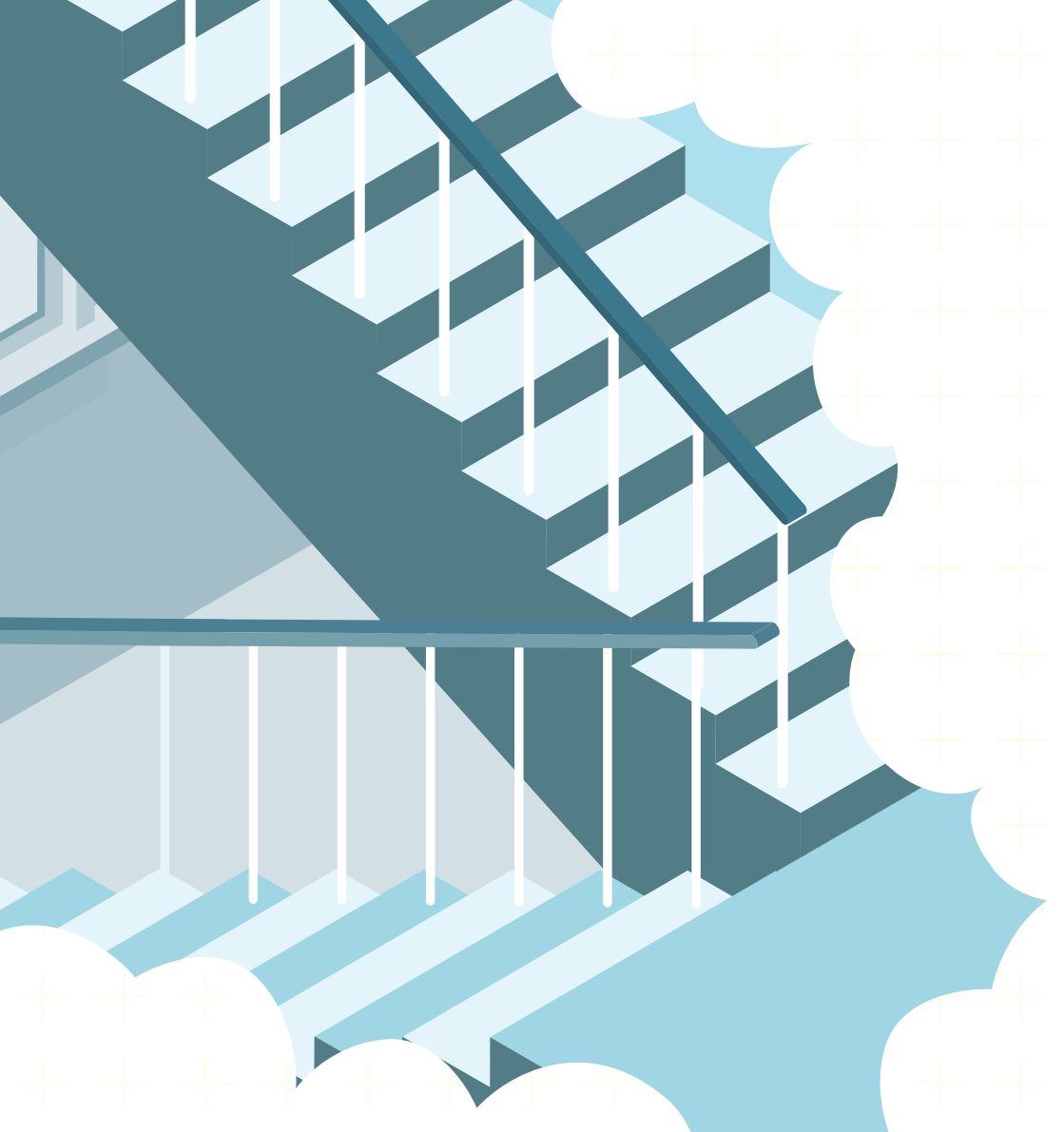# The Role of
Design Thinking
in Trying to Solve Educational Problems

A Case Study from GovTech Edu Indonesia

Authors:
Alifian Arrazi
Editor:
Jasmine Noor
Andretha Putri
Designer & Layouter:
Hanny Handayani

Introduction

In 2008, the executive director of an innovation consulting firm (IDEO) published a commentary titled "Design Thinking" in Harvard Business Review (Brown, 2008). The commentary inspired a widely adopted new method to problem solving that emphasizes not only technical and logical approach, but also creativity and iteration (Brown, 2008). Design thinking is a concept from industrial design science that describes how designers create a product. The design thinking method emphasizes solving issues by focusing on the product users, experimentation, and product iteration. The fundamental aspect of design thinking is that designers must place a strong emphasis on the people who will use the product, think creatively when addressing problems, and experiment to determine what would work best for the users (Dorst, 2010, 2011).

Nowadays, design thinking is increasingly used in business contexts, particularly in technological firms. The design thinking approach has been deemed as successful in bridging the gap between customers and businesses when it comes to product design because of its strong user emphasis. This growing phenomena triggers the widespread adoption of design thinking in solving problems within a governmental setting (Mintrom & Luetjens, 2016). The approach also has been gaining traction because of the growing idea in public administration about co-creation and development of policy experimentation labs (Haug & Mergel, 2021; Komatsu et al., 2021; Osborne et al., 2016).

This case study will provide insight on how the design thinking approach is applied to tackle an educational challenge in a developing country. The study case will investigate Warung Teknologi, commonly known as GovTech Edu Indonesia, in an attempt to understand how government institutions in a developing country is applying design thinking to address educational problems. The study case would also touch on the difficulty of using the design thinking method to resolve public policy issues. Last but not least, this study case will also look at the future initiatives that the government might take to increase the use of design thinking in handling public concerns and overcoming its difficulties.

Deconstructing Educational Problems in Indonesia

Indonesia is a developing country with a diverse topography ranging from mountains to rivers that also consist of 16.771 islands. Given such geographic circumstances, the Indonesian government must find a solution to the problem of maintaining education quality spurred by such geographical factors. According to a PISA study in literacy, science, and math, Indonesia ranks 74th out of 79 countries surveyed (Schleicher, 2019). Furthermore, a number of studies demonstrate Indonesia's issues with education, ranging from unequal access to school and educational disparities within the local area to a limited incentive for those people that engaged in the education ecosystem (Indonesia, 2021; Suryadarma & Jones, 2013).

According various studies, the problem of education in Indonesia significantly derives from three factors. First, there is an issue with Indonesian teachers. Several studies on the Indonesian education system have found that Indonesian teachers underperform due to absenteeism, inadequate core subject mastery, limited pedagogical range, and a heavy administrative burden (Bjork, 2004; Chang et al., 2013). A research from the OECD, using samples from secondary schools, also shows that Indonesian school teachers only teach 700 hours annually, compared to 1300 effective hours annually, because of a significant administrative burden (OECD Indicators, 2017).

The second issue is the ineffective utilization of education funding provided by the Government of Indonesia (GoI). Since 2003, GoI has given the education sector 20% of the national and local budgets[2]. However, despite the large expenditure, Indonesia's education ranking has not improved drastically. Schools have spent money on unnecessary administrative meetings such as school meetings and physical improvements, which have had a minimal impact on the development of Indonesian education quality. Finally, Indonesian education has been heavily criticized for the mismatch between education and the formal labor market. Industry and businesses have complained that the amount of educated students in Indonesia's education system has specifications (Di Gropello et al., 2011). In this case study, these three problems would try to be solved by GovTech Edu using a technological and design thinking approach.

Different educational regimes in Indonesia have taken a variety of actions to address the issue. However, when Nadiem Makariem, a founder and former CEO of Gojek [a decacorn ride-hailing Indonesia tech company], was appointed Minister of Education, Culture, Research, and Technology (MoERCT), the expanding use of technology and the design thinking approach gained traction. In order to improve governmental settings, Nadiem tries to use the strategy from the technological company he manages. The development of GovTech Edu provides significant evidence how Nadiem is creating space for design thinking to solve policy problems.

[2] *Law on the National Education System (No. 20/2003).*

GovTech Edu: Intersection of Technology, Government, and Tech Startup Workflow

GovTech Edu is an independent unit that Telkom Indonesia created under the directorate of digital business and technology. With a collaboration with the MoERCT, GovTech Edu holds the mission to address educational issues using technological approach. About 300 employees with a range of backgrounds working in technology and global enterprise environments make up the GovTech Edu team. GovTech Edu has been creating seven products or programs that concentrate on resolving educational issues at every layer (DailySocial.id, 2022).

No.	Product Name	Product Function	Total User	Final Objective
1.	Merdeka Mengajar	A Learning Management System with the purpose to help teacher in teaching students, according to students' diverse capacity.	2.7 million active user in web and mobile applications.	Empowering teachers, students, and education staff.
2.	AkunBelajar	Official platform to access various learning content that is produced from Indonesia MoERCT.	9 million active users that range from student, teacher, headmaster, to school administrative staff.	

No.	Product Name	Product Function	Total User	Final Objective
3.	Rapot Pendidikan	Integrated dashboard platforms that have 280 education indicators. This dashboard aim to help school evaluate their condition with the help of 280 data points indicator	The dashboard is integrated with more than 100.000 schools, 30 province municipality education offices, and 475 local municipality education offices.	Empowering teachers, students, and education staff.
4.	Arkas	Application that focuses on creating an education budgeting system that is integrated with regulation and ministry of education dashboard to help schools in an administrative manner.	The dashboard is integrated with more than 100.000 schools, 30 province municipality education offices, and 475 local municipality education offices.	
5.	TanyaBOS	A Frequently asked Question forum about education school grant	Approximately three thousand topic are being discussed about education school grant	
6.	SIPLah	Procurement platform that is integrated with e-commerce partner and thousands of service provider	The dashboard is integrated with more than 100.000 schools, 30 province municipality education offices, and 475 local municipality education offices.	
7.	Kampus Merdeka	Platform to help developing knowledge and skills for undergraduate students by focusing on providing internships, student exchange, and independent research study.	The platform has been massively connected: 700.000 undergraduates from 2655 higher education institutions to more than 2700 companies and hundreds of education partners.	Creating a more robust link and match system for campus and formal labor market in Indonesia

In creating several programs, GovTech Edu works remotely with matrix organizations, commonly used by technological companies such as Spotify. With this model, individuals that work in GovTech Edu simultaneously work at three structures. First, a person would work on a program with 6–7 other people from different backgrounds in a smaller squad. Additionally, a person who comes from a similar background is included in the chapter as well. A chapter's goal is to improve coordination among projects that have a similar background. Moreover, a person works with a tribe system of 30 people to share information and coordinate efforts across a program that is categorized as one section. Finally, there are guilds, which are structurally more adaptable and can bring together individuals from various tribes who share the same interest. Although it appears to have many layers, research from Harvard Business Review has found that this kind of organization helps team members be agile when creating and scaling a product (Mankins & Garton, 2017).
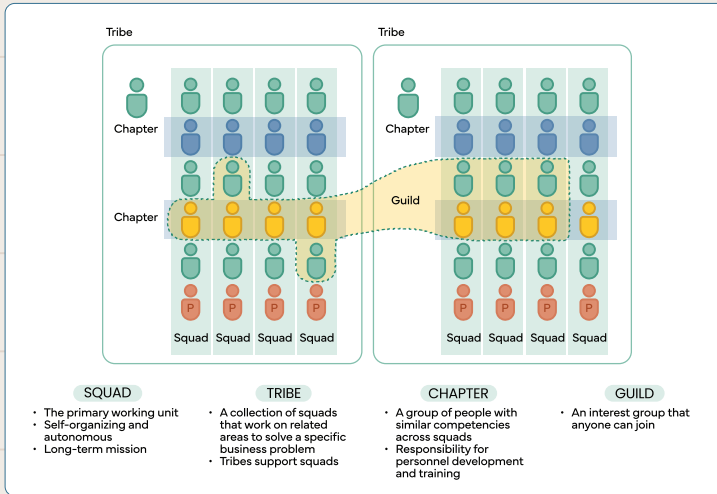
Figure 1. Tech Matrix Organization Structure. Source: Boston Consulting Group.

Along with having a structure that differs from many traditional government departments, GovTechEdu operates very differently from how the government does business. The design thinking method causes GovTech Edu to emphasize rather than think for the user or citizen. As a result, GovTech Edu conducts extensive qualitative study on its user, their persona, and their product journey. Additionally, quantitative tests are used to collect data from qualitative research. Thus, experimentation provides information on what aspect or item works best for the user. The product teams will then revisit and reaffirm the program after the product or program is released, taking into account both quantitative and qualitative data. One of the example of this process that GovTech Edu describe is in the platform of Merdeka Mengajar.

Typically, the process of product design and execution should last one to four weeks. This is significantly different from how public sector programs are typically designed and implemented. Design thinking may design and implement a program more swiftly with the aid of data and technology. It typically results in a program feature that is naturally used by the user. This would imply that programs using the design thinking method are more easy to use and sometimes do not require extensive socializing on the part of the government in order to get widespread adoption.

When Power Meet ⟶ Design

While applying design thinking in a government setting has its advantages due to user centric and massive scalability focus, it has also some significant drawbacks. The Indonesia's House of Legislative criticized the idea of GovTech Edu a week after the Minister of Education promoted it as a tech-savvy organizational breakthrough in an international forum (The Jakarta Post, 2022). The political intervention suggests that design thinking, in a governmental setting, cannot be separated from the constant force of political power; this is what distinguishes design thinking in private and public settings.
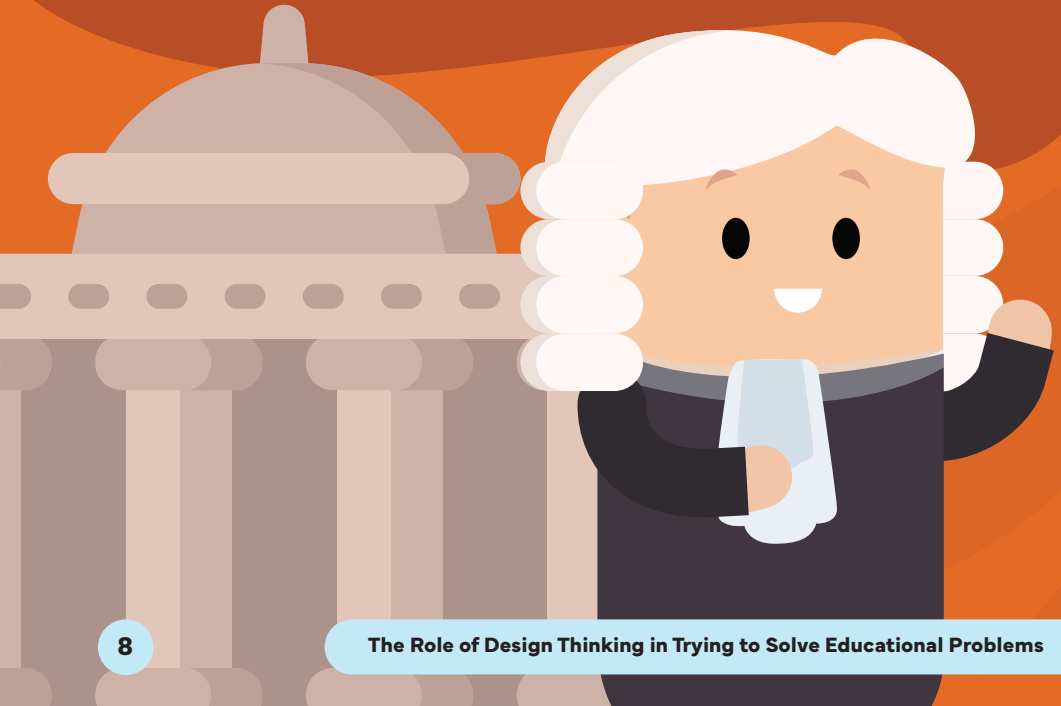
With a focus on the user, proponents of design thinking rarely include politics as one of the primary considerations driving product development (Lewis et al., 2020). Furthermore, it appears that design thinking has not properly acknowledged the cultural and historical significance of the actual program or product. Values like spirituality, compassion, or civility that compose the historical roots of Indonesian education are rarely taken into account by the design thinking group in the process of creating a product. While in creating a solution to address the problem of education in Indonesia, the design thinking camps is primarily concerned with effectiveness of the product

Design thinking in governmental contexts also requires significant political support, especially from its leader. Design thinking differs from conservative policy-making, which places a strong emphasis on legal procedure and political analysis, in that it encourages large experimentation, iteration, and scaling of products. To enable the adoption of design thinking in a bureaucratic system, a strong leadership presence is thus required to close the gap between the traditional approach of policy making and the more contemporary one.

$$Y = X^2$$

Design Thinking in the Public Sector: A Strategic Step

Due to its uniqueness, which the conventional policy making approach lacked, design thinking offers a great deal of potential to solve societal problems. Policymakers could view the world through the eyes of a citizen using design thinking's experimental approach and empathetic lens. Thus, design thinking's promise should be accompanied by strategic efforts taken by policymakers to further institutionalize this approach.

First, if its approach is comprehended by factoring in political analysis, design thinking should have been a better technique to solve problems in the policy making domain. Politics and values have always been present in public affairs, but the design thinking approach occasionally falls short in capturing these two elements (Mintrom & Luetjens, 2016). By taking into account those problems, a proponent of design thinking would produce not just a useful but also a politically viable product.

Furthermore, advocates of design thinking and the use of technology in the public sector must account for political support when adopting this method to solve a public problem. This is due to the political disincentive that occasionally results from employing experimentation and iteration in the public sector. Because of this, before political support for a design thinking program fades, an initiative should be able to expand and influence public policies via the scalability of the product. Reaching critical mass is essential for advocates of design thinking to have bargaining leverage in policymaking so that after the political support disappear, the program still remain.
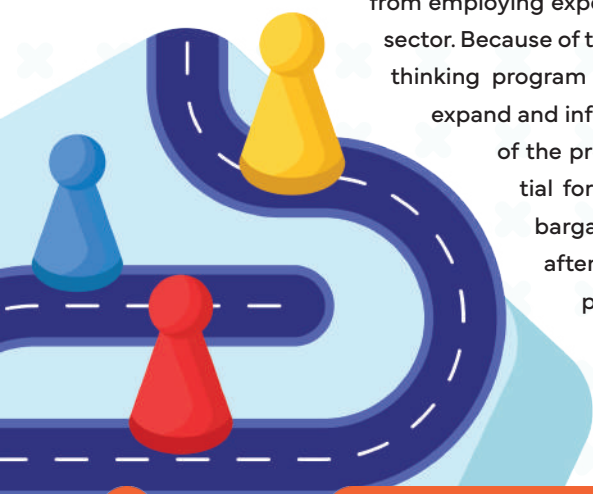
Conclusion

This article demonstrates how design thinking approach can be used to develop a large program solution in a developing nation. In the case of Indonesian education challenges such as (1) problems of teacher quality and ineffective teaching techniques, (2) inefficient budget utilization, and (3) mismatch of interests between the needs of the industry and students, the design thinking approach has attempted to solve the problem through the implementation of numerous user-centric programs. As a MoECRT partner, GovTech Edu has developed seven national projects that have thousands of participating institutions and millions of users. The design thinking process that GovTech Edu advocates has largely revolutionized Indonesian conventional program-making process through its user-centeredness, experimentation, and iteration.

Although design thinking has successfully shifted how education programs are conducted, this article also laid out the negative effects of design thinking. First, design thinking, which is frequently utilized in business, sometimes lacks political consideration. This is because the focus on design thinking is in its products and users. Additionally, implementing design thinking in the government context requires a strong political support that fosters an environment for experimentation, creativity, and iteration. Because of this, the design thinking method used in the public sector should also take political consideration into account and use political support effectively by creating a swift and more scalable program that can achieve critical mass quickly.

References

Bjork, C. (2004). Decentralisation in education, institutional culture and teacher autonomy in Indonesia. International Review of Education, 50(3), 245–262.

Brown, T. (2008, June 1). Design Thinking. Harvard Business Review. https://hbr.org/2008/06/design-thinking

Chang, M. C., Al-Samarrai, S., Shaeffer, S., Ragatz, A. B., De Ree, J., & Stevenson, R. (2013). Teacher reform in Indonesia: The role of politics and evidence in policy making. World Bank Publications.

DailySocial.id, M. N. |. (n.d.). Dekonstruksi GovTech Edu, Unit Edtech Telkom untuk Mendukung Ekosistem Pendidikan Indonesia | DailySocial.id. Retrieved October 22, 2022, from https://dailysocial.id/post/gov-tech-edu-telkom-pendidikan-indonesia

Di Gropello, E., Kruse, A., & Tandon, P. (2011). Skills for the labor market in Indonesia: Trends in demand, gaps, and supply. World Bank Publications.

Dorst, K. (2010). The nature of design thinking. Design Thinking Research Symposium.

Dorst, K. (2011). The core of 'design thinking'and its application. Design Studies, 32(6), 521–532.

Haug, N., & Mergel, I. (2021). Public value co-creation in living labs—Results from three case studies. Administrative Sciences, 11(3), 74.

Indonesia, A. B. P. E. N. (2021). Education and Social Mobility For Orang Asli Papua. PCD Journal, 9(2), Article 2. https://doi.org/10.22146/pcd.v9i2.3313

Komatsu, T., Salgado, M., Deserti, A., & Rizzo, F. (2021). Policy labs challenges in the public sector: The value of design for more responsive organizations. Policy Design and Practice, 4(2), 271–291.

Lewis, J. M., McGann, M., & Blomkamp, E. (2020). When design meets power: Design thinking, public sector innovation and the politics of policymaking. Policy & Politics, 48(1), 111–130.

Mankins, M., & Garton, E. (2017). How Spotify balances employee autonomy and accountability. Harvard Business Review, 95(1).

Mintrom, M., & Luetjens, J. (2016). Design thinking in policymaking processes: Opportunities and challenges. Australian Journal of Public Administration, 75(3), 391–402.

OECD Indicators. (2017). Education at a Glance 2017. OECD Indicators.

Osborne, S. P., Radnor, Z., & Strokosch, K. (2016). Co-production and the co-creation of value in public services: A suitable case for treatment? Public Management Review, 18(5), 639–653.

Schleicher, A. (2019). PISA 2018: Insights and Interpretations. Oecd Publishing.

Suryadarma, D., & Jones, G. W. (2013). Education in Indonesia. Institute of Southeast Asian Studies.

The Jakarta Post. (2022). Nadiem clarifies "shadow organization" comment after backlash. The Jakarta Post. https://www.thejakartapost.com/indonesia/2022/09/28/nadiem-clarifies-shadow-organization-comment-after-backlash.html

Center for Digital Society

Faculty of Social and Political Sciences
Universitas Gadjah Mada
Room BC 201-202, BC Building 2nd Floor,
Jalan Socio Yustisia 1
Bulaksumur, Yogyakarta, 55281, Indonesia

Phone : (0274) 563362, Ext. 116
Email : cfds.fisipol@ugm.ac.id
Website : cfds.fisipol.ugm.ac.id