necessary for a holistic solution (Hamington, M., 2019). So, the aspects of critical thinking which are predominantly brain related will have to deal with the heartfelt thinking of being creative. Left brain vs. right brain to say. Although the solution assessments on the novel idea with logic start with an individual, it is important to know how each member of the team or stakeholders views from their point of view. Is there a predominant convergence or divergence that makes it a critical point? Possibly yes and therefore it is important to explore collaborative thinking discussed in the next section. And by the way, Importance of critical thinking is mentioned by the World Economic Forum (2018) as second skill out of ten most important skill required in labour market. Employees who have the cognitive ability to think critically give innovative solutions (Indrasiene et al., 2020).

Collaborative Thinking

Differentiating between groupthink and team think, Manz and Neck (1997) state that in groupthink the members strive to agree with one another. Discussions are overwhelming. The alternative course of action takes centre stage. On the other hand, in team thinking, the groups engage in collaborative or synergistic thinking. This is done through effective communication, beliefs, and assumptions which result in enhanced decision-making and team performance results. A few years later, addressing a complex learning environment in an academic background, Hogan, K. (1999) differentiates between traditional core classroom instructional context and providing tasks to

to students on one hand and enhancing instructional intervention on collaborative reasoning with Meta knowledge and skills for collaborative reasoning. Emphasis is on the approach that provides skilful collaboration reasoning and helps in robust scientific understanding due to thinking and reasoning in classroom collaboration amongst students in understanding complex subject aspects.

For a functional team to sustain, a cognitive model in the form of team beliefs and assumptions, constructive self-talk among team members, and mental imagery of the team together are essential. These aspects initiate further opportunities for team members to collaborate and sustain team performance. Therefore the individual level of effort and performance sustainability can be managed on cognitive principles Houghton et al. (2003). One of the frameworks to think collaboratively is to establish an experimental environment where various customer perspectives, interests, needs, skill levels, and desires can be experimented with. This could even be a co-creation experience with consumers when the consumers are large in numbers for example in the retail industry (Prahalad and Ramaswamy, 2004). Further, the architecture of this experience network must have technical and social enablers to activate heterogeneous as well as individual-centric experiences to have a well-represented base of customers for sustainability.

Collaborative or collective thinking involves different mindsets. Symbols that individuals reflect along with non-rational and intuitive patterns need to be considered. In doing so, Ringer (2007) has outlined core principles for collaborative thinking, and they are – the task itself, how distractions should be managed with an emphasis on self-focus, how one needs to relate with others so as to provide thinking space, and finally how to handle shared responsibility for collective thinking. Again talking about co-creation Ramaswamy and Gouillart (2010) state that co-creation activity is collaboratively performed in all types and sizes of organizations

to achieve extraordinary results. The methods co-creation adopts go beyond conventional quality, re-engineering, and lean thinking perspective.

Apart from the application of collaborative web-based tools, collaborative practices, and techniques need to be considered which are associated with design activity. The activities in the collaborative design process can be observational research, brainstorming, prototyping, role-playing, and videotaping. On the industry application front, Cisco has adopted co-creation as its transformation strategy, reinforcing that organizations which harness collaborative efforts will be successful as their employee's expertise in collaboration would ensure the success (Leavy, 2012). This in turn reinforces the practical application of collaborative thinking and its activities which have a positive influence on sustainable solutions for end customers.

Shifting to the academy to get a perspective on collaborative thinking, Corrigan (2012) has emphasized that there needs to be more collaborative work in university academic divisions where traditional boundaries of rigidity can be broken down and new integrated patterns can be established for collaboration. This approach is likely to create an academic environment more integrated and inclusive to create better and novel research. In this context, the interaction between people has the potential to fill up the spaces related to new senses, meanings, and emotions. These psychological system formulations have the ability to bring in personal potential. The value generated by the participants due to collaborative thinking activity is transformational in nature. A mutual person's influence during collaborative thinking activity has the potential in developing value and self-realization. Thus, every participant's potential is leveraged, from the perspective of personalization/ personification approaches (Belousova, 2015).

In order to enhance creativity and innovation,

brainstorming plays a very important role which encourages divergent thinking in a systemic manner. Having a collaborative environment, intrinsic motivation, and team spirit, the ideas generated and discussed in the brainstorming can be leveraged to have an attitude of wisdom and leverage skill variety (Kalargiros, 2015).

Nicholson et al., (2016) have discussed the importance of collaborative thinking in the domain of education institutions, specifically schools. Both principals and teachers must work in collaboration on the basis of distributed leadership model. Teachers taking up leadership positions are likely to bring the practical perspective and learning experience imparted to the students. The collaborative thinking between school management and teachers is likely to give sustained value to students learning.

Design thinking is predominantly to be visual from solution sketches to analytical diagrams to support the work of designers. The visuals represented enable specific cognitive and collaborative actions. Bresciani(2019) has developed a "collaboration dimensions of visualizations framework". This framework distinguishes seen traits of visualization.

The complexity of collaborative thinking stems from the fact that developing cognitive connections between multiple participants who have different perspectives is very complex. In this context, understanding connections between divergent views and finding a common ground for discussions and convergence becomes an important path forward. It is important this complexity is simplified. One such approach is to temporarily establish appropriate windows of a necessary fixed length so that necessary analysis can be performed and measures of complex interactions are understood in the process of collaborative thinking. There could be multiple windows and these windows can be moving as well considering new/ eliminating perspectives (Ruis et al., 2019).

Ecological thinking allows the development of

multiple methods to design solutions considering the collaborative perspective of the anthropogenic environment. Ecological thinking eliminates the traditional dichotomy between humanity and nature i.e subject and object. Such thinking in design fields promotes adaption, appropriation, and flexibility. Collaborating to design this ecological system contributes to creating a sense of community and convergent thinking. One of the key inputs in this process is the active engagement of users and communities for co-production, and co-governance, from cognitive and operational perspectives (Attaianese and Rigillo, 2021).

As we can see that collaborative thinking leads us to the co-creation of complex business solutions. This could be with customers are with suppliers as well. The requirement of the customer needs to match with suppliers' components only then customer requirements are fulfilled. Therefore, in this scenario, the organization's employee engages in collaborative thinking in understanding customer requirements from their perspective to understand the value. And then while dealing with a supplier, the organization represents customer requirements and collaborates with the supplier on the requirement. Collaboration between customer, manufacturer and supplier is essential in support of circular economy. Regenerative and restorative complexities need collaborative thinking (Mishra, J.L et al., 2021).

In this process, not only does the organization empathize with the customer and design solutions to cater to their needs, but also explores divergence. Working with customers in iteration or sharing solution options would be a healthy approach. There may be additional time consumed but the solution desired by the customer could be achieved. As an example collaborative design thinking can be applied in designing food service at a restaurant. With the application of Taguchi method, and thinking collaboratively, dining experience of customers can be designed as a service (Rejikumar, G et al., 2022).

Conclusion

There could be a process for all types of organization employees to follow in their way of thinking to meet their business objectives for sustained business solutions. In this study, I have considered four thinking types deliberately in a sequence i.e., starting compliance thinking, creative thinking, critical thinking, and ending with collaborative thinking. This approach might suggest thinking maturity which employees need to understand or even be trained by human resources learning and development so that the employee understands their job descriptions well in the context of the thinking types and expectations from them. If an organization follows this maturity path perhaps the outcome of sustainable business solutions is more successful and future challenges can be anticipated and objectively dealt with.

However, there could be some interventions that may be required in this journey process. These interventions could be generic in nature or specific to respective organizations. In further research, these interventions may be explored.

References

- Ali, R. F., Dominic, P. D. D., Ali, S. E. A., Rehman, M., & Sohail, A. (2021). Information security behavior and information security policy compliance: A systematic literature review for identifying the transformation process from noncompliance to compliance. *Applied Sciences*, 11(8), 3383.
- Amabile, T.M. (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, Vol 10, pages 123-167. 10(1), 123-167
- Almond, P., & Gray, G. C. (2017). Frontline safety: understanding the workplace as a site of regulatory engagement. *Law & Policy*, 39(1), 5-26.
- Attaianese, E., & Rigillo, M. (2021). Ecological thinking and collaborative design as agents of our evolving future. *TECHNE-Journal of Technology for Architecture and Environment*, 97-101.
- Ayad, A. (2010). Critical thinking and business process improvement. *Journal of Management Development*.
- Bailin, S. (1987). Critical and creative thinking. *Informal logic*, 9(1).
- Bailin, S. (1993). Epilogue: Problems in conceptualizing good thinking. *American Behavioral Scientist*, 37(1), 156-164.
- Bailin, Sharon., Siegel, Harvey (2002). *Critical Thinking. The Blackwell Guide to the Philosophy of Education*. Blackwell Publishers Ltd.
- Bargnesi, Joseph M., Dominguez, Daniel J., Frey, Christopher D., Jones, Erin Brown., Seltzer, Nathan H., Sawyer, Katherine A., Burgoyne, Savannah K., and Rizzoni, Catherine Anne (2022). Empowering Corporate Compliance Functions in a Post-Pandemic Environment. *INSIGHTS VOLUME 36, NUMBER 11, NOVEMBER 2022*.
- Belousova, A. (2015). Development of a Personal Potential in Collaborative Thinking Activity. *Procedia - Social and Behavioral Sciences*, 171, 987-994. doi:10.1016/j.sbspro.2015.01.217
- Bleedorn, B. D. (1993). Introduction: Toward an integration of creative and critical thinking. *American Behavioral Scientist*, 37(1), 10-20.
- Bresciani, S. (2019). Visual design thinking: a collaborative dimensions framework to profile visualizations. *Design Studies*, 63, 92-124. doi:10.1016/j.destud.2019.04.001
- Bysted, R., & Hansen, J. R. (2015). Comparing public and private sector employees' innovative behaviour: Understanding the role of job and organizational characteristics, job types, and subsectors. *Public Management Review*, 17(5), 698-717.
- Chayes, Abram, and Chayes, Antonia Handler (2015). On compliance. *International Organization*, Vol. 47, No. 2 (Spring, 1993), pp. 175-205. The MIT Press, 26-02-2015 15:35 UTC, <http://www.jstor.org/stable/2706888>.
- Choi, J. N. (2004). Individual and contextual dynamics of innovation-use behavior in organizations. *Human Performance*, 17(4), 397-414.
- Corrigan, K. (2012). Collaborative thinking: The challenge of the modern university. *Arts and*

- and Humanities in Higher Education, 11(3), 262-272.
- Cousins, B. (2018). Design thinking: Organizational learning in VUCA environments. *Academy of Strategic Management Journal*, 17(2), 1-18.
- De Oliveira, F. J. B., Fernandez, A., Hernández, J. E., & del Pino, M. (2022). Design Thinking and Compliance as Drivers for Decision Support System Adoption in Agriculture. *International Journal of Decision Support System Technology (IJDSST)*, 15(2), 1-16.
- Dewett, T. (2006). Exploring the role of risk in employee creativity. *The Journal of Creative Behavior*, 40(1), 27-45.
- Dorenbosch, L., Engen, M. L. V., & Verhagen, M. (2005). On-the-job innovation: The impact of job design and human resource management through production ownership. *Creativity and innovation management*, 14(2), 129-141.
- Facione, P. A., Sanchez, C. A., Facione, N. C., & Gainen, J. (1995). The disposition toward critical thinking. *The Journal of General Education*, 44(1), 1-25.
- Farmer, S. M., Tierney, P., & Kung-McIntyre, K. (2003). Employee creativity in Taiwan: An application of role identity theory. *Academy of management Journal*, 46(5), 618-630.
- Ford, C. M. (1996). A theory of individual creative action in multiple social domains. *Academy of Management review*, 21(4), 1112-1142.
- Gino, F., & Wiltermuth, S. S. (2014). Evil genius? How dishonesty can lead to greater creativity. *Psychological science*, 25(4), 973-981.
- Gupta, B. (2011). Organisational culture and creative behavior: moderating role of creative style preference. *International Journal of Innovation and Learning*, 10(4), 429-441.
- Gupta, V., & Singh, S. (2014). Psychological capital as a mediator of the relationship between leadership and creative performance behaviors: Empirical evidence from the Indian R&D sector. *The International Journal of Human Resource Management*, 25(10), 1373-1394.
- Hamington, M. (2019). Integrating care ethics and design thinking. *Journal of Business Ethics*, 155(1), 91-103.
- Hogan, K. (1999). Thinking aloud together: A test of an intervention to foster students' collaborative scientific reasoning. *Journal of research in Science Teaching*, 36(10), 1085-1109.
- Houghton, J. D., Neck, C. P., & Manz, C. C. (2003). We think we can, we think we can, we think we can: the impact of thinking patterns and self-efficacy on work team sustainability. *Team Performance Management: an international journal*.
- Indrasiene, V., Jegeleviciene, V., Merfeldaitė, O., Penkauskienė, D., Pivorienė, J., Railienė, A., Sadauskas, J., Valaviciene, N. 2020. The critically thinking employee: employers' point of view. *Entrepreneurship and Sustainability Issues*, 7(4), 2590-2603. [https://doi.org/10.9770/jesi.2020.7.4\(2\)](https://doi.org/10.9770/jesi.2020.7.4(2))
- Janssen, O. (2000). Job demands, perceptions of effort-reward fairness and innovative work behavior. *Journal of Occupational and organizational psychology*, 73(3), 287-302.
- Jokisaari, M., & Vuori, J. (2014). Joint effects of social networks and information giving on innovative performance after organizational entry. *Journal of Vocational Behavior*, 85(3), 352-360.
- Kalargiros, E. M., & Manning, M. R. (2015). Divergent thinking and brainstorming in perspective: Implications for organization change and innovation. In *Research in organizational change and development*. Emerald Group Publishing Limited.
- Kirton, M. (1976). Adaptors and Innovators; A description and a measure. *Journal of Applied Psychology*, 61(5), 622-629. <https://doi.org/10.1037//0021-9010.61.5.622>.
- Kohlberg, L. (1971). Stages of moral development according to Kohlberg.
- Klein, James A and Thompson James R (2022). Audit process safety for compliance and performance. *CEP Magazine*. <https://www.aiche.org/publications/cep>.
- Klymenko, O., Kosenkov, O., Meisenbacher, S., Elahidoost, P., Mendez, D., & Matthes, F. (2022, September). Understanding the Implementation of Technical Measures in the Process of Data

- Privacy Compliance: A Qualitative Study. In Proceedings of the 16th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (pp. 261-271).
- Leavy, B. (2012). Collaborative innovation as the new imperative—design thinking, value co-creation and the power of “pull”. *Strategy & Leadership*.
- Li, N., & Van Rooij, B. (2022). Law lost, compliance found: A frontline understanding of the non-linear nature of business and employee responses to law. *Journal of Business Ethics*, 178(3), 715-734.
- Manz, C. C., & Neck, C. P. (1997). Team think: beyond the groupthink syndrome in self-managing work teams. *Team Performance Management: An International Journal*, Vol. 3 Iss 1 pp. 18 – 31.
- Medić, S., Karlović, B., & Cindrić, Z. (2016). New standard ISO 9001: 2015 and its effect on organisations. *Interdisciplinary Description of Complex Systems: INDECS*, 14(2), 188-193.
- Mishra, J. L., Chiwenga, K. D., & Ali, K. (2021). Collaboration as an enabler for circular economy: A case study of a developing country. *Management Decision*, 59(8), 1784-1800.
- Mumford, M. D., & Gustafson, S. B. (1988). Creativity syndrome: Integration, application, and innovation. *Psychological bulletin*, 103(1), 27.
- Nicholson, J., Capitelli, S., Richert, A. E., Bauer, A., & Bonetti, S. (2016). The Affordances of Using a Teacher Leadership Network to Support Leadership Development: Creating Collaborative Thinking Spaces to Strengthen Teachers' Skills in Facilitating Productive Evidence-Informed Conversations. *Teacher Education Quarterly*, 43(1), 29-50.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of management journal*, 39(3), 607-634.
- Pluta, P. L., & Poska, R. (2010). Compliance by Design*(CbD) and Compliance Master Plan (CMP)-An Organized Approach to Compliance. *Journal of GXP Compliance*, 14(2), 73.
- Prahalad, C. K., & Ramaswamy, V. (2004). The future of competition: Co-creating unique value with customers. Harvard Business Press.
- Ramamoorthy, N., Flood, P. C., Slattery, T., & Sardesai, R. (2005). Determinants of innovative work behaviour: Development and test of an integrated model. *Creativity and innovation management*, 14(2), 142-150.
- Ramaswamy, V., & Gouillart, F. J. (2010). The power of co-creation: Build it with them to boost growth, productivity, and profits. Simon and Schuster.
- Rejikumar, G., Aswathy, A. A., Jose, A., & Sonia, M. (2022). A collaborative application of design thinking and Taguchi approach in restaurant service design for food wellbeing. *Journal of Service Theory and Practice*, 32(2), 199-231.
- Riddell, T. (2007). Critical assumptions: Thinking critically about critical thinking. *The Journal of nursing education*, 46(3), 121-126.
- Ringer, T. M. (2007). Leadership for collective thinking in the work place. *Team Performance Management: An International Journal*.
- Root, V. (2019). The compliance process. *Ind. LJ*, 94, 203.
- Ruan, A., Hong, W., & Jin, J. (2010, June). The impact of motivation on employee innovative behavior and the disparity analysis: An empirical study of Zhejiang Province in China. In 2010 IEEE International Conference on Management of Innovation & Technology (pp. 652-657). IEEE.
- Ruis, A., Siebert-Evenstone, A., Pozen, R., Eagan, B., & Shaffer, D. W. (2019). Finding common ground: A method for measuring recent temporal context in analyses of complex, collaborative thinking.
- Sampson, D. C., Moore, R., & Jackson, M. J. (2007). CRITICAL THINKING: DO THEY REALLY HAVE "IT" IF THEY DON'T KNOW WHAT "IT" IS? In Allied Academies International Conference. *Academy of Educational Leadership. Proceedings* (Vol. 12, No. 1, p. 47). Jordan Whitney Enterprises, Inc.
- Savchenko, O. (2018, December). Design thinking as necessary constituent of creative industry. In IOP Conference Series: Materials Science and Engineering (Vol. 459, No. 1, p. 012096). IOP Publishing.

- Seyffarth, T., & Kuehnel, S. (2022). Maintaining business process compliance despite changes: a decision support approach based on process adaptations. *Journal of Decision Systems*, 31(3), 305-335.
- Smith, Deborah L (2012). Compliance - Do we have the right focus? *NCURA Magazine JANUARY/FEBRUARY* 2012. <https://www.ncura.edu/Publications/NCURAMagazine.aspx>.
- Soliman-Junior, J., Tzortzopoulos, P and Kagioglou, M (2022). Automated Regulatory Compliance towards Quality Assurance in Healthcare Building Projects. *IOP Conf. Series: Earth and Environmental Science*. 1101 (2022) 082012. doi:10.1088/1755-1315/1101/8/082012
- Spencer Pickett, K. H. (1999). The manager's guide to internal control: diary of a control freak. *Management Decision*, 37(2), 93–215. doi:10.1108/00251749910252076
- Svensson, Goran and Wood, Greg (2008). A Model of Business Ethics. *Journal of Business Ethics* (2008) 77:303–322. DOI 10.1007/s10551-007-9351-2.
- Van de Ven, A. H. (1986). Central problems in the management of innovation. *Management Science*, 32(5), 590-607.
- Weber, J., & Wasieleski, D. M. (2012). Corporate Ethics and Compliance Programs: A Report, Analysis and Critique. *Journal of Business Ethics*, 112(4), 609–626. doi:10.1007/s10551-012-1561-6
- Woloch, B. (2006). New dynamic threats requires new thinking – “Moving beyond compliance.” *Computer Law & Security Review*, 22(2), 150–156. doi:10.1016/j.clsr.2006.01.008
- Zhang, L. F. (2003). Contributions of thinking styles to critical thinking dispositions. *The Journal of Psychology*, 137(6), 517-544.