AN ARCHITECTING APPROACH TO TRANSFORMATIONS WITHIN THE DESIGN CONSULTING INDUSTRY: IDEO CASE STUDY

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ABSTRACT

Enterprises evolve continuously, usually gradually, but sometimes rapidly in the face of disruptive events. The purpose of this study is to analyze the transformation process of the design consultancy in the face of challenges presented by advanced technology, economic change, and systemic shifts by applying selected methods and tools from the ARIES (Architecting Innovative Enterprise Strategy) framework. The study uses IDEO as an example to discuss the organizational structure of design consultancies, and describes how IDEO has evolved in the context of change. This study illustrates some emerging challenges that the design consulting industry is facing now and will face in the future, and how these challenges will affect organizational culture and structure, the design consulting process, the recruiting criteria, and the designers, as well as envisioning possible paths for the future of design consultancy.

Keywords: Systems Engineering (SE), Organizational processes, Design management

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1   INTRODUCTION

Science and technology are accelerating globalization and creating entangled socio-environmental challenges. Enterprises (organizations) attempt to confront these challenges through increased innovation capacity and new problem-solving approaches. In turn, these strategies often demand complex and systemic collaboration. In addition, many organizations have established in-house innovation departments or design capabilities to foster change management and navigate uncertainties. In response to this ever evolving demand for innovation, enterprises that employ design consultancies (e.g., IDEO, Frog, Continuum) expect them to expand their core competencies for handling cross-disciplinary challenges (e.g., in-depth industry knowledge; end-to-end product development; the ability to manage regulatory complexities in industries undergoing a transformation (Kazmi and Naaranoja, 2015). Client requests range from *"help make our organization more innovative"* to *"help our organization equip itself to face an uncertain future"* (Coughlan *et al.*, 2007). In order to meet the evolving needs of clients, most design consultancies, like many enterprises, are undergoing transformation equivalent in scale. As Nightingale and Rhodes (2015) state, *"in this ever-changing world, enterprises of all shapes and sizes are under constant pressure to innovate and transform in order to stay viable"*. Approaches for enterprise transformation often take a narrow focus (e.g., only organization structure) and also fail to explore alternative options before deciding on a solution.

In this paper, we share a case study that investigated using a holistic approach to the architecting of a transformation. We selected the Architecting Innovative Enterprise Strategy (ARIES) framework (Nightingale and Rhodes, 2015) based on its focus on the initial phase of transformation. ARIES takes a holistic perspective, using a structured process to understand the current enterprise, envision the future, generate and evaluate options to achieve this, and select a preferred architecture. ARIES has been used successfully used in many types of enterprises (e.g., government agencies, manufacturing, healthcare, transportation), however we are not aware of any application to design consultancy transformation.

The ARIES framework is used to create a "blueprint" for the envisioned future enterprise, which then guides implementation plans for transformation. The ARIES framework was selected for this study based on the need to approach the transformation of design consultancies from a holistic perspective, as well as its strong focus in exploring the larger ecosystem for an enterprise. Using IDEO as an illustrative case study, the framework was applied to understand the design consulting ecosystem, and identify its strengths and gaps in terms of meeting the demand for transformation.

2   BACKGROUND

In the 1990s, around 35% of IDEO's revenues were from offering product design and web-based design services. The rapid growth of the technology had transformed IDEO's business model and made IDEO reach its peak of $ 72 million in revenues in 2002 (Nussbaum, 2004). Companies like IDEO have needed to optimize existing operations (reliability) as well as develop new, innovative services model, design solutions, and creative processes (validity) (de Guerre *et al.*, 2013). As in a fast-paced social-economic, technological disruption, and competitive environment, the need for innovation has become increasingly critical. Requests come not only from the client-side, but also from the innovation service providers, the design consulting industry and individuals firms, seeking internal organization transformation in order to prepare to solve systemic and complex challenges. The traditional consultant-client relationship might not be the most effective way to collaborate and adapt to change. According to the research, a high levels of consultant commitment to change and trust building have resulted in a positive outcome on the successful implementation of organizational transformation (Chalutz Ben-Gal and Tzafrir, 2011).

In the design consulting industry, Design Thinking, a human-centered approach integrating desirability of people, viability of business and feasibility of technology (IDEO, 2015), is one commonly used creative tool and framework for designers to solve challenges, including traditional product design, customers' service and experience planning, and business strategy. Some studies have researched applying Design Thinking in context of organizational change management to compare other frameworks (e.g. Organization Change and Development Approach (OC&D)) and discuss the benefit of Design Thinking (Sato *et al.*, 2010). Elsbach and Stigliani (2018) show how Design Thinking can provide new insights for organizations. Other studies were critical of the Design

Thinking approach, describing the methodology as lacking strong systemic and analytical methods with a comprehensive view (Johansson-Sköldberg *et al.*, 2013).

3 CASE STUDY APPROACH

Most research focusing on applying Design Thinking to discuss clients' organizational transformation process as case studies. Design consultancies might lose their neutrality, unbiased standard, and comprehensive and universal criteria by analysing their clients' organizations only through the Design Thinking approach. Therefore, the value of this research is to study and review a design consultancy internal ecosystem, stakeholders, strategy, infrastructure, product, service, process, people, and culture in the process of change by using the ARIES framework to provide recommendations on preparing for an era of transformation for design consultancies. We focus our investigation on IDEO, an iconic and famous international design consultancy, as a case study to experiment with the ARIES framework, which can provide systematic ways and replicable processes to seek patterns and identify relationships between each element and key stakeholders in a broader and diverse industry-wide context.

3.1 Architecting Innovative Enterprise Strategy (ARIES) Framework

ARIES framework considers architecting as the activity that results in a "blueprint" for the future enterprise, which aims to guide the enterprise to achieve its desired vision for transformation. The framework is composed of: Enterprise Element Model, Architecting Process Model, and Analysis Techniques, as shown in Figure 1 (Nightingale and Rhodes, 2015a).
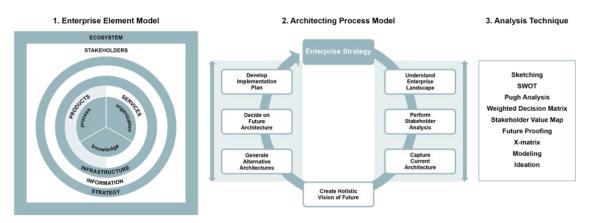

Figure 1. ARIES framework (Nightingale and Rhodes, 2015a)

Enterprise Element Model: The ARIES framework provides ten enterprise elements as collective lenses for understanding the enterprise. The ARIES allows architects to look inside the boundaries of the enterprise to understand it from a holistic perspective, as well as understand it in context of its larger ecosystem. The first two elements, Ecosystem and Stakeholders, are used to investigate the external landscape of an enterprise. The ecosystem is exogenous to the enterprise, whereas the stakeholders (both internal and external to the enterprise) are people exchanging values within the ecosystem.

Architecting Process Model: The ARIES process model consists of seven activities for performing the architecting process. This study focuses on applying the first three activities, as shown in Figure 1.

Enterprise Analysis Techniques: The ARIES framework adopts enterprise analysis tools, including SWOT (an analytical approach to help identify problems in terms of its strengths, weaknesses, opportunities, and threats), Pugh Analysis, Stakeholder Value Maps, and X-matrix to capture the current state of the enterprise. This case study focuses on Stakeholder Value Map and Pugh Analysis as a means to visualize alignment between stakeholders' expectations and strategic decisions.

3.2 Six Phase Structure for Case Study

This case study had six phases as summarized in Table 1. Selected processes from the ARIES framework were then mapped to the phases, as shown in Figure 2.

Table 1. Case study six-phase structure and its brief description

Phase	Brief description of each phase
A. Preparation	Gather the information of the subject, design consultancy business and industry in general.
B. Looking In	Study the subject's structure, culture, policy, and other internal information in order to have a more comprehensive view of the subject by embedding the ARIES ten-enterprise element in the interview.
C. Synthesize	Translate the information and observation into concepts and insights to understand enterprise landscape.
D. Looking Out	Examine contextual perspective in depth with stakeholder analysis, search for the market information, competitors, industry trend, governmental regulation and other ecosystem factors.
E. Envision	Create an enterprise blueprint to envision the future of the subject. The suggested future is not the ultimate solution, but instead represents an ongoing and dynamic process.
F. Transform	Transform is the phase to take action by applying selected concepts evaluated in the phase of Envision.

The study conducted a corporate ethnography study (Suri and Howard, 2006) to understand and analyze IDEO's organization vision, culture, structure and people and mapped findings and analysis with the ARIES framework. It concluded with discussion of IDEO's transformation process and future potential.
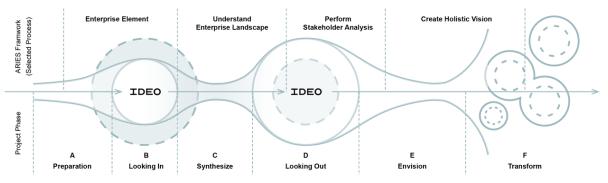

Figure 2. Selected process from the ARIES framework applied to six-phase structure

4 CASE STUDY FINDINGS

4.1 Phase A: Preparation

This first phase gathered information on IDEO, the design consultancy selected for study, as briefly summarized. In 1991, David Kelley merged his company David Kelley Design (DKD) with two other companies founded by Bill Moggridge and Mike Nuttall to form IDEO. IDEO started as a design studio famous for product and industrial design. Over four decades, IDEO has evolved from providing its offering of product design to service, experience design and even to organization design in response to the rise of digital economy. Tim Brown, Executive Chair at IDEO and Vice Chair at kyu Collective, positioned IDEO as a creative platform to make a positive social impact; as he once said *"Design is helping multiple stakeholders and organizations work better as a system."* Design is only one of the pillars among other creative initiatives, such as IDEO CoLab, meaning that the meaning of IDEO has shifted from design consultancy to the collective design network (Table 2).

Table 2. IDEO Network introduction (Source: https://www.ideo.com/about/ideo-at-a-glance)

IDEO network	Brief introduction of IDEO network
Creative Difference	A digital tool to assess, guide, and track the development of creative and innovative teams.
Experience Innovation	Innovation and change workshops and facilitation for team-based learning.
IDEO CoLab	A platform for collaborative impact that brings organizations to tackle emerging opportunities.
IDEO U	An online school that teaches design-based problem-solving skills.
Open IDEO	An open innovation practice that builds communities to tackle social challenges.
Shape	A visual, collaborative space to build, test, and refine new ideas.
The Teachers Guild	A community of teachers that solves challenges in K-12 education.

4.2   Phase B: Looking In

This second phase of study looked within IDEO, using interviews, and then categorizing insights using the ARIES Enterprise Element Model. Six interviews were conducted with IDEOers and IDEO alumni ranging from designers, support team members, and leadership team members. Each 60-minute interview was conducted with a discussion guide tailored to the interviewee's background, working experience, and role in IDEO. The interview structure contained a five-minute warm-up, an introduction and a ten-minute session to discuss IDEO and the design consulting industry, then applied the selected ARIES enterprise elements to facilitate the discussion in 35 minutes (Table 3); and wrap it up with one to two questions. Table 4 documents six participants' information and key quotes from them.

Table 3. Participant information and key quotes

Participant	IDEO position	Key quotes
Participant A	Senior Industrial Designer	*"I feel IDEO is like a friend with constantly changing personality. IDEO is like a very confused person. There is no God here in the company. The CEO works with 7 partners as a leadership team."*
Participant B	Tech Lead	*"I have freedom in tech. I feel inspired by my other colleagues in other locations."*
Participant C	Senior Research Lead	*"IDEO is a company that is hard to have a standard to measure success. One matrix is to have the client feedback, but it is still very subjective."*
Participant D	Senior Research Lead	*"IDEO is a story-driven organization; BCG DV is a template-driven organization."*
Participant E	Design Director	*"IDEO leadership had said that IDEO has a loosey-goosey structure. For now, IDEO is in the process of transforming into a very "organic" structured company from its loose structure. Another side of IDEO is the company has a very strong value and culture. "*
Participant F	Design Director	*"IDEO should be looking for complementary expertise as design consultancy now needs the engine to power their innovation thinking. Transformation project alone does not seem effective, IDEO has to face the fact that the true implementation part is not sexy and IDEO is not equipped with true power to drive transformation. IDEO's ego is a problem."*

Table 4 Apply ARIES enterprise element model in the context of IDEO.

Enterprise element	Description in the context of IDEO
Ecosystem	Digital economy, client market force, increasing competition from business consultancies, digital economy, and shifting social and geopolitical issues all contribute to talent-driven nature of design consulting industry.
Stakeholders	Those who deliver value as well as benefit from IDEO. These are IDEO Employees (Project Team and Support Team), IDEO Executive Team (Leadership), IDEO Business Partners and IDEO Clients.
Strategy	Human-Centered Design (HCD) is the backbone of IDEO's work which empathizes building a deep empathy with the people that the team is designing for.
Information	Beginner's mind - mindset enabling creatives in IDEO to learn from a broader spectrum of industry expertise. With generalist types of talent, the business of curiosity connects insights required for transformation.
Infrastructure	People, talents are at the center of the company. Internally, documentation of projects is captured with slide decks or various multimedia that encapsulate project knowledge.
Product	IDEO HCD culture enables the building of high-level vision. Specialize in developing front-loaded design strategies but focus less on moving design into implementation and physical deliverables.
Services	Guided by the Design Thinking methodology, IDEO tailored its service to the needs of each client in order to solve highly diverse challenges in the industry. The deliverable is mostly a series of transformation methodologies rather than a single commodity.
Process	IDEO's desire to work with clients that share the same value is supported by its business development process, which takes lots of time and effort in framing the right questions.
Organization	Bottom-up organization structure, which focuses on flat operations and values freedom in creative expression and well-articulated communication.
Knowledge	The culture of IDEO and its organization structure are captured in the IDEO Little Red Book. Decentralized distribution of shared information, often documented with multimedia that contains qualitative findings and processes. Knowledge of a project is shared across the project team members extensively.

4.3 Phase C: Synthesize

Five key takeaways of from the synthesis of findings are summarized in this subsection.

CULTURE: Cultivate Creative Culture by Forming Creative Rituals. In IDEO, everything either visible or invisible is designed – ranging from how IDEOers provide others with honest feedback, and how IDEO designs a space that stimulates clients' creativity. The intention that allows IDEO to nurture innovative culture through every single touchpoint is called "creative ritual"; examples are IDEO Stories, Monday Morning Meetings, IDEO Wow (Camacho, 2016) by Tim Brown, Executive Chair at IDEO and Vice Chair at kyu Collective. IDEOers generously share and receive advice, feedback, ideas and inspirations from the community across the world. One great example of knowledge sharing is that IDEOers can look for inspiration, make suggestions or ask any questions related to project, work, or even life by writing an ISO (in search of) email to the entire office.

PROCESS: There is No "Typical" Way of Doing Things. Even though IDEO shares the same vision, there is no "typical" process or standard to follow in projects. However, there is a set of principles as guidance. For every single project and challenge, IDEO needs to creatively figure out suitable methods/tools/framework along the design journey to solve the problems with the clients.

BUSINESS: Collaborating with the Right Client is Critical. IDEO wants to work with the right clients and enlightened leaders that appreciate the company's value, vision and make an insurmountable social impact. Therefore, its business development process takes lots of time and effort to filter clients, projects and right briefs for the project. Framing questions with clients also plays a critical role in the business development process, which is connected to project scope, team, and resources.

PEOPLE: People are Invaluable Assets for the Company. In order to support IDEO's diverse and creative culture, the most critical resource is the people. IDEO talents are at the center of the company and the company provides education budget and assigned mentor/business lead to guide people's growth and their career development.

CHALLENGE: Scale the Impact of the Project. According to the interviews, the main external challenge for IDEO nowadays is to scale the impact of the clients' projects by applying Design Thinking methodology. Due to the highly qualitative nature of Design Thinking process, it normally takes three months or more to complete a typical IDEO project, and approaches for a project are rarely scalable and replicable. Clients often opt for less time-consuming market alternatives to work with. The traditional Design Thinking process therefore struggles to amplify the influence to existing organizational practices.

4.4 Phase D: Looking Out

This phase examines contextual perspective in depth with stakeholder analysis and searches for market information, competitors, industry trend, governmental regulation and other ecosystem factors.

Stakeholder Analysis. Reviewing the interviews with IDEO through the ARIES eight internal view elements paints a holistic picture of the IDEO enterprise landscape. Increasing research has shown an important factor that increases the enterprise success is to balance value exchange with stakeholders (Rhodes and Nightingale, 2008). Stakeholder Analysis, the second activity of the ARIES process model, is to clarify how key stakeholders of IDEO influence the enterprise. This activity recognizes critical stakeholders through relative value creation, and where beneficiaries occur in the enterprise ecosystem. Four types of key stakeholders are identified – IDEO Employees (including design, support and operation teams), IDEO Executives Team (leadership), IDEO Business Partners, and IDEO Clients. Figure 3 illustrates each key stakeholder's connections and their meanings.
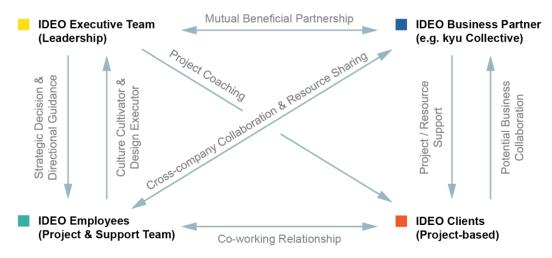
Figure 3. Relationship of value exchange between the IDEO key stakeholders

Before generating architecture concepts for the enterprise, alignment on evaluation metrics is needed. Metrics were established through three techniques – Value Exchange Assessment, Stakeholder Value Map and Prioritization. First, insights and perspective from interviews and literature review, captured in the Value Exchange Assessment framework in Table 5, demonstrate the process of qualitative evaluation of value exchange. For analysis, IDEO Employees are decomposed into four smaller stakeholder groups according to their relationship of value exchange. Stakeholders identified to have high importance in value creation in the desired state are: IDEO Clients, who provide financial support to IDEO's business; Employees, who provide collective intelligence that enriches IDEO's service competency; and IDEO Business Partners, with whom IDEO has increased collaboration in the past few years.

Table 5. IDEO key stakeholders value assessment

Stakeholders and description	Value delivered to IDEO	Value expected from IDEO	Importance of the value to stakeholders	Current performance of IDEO in delivering value	Current performance of value creation (current state)	Importance to desired value creation (desired state)
IDEO Employees - Design Team Designers responsible for design and solution proposals that meet clients' needs	• Creative Mindset • Human Capital • Talent Network • Industry Connection	More Technical and Digital Design Expertise	4.6	3.3	**MEDIUM** IDEO relies on talents to deliver value in business, meanwhile vague work guidance increases entry barriers for individuals.	**HIGH** IDEO needs to ensure continual intellectual growth at a personal level which is important for sustainable value exchange.
		Continued New Skill Building	3.2	3.5		
		Adaptive Work Schedule and Compensation	2.5	2		
		Clarity and Guidance	2.5	1.5		
IDEO Employees - Support Team Technologists that support project teams whenever there is a need of exploring technology potentials	• Technical Expertise • Broaden Knowledge Network	Inclusive Work Culture	4.5	2	**LOW** Support team acts as a bridge between the client and IDEO's project team, providing passive support to team due to relatively fewer resources in IDEO.	**MEDIUM** Strong support team empowers IDEO to grow capabilities to confront complex challenges.
		Resource to Deliver Bigger Impact	4.5	1		
IDEO Employees - Operation Team HR, Finance, Business Development	• Financial Guidance • Client Relationship • Resource Allocation	Profitability	3	3	**MEDIUM** Determine resource allocation based on desired profitable outcomes.	**MEDIUM** Determine resource allocation based on desired profitable outcomes.
		Recurring Client Relationship	3.5	2		
IDEO Executive Team Managing partners responsible for strategic decisions at IDEO	• Cultivate Culture • Clarify Purpose • Coaching • Grow Business Portfolio	Maintain IDEO's HCD Culture	4.8	5	**MEDIUM** Ensure IDEO recruits the right type of talents to maintain its creative future - provide general coaching to nurture independent thinking.	**LOW** IDEO has planned for a future of bottom-up operation, which relies on employees to define the future of IDEO.
		Emerging Capabilities/Competencies	2	3.2		
		Multi-Disciplinary Leadership Team Diversity	1	3		
		Talent Retention	4	2		

IDEO Business Partners Companies that IDEO share stake to exchange business value and support. i.e. kyu Collective, SYP Partners	• Broaden Client Network • Diverse Expertise	Share Vision of Design Thinking	2.8	4	**MEDIUM** Adding business partners in recent years is a key step in preparing for its future capability to tackle complex systemic challenges.	**HIGH** In response to growing complexity of client challenges, business partners offer complementary expertise to IDEO.
		Nimble Workforce	2.5	3		
IDEO Clients Companies that commission IDEO to provide solutions or proposals that solve current challenges.	• Business and Revenue • Publicity • Implementation Guidance • Industry Specific Knowledge	Trackable ROI	2.5	1	**MEDIUM** Clients who understand benefits of Design Thinking fund IDEO's service-based strategies. However, some clients have a hard time adopting IDEO's strategies due to a lack of cultural understanding.	**HIGH** Clients provide fund to fuel the creative workforce. In return, IDEO maximizes effective impacts through empathy and co-creation.
		Affordable and Adaptable	1.5	2.8		
		Continue Roadmap and Project Relationship	3.5	4		
		Seamless Integration and Communication	3.2	3		
		Implementation	5	2		
		Localized Process and Strategies	2.5	3		

Second, the visualization of consolidated stakeholder value in Figure 4 was created to help identify the gap between the current state and the desired state of IDEO in the lens of enterprise landscape. The consolidated performance of IDEO in the current state reflects the need for improvements in order to meet Stakeholders' expectations. As mentioned before in the introduction, since IDEO's service has transformed toward a platform confronted by increasingly complex challenges, it needs greater reciprocity between its clients, business partners, internal design team, and internal support team. This common voice emerged from the interviews, but also an undergoing shifting landscape reflected through IDEO's current movement and partnership decisions to sell a minority stake to Kyu Collective (Budds *et al.*, 2016).

Figure 4. Current state with indication of desired state of value creation

With understanding of desired state of value exchange, the value map (Figure 5) further visualizes the needs of each stakeholder. Emphasis is put on two areas – the area where Stakeholders are considered highly important but lack IDEO's attention (Unmet Expected Value) and the area where both IDEO and Stakeholders respond with aligned performance (Aligned Value Exchange). Two areas featuring beneficial relationship between IDEO and its Stakeholders are therefore prioritized and used as key criteria for evaluating concepts for the transformation blueprint. The diagram reveals a great portion of unmet needs of the internal support and project team. This finding indicates the talent-driven nature of the design consulting firm and its effort to contemplate practices that support talent retention are at odds. The study also recognizes the need to close the gap of resources required to tackle systemic challenges.
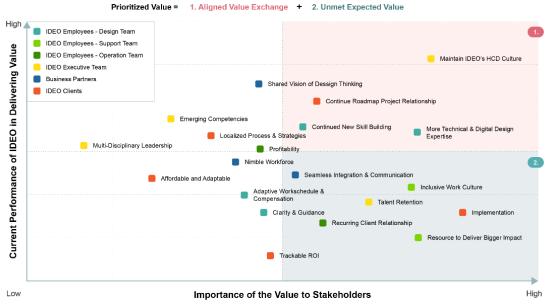
Figure 5. Stakeholders value prioritization

Enterprise Ecosystem – Capture Current Architecture. Analysis of stakeholder interviews and enterprise element model findings, reveal talent-driven nature of IDEO. The enterprise faces external challenges ranging from influence of the digital economy to client market forces to the sophisticated consumer expectations. Yet, increasing competition from business consultancies, emergence of inhouse design capacity of product-service companies and rapidly shifting social/geopolitical issues have forced design consulting businesses to reform practices in order to keep up.

4.5 Phase E: Envision

Create Holistic Vision of Future, the fourth activity of the ARIES architecting process model, is used to envision transformation concepts for IDEO. Table 6 presents a combination of proposed concepts along with existing examples to demonstrate the process of concept generation and evaluation. This process adopts Pugh Matrix (Figure 6) to compare proposed concepts with current architecture by evaluating its impact polarity through criteria defined in the previous steps. The intention of the Pugh Matrix that keeps separate counts of polarity is to support sensitivity analysis necessary for developing a holistic architecture blueprint through iteratively eliminating weaker concepts.

Table 6. Selected concepts for IDEO transformation process

Concept	Concept description	Relevant example
Concept A **HCD Metrics Playbook**	In order to integrate the implementation goal of the project, IDEO establishes a success metric and designs criteria with their clients for each project so the project team can visit and follow the guidance in the future for retrospection and execution.	• IDEO collaborated with the Ellen MacArthur Foundation to work on Circular Economy
Concept B **Executive Residency Fellowship**	IDEO trains the executive residents to work with HCD methodologies while they share first-hand industry knowledge and existing challenges with IDEO. This program provides two-way-relationship, IDEO benefits from two main objectives: 1. Generate and sustain business connections with executives across the industries in meaningful and inspiring relationships. 2. Gain insights from the executives to increase business competencies by strategizing cross-functional hiring.	• IDEO Network: Creative Difference • IDEO Education Program: Lead a Creative China 2030 • IDEO New Hiring Position: Wildcard, Organization Designer
Concept C **Open Source Digitallective**	Forming an open-source alliance with massive digitally active talents to harness collective intelligence. This format can be a platform similar to IDEO's Teacher's Guild – with which IDEO co-create to tackle challenges in the current autonomous space. Digital Collective open-source community will benefit from IDEO's mature HCD process and Design Thinking methodology, meanwhile, IDEO enriches its credibility with higher implementational impacts.	• IDEO Network: OpenIDEO • IDEO Network: The Teachers' Guild • IDEO Network: Shape • kyu Collective

Criteria	Concept A	Concept B	Concept C
Inclusive Work Culture (internal organization)	0	1	1
Need to Have More Technical & Digital Design Expertise	0	1	1
Continued New Skill Building	1	1	1
Maintain IDEO's HCD Culture (internal + external)	1	-1	0
Recurring Client Relationship	0	1	0
Implementation	1	1	1
Long Time Support (continue roadmap project relationship)	1	0	-1
Seamless Integration & Communication	1	0	0
Talent Retention	0	1	0
Total 1	5	6	4
Total -1	0	1	1
Total 0	4	2	4

Figure 6. Pugh matrix to evaluate selected concepts for IDEO transformation process

4.6 Phase F: Transform

Based on the ARIES framework and research, the case study result is summarized with the key milestones of the roadmap at three stages: short-term, long-term, and vision of roadmap for the IDEO transformation process (Figure 7).

Short-term Goal (Assuming 0~5 years)

INCLUSIVE SYSTEM

IDEO is trying to transform the typical way of defining the discipline by profession e.g. product design, communication design. IDEO wants to establish an inclusive-yet-open system that empowers cross-disciplinary creatives to solve systemic challenges.

Long-term Goal (Assuming 5~10 years)

DESIGN FOR CHANGE

Facing the systemic design challenge, IDEO teaches clients to nurture new capabilities to solve the problems instead of just offering solutions. IDEO has already promoted and prototyped the similar offering called D4C, Design for Change.

Vision (Ideal Situation)

CREATIVE COLLECTIVE

IDEO initiates and participates in the creative collective e.g. Kyu. Since there will be more complicated challenges in the future, only relying on one studio to solve the clients' challenge is not realistic. Both IDEO and its client need mutual support and resource from the creative collective communities.

Figure 7. Suggested IDEO transformation roadmap

5 DISCUSSION AND CONCLUSION

Drivers for Change. Design consultancies such as IDEO have been asked to solve complicated systemic challenges that involve multiple key stakeholders, which greatly affects the cycle/scope of the projects and recruiting strategies. The clients have become more sophisticated with high expectations and tastes, which sets a higher bar for the design consultancy and its expertise. Design consultancies (e.g. IDEO), service providers (e.g. IDEO's client), and service receivers (e.g. customers/users) have an interdependent relationship to create the drivers for change factors.

Drivers against Change. *"For such large-scale complex systems in which change is somewhat continuous, no full-scale, end-to-end prototypes are possible"* (de Weck *et al.*, 2016). If we view the design consulting industry as a large-scale complex system, the change is not easy at the organizational level. It is uncomfortable, and it may break the typical ways of working – this means a design consultancy has to examine whether they are equipped with the right talents to tackle the systemic challenges. Perhaps the clients need to adjust the company's value position? How does it influence their business and the market? Do clients have the internal capabilities to execute the solutions of the systemic challenge suggested by design consultancies?
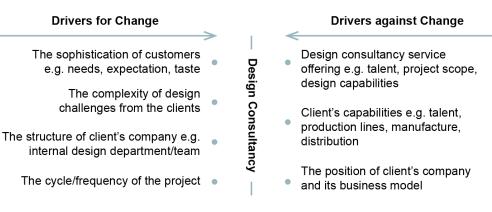
Drivers for Change

- The sophistication of customers e.g. needs, expectation, taste
- The complexity of design challenges from the clients
- The structure of client's company e.g. internal design department/team
- The cycle/frequency of the project

Design Consultancy

Drivers against Change

- Design consultancy service offering e.g. talent, project scope, design capabilities
- Client's capabilities e.g. talent, production lines, manufacture, distribution
- The position of client's company and its business model

Figure 8. Drivers for change and drivers against change diagram

Benefits of Enterprise Architecting and Further Study. The urgent need of transforming organization usually begins when the ecosystem surrounding the enterprise creates significant pressure that demands innovation in enterprise strategy. This transformation requires more than a brainstorming exercise, it requires a thoughtful planning process that integrates with a non-controllable environment (Nightingale and Rhodes, 2015b). In the past, the ARIES framework has proven to support the initial phase of transforming industries with complex organization structures and stakeholders. This study applied the initial process of architecting enterprises to IDEO – a representative design consultancy – with the goal to decompose shared challenges of the design consulting ecosystem in a holistic approach. The ARIES framework provides logical and systemic view lenses (Rhodes and Nightingale, 2008) to investigate not only internal but also external dynamics of service-driven design consulting businesses; its emphasis on value exchange of multi-stakeholders presents an invaluable approach to locate the gaps of the transformation strategies. The use of the ARIES framework (Figure 1) builds an initial foundation using the process model (the first four activities) to identify its enterprise strategy, understand enterprise landscape, perform stakeholder analysis, capture current architecture, and create a holistic vision of future. The study lays the foundation to support future efforts to perform the remaining three activities of the process model, which would require a more extensive study. A more comprehensive approach would integrate extended data collection such as surveys and qualitative approaches, including interviewing the client company to validate stakeholder analysis and to jointly conduct future proof testing of transformation concepts.

The value of applying an enterprise architecting approach to aid design consulting industry in internal and external transformation is it draws an analogy to the design process in ways that advocate for the organization change. The enterprise architecting approach provides a more comprehensive understanding of the needs and value assessment, providing the essential knowledge required to generate well-informed outcomes and conclusions.

REFERENCES

Budds, D., Budds, D. and Budds, D. (2016), "Ideo, Silicon Valley's Most Influential Design Firm, Sells A Minority Stake", *Fast Company*, 9 February, available at: https://www.fastcompany.com/3056415/ideo-silicon-valleys-most-influential-design-firm-sells-a-minority-stake (accessed 14 March 2021).

Camacho, M. (2016), "David Kelley: From Design to Design Thinking at Stanford and IDEO", *She Ji: The Journal of Design, Economics, and Innovation*, Vol. 2 No. 1, pp. 88–101.

Chalutz Ben-Gal, H. and Tzafrir, S.S. (2011), "Consultant-client relationship: one of the secrets to effective organizational change?", *Journal of Organizational Change Management*, Vol. 24 No. 5, pp. 662–679.

Coughlan, P., Suri, J.F. and Canales, K. (2007), "Prototypes as (Design) Tools for Behavioral and Organizational Change: A Design-Based Approach to Help Organizations Change Work Behaviors", *The Journal of Applied Behavioral Science*, Vol. 43 No. 1, pp. 122–134.

De Weck, O.L., Roos, D. and Magee, C.L. (2016), *Engineering Systems: Meeting Human Needs in a Complex Technological World*, MIT PRESS, Cambridge.

de Guerre, D.W., Séguin, D., Pace, A. and Burke, N. (2013), "IDEA: A Collaborative Organizational Design Process Integrating Innovation, Design, Engagement, and Action", *Systemic Practice and Action Research*, Vol. 26 No. 3, pp. 257–279.

IDEO (Ed.). (2015), *The Field Guide to Human-Centered Design: Design Kit*, 1st. ed., IDEO, San Francisco, Calif.

Johansson-Sköldberg, U., Woodilla, J. and Çetinkaya, M. (2013), "Design Thinking: Past, Present and Possible Futures", *Creativity and Innovation Management*, Vol. 22 No. 2, pp. 121–146.

Kazmi, S.A.Z. and Naaranoja, M. (2015), "Fusion of Strengths: T-style Thinkers are the Soul Savers for Organizational Innovative Drives and the Allied Change Processes", *Procedia - Social and Behavioral Sciences*, Vol. 181, pp. 276–285.

Nightingale, D.J. and Rhodes, D.H. (2015), *Architecting the Future Enterprise*, The MIT Press, Cambridge, Massachusetts.

Nussbaum, B. (2004), "The Power of Design", *BusinessWeek*, p. 1-9.

Rhodes, D.H. and Nightingale, D.J. (2008), "Educating Services Science leaders to Think Holistically About Enterprises", in Hefley, B. and Murphy, W. (Eds.), *Service Science, Management and Engineering Education for the 21st Century*, Springer US, Boston, MA, pp. 163–168.

Sato, S., Lucente, S., Meyer, D. and Mrazek, D. (2010), "Design Thinking to Make Organization Change and Development More Responsive", *Design Management Review*, Vol. 21 No. 2, pp. 44–52.

Suri, J.F. and Howard, S.G. (2006), "Going Deeper, Seeing Further: Enhancing Ethnographic Interpretations to Reveal More Meaningful Opportunities for Design", *Journal of Advertising Research*, Vol. 46 No. 3, pp. 246–250.