

## A MODEL TO SUPPORT THE FORMATION AND WORK OF DESIGN THINKING TEAMS

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**Purpose:** Design Thinking is a frequently recommended strategy used in the operation of companies and organizations. Unfortunately, in many cases the implementation of this approach ends prematurely or is a failure. The purpose of this work is to provide anyone responsible for initiating and/or leading design thinking processes in an organization with a relatively simple model/framework to increase the chances of success of implementing methodologies based on the work of self-organizing teams.

**Design/methodology/approach:** Design Thinking is an often recommended strategy for how companies and organizations should operate. Unfortunately, in many cases the implementation of this approach ends prematurely or is a failure. The purpose of this work is to provide anyone responsible for initiating and/or leading design thinking processes in an organization with a relatively simple model/framework to increase the chances of success of implementing methodologies based on the work of self-organizing teams.

**Findings:** Among the many factors that influence the failure of design thinking implementation, four key ones have been identified to initiate and practice design thinking in various organizations. The proposed model of the interacting four elements visualized as a tetrahedron, can be used by those responsible for implementing the design thinking process as an aid to building an effective team, starting from providing emotional comfort to group members. In addition, the model makes it possible to reveal information gaps at the individual, project team and organizational levels, so it is clear where to target individualized knowledge packages.

**Research limitations/implications:** The model outlined is intended to support the formation stage and effective work of the project team in the organization. The model does not include elements to directly influence the work of the team (e.g., stimulating creativity), however, providing emotional comfort can positively influence the design thinking process itself.

**Practical implications:** The work presents a proposal for a model, the use of which during group-led project processes allows to preserve the cohesion of the working team. The use of the presented tool increases the chances of achieving success in group project work, including the possibility of developing solutions from areas of radical innovation. Practicing the design thinking path requires the process facilitator to have a set of tools and skills developed through long-term practice. The proposed framework lowers the starting threshold for becoming an effective facilitator by identifying only four key elements to support in a team.

**Social implications:** The use of this model is intended to provide the project team with support for its emotional and informational needs. This kind of innovative support for design processes, the author intends, allows for the spread and expansion of design practices that take into account end users. Design Thinking methodology and its derivatives have repeatedly proven their effectiveness in designing and implementing social change.

**Originality/value:** Unlike most works that propose solutions constructed according to a top-down pattern (the organization's goals are primary), the proposed model uses a bottom-up strategy, placing the human being and his needs as the starting point for achieving innovation in the organization. In addition, unlike most of the available literature, which focuses on identifying all potential factors resulting in failures of implementing Design Thinking, it has reduced to four factors that need to be taken care of for easier understanding and acceptance of the process by project team members and the organizational ecosystem.

**Keywords:** Design Thinking, support model, support framework, Design Thinking facilitator.

**Category of the paper:** Conceptual paper, viewpoint.

## 1. Introduction

Nowadays, companies are looking (or are forced to find) ways to reach customers who have changed their approach to functioning in the modern world. In addition, companies and organizations are seeing the need for new forms of operation and acceptance of necessary changes within the company. Business literature is trying to fill this niche, and we have access to the latest proposals for solving such problems. For example, in the book *Productive Tension* (Bingham, McDonald, 2022), the authors identify eight critical tensions that innovation leaders will encounter and must overcome in order to succeed. The field of consumer product design has already developed standards describing a generalized sequence of design activities from start to finish. Each design process is based on research, problem definition, solution development and implementation. We have a number of approaches to design work - from "Double Diamond" (Banathy, 1996) as "social systems design," the "Design Thinking" process as a tool for solving "wicked problems" (Buchanan, 1992), through modifications of the example "Sprint" (Knapp et al., 2016) (now it's "Sprint 2.0"), to "Design Driven Innovation" (Verganti, 2009) as a methodology for creating new markets. A valuable overview of Design Thinking process models can be found in (Waidelich et al., 2018). All approaches are based on group work and an assumed iterative structure of activities. Modern design takes into account end users, hence the need to test solution prototypes on users. The exception to this is the radical innovation strategy, which recognizes that end-user feedback can be limiting.

The Design Thinking process popularized by Tim Brown, CEO of innovation and design firm IDEO, his book *Change by Design* (Brown, 2009), clearly indicated that design thinking techniques and strategies belong at every level of business. Moreover, design thinking approaches can enable mere mortals to generate breakthroughs. The understanding and use of

the term "wicked problems" has also changed; pioneers and leaders of the Human-Centered Design movement, such as Don Norman, now prefer the term "complex socio-technical systems." It is clear that the search for solutions must be handled by teams, and multidisciplinary teams at that. In a number of items we have presented ideas and techniques for design teamwork. *Creative Confidence: Unleashing the Creative Potential Within Us All*, a book from the founders of IDEO (Kelley, D., Kelley, T., 2015) is one of the most comprehensive works on the subject.

Also, we have suggestions on how to organize project space so as not to block creativity within the team. *Make Space* (Doorley et al., 2012) - a book by Doorley and Witthoft based on the work of the team that designed and developed the d.school space (formally Hasso Plattner Institute of Design, Stanford University) is a great example. The next steps in deciphering the practice of implementing group work are the findings in Basadur paper (Basadur et al., 2014), which signal that the creative problem-solving process is a four-stage process, with each stage involving a different type of cognitive activity. Thus, in order to increase an organization's adaptability, simplify and facilitate change management, and address important issues of organizational effectiveness at the individual, team and organizational levels, properly prepared information sets should be prepared. Similarly, work (Butler, Roberto, 2018) argues that cognitive impediments and metacognition can pose serious obstacles, yet they point out ways around them. In recent years, there has been significant work attempting to identify the conditions required in organizations seeking to integrate design processes (Dunne, 2018), (Wrigley et al., 2020). In (Liedtka, 2018), the author summarizes her seven years of research, writing that human biases and ingrained behaviors block design thinking, and at the same time points out conditions to be successful - innovation must deliver three things: superior solutions, low-risk and cost of change, employee buy-in. Also very gratifying are the in-depth studies conducted on innovation managers on mindsets and related activities (Nakata, Hwang, 2020), and paradigmatic approaches to measuring design cognitive processes - design cognition, design physiology and design neurocognition (Gero, Milovanovic, 2020). It seems particularly important to look at innovation design processes in the context of Industry 4.0. The work (Dilan, Aydin, 2021) postulates that Industry 4.0 projects using design thinking can be linked to different types of innovations, including business models, organizations and process innovations at the company and network levels through project portfolios.

This paper provides an additional perspective (model) to facilitate the implementation of design thinking methodology. We can see that in many of the above considerations, the trouble is group work and the failure to instill trust at very different levels - from trust in the methodology, to trust in the employees who are supposed to work in a group work scheme in a self-organizing system. The paper presents a framework that is worth applying so that any model of project-based group work can not so much occur in the organization, but become a source of successful innovation.

## 2. GMSC Model

The proposed model was constructed from the point of view of the individual (person) and not, as is usual, the organization. The model uses a bottom-up strategy, putting the human being and his needs as the starting point for achieving innovation in the organization. The strength of this approach is the obvious fact that organizations are made up of people and they need to communicate and take care of their own needs. In addition, the model is based on the assumption that communication processes are the source of most failures.

In a paper (Antony, Gupta, 2018), the authors outlined the top ten reasons for the failure of improvement projects:

- Lack of commitment and support from top management.
- Poor communication practices.
- Incompetent team.
- Inadequate training and learning.
- Faulty selection of process improvement methodology and its associated tools/techniques.
- Inappropriate rewards and recognition system/culture.
- Scope creepiness.
- Sub-optimal team size and composition.
- Inconsistent monitoring and control (lack of expert supervision).
- Resistance to change (partial cooperation by employees).

Such summaries, while very useful, can paradoxically themselves make the decision to adopt a design thinking path in an organization more difficult, as they foreshadow the extremely complex set of steps that must be taken to initiate an innovative path. Therefore, the following model is an attempt to simplify the process.

From the employee's point of view, three layers of communication problems can be identified, which can modify each other.

The first layer is the information and communication constraints at the levels that are responsible for initiating innovation-creating teams (usually chief operating officers and senior management). The second layer is communication challenges including information deficiency between members of the project team that designs the innovation. The final, third layer is concerned with problems at the individual level.

The simplified organization scheme presented here is meant to indicate that the recipients of information in each layer will often have radically different perspectives of evaluation. What is important is that participants at separate levels of the organization should send effective messages that influence (modify) communication with other layers.

Analyzing the available literature and based on the author's experience, a minimum set of conditions necessary to initiate and sustain design thinking processes has been identified:

- established goals and readiness to revise them,
- a sense of meaning,
- a sense of security,
- a sense of community.

The listed conditions constitute the four components or pillars of the proposed model, which are treated as equivalent. Therefore, it was decided to visualize this approach in the form of a regular tetrahedron (Figure 1) named for simplicity GMSC tetrahedral by the first letters of the components. The assumption of equivalence comes from the practice of conducting Design Thinking processes - where this methodology has been implemented successfully, the four elements have always coexisted and influenced each other. For example, caring for a sense of security among team members usually opens the way to trust and deeper collaboration. As a result, a sense of community emerges, which further influences the functioning of the team by allowing for the revision of goal assumptions and meanings. The modifiers of these components are the actions of the team, which in the visualization of the model are the edges of the tetrahedron.



**Figure 1.** GMSC tetrahedron as a set of conditions necessary to initiate and sustain design thinking processes.

Source: own contribution.

Let's look at the meaning of each component.

### Goals

From an organization's point of view, a business objective is an endpoint, achievement or goal that the organization wants to achieve in the short or long term. In the individual layer, the goals will refer to the expected realization of individual goals of team members. In the collective layer, we point to business goals, i.e. the results that the team wants or is expected to achieve. In methodologies of the Design Thinking class, it is often the case that the assumption of the main goal does not change (e.g., a profitable product should be developed), but during the process the specific goals are modified. In GMSC model, individual goals are as important

as team goals. This is, on the one hand, a response to changes in the labor market but also to the growing knowledge of motivation processes.

### **Meanings**

People do not buy products, but meanings. This is the conclusion of research popularized by the book *Drive* (Pink, 2009). People use things for deep emotional, psychological and sociocultural reasons, as well as for utilitarian reasons. We know that every product and service in both the consumer and industrial markets matters. This means that designers should go beyond classic features, functions, performance, etc. but understand the real meanings that users give to things.

In this component also comes an understanding of why teams can effectively self-organize their work, without the typical supervision and constant control. This is because when we talk about meaning, we consider not only the importance of the designed solution to the organization, environment, community, etc., but at the same time personal motivations for work. Team members experiencing the results of work, seeing their proficiency realize personal basic human needs.

### **Security**

From the point of view of team members, the model postulates guaranteeing job security, and the feeling that one can reveal one's ideas, and that the organization is organized in such a way that individual activity in the group process will be noticed and appreciated.

The group must feel secure with respect to the operating conditions, including adequate time resources. A proper system of appreciation of the work of team members, not only based on remuneration allows the release of individual and team creativity.

A separate discussion should be given to the sense of personal security in the team. In many organizations, failures are barely tolerated and not after acquiescence to wasting resources on mistakes. The design thinking methodologies described inherently assume extensive (but very fast and cheap) prototyping and testing. Thus, in a simplistic understanding of the process, employees waste resources creating, testing and discarding most prototypes. In practice, the longer an employee is stuck in a system that does not allow failure, the more it limits the possibilities for major change, including radical innovation.

### **Community**

Looking through the prism of the collective, the community is an opportunity to achieve synergy, to use the personal experience of team members not only in creative work but in all stages of Design Thinking type processes. The entire community is responsible for the result of the team's work, and normalizing relationships in the team so that individual differences (age, position in the organization, experience, material status, etc.) do not nullify the work is a serious task. Each team member may have a personal perspective on the concept of community - from the need to belong, to negation expressed in the belief that I personally would have done the task better, my proposal was better, etc.

In practice, team building is often a serious project, especially of a multidisciplinary nature, and the actions of experienced process facilitators are essential.

It is worth considering that in many organizations that have a classical hierarchical organization, the work of the self-organizing project community may not be properly perceived, considered inefficient. Such a negative assessment takes into account the possible pejorative aspects that, according to modern knowledge, are associated with the hierarchical model of organization.

### **Activities**

Activities are connectors that binds the various equal components together. Through activities, ideas generate facts and concrete effects. It should be noted that even a single activity can relate to all pillars.

For example, the stage of identifying the end recipient, when carried out with the above model in mind, allows not only to describe the direct beneficiary of the designed solution but also to make team members aware that the beneficiaries are themselves, at the personal, team and principal/company/organization levels.

The model presented is basically a tool for managers in innovation teams of facilitators but also project group members to facilitate the implementation of group work. Working with such a simplified set of pillars of an effective design thinking process seems to be made easier as we only check feedback on only four components.

## **3. Discussion**

The proposed concept corresponds with recent qualitative research (Ospina, Sánchez, 2022) suggesting that before implementing an organizational initiative such as design thinking to change people's behavior, it is necessary to approach it as a cognitive process and develop strategies to mitigate passive cognitive resistance to change. Also in reports from well-known opinion polling centers, we see indications that change management is not only a basic component of leadership but is now becoming the most important requirement. For example, the Gallup Institute in its article "How Leaders Can Communicate Change to a Burned-Out Workforce" refers to recent changes in labor markets and suggests how to help employees understand and support change (McLain, 2022).

A paper (Rauth et al., 2010) proposes the creation of a design thinking education framework in an organization, with the end result being the ability for employees to learn creative confidence. The model presented focuses on a step further - facilitating the building of a cooperative team based on trust towards group members and the organization.

Of course, the tool presented will not solve all the hassles of implementing change. However, it allows to gain a quick condensed knowledge of social aspects and will make company/organization authorities aware of the need to support the team in confidence-building issues. The use of the GMSC model can be multi-faceted and is not limited only to design thinking but to all forms of group work. Hypothetical scenarios for using the tool are:

- Building, leading and supporting a project team. The above model, when presented to a project group, can be regularly used to check whether we are supporting each component in the team, examining whether each team member does not feel blockages. So the model can be a tool to help identify blockages at every level of communication in the company.
- Information action (and promotion) of design thinking at different levels of the organization. Using the model, it's easy to get precise information from team members where knowledge gaps exist about the process.
- Acceptance of design thinking at different levels of the organization. A project group usually works in an organization's ecosystem. There is a need to let employees in the company know what project method we are working with and to give meaning to this work. Customized information packages should go from employees all the way up to management.

GMSC model in the future can be easily adapted for use in hybrid work, so implemented in popular online collaboration spaces for teams work like mural, miro.

The application of the GMSC tetrahedron can be broader than just in methodologies like Design Thinking. In fact, wherever we need to form an effectively cooperative team, especially self-organizing its work, it is worth using the presented framework.

## 4. Summary

Design thinking methodologies may be the answer to the needs of the rapidly growing Industry 4.0, but any modern company or organization if it wants to survive or expand its market share must choose the path of continuous modernization. Introducing design thinking into a company is usually not an easy task. Incurring the cost of training according to standards, introducing any of the methodologies usually does not clear the path of design thinking. Taking a course doesn't add much beyond understanding the method and how it can be applied. Only by practicing design thinking based on the unique nature of the organization's problems does it help to adapt the process and optimize it to achieve the desired innovative outcome. However, in order to start practicing design thinking some initial conditions for the process are necessary, forming a team and putting the goal into practice is not enough.



The proposed framework, called the GMSC tetrahedron model, is designed to study and moderate any group, as the assumed end result is a team motivated to work. The identified four basic components are present, according to the author, in any effective design thinking group. Restricting only to these components facilitates the work of the facilitator of the design thinking process and aids communication both within the design group itself, as well as with contacts within the organization for which the team works.

The GMSC tetrahedron was constructed in a bottom-up strategy, because it first focuses on the person (the individual), his needs for acceptance and his sense of meaningful work. Just as in design thinking methodologies the end users are studied and according to their feedback the final solution is optimized, in the presented approach, project team members are treated as beneficiaries of the process - for them the functioning of the team is improved.

## References

1. Antony, J., Gupta, S. (2018). Top ten reasons for process improvement project failures. *International Journal of Lean Six Sigma*, 10(1), 367-374. <https://doi.org/10.1108/IJLSS-11-2017-0130>.
2. Banathy, B.H. (1996). *Designing Social Systems in a Changing World*. New York, NY: Springer, <https://link.springer.com/book/10.1007/978-1-4757-9981-1>.
3. Basadur, M., Gelade, G., Basadur, T. (2014). Creative Problem-Solving Process Styles, Cognitive Work Demands, and Organizational Adaptability. *The Journal of Applied Behavioral Science*, 50(1), 80-115. <https://doi.org/10.1177/0021886313508433>.
4. Bingham, C.B., McDonald, R.M. (2022). *Productive Tensions: How Every Leader Can Tackle Innovation's Toughest Trade-Offs*. The MIT Press.
5. Brown, T. (2009). *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*. HarperBusiness.
6. Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, 8(2), 5-21. <https://doi.org/10.2307/1511637>.
7. Butler, A.G., Roberto, M.A. (2018). When Cognition Interferes with Innovation: Overcoming Cognitive Obstacles to Design Thinking. *Research-Technology Management*, 61(4), 45-51. <https://doi.org/10.1080/08956308.2018.1471276>.
8. Doorley, S., Witthoft, S., University, H.P.I. of D. at S., Kelley, D. (2012). *Make Space: How to Set the Stage for Creative Collaboration (1st edition)*. Wiley.
9. Dunne, D. (2018). Implementing design thinking in organizations: An exploratory study. *Journal of Organization Design*, 7(1), 16. <https://doi.org/10.1186/s41469-018-0040-7>.

10. Gero, J.S., Milovanovic, J. (2020). A framework for studying design thinking through measuring designers' minds, bodies and brains. *Design Science*, 6, e19. <https://doi.org/10.1017/dsj.2020.15>.
11. Kelley, D., Kelley, T. (2015). *Creative Confidence: Unleashing the Creative Potential within Us All (1st edition)*. Harper Collins.
12. Knapp, J., Zeratsky, J., Kowitz, B. (2016). *Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days (1st edition)*. Simon & Schuster.
13. Liedtka, J. (2018, September 1). Why Design Thinking Works. *Harvard Business Review*, September-October, 72-79.
14. McLain, D. (2022, February 11). How Leaders Can Communicate Change to a Burned-Out Workforce. Gallup.Com. <https://www.gallup.com/workplace/389594/leaders-communicate-change-burned-workforce.aspx>.
15. Nakata, C., Hwang, J. (2020). Design thinking for innovation: Composition, consequence, and contingency. *Journal of Business Research*, 118, 117-128. <https://doi.org/10.1016/j.jbusres.2020.06.038>.
16. Ospina, J.M.G., Sánchez, D.E.G. (2022). Design thinking traits and cognitive passive resistance: Mediating effect of linear thinking. *Management Research Review*, 45(9), 1155-1184. <https://doi.org/10.1108/MRR-11-2021-0803>.
17. Pink, D.H. (2009). *Drive: The surprising truth about what motivates us*. Riverhead Books.
18. Rauth, I., Köppen, E., Jobst, B., Meinel, C. (2010). *Design Thinking: An Educational Model towards Creative Confidence*. DS 66-2: Proceedings of the 1st International Conference on Design Creativity (ICDC 2010). <https://www.designsociety.org/publication/30267/Design+Thinking%3A+An+Educational+Model+towards+Creative+Confidence>.
19. Verganti, R. (2009). *Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean*. Harvard Business Review Press.
20. Waidelich, L., Richter, A., Kölmel, B., Bulander, R. (2018). *Design Thinking Process Model Review*. 2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), 1-9. <https://doi.org/10.1109/ICE.2018.8436281>.
21. Wrigley, C., Nusem, E., Straker, K. (2020). Implementing Design Thinking: Understanding Organizational Conditions. *California Management Review*, 62(2), 125-143. <https://doi.org/10.1177/0008125619897606>.