對話世界頂尖學者

造局制勝──數據時代中的人類優勢
Framing - The Human Advantage in the Data Age

Discussants: Dr. Viktor Mayer-Schönberger and Dr. Tai-Yee Wu[1]

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Dr. Viktor Mayer-Schönberger

Dr. Tai-Yee Wu

Abstract

This conversation follows the speech that Professor Viktor Mayer-Schönberger addressed in the keynote session of the Annual Conference of Taiwan Academy for Information Society 2021. In this interview, Professor Mayer-Schönberger elaborates the

1. Tai-Yee Wu is an assistant professor in the Institute of Communication Studies at National Yang Ming Chiao Tung University. Email: taiyeewu@nycu.edu.tw

components of framing further and exemplifies how the skills of framing enable individuals and societies to make a progress with new possibilities by "playing with the counterfactuals and constraints." With regard to the evolution of artificial intelligence, moreover, he emphasizes that imagination—which fuels framing—is still the unique human capability that machines and robots do not possess. In addition, he expresses his concerns about the fact that some people in society may have greater advantages of framing than others, and suggests that education systems and the media can play a crucial role in reducing such inequality. In closing, Professor Mayer-Schönberger identifies transparency and the willingness to privilege honesty over truth as two major attributes of a "qualified framer."

Introduction of Dr. Viktor Mayer-Schönberger

Viktor Mayer-Schönberger is Professor of Internet Governance and Regulation at the University of Oxford. He is also a faculty affiliate of the Belfer Center of Science and International Affairs at Harvard University. He has published twelve books, including most recently "Framers—Human Advantage in an Age of Technology and Turmoil" (Dutton／Ebury, with Kenneth Cukier and Francis de Vericourt), the international bestseller "Big Data" (HMH, co-authored with Kenneth Cukier, translated into more than twenty languages) and the awards-winning "Delete: The Virtue of Forgetting in the Digital Age" with Princeton University Press. He is the author of over a hundred articles and book chapters on the governance of information.

He is also on the boards of foundations, think tanks and organizations focused on studying the information economy, and advises governments, businesses and NGOs on new economy and information society issues.

TYW: Tai-Yee Wu
VMS: Viktor Mayer-Schönberger

TYW：**In your bestseller, "Big Data," you stress the importance of correlation as a method that uses rich data to solve social problems. Yet, in this new book, "Framers," you argue that causality is a primary component of framing. While correlation and causation are not essentially contradictory, it seems that you are describing two different mindsets. Can you elaborate your points a bit more?**

VMS：In "Big Data," Kenn (Kenneth Cukier) and I discussed the fact that when you do data analysis, more often than not you only find correlations but not causality. And, we argued that it doesn't mean finding such a correlation is useless. That is, while causality is always crucial and important, correlational insights can shed light on what is going on and help causal investigations. If you start with a causal investigation, the problem is that you need to start with a causal link, but there may be a zillion possible causal links to investigate when you study a new phenomenon. And so you pick one, go through a very complex process only to find out this was not the right one. And then you go to the next. That is not particularly efficient. Therefore, in "Big Data" we argued that you could use correlation as a kind of filtering mechanism, whereby you identify a couple of most promising potential cause linkages that you then investigate more thoroughly. In that sense, correlational analysis can kind of turbocharge or speed up the ensuing causal investigation by eliminating a lot of things that turn out to have no bearing.

In "Framers," we don't dispute that at all. We say that humans make sense of the world through cause and effect. That's how we operate. Because we can't escape the sense of causality, we should make a benefit out of it. In other words, correlations and causations are complementary and help each other. Correlational thinking helps us to focus on potential causal linkages, that are more promising than others. And at the same time, if we didn't have a sense of causality, we wouldn't have developed the methods for statistical correlation finding we are looking at.

TYW：**Another key component of framing is counterfactuals. You describe counterfactuals as a form of dreaming, or imagining alternative realities, that**

can help us shape the future. There has been a term called "alternative fact," which was used by some politicians to defend their claims when they were accused of making false statements. At first glance, an alternative fact also seems to be counterfactual and is imagination-driven. How would you distinguish the frames that you encourage your readers to apply from the claims with alternative facts?

VMS：The claim of an alternative fact, from the word itself, already presupposes that it is a fact. A counterfactual, by the word itself, says it is something else than a fact. It is an imagination, it is dreaming. Therefore, they fulfill very different purposes. An alternative fact proposes that this is reality. That is not what counterfactuals do. Counterfactuals, or, as we call it, dreaming with constraints, are really an ability to imagine a world that does not exist. As we imagine a slightly different world than the one we inhabit, we can see different decision options that are available because we can imagine that certain decisions change the world in a particular way.

The so called alternative facts try to validate the truth of something that is untrue. An alternative fact is a blatant lie with the intent to persuade people that the lie is the truth. In contrast, counterfactuals never pretend to be reality. They say there is another reality that could exist if certain things are being changed. And that helps us focus on decision options that we have to design the future. In contrast, alternative facts re-prosecute the past.

TYW：**The third component of framing is constraints. You see constraints productive and supportive to framing. Yet, the constraints not only come from the internal but also from the external. Do you think that governments, large corporations or the elite groups may use their power to set constraints for people in order to prevent them from being becoming creative framers?**

VMS：I'm afraid you need to prove that is more prevailing than the exact opposite. What I see in Europe as well as the United States is that there is a wide variety of different frames regarding current issues such as vaccination or wearing masks in public.

If you look at the anti-vaxxers in the United States or the anti-mask protesters in Europe, it seems that whatever the government tells them, they have the freedom and exercise it. So, in the United States, the UK, and continental Europe, vaccination rates sometimes are very low. To me, such fact seems to imply that people have their own frames and are not as encumbered by the edicts of government to think a certain way.

The one thing that everybody is talking about these days is polarization. Similarly, polarization wouldn't exist if people follow the frame of the elites. So it seems to me that if anything, maybe thanks to digital media, the elites have lost their ability to impose a particular frame of thinking of the people.

TYW：In "Framers," you not only highlight the value of framing but also touch on "reframing"—when the frame we already have do not seem to be enough. Since the pandemic of Covid-19, our lives have dramatically changed on various aspects. For instance, we are forced to get used to online conferencing systems for meetings and teaching, and social distancing also seems to be the new normal that guides our daily interactions with others. In this trying time, should people consider reframing their mindset?

VMS：Let me answer this question in a bit of a roundabout way. In the book, we say that reframing is done sometimes. But, we also explain that reframing is incredibly risky. Your success in one reframing doesn't guarantee that your next reframing will also be successful. There is no learning curve. Thus, reframing always will be extremely risky. And so we argue, rather than going for a reframe, it is often better to understand the outer bounds of the frame that you are in. A lot of people are too constrained in their frame unnecessarily because they haven't understood that their frame is more flexible then it could be. And that is why we are emphasizing counterfactuals. We say, look, if you play around with the constraints, more counterfactuals will become possible and more decision options available. That doesn't mean that you have to leave your frame. You can stay in your frame, play around with the constraints, and

create better counterfactuals. This is something that we can get better at—we can practice and experience helps. In other words, this is a far better strategy to improve our decision making than to hope for this radical reframing.

So, when you ask about what can be done in this trying time of a pandemic, we opened the book with the example of antibiotics and antibiotic resistance, and the search for new antibiotics. What we argued there is that the sort of conventional answer has been to look for substances that are very similar in chemical structure to existing antibiotics. And, we have basically already discovered all of the easy antibiotics. But, what if we play with the constraints in the frame a little bit? What if we were to look for a substance that has the same antimicrobial effect rather than the same molecular structure? That is a different approach: We now don't look at something that is similar in structure but something that is similar in effect. And we find new molecular or substances.

That is not necessarily a reframing, but a play with the constraints of an existing frame. We need to look more carefully at the constraints and say, although we assume that this constraint is fixed, it could be changed. It could be flexible. Another example we give in the book is the rise of Space X as a rocket company. When NASA thought about reusing rockets in the 1960s, they said we don't have the sensors and we don't have the computing power in real time to land them upright. Therefore, they made rockets with wings, and the space shuttle was born. But in the early 2000s, Elon Musk and his team discovered that processing power and sensor capabilities had advanced dramatically. So, what used to be a hard constraint in the 1960s is no longer the same now. This enables a new counterfactual, a rocket that lands upright and that's what SpaceX did. It is playing within an existing frame.

TYW：Coming back to the main idea of framing, do you agree that some people in a society may have greater strengths and advantages of framing (e.g., the elite) than others? If the answer is yes, how do we reduce such inequality?

VMS：Yes, very much so. I think this is an understudied area that needs more of our focus.

The elites realize that what is needed are the framing skills. Elon Musk started a school with that mission; it now lives on as an online school that teaches children mostly framing. The school is $180 a month and requires an internet connection. So when you look at this, only a certain number of people can afford it. At the same time, our existing traditional schools are not very much focused on teaching framing. They are far more focused on having students learn by heart, follow the rules, stick to what the teacher tells them, which basically is not playing with constraints to generate new counterfactuals. So, in a way, the normal schools are anti-framing. At the same time, the elites build private schools or private tutoring systems around it, to compensate for it, which gives their children an advantage over people who go through the normal school system. I find this inequality extremely worrying. I could foresee a new world of two classes, where the elites have trained their children in this new thinking. When their children apply this thinking of frames, they make better decisions and have advantages that other people don't have. Thus, I think it is incredibly important that we reform our traditional public school systems in order to encourage more of this sort of framing mindset.

TYW：In addition to the educational system, do you think mass media or digital media may also help people learn and practice the framing skills they need?

VMS：Absolutely. The problem with media in general is that we now have a very fractured media landscape on the one hand, and we also have media that are being consumed in the millions and hundreds of millions of people on the other hand. And, those cat videos and TikTok videos are almost pure entertainment. Entertainment is not going to make you a better framer, as framing takes a little bit of effort. I cannot emphasize it strongly enough that the right media can actually stimulate your mind. For example, a crime movie may keep you thinking who the killer might be—this is already stimulating your framing capabilities. In the US, there was also a show called "Mythbusters." In every episode, the show took a myth, such as you can walk over hot coals with your feet not being burned. Then, the show tested it out in a

sort of scientific environment. That was a show which played with frames. This is a very helpful kind of format. So the media that we consume—whether it is movies, TV series, or video games—can actually stimulate our framing. There is a real opportunity here, especially for people who are out of the educational system or those who are older and need to be retrained to be framers.

TYW：One of my favorite metaphors in your latest book is that "A.I. is the puppet and humans are the puppet masters." While this metaphor is phenomenal, in reality we also see that the methods of machine learning continue to evolve, and there are more ways to train computers to perform tasks in ways equivalent or even superior to human beings. Do you think someday in the future that the puppets will also get to learn and become framers as their masters do?

VMS：Not based on the knowledge that we currently have. There are many things that machines are better at than humans, such as calculating, running complex data analysis, etc. But, as we put forward through the example of AlphaZero playing chess, only the human can see the forest rather than the trees. The machine doesn't see the bigger picture, it can only learn from the data of the past to anticipate the future. But, what if the future is completely different from the past? In contrast, we humans have the ability to imagine.

An A.I. can take reality and permutate through changes of reality. But, it doesn't know where to start and where to stop. In "Framers," we have this robot that Daniel Dennett described in his paper 40 years ago. In order to stop a ticking bomb, the robot starts going through all the hypotheses one by one, and then the bomb explodes before the robot can find a useful one. That happens when you have too large an option space. So, the kind of imagination, the ability to imagine, the ability to play with constraints and dream something that isn't there, is unique to humans—to the best of knowledge we have today. In the distant future, there may be computers that can dream. But they can't dream right now. It is fundamentally hard, fundamentally difficult to let computers dream.

TYW：**In the Chapter 8 of "Framers," you pointed out "frame pluralism," which is probably the key to a society's evolution and survival. One of the strategies of frame pluralism is to allow friction, but this approach may inevitably lead to conflicts and tensions. If abundant conflicting frames appear, and an agreement on a given frame seems unlikely in a short period of time, what would your advice be to prevent that society from being shut down or broken apart?**

VMS：In that chapter, we emphasize that it is not only important to have multiple frames in a society, but to embrace them and see them as an advantage. This means that in a society, when we disagree, we understand that this is not an impasse. For example, by exploring each of our frames, we can actually improve our own thinking in our own frame. It's not just about persuading the other to my stance, but it is also improving my own framing and my own thinking. In my opinion, what we have done wrongly in our pluralistic societies is to tell people that we need to find common ground. In fact, we don't have to. Maybe common ground is more elusive. In times of swift and radical changes that we are facing, maybe it is better to have multiple frames in a society, as long as we don't hate each other for it. The danger that if everybody follows the same frame, or sort of coalesces around the same frame, is that you turn out to be lemmings and fall off the cliff.

So, it is not just important to understand that there is friction, but that we need to embrace it, that this is an opportunity for us. The goal is not swift consensus. The goal is improving our own thinking by banging up against the frames of the others. In transition times (and I believe we're in transition times), it is less important to come up with a quick solution. It is more important to think longer and harder, and to come up with the paradigmatic shift that is required. Moreover, we need to understand that the conflict coming from a tension in society is less risky than entertaining just one solution—like putting all your chips in the casino on a single number that might not turn up, and then all society is lost.

TYW：**If someone comes to you and ask you how to distinguish a good frame from a**

bad frame, what would your answer be to this question?

VMS：The answer would be very simple. The only bad frames that exist are the ones that negate the existence of other frames. A very authoritarian frame that says "I'm the only one that exists." Unfortunately, we see this kind of frame popping up over and over when people say "my reality is the only reality that exists," "my worldview is the only one acceptable." That is dangerous, because almost always, such thinking has led to disaster. If the frame doesn't do that, then it's not a bad frame, per se. And then, the real question is "is this frame appropriate for the situation you want to use it for?" And, in order to answer that, you need to understand the situation very clearly.

TYW：Communication researchers also study framing. For instance, we analyze the types of frames that news media apply to reports, and investigate the effects of news framing on shaping the audience's view of the world. It is legitimate to say that journalists and news organizations not only develop frames to look at the world for themselves but also use their frames to influence the audience. In your opinion, for those individuals and entities that have the privilege to influence people with their frames, what attributes are essential for them to be a "qualified framer"?

VMS：That's a very good question, and a challenging one. To me, the most obvious quality is to make your framing transparent. For journalists, for example, tell your readers what kind of assumption on constraints that you put into your reports. Because that lets your readers follow you and understand, and then test your assumptions. They may say, "okay, you had this assumption, but I don't have this assumption, so I see the world differently with regards to this particular constraint." And that creates different counterfactuals. And then we can have a debate about that. Much like in data journalism, to make transparent the data that went into the analysis is very important, but not sufficient. We also need to make transparent the framing that is used to take the data and transform it into a decision.

Another quality is to privilege honesty over truth. Be honest about what kind of assumptions and constraints you had. Don't aim only for the absolute truth, because the absolute truth may not exist. Instead, say "I am honest about what I know and what I don't." This is very different from the motto of the New York Times that it covers "all the news that fits to print". This seems to imply what we report is true, and everything else is wrong. That would be dishonest. We need more honesty.

TYW：**But, news media may easily lose their readers and audiences if they don't claim that their reports are true.**

VMS：I apologize for being a bit simplistic here because it's a big topic. To me, that is in a way the outcome of a mistaken educational system that drills into us that there is a single truth for everything when, in fact, a lot of times there isn't. And you know, as we say in the book, there aren't that many bad frames, there was only a lot of bad framing. If you measure your living room, you can assume that the world is flat, that's perfectly fine. But if you put a satellite in orbit, you better understand that the world isn't flat.

The world is getting harder, so we need to prepare the people for thinking harder—for being more critical with themselves and with others. This is not a nice, stable reality anymore, where we can have the elite tell us what truth is. This is a different reality that we're waking up to right now. And that will require all of our mental efforts, all of our cognitive abilities, especially framing.

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