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# Article On Innovating: An interview with Gautam Ahuja

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# POINT OF VIEW

# **Open Access**

# On innovating: an interview with Gautam Ahuja



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# Abstract

At the 2016 SMS Foundations Session interview with Professor Gautam Ahuja, we explored the key insights of his research trajectory, with a special focus on how organizations successfully innovate. We discussed the major ideas, theories, and results that he and his co-authors generated throughout his successful career. The interview was conducted on September 18, 2016 at the Strategic Management Society Annual Conference in Berlin, Germany. This article discusses Gautam's role in the organizations' literature, reports excerpts of the interview, and concludes with a postscript from Gautam Ahuja written for the community of organization design scholars.

**Keywords:** Innovation, Organizations, Strategy, Firm boundaries, Inter-firm relationships, Networks, Acquisitions

# Introduction

The relationship between organization design and innovation is a central topic in management research (Joseph 2018). Professor Gautam Ahuja—currently Editor in Chief at *Organization Science* and Professor of Management and Organizations at Cornell SC Johnson Graduate School of Management—has dedicated much of his career to investigating the antecedents and the consequences of organizational innovation. Especially through the focus on inter-firm relations, Gautam's scholarship has played a prominent role in advancing our knowledge of how organization design drives innovation performance. Most scholars agree that his work has markedly influenced modern literature in organizations and strategy. With over 23,400 citations (according to Google Scholar as of May 1, 2020) and a long series of path-breaking contributions, few scholars have created such a lasting influence. Given his significant contribution to the field, Gautam was invited by the Strategic Management Society (SMS) for the 2016 Foundations Session Interview at the Annual Conference in Berlin.

Originally from India, Gautam received his MBA from the Indian Institute of Management in 1986. After a successful career as a manager, he decided to explore an alternative path. Driven by the intellectual challenge of academic pursuit, his passion for teaching, and his interest in organizations, Gautam enrolled in the doctoral program in Strategy at the University of Michigan. Upon graduation in 1996, he joined the



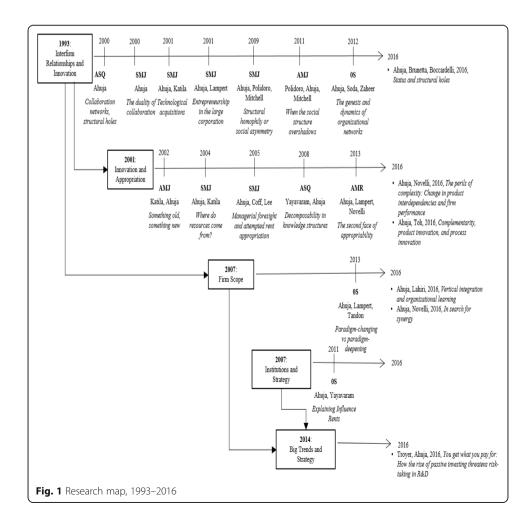
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University of Texas at Austin as an Assistant Professor. In 2001, he returned to the University of Michigan as an Associate Professor. He finally joined Cornell University in 2017, after visiting Harvard University for a year. Over the past 20 years, he has made a variety of central contributions to the literature in organizations and strategy, while excelling at making academic research relevant outside academia through teaching and consulting.

Gautam's academic trajectory covers a variety of areas within the domain of organization research with a special emphasis on innovation and inter-firm relationships. As presented in Fig. 1, we can categorize his works into four broad topics of contribution: (1) inter-firm relationships and innovation, (2) innovation and appropriation, (3) firm scope, and (4) institutions and big trends in strategy. We created this categorization based on our reading of Gautam's works and validated it with him via a series of conversations prior to the interview.

It is important to note that Fig. 1 covers the years Prof. Ahuja has been active as a researcher until at the time of interview in 2016, which serves as the basis of this article.

In Table 1, we discuss the key insights from some of Gautam's major studies. Perhaps his first groundbreaking contribution, the study on collaboration networks and structural holes (Ahuja 2000a) showed how inter-organizational relationships expose organizations to not only knowledge gains but also leakages. This work applied a key



principle of organization design-that the optimal structure is contingent on the actions the structure seeks to facilitate-to the network arena to inform what would be an appropriate form of social capital for organizations to employ. A key insight from Ahuja (2000a) is that for an organization seeking power over its buyers or suppliers, a network comprising relationships with partners with few ties to others can offer greater control over exchange partners. However, for an organization facing a common threat (such as adverse legislation) as its partners, a network comprising relationships with many interlocking and redundant ties can offer greater trust and cooperation. Following this piece, his work over 20 years has shaped our thinking about how firms acquire resources through inter-organizational relationships and how such relationships change a firm's ability for adaptation, renewal, and innovation. Some of his most influential contributions show the following: how centrally embedded and less centrally embedded organizations acquire resources through inter-organizational relationships (Ahuja et al. 2009), how organizations not only use search scope (how widely the organization explores new knowledge) but also search depth (how frequently the organization reuses its existing knowledge) to engage in new product development (Katila and Ahuja 2002), how technological and non-technological acquisitions may have a differing impact on innovation output of organizations (Ahuja and Katila 2001), and how the decomposability of a knowledge base structure may influence the usefulness of inventions generated from it (Yayavaram and Ahuja 2008).

We believe that understanding the relationship between firm boundaries and innovation is a topic of primary interest to scholars of organization design (Joseph 2018; Sengul 2019). Prof. Ahuja's work has made significant inroads into our understanding of how organization design—in particular, interfirm alliances and network structures—influences firms' innovation performance. This contribution has served as a central foundation for much subsequent research answering important questions about organizations and innovation.

Furthermore, Gautam's work is critically relevant in today's world. In this increasingly digital economy, the nature of products and services, the dynamics of invention and innovation, the processes of value creation and value capture, and the environment in which organizations operate are undergoing fundamental changes (Koch and Windsperger 2017). This transformation questions the validity of some of the assumptions on which the traditional theories of competitive advantage are built upon. We see fascinating opportunities for organization researchers exploring this new reality building upon Gautam's work.

We offer some examples. Ahuja (2000a) investigates the role of collaboration network structure in firm innovation performance. In the digital economy, where open business models, crowdsourcing, and platforms are ubiquitous, firms' networks take new forms. This work provides an important starting point in exploring how today's network structures might affect firm performance and how firms may optimally design their ecosystems. Ahuja and Katila (2001) shed light on how the type of acquisition affects firms' innovation performance. In the digital economy, as the cost of starting a business has sharply diminished, firms now have much larger and possibly more diverse pools of potential targets. This work offers a perspective to understand how firms design and should design their acquisition strategy in this new context, including trends such as corporate venture capital or corporate accelerators that have recently become prevalent. Ahuja et al. (2012) propose that the link between networks and organizational

Study	Citations	Theoretical lens	Focal concept/ phenomenon	Key insight
Ahuja (2000a) ASQ	6570	Network research	Collaboration networks, structural holes	A key principle of organization design is that the optimal structure is contingent on the actions that the structure seeks to facilitate. This principle can inform what is an appropriate form of social capital in the network arena. For an organization seeking power over its buyers or suppliers, a network comprising relationships with partners with few ties to others can offer greater control over exchange partners. However, for an organization facing a common threat (such as adverse legislation) as its partners, a network comprising relationships with many interlocking and redundant ties can offer greater trust and cooperation.
Katila and Ahuja (2002) AMJ	3544	Organizational learning	Search depth, search scope, new product introduction	Organizations' search for new products involves two distinct dimensions—search depth (i.e., how frequently the organization reuses its existing knowledge) and search scope (i.e., how widely the organization explores new knowledge). Organizations can differentiate themselves not only by the extent to which they explore new things (search scope), but also by the extent to which they master the old ones (search depth). Thus, search depth is an important mechanism underlying new product introduction, adding nuances to the concept of exploration versus exploitation.
Ahuja and Katila (2001) SMJ	2649	Organizational learning, resource-based view	Innovation; technological acquisitions	While non-technological acquisitions have a negligible impact on innovation output of organizations, technological acquisi- tions have significant impact. Within technological acquisitions, absolute size of the acquired knowledge base has a positive impact on innovation output, whereas relative size of the acquired knowledge base has a negative impact on innovation output.
Ahuja and Lampert (2001) SMJ	2582	Organizational learning, entrepreneurship	Entrepreneurship in large corporation, breakthrough inventions	Breakthrough inventions are a key mechanism by which established organizations can initiate the process of organizational renewal, and thus resolve the challenge of a capability-rigidity para- dox, i.e., a situation where existing organizational capabilities provide the foundations for current competitive pos- ition, but without renewal the same cap- abilities run the risk of becoming rigidities constraining organization's ability to com- pete. Exploration of novel, emerging tech nologies has a curvilinear association with subsequent breakthrough inventions, first increasing and then decreasing the prob- ability of a breakthrough invention.
Ahuja (2000b) SMJ	2147	Network research, resource-based view	Duality of collaboration	Three forms of accumulated capital— technical, commercial, and social— influence an organization's inducements and opportunities to form inter- organizational linkages. Organizations with superior technical, commercial, and

Table 1 Key insights from select studies, 1993–2016

Study	Citations	Theoretical lens	Focal concept/ phenomenon	Key insight
				social capital succeed more in inter- organizational linkages formation. How- ever, for organizations lacking these thre forms of accumulated capital, a radical technological breakthrough can still help them form inter-organizational linkages.
Ahuja and Katila (2004) SMJ	828	Resource-based view, evolutionary theory	Resources origin, idiosyncratic situations	Resource heterogeneity among organizations can through path-creating search processes. Organizations face idio syncratic situations that can lead to the development of resources that improve organizational performance. When facing technological exhaustion in their idiosyn cratic situations, organizations expand their scientific activities. Both the intensit of an organization's scientific search and the diversity of its geographic search car lead to performance improvement.
Ahuja et al. (2012) ORSC	649	Network research; organization theory	Organizational networks	Time has a special role in the relationship between network structures and organizational performance. This relationship is driven by the main mechanisms of temporal reconstruction of social structures and the accumulatior of relational content. The core idea is tha evolution of any network is driven by a process where the nodes are motivated by the microfoundations (e.g., agency, opportunity, inertia, exogenous/random factor) to form, maintain, or dissolve ties. This motivation causes nodes to seek specific partners or tie patterns, which in turn leads to changes in the network (either in the network's content or the structural dimensions at the ego- and ful network levels).
Yayavaram and Ahuja (2008) ASQ	360	Network research, organizational learning	Knowledge base malleability	Knowledge base malleability, defined as the knowledge base's capacity for change, is determined by its decomposability. The decomposability of a knowledge base's structure influences the usefulness of inventions generated from it.
Ahuja et al. (2009) SMJ	347	Network research	Structural homophily, social asymmetry	More central organizations in a network structure are initially more likely to form an alliance, but as the level of combined centrality increases, the effect of centralit on alliance formation diminishes. Thus, there are decreasing marginal benefits o embeddedness suggesting that incentives exist for more central organizations to form alliance with less embeddedness partners. While structural homophily (i.e., similarly embedded within the network) may explain the linkage behavior of embedded organizations, there are limits to its explanatory power in predicting the behavior of less embedded organizations
Ahuja et al. (2005) SMJ	198	Resource-based view	Managerial foresight, knowledge of imminent breakthroughs	Managerial foresight is a critical element of the resource-based view. It influences organizational rent appropriation becaus managers can anticipate breakthrough ir novations and trade on that information

before the filing of patent applications.

Table 1	1 Key	insights	from	select studies,	1993–2016 (Continued)	

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Study	Citations	Theoretical lens	Focal concept/ phenomenon	Key insight
Polidoro et al. (2011) AMJ	195	Network research	Positional embeddedness, structural embeddedness	The effects of network embeddedness on tie dissolution and tie formation are not similar. Positional embeddedness (network centrality) may contribute to instability of ties, whereas structural embeddedness (common partners) contributes to stability of ties. Common partners are an underlying social mechanism for maintaining order in inter- organizational relationships.
Ahuja and Yayavaram (2011) ORSC	148	Institution-based view	Influence rents, institution-based view	Organizations can earn supernormal profits via influence rents, i.e., by designing or changing the rules of the game (laws, regulations, and informal rules) to suit their organization's strategic positions and interests. This principle can form the basis of an institution-based view (IBV) of strategy, which is especially relevant given the changes taking place in many institutional contexts.

Table 1 Ke	ey insights f	rom select studies	, 1993–2016	(Continued)
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performance depends on the mechanisms of temporal reconstruction of social structures and accumulation of relational content. This work provides a lens to understand how digitization modifies the origin and evolution of networks and which microfoundations (e.g., agency, opportunity, inertia, exogenous factors) may become more or less prevalent.

In sum, we believe that this candid interview provides a novel perspective into the personal and professional evolution of one of today's most influential scholars in organizations and strategy. We hope that this paper helps sharing the many lessons Gautam has to offer to the research community. The following section reports the interview, and the concluding section includes a postscript written by Gautam specifically for organization design scholars.

### The interview

This section is based on a selective transcription of the interview. The four subsections discuss Gautam's research trajectory and scholarly contributions.<sup>1</sup>

#### Inter-firm relationships and innovation

*Interviewer*: We begin with your very influential papers, especially your 2000 *ASQ* paper (Ahuja 2000a) and *SMJ* paper (Ahuja 2000b), which are viewed as seminal contributions to the literature on inter-firm relationships and innovation. What was the approach you used in finding the questions you would want to answer?

*Prof. Ahuja*: Some very smart person said a long time ago that "we often make sense of our life in retrospect, but we actually live it in prospect." I find it fascinating, funny, and stochastically unlikely that these papers have had this impact. Especially if you

<sup>&</sup>lt;sup>1</sup>Please see the Additional file 1 for the fifth subsection of interview, which contains thoughts on research and teaching and advice for PhD students.

consider what my mode was for finding questions. My first two years of the program were largely coursework, I did fairly well. The next two years, however, were two of the most difficult years of my life because I had no idea what a research question was and I had no idea how to find one. So, I went through from pillar to post but there was simply nothing that I could turn over that would meet the standards of any reasonable scholar. This process took a heavy toll on me. I fell sick and I had to go to the hospital [*sic*]. [...] I think the stress came from a variety of things. I had given up my professional career, which was not easy to give up. All through my life, academics had never been difficult. But here I was in this undesirable condition even after doing well during the early part of the program. I would not say it was love for research that kept me going, what kept me going was the fear, the embarrassment, or the shame of returning to a career I had walked away from.

And eventually, how did I get the question? I have a very close friend and mentor, Kulwant Singh, who is a professor at the National University of Singapore. He was working on inter-firm relationships. He once said to me "you really have to go and look at this thing called networks." He was very polite, but the essence was "you do not know what you are doing; so this might be a good way to do it, go look at it." Then, I had a chance meeting with Ranjay Gulati at the Academy of Management. Ranjay and Nitin Nohria had just finished working on their article. Ranjay and Nitin said, "you know, nobody has ever looked at the performance of how these inter-firm arrangements actually play out." Thus, these were the two reasons. While the second was a chance meeting, the first was something I would like to give credit to the PhD program [*sic*]. What I did discover though was that *very often passion is the outcome of effort, rather than the progenitor of effort.* When you have no choice, you work hard at something, you try to succeed at it, and eventually you become passionate about it. At least that is what it turned out to be for me.

*Interviewer*: The link between inter-firm relationships and innovation has been the centerpiece of your research since the very beginning. Even today inter-firm relationships and innovation seem to be a research agenda that is one of your primary areas of investigation. What has kept you going in this area over the years?

*Prof. Ahuja*: Initially, it was an accident. Subsequently, two things happened. The first impetus was that once you learn about something, you realize you know very little about it. After I wrote the first couple of papers, I realized there were things I had not thought about. The second part of it is a practical reason. I had spent an incredible amount of time and effort in putting together the datasets. Inter-firm relationships and innovation were the two parts of my dissertation. Today, with ease, you can download every patent and every citation. But, when I did my early work collecting data required massive effort. For alliances too, I had to actually go through tens of thousands of articles to build the database. So, conditional on the effort that was put in, there was an incentive to try and use it. Along the way, although my interest in inter-firm relationships was accidental, networks really got me excited.

The first couple of papers were more about inter-firm relationships. But over the years, it has become more about trying to understand the social structural basis of behavior of firms in economic domains such as competition and strategy. That is what has kept the agenda going.

#### Innovation and appropriation

*Interviewer*: From asking how firms build capabilities from innovation, post-tenure you began to explore how firms capture value from innovation. What prompted you to take this direction? What are the main lessons?

Prof. Ahuja: Before answering, I will add one thing that I think is important, especially for doctoral students to appreciate. My ASQ 2000 paper has received a fair number of citations. There are some important lessons I learned. The first part is that I was fortunate. This paper was based on my dissertation, which had won the BPS Best Dissertation Award, the INFORMS Dissertation Proposal Award, and a few other awards. Then, I wrote up the paper and submitted it to ASO. I got back almost 20 odd pages of single-spaced narrow-font reviews. I think it was only a hairsbreadth away from rejection. It was only the editor who persevered with it. Again, what I did, I did out of necessity, because I had to get published. I said, "the only way I get published is if these three folks sign off." So, I gave it everything I had and put two years into the revision. The paper that I had originally submitted and the paper the reviewers made me write were very different. The review process really worked the way it is supposed to. This paper would not have had even half as much impact without the contributions of the three reviewers, who are anonymous. I think I know who they are now. The review process was very helpful in helping me understand the research I had done myself. The moral of the story is: "Yes, the review process is a hurdle for us to cross; but a welldone review in a well-done journal can actually be the basis for a much more impactful study." [sic]

The second part is how I made the transition [*sic*]. I got tenured and came back to Michigan. So, that was when I thought it was a good opportunity to spend time on rethinking my research [*sic*]. I had already started work on five or six papers. Having studied inter-firm relationships and innovation, looking at how innovation translates into profits was a natural follow-up question. The idea was similar to what we know as related diversification in corporate strategy.

#### Firm scope

*Interviewer*: Your research began examining the scope of the firm more broadly after you became full Professor. How did you develop this perspective? In particular, your 2013 *Organization Science* article proposes a distinction between paradigm-changing and paradigm-deepening innovation. What are the main lessons?

*Prof. Ahuja*: Between my start of a phase and the time a paper is published, there is usually a long period. The period 1993–2000 was slow partly due to my inability to be creative. 2001 onwards, whenever you see a long gap, I attribute it to "the gift that keeps on giving": I have been the department chair for twelve years. That is why, even though I started something in 2007, it did not show up until 2013.

Studying the scope of the firm was a natural follow-up. It goes back to the 2001 paper that studied inter-firm relationships and innovation. There are three broad paths through which firms build technical capabilities: internal modes, alliances, and acquisitions. Having studied inter-firm alliances and internal search processes, studying firm scope broadly seemed a natural follow-up. Part of the impetus here was again that I had invested a lot in data and the data allowed answering this question.

#### Institutions and big trends in strategy

*Interviewer*: You also started studying the role of institutions in strategy. In strategy, we often discuss rents: monopoly rents, efficiency rents, and Schumpeterian rents. Your 2011 article discussed the notion of influence rents. What is the genesis of this idea? What are the key takeaways?

*Prof. Ahuja*: This goes way back to the mid-1990s. I had spent months collecting and studying the individual patent files. In that process, I noticed an interesting pattern. I was studying the chemical industry and I recognized a lot of Indian names, which puzzled and fascinated me. I did not know that Indians were such geniuses in the chemical industry. Was it some sort of a familiarity bias? To avoid the doubt, I conducted random sampling and found that Indians were overrepresented in my sample by at least a factor of 30 relative to the baseline in the population. Exploring further as a little test, I asked, "how many inventions in the chemical industry are by Indians in India?" I found a simple yet fascinating answer: *any of the firms in my sample had more Indian inventors in any year than the nation of India had cumulatively since its independence*. I wondered whatever creative genius India has, it does not actually flower until it reaches the United States. This observation struck me about the importance of institutions.

In their last class of the semester, I conduct a review class for my students. I would put up this regression equation with *firm performance* on the left-hand side. Four modules of the corporate strategy course cover industry structure, firm capabilities, global origin, and strategy execution. So, I would ask my students: "Consider all firms in the world and their performance on the left-hand side. How much of the performance do you think would be explained by each of these boxes on the right-hand side?" Students reflect what we teach. We spend the most time discussing industry structure, so they always say industry structure, followed by firm capabilities, and then the corporate component. Finally, they would say the residual is the nation of origin. Then, I would put up a slide—which is interesting given how much the world has changed—showing the largest corporations in the world and their nation of origin. That is a very interesting point. If it were true that the global origin does not matter, then one should see a reasonable distribution of these companies globally. But we do not. The distribution is almost entirely skewed towards the Western developed nations. One can consider firm size as a measure of firm performance outcome. That would form the basis an interesting discussion on "What truly is the basis of competitive advantage?" Through that process, I ended up with the idea that institutions are incredibly important and yet they are under-studied.

During a sabbatical, I had gone to India and I engaged in "research by walking around." With no affiliation with any institution, I just went and talked to people wherever I was: Right from the lady that would drop off the fruit to newspaper vendors, I would engage with all of them in a conversation. At the back of my mind, I was running a mental regression between the institutions I had seen in the US and the formation of the market institutions in India, which was transitioning into a market economy. [*sic*]

It struck me that we spend so much time on how firms make money yet we do not actually examine the most fundamental way in which firms get better performance outcomes: by changing the rules of the game. Industry structure and firm capabilities are in some sense derivatives of those primary sets of actions. Thus, it struck me that it is important to study institutions and the processes by which corporations influence, control, and shape institutions.

*Interviewer*: In the years after your sabbatical, you have started exploring the impact of the major trends in the US economy on business strategy. How did you develop this interest and is this related to your teaching experience?

*Prof. Ahuja*: Broadly, the big trends in the economy are currently inciting my work. For instance, one of the papers with my doctoral student as my co-author is studying the change in investment environment in the US. In the last 10–15 years, index funds have become incredibly powerful. A lot of resources are being put in the index funds. In general, people think of index funds as a great idea, which they are. But in this paper, we are not looking at how finance guys would be looking at the index funds but looking from a strategy perspective. We are reaching some conclusions that are quite different from what traditional finance has reached [*sic*]. I am currently working on a series of related papers connecting strategy to these big trends.

## Postscript by Gautam Ahuja

Looking into the future, I see a very rich environment for the lodes of enquiry that I have pursued, for instance, innovation, inter-firm relations, and institutions. In fact, I see the organizational issues that I have studied so far as serving as a bridge between classical organization theory and the organization theory of the future. In the first part of my career, I focused on (dyadic) alliances and networks. Those were in themselves a departure from the classical organization theory which was focused on design and incentive issues in the context of individual organizations. However, now even the alliance and network literature seems like a bridge to the organizational world of today which is characterized by ecosystems of firms and not just social network effects but economic network effects (increasing returns to scale). What makes organizations of today and tomorrow both interesting and challenging is that they are not characterized by the replacement of one principle by another (e.g., economic network effects replacing social network effects). Rather considerations of economic network effects have to be factored along with social network effects. Similarly, in the old world, we were able to study horizontal networks (composed of ties between competitors) and vertical networks (composed of ties between buyers and suppliers) separately. The ecosystem world adds additional layers of complexity to inter-organizational ties—i.e., ties among competitors, suppliers, buyers, and complementors are all relevant, and likely simultaneously.

Even inside individual organizations, both structure and design need to be reexamined. Much of the classical work was done in the context of hierarchical organizations. However, today, polyarchic (e.g., boss-less) and even algorithmic (machine learning and algorithm-based) organizations have emerged (e.g., Uber). Understanding how our principles of design are applicable in this world presents many opportunities. Similarly, technology is upturning basic organizational assumptions of effective span of control, employee observability, and measurability and has consequent implications for privacy and productivity. Again, these are tremendous research opportunities. When I think of all of these challenges, I see an interesting research world ahead and one that I look forward to being a part of.

#### Supplementary information

Supplementary information accompanies this paper at https://doi.org/10.1186/s41469-020-00080-1.

Additional file 1: Appendix

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#### Authors' contributions

Arzi Adbi and Andrea Contigiani were the interviewees and contributed equally in conducting the interview and writing this manuscript. Gabriel Szulanski generated the idea of Foundations Sessions Interviews, contributed in conducting the interview, and writing the manuscript. Gautam Ahuja was the interviewee and contributed by writing the postscript. Arzi Adbi is the corresponding author. The authors read and approved the final manuscript.

#### **Competing interests**

The authors declare that they have no competing interests.

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