Design Thinking for Strategizing? – A Critical Literature Review

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Abstract

In an increasingly complex and dynamic business environment, accelerated even further by the coronavirus pandemic, decision-makers face the challenge of shaping the future of their organizations under uncertainty and with increasing time pressure. Conventional tools in strategic management are no longer sufficiently suited to envision preferable future scenarios and enable management to craft winning strategies. With the need for alternative approaches, practitioners promote design thinking as a novel process to develop innovative business strategies that gain a competitive advantage. However, the academic discussion concerning what principles and methods of design thinking may be valuable in strategic management remains scant and scattered. The contribution of this paper is to show how design thinking as an approach for strategic decision-making has progressed over time, synthesize the state of knowledge, and structure the findings for further research activities. Through a semi-systematic review, the texts of 23 articles and three book chapters published between 1995 and 2020 were analyzed. The paper presents an overview of the context in which design thinking may apply to strategic challenges and it structures the necessary skills, competencies, and tools applying design thinking for strategizing. The study includes a comprehensive synopsis of the impact of a design-led strategic management as discussed by academics. Its findings show that applying design thinking for strategic development does not replace traditional analytical thinking but rather complements strategizing based on a toolset needed to shape future opportunities in uncertain and complex markets. Hence, design thinking enables an organization to solve multi-faced strategic challenges by overcoming cognitive limitations, developing deep empathy for end-users, engaging internal and external partners, and ensuring ongoing learning through iterative prototyping and experimenting. Finally, the review identifies major streams for future research opportunities to advance the field with more evidence-based knowledge.

Keywords: Design Thinking, Business Development, Strategic Thinking, Strategizing.

JEL classification: M10, M13, Q31.

1. Introduction

New technologies are being developed ever faster, customer preferences are changing, and it is becoming increasingly difficult for companies and organizations to sustainably differentiate products and services. Hence, designing unique value propositions for users, other stakeholders and by doing so creating value to the company and society at large has become more challenging today than ever.

Design thinking as an approach to decision-making under uncertainty has gained considerable attention in both management and academia over the last two decades. Design thinking is promoted as an iterative, human-centered approach that uses prototyping in interdisciplinary teams to make multiple solutions tangible (Liedtka, 2018), and it has been adopted as a novel way of working in many organizations (Brown, 2008).

The origin of design thinking in its current understanding is often seen in the work of Arnold (1962), who, in his seminar on software development, propagated an interactive approach in cycles that incorporated user feedback. Later in 1969, Simon described the character of design as something that is not concerned with how things are, but rather how they could be. Around the same time, the concept of "wicked problems" was formed, which was coined by Rittel (1973) and taken up by Churchman (1969). They highlighted that planning activities – for example, in engineering or even policy-making – are forms of design

(Churchman, 1969; Rittel & Weber, 1973). Rittel and Webber (1973) described the problems to be solved in science as "tame", whereas they considered solving socio-political problems as "wicked". The latter are problems characterized by a context that is not fully graspable, a stated problem that is unique, and the difficulty that there is no right or wrong solution, but rather only better or worse solutions (Rittel & Weber, 1973). In his seminal paper "Wicked Problems in Design Thinking", Buchanan (1992) created a new conversation around the term, arguing that designers deal with ill-defined problems and that the creative re-definition of the problem itself is part of the professional skill set of designers. He stated that design lies in the interface of possibilities, constraints, and contingencies (Buchanan, 1992).

The concept of design thinking has found its way into the business world in the last 25 years, initiated by the cooperation between IDEO – one of the most prominent design agencies in the world – and the Design School at Stanford University (d.school). The representatives of the d.school established design thinking as a specific way of thinking and the application of design methods by non-designers in the business context (Johansson & Woodilla, 2009). Accordingly, the focus of design shifted from being a technology-driven discipline to becoming a human-centered design approach. Design thinking developed into one of the most important approaches in service design and innovation management (Stickdorn et al., 2011), and various studies have shown the positive effect on the innovation capabilities of companies (Schweitzer, Pitsis, & Clegg, 2012).

In order to respond to the increasing complexity of changing market conditions and the growing digital transformation, managers have to make important strategic decisions in ever shorter timeframes. Classic strategy approaches are primarily based on analytical thinking and follow a linear process. First, developments in the environment, industry and among customers as well as strengths and weaknesses of the company are analyzed. Subsequently, based on these present- or backward-looking analyses, strategic options are selected and detailed (Pichel & Müller, 2019). According to a study by Rigby and Bilodeau (2018), this remains the preferred approach in strategic management. However, these classic strategic management approaches are not suitable for dealing with the complexity and dynamics of modern market environments and outlying different future scenarios as a foundation for selecting strategic initiatives (Vinnakota & Narayana, 2014). The changes observed by the events of the Covid-19 crisis shed new light on the urgency and need for alternative approaches in strategic consulting even further.

Strategic management should be the process that enables organizations to create new futures and engage their people in this important task. Already in 2007, Golsby-Smith pointed to the need for new methods in strategic work, proposing design thinking as a new management practice to challenge the status quo:

> *"We need a new approach to strategy that can unlock fresh energy and make it more innovative, and less data driven. This is what design thinking can offer. Design opens a door to a whole new art of thinking that has been suppressed for centuries by the Western world's addiction to logic and science as the dominant thinking paradigm" (Golsby-Smith, 2007).*

In his widely cited book "The design of business: Why design thinking is the next competitive advantage", Martin supported this view and described design thinking as a novel practice to address critical strategic challenges (Martin, 2009). Martin highlighted the important difference between analytical and intuitive thinking and stressed that using both mindsets is necessary to shape businesses. Brown further supported this statement by suggesting that design thinking should not only be used to design products, processes, and services but also to design strategies (Brown, 2009). As design thinking is a mindset that combines both logical and intuitive thinking to understand the present and design the future, Diedrich (2020) recently claimed that its use for strategic management processes is inherent.

Although a large number of scientific resources have been published on the topic of design thinking regarding product and service innovation, reference to the discussion of the application of design thinking in strategizing – including implementation-related processes – remains scant and scattered. The contribution of this paper is to systematically analyze scientific literature on the subject of design thinking for strategic management.

2. Research method

The review follows four steps as proposed by Snyder (2019): (1) designing the review, (2) conducting the review, (3) analysis, and (4) writing the review. For an overview of the process of the literature review, please refer to Figure 1.
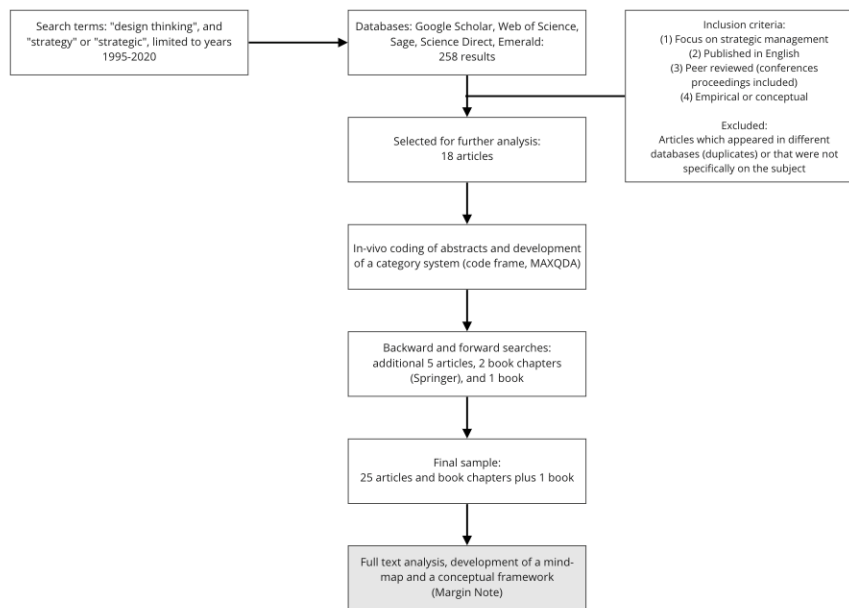
Figure 1. Overview of the literature review

2.1. Design of the review and search

The primary research question for the study is: "What are the main principles and approaches of design thinking in the strategic management process?" The aim is to gain an overview of the research and understand how the subject has developed over time to recite the state of knowledge (Snyder, 2019). Hence, the appropriate method for the research is a semi-systematic literature review. The review was limited to the timeframe of literature published between January 1995 and December 2020. This timespan seemed reasonable as publications about design thinking increased after the mentioned article published by Buchanan on the subject of "wicked problems". The following databases were searched for peer-reviewed English-language publications: Google Scholar, Web of Science, Sage, Springer Link, Science Direct and Emerald. The main keywords for the database search were "design thinking" in combination with "strategy" or "strategic" in the title of the articles. Search strategies were slightly different depending on the search algorithms of the respective databases. The search returned 258 results. Titles and abstracts were scanned, and sources excluded that discussed design thinking as a strategy for a certain field of operation (such as innovation management or environmental problem solving) as the focus of the review is the application of design thinking on strategic management processes. Such exclusions led to eighteen relevant publications. In a second scan, applying a backward and forward search (Webster & Watson,

2002), five additional articles, two book chapters, and one book were added, resulting in a final sample of 26 resources. The two book chapters, the book, and one article were not peer-reviewed, although they were included as they were frequently referenced by author authors (forward reference).

2.2. Analysis and writing

After the initial search, the abstracts of eighteen initially selected articles were in-vivo coded with MAXQDA. 210 codes were developed, which were abstracted into eight key attributes (see Figure 2). These codes were later amended by relevant keywords retrieved through the in-depth analysis of the sample data. The full text elements of the final resources were paraphrased using MarginNote 3. To understand the theories, concepts and the relationships between them, the elements were further condensed into a mind map (Rowley & Slack, 2004). In a final step, all elements of the mind map were analyzed again, partially reordered, and connections between the concepts were established.

ROLES		LEARNING	
	NEW AND DISRUPTIVE POSSIBLE ROLES FOR THE INSTITUTION		TOOLS
	DESIGN-LED STRATEGY CONSULTING		ORGANIZATIONAL LEARNING
	STRATEGY VISUALIZER	COMPETENCIES, CAPABILITIES & SKILLS	
	CORE COMPETENCE PROSPECTOR		SKILLS
	PROCESS PROVIDER		CAPABILITIES
	MARKET EXPLOITER		COMPETENCIES (BEHAVIORAL)
IMPACT/RESULTS OF DT FOR STRATEGY		DESIGN THINKING & CONCEPTS	
	OTHER (ARTEFACTS)		BUSINESS MODELLING
	COLLABORATION		STRATEGIC PLANNING
	POSITIONING / COMPETITIVE ADVANTAGE		DESIGN THINKING
	EXISTING BUSINESS MODELL		DESIGN
	FUTURE / NEW OPPORTUNITIES		FUTURE LITERACY AND FORESIGHT
STAKEHOLDERS		STRATEGY	
	ALL STAKEHOLDERS		STRATEGIC INNOVATION (EXCLUD)
	ALL COLLABORATORS		REVISITING CLASSIC STRATEGIC APPROACHES
	INTERNAL STAKEHOLDERS		STRATEGIZING
	EXTERNAL STAKEHOLDERS		STRATEGIC DECISION MAKING
CONTEXT			STRATEGIC MANAGEMENT
	ALL SPHERES OF ECONOMIC ACTIVITIES		
	COGNITIV LIMITATIONS		
	ORGANIZATIONAL PRACTICES		
	UNCERTAINTY & COMPLEXITY		

Figure 2. Level 1 and 2 of the code system

3. Results

This section presents the results from the content analysis of the final sample. The structure follows the topics and attributes developed and finally assigned to the mind map. First, we discuss the context in which design thinking for strategizing is claimed to be the suitable approach. Second, the competencies and capabilities needed for applying design thinking for strategizing are outlined. Third, the impact of applying design thinking in strategic management is presented.

3.1. Context of applying design thinking for strategizing

In recent decades, rapid social, technological, and environmental changes have characterized the business context. Driven by globalization, digitalization, and increasingly difficult political conditions, companies must secure competitive advantages through ongoing innovation in ever shorter cycles in a highly networked world that gives easy access to new entrants in different marketplaces (Buehring & Liedtka, 2018). Managers face increasing uncertainty and complexity in their strategic decision-making. In a highly regarded article published in 2007 in the Harvard Business Review, Snowden and Boone introduced the Cynefin framework to help executives to identify the context in which decisions must be made. They describe four domains: "simple," "complicated," "complex," and "chaotic." In simple

situations, the solution is based on simple cause-and-effect principles. In complicated situations, the relationship between cause and effect is not immediately apparent but can be accessed through analysis or expert knowledge. In complex situations, it is no longer possible to recognize cause-effect relationships in advance, and hence they can only be recognized retrospectively by searching for patterns and gaining knowledge in small, interactive steps through experimentation. In chaotic situations, the connection between cause and effect is not recognizable. Serious crises or catastrophes often fall into this category (Snowden & Boone, 2007).

In the analyzed literature, the strategic challenges faced by decision-makers are described as new and entangled, and therefore they are best classified as complex situations. Such complex problems are not simple but very convoluted strategic issues, which are described as "wicked" by many authors of the analyzed sources (see, for example, Johansson & Woodilla, 2009; Martin, 2009; Vinnakota & Narayana, 2014; Knight, Daymond, & Paroutis, 2020). As stated in the introduction to this article, the term "wicked problems" was originally coined by urban planners (Churchman, 1967; Rittel & Webber, 1972) and later taken up and defined by Buchanan in the context of design issues. As already mentioned, "wicked problems" are portrayed by the need to involve different stakeholders with different interests, the context being convoluted and multi-layered, the problem to be addressed being unique, there being no singular correct answer but a variety of solutions, and the outcome being objectively unmeasurable (Rittel & Webber, 1972; Buchanan, 1992). The term resonated well with the business community, and complex decision settings were referred to as a "wicked territory," calling for a different way of thinking. Traditional approaches to developing corporate strategies are based on purely analytical thinking and fall short of designing solutions in a dynamic environment (Golsby-Smith, 2007). Already decades ago, Liedtka (2000) and Martin (2009) pointed to the parallels between design and strategic challenges. They proposed more participative, dialogue-based and iterative approaches to design future visions and opportunities to draft winning business strategies (Liedtka, 2000; Martin, 2009). Design thinking brings together divergent thinking with convergent thinking. Martin described this dynamic of design thinking as the forward appropriation of knowledge that ensures companies' long-term business advantage (Martin, 2009). Pillai, Vipin, & Abhilash (2020) see the application of design thinking to strategic thinking processes in "all spheres of economic activities." Nowadays, not only established companies but also start-ups, non-profit organizations, and government departments must ensure continuous innovations by means of lean processes (Pillai et al., 2020).

3.2. Capabilities and competencies needed for applying design thinking for strategizing

One of the central competencies in successful strategic management is strategic thinking. Whereas strategic planning is formal and analytical, strategic thinking is more creative, intuitive, and reflective (Pillai et al., 2020). This ability resembles the designer's mind, which understands framing and reframing the problem space, sees the context as being dynamic, and takes a holistic view, integrating a systems perspective to shape the future (Buehring & Bishop, 2020; Pillai et al., 2020). Cousins (2018) describes design thinking as the ability "to dynamically integrate the external into an internal process for the purpose of learning as highly dynamic requiring management interaction."

The ability to perceive the value of additional information, assimilate it, and apply it for business use is called absorptive capacity, and it depicts a key component of the broader concept of dynamic capabilities. Dynamic capabilities describe the ability of a company to react quickly to changes in its environment by developing its resources (Cohen & Levinthal, 1990). According to many of the analyzed authors, design thinking enables companies to

integrate external knowledge and assimilate such knowledge through diverse practices of collaboration (Cousins, 2018; Schweitzer, Pitsis & Clegg, 2012). As the environment is rapidly changing and the future cannot be analyzed, the authors stress the importance of a continuous learning process, not only for designing strategies but also for the aspect of strategy execution (Diderich, 2017).

In the literature, learning through experimenting, prototyping, and testing is described as a key competence that is obtained by applying design thinking (Liedtka & Kaplan, 2019). Designers understand the value of going back and forth, making mistakes, learning from those mistakes, and improving solution sets (Diderich, 2020). Accordingly, design thinking practitioners address the "wicked" character of the strategic challenges at hand. Through iterations, solutions are developed, and the problem and solution spaces evolve in parallel and interdependence (Lund Strøm et al., 2018).

Other competences outlined in many of the analyzed sources are user involvement and centeredness (Holloway, 2009; Koria, Kotina, & Prendeville, 2017). Building empathy and co-creation with the user are central attributes of design thinking (Micheli et al., 2020) that enable managers to place the human factor as a pivotal aspect of strategy building and implementation of strategic initiatives (Lund Strøm et al., 2018). Such an approach not only ensures an in-depth understanding of the target segment and creating new opportunities to design value propositions, but it also enables managers to discuss realities and building a common understanding of the outlined strategy with internal stakeholders (Knight et al., 2020; Lund Strøm et al., 2018).

Finally, to successfully exploit the potential of new approaches in the strategic process, managers must build a new mental model of flexibility and adaptability, requiring them to learn new tools and perform new activities (Cagnin, 2018; Buehring & Bishop, 2020).

3.3. Activities and tools for applying design thinking in strategic processes

Liedtka and Kaplan (2019) highlight the similarities in the skills required to develop human-centered incremental innovations and disruptive strategies. They even add that the highest use of design thinking is to help strategists to design, prototype, and commercialize new business models (Liedtka & Kaplan, 2009). Different approaches to applying design thinking have been established in the last 20 years. A common element is the basic model of iterations between an expanding stage of divergent thinking, acquiring data, and generating possibilities, followed by a synthesizing stage of convergent thinking, consolidating insights, and selecting the best ideas. Diderich describes the design-led strategy approach as a "concentration of two creative processes," namely observing and learning as well as designing and validating steps (Diderich, 2017). In 2005, the British Design Council introduced its double diamond method, combining two iterations of divergent and convergent thinking steps, leading to four main phases: (1) discover, (2) define, (3) develop, and (4) deliver and listen (Ball, n.d.). Following this view, in the discovery phase (1), scanning the environment and ethnographical tools are promoted to fully immerse in the target group's lives and build empathy early in the strategic process (Camillus, 2008; Liedtka, 2020). In the define phase (2), convergence might be achieved through journey mapping, framing, and reframing techniques, and building a narrative; for example, by storytelling (Cagnin, 2018; Liedtka & Kaplan, 2019). In the subsequent development phase (3), opportunities and ideas are created. Many of the analyzed resources stress the importance of executives articulating the critical assumptions behind those ideas and strategies by formulating hypotheses and visualizing the concepts in prototypes (Camillus, 2008; Liedtka & Kaplan, 2019; Liedtka, 2020). Complex strategic challenges do not incorporate a single solution but rather many possible ways. Hence, in the final delivery phase (4), validation through testing prototypes ensures that trade-offs are detected, and ideas

are retained that have the most potential to succeed (Diderich, 2020). These outlined steps are performed iteratively and ensure a learning process that is stressed as being a key activity of successful strategy work.

Buehring and Liedtka show the connection of design techniques in strategic planning to scenario techniques and strategic foresight. Assumptions about future scenarios are continuously tested with experiments in the present and adjusted according to the learnings obtained (Buehring & Liedtka, 2018).

Many authors point to another important activity derived from the design-led strategic approach. By interacting with prototypes, different stakeholders share the same experience and uniform understanding of the strategy, which is seen as a prerequisite for a successful implementation process (Holloway, 2009; Battistella, Biotto, & De Toni, 2012). In other words, visualizing, sensemaking and communicating the strategy through tangible prototypes are essential activities to build the necessary emotional connections to deploy effective strategic measures (Cagnin, 2018).

3.4. Impact of applying design thinking in strategic management

According to the analyzed literature, applying design thinking in strategic work leads to several areas of impact on the organization. However, it is important to note that some of the evaluated studies are based on empirical work, while others are conceptual contributions.

Foremost, one of the essential attributes of design thinking is user-centeredness and involvement (Micheli et al., 2019). Assimilating customer-focused data into the strategy practice and understanding the user experience from the perspective of the users ensures the product-market fit of the retrieved strategic solutions (Knight et al., 2020; Martin, 2009). Other authors confirm that empathy ensures that solutions are designed in line with the needs of the target markets (Pillai et al., 2020). These design practices establish an outside-in culture of integrating customer-focused data and insights into strategy practice (Knight et al., 2020).

Applying the tools of design thinking changes the way in which companies engage with internal and external stakeholders in shaping strategies. Collaboration between different internal stakeholders creates emotional connections throughout the organization, which is essential for successful change processes (Pillai et al., 2020). Managers gain confidence in the results obtained through a first-hand experience and by being actively involved in ideation activities, prototyping sessions, and experiments (Diderich, 2020). By including key stakeholders who are not part of the core team, the learning process is even further accelerated by improving the breadth of insights and ideas generated (Liedtka, 2020). In addition, including critical players in the larger ecosystems outside the company broadens the access to networks and resources, leading to additional perspectives (Buehring & Liedtka, 2018).

Another important outcome of design-led collaboration processes is sensemaking and internal alignment of the envisioned strategies (Battistella et al., 2012). By ensuring a shared understanding and even experience whereby tactic knowledge is transformed into articulable knowledge, implementation risks may be reduced (Liedtka, 2020). The latter addresses the elimination of cognitive biases. Several of the analyzed sources see the reduction of biases in the strategy process as an essential impact of the application of design-led practices (Buehring & Bishop, 2020; Camillus, 2008; Korea, Kotina, & Prendeville, 2017; Liedtka, 2015; Pillai et al., 2020). Behavioral economists have detected dozens of biases that slant managerial decision-making (Schwenk, 1995). Training in design disciplines and applying design thinking in strategic management helps to mitigate cognitive biases such as confirmation biases, over-optimism, the inability to see disconfirming data, group thinking, or congeniality biases (Holloway, 2009; Knight et al., 2020; Liedtka, 2020).

Several authors conducted in-depth interviews with practitioners or evaluated case studies. These results show that gaining and applying knowledge through organizational learning is an often-mentioned area of impact outlined by companies (Cousins, 2018; Jiao & Zhang, 2015). This view is in line with the discussion concerning the need to build dynamic capabilities as mentioned above to cope with the dynamics of markets (Cohen & Levinthal, 1990).

According to the results of the literature review, all of these elements of applying design thinking for strategizing add significant value to ensuring the future of companies, although academics and practitioners must further investigate the various aspects of a design-led process in strategic management.

4. Discussion and conclusion

In recent reviews of classic strategic planning processes, the need for strategy as an emergent rather than a planned activity, the involvement of various stakeholder groups, and failing to execute strategic initiatives are stressed (for an overview, see Liedtka & Kaplan, 2019). Combined with the increased complexity and multi-layered requirements of modern markets, there is a demand to accelerate strategic planning cycles and design them more dynamically and agile (Lund Strøm et al., 2018).

However, considering that many of the analyzed sources are conceptual or draw on qualitative and explorative methods, more evidence on the concept of design thinking for strategy must be achieved by academics. The review in this paper has revealed three major streams for future research.

First, research questions addressing the context, and the activities of applying design practices. Many of the analyzed articles describe the designers' ability to cope with failure, ambiguity, and uncertainty. However, many aspects remain unclear: *Can design thinking be applied to all kinds of strategic questions at all levels (corporate, business, functional)? In what organizational settings should design thinking be applied to strategic decision-making? What are the fundamental principles, methods, and tools in applying design thinking in strategic management?*

Second, research questions addressing the embeddedness of design thinking applied for strategizing. The practices and cultures around ingrained design practices are not well documented: *How is design thinking embedded in corporate strategizing? In what context is design thinking as practice established? What processes should be applied in a design-led strategic culture? Who should be involved in applying the design thinking toolset to strategic challenges?*

Finally, research questions dealing with the scant empirical evidence regarding the impact of design thinking applied to strategic questions. *What are the primary advantages and limitations of design thinking applied to strategic practices? How does the application of design thinking for strategic management increase the probability that the developed strategy will be successful? What key performance indicators are being used to evaluate the impact of design-led strategy initiatives in comparison to traditional strategic management approaches?*

The literature examined clearly shows that design thinking has substantially evolved in recent years, and the toolset can be successfully applied to much more than pure product and service innovation. Liedtka and Kaplan (2019) stress, that the skill sets required for human-centered innovation management and strategy development are similar. However, they emphasize that for design thinking to successfully build dynamic capabilities within the firm, "attention to a disciplined and carefully architected end-to-end system of interacting elements" is required (Liedtka & Kaplan, 2019). Consequently, both practitioners and academics should

be encouraged to further explore the potential of a design-led approach to strategizing that aims to shape organizations that will have a sustainable impact in the future.

Acknowledgments

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