

# **Exploring the Mystery of Management from Great Minds: Interview with Professor David Teece, Global Strategic and Innovation Management Guru**

## **聆听大师，探寻管理之谜——专访全球创新与战略大师大卫·梯 斯教授**

**Participants:** Prof. Henry Chesbrough, Prof. Chen Jin

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**Abstract:** The importance of innovation can never be ignored by a manager, an organization, or a country. How does one build a sustainable competitive advantage? A subsidiary question is: how to profit from innovation? These two fundamental questions have always been core in both the research and practice of strategic and innovation management. David Teece, Tusher Professor of the Haas School of Business, University of California Berkeley, has developed rich frameworks around these two issues, contributing important thoughts and implications for both academic research and business practices. I was fortunate to be invited to do an interview with David, along with Prof. Henry Chesbrough, Haas School of Business, University of California Berkeley, and Prof. Chen Jin, School of Economics and Management of Tsinghua University. I thus had an opportunity to learn directly about the ideas behind the “Profiting from Innovation” model and the “Dynamic Capabilities” framework, and to ask David about his perspectives on the future of management.

**摘要:** 无论是一个人、一个组织还是一个国家，创新的重要性毋庸置疑。我们该如何实现可持续竞争优势？接下来的问题是，我们该如何从创新中获益？这一直是创新与战略管理研究及实践的核心命题。美国加州大学伯克利分校哈斯商学院大卫·梯斯教授围绕这两个问题搭建了全面的理论框架，为学术研究与企业实践提供了丰富的思想价值。而今，我有幸得到大卫·梯斯教授的邀请，与清华大学经管学院陈劲教授、加州大学伯克利分校哈斯商学院亨利·切萨布鲁夫教授一起进行访谈，借此机会聆听梯斯教授本人口述其创建的创新收益框架和动态能力理论的思想精髓，以及教授对管理学未来发展前景的看法。

**Mei:** Many thanks for providing me this precious interview opportunity. I will be especially focusing on the profiting from innovation model and also the hugely influential dynamic capabilities framework. Actually, we read lots of David's papers, but the industrial practitioners do not know about the origins of that. How did the profiting from innovation (PFI) framework come to you? What's the deep fundamental question addressed by the PFI framework?

**梅亮:** 非常感谢您为我提供如此珍贵的访谈机会。这次访谈将聚焦您的“创新收益框架”(Profit from Innovation Framework)以及有巨大影响力的“动态能力”(dynamic capabilities)理论。我们其实阅读了大量您的著作，但是产业实践者并非十分了解您的思想。“创新收益框架”(简称 PFI)到底是如何产生的，其背后的核心问题又是什么呢？

**Prof. Teece:** The genesis of the profiting from innovation thesis was understanding a phenomenon that I was aware of as a high school student in New Zealand, observing the United Kingdom. No country has contributed more to science and technology on a per capita basis than the United Kingdom. So I wondered why a country that contributed so much to the world with breakthrough research in science and technology could not win in the marketplace with commercial products based on that research. So that was the fundamental question. The second level question came from thinking once again about the UK. They were the first to apply nuclear energy to electricity generation, and they invented the hovercraft. They were also the first to commercialize a civilian jet airplane (the De Havilland Comet) and the first to come up with a breakthrough in medical imaging (the CAT Scanner), which was the most revolutionary thing since the X-ray. So a country that produced revolutionary technology and actually got that technology into products then performed very poorly in the marketplace. The question is: why?

In the US in the 1980s, I saw a similar phenomenon. A company called Ampex here in the San Francisco Bay Area invented the video tape recorder. They produced high-end models but failed to succeed in the mass market for consumer video. Japanese companies succeeded instead with this technology. Why? And of course the Xerox PARC laboratory not only invented all the elements of the PC but actually brought it to market with the Xerox Star system. But it was too complex and too expensive. IBM introduced its PC at the same time and captured the market. Why?

**梯斯教授:** “创新收益框架”最早起源于我在新西兰读高中时对英国的观察，我发现当时英国是人均科技投入最高的国家，但我的疑问在于为什么英国在科技研究方面有诸多突破性

发现，却无法通过研究成果推出商业化产品赢得市场份额。这就是最深层次的问题。第二层次的问题也来源于对英国的观察思考。英国最早将核能技术用于发电，并发明了气垫船。英国是最早实现民用喷气式飞机商业化的国家（哈维兰彗星型客机），并且在医学影像学首先获得突破性成就（CAT 扫描技术，亦称电脑分层摄影机，是“X 射线”以来最革命性的技术创新）。但是，这样一个不断创造先进技术的国家，并将这些技术成功转化为产品，却在这些技术的商业化过程中表现得很糟糕。这是为什么呢？后来二十世纪八十年代我在美国观察到了类似的现象。美国湾区的安派克斯公司发明了录像机（Video Cassette Recorder: VCR），推出了高端产品，但在大众消费电子市场中未能获得成功，反倒是日本公司在 VCR 科技方面表现突出。为什么呢？施乐公司帕克研究中心发明了个人电脑的所有部件，并且通过施乐 Star 系统将个人电脑商品化。但是施乐的产品过于复杂且价格过高，而 IBM 在同一时间推出了自己的个人电脑，成功占领了市场。为什么呢？

**Prof. Teece:** The academic literature recognized that great scientific breakthroughs didn't automatically result in products that were commercially viable, but I was asking a different question. Why is it that, even when technologies are commercially viable, the pioneer often doesn't benefit? The conventional wisdom (the linear model) said that if you invented first and showed proof of concept then you were going to win because you were the first mover. This linear model and the theory of first-mover advantage were clearly wrong; but no one really had a good story, no one had a framework to explain why. So I thought about it, and I realized that three or four key elements could explain the phenomenon. The first was the strength of the appropriability regime. Does the pioneer have strong intellectual property protection? If you do, then you could consider licensing the technology to others, and life is relatively easy. You invent, you license, and you earn profits. Some companies did very well with this strategy, although probably not as well as they could have if they had commercialized the technology themselves. But the model I was building required more than intellectual property. I started to think about manufacturing and how important it was to be a strong manufacturer. Professor Nonaka's 1986 HBR article titled "The New Product Development Game" was about the difficulties of getting an innovation from the research lab into the factory. And you can go back further to Alfred Sloan's book "My years with General Motors," and the great story that no one read about the so-called "copper-cooled engine". General Motors invented this air-cooled engine in the 1920s. It eventually found its way into the Volkswagen Beetle, but GM failed

to bring it successfully to market because none of the GM divisions wanted to manufacture the engine or could manufacture it well. So there's a manufacturing quality problem that stood in the way of commercialization. The complementary asset (manufacturing) did not perform well when it was needed.

**梯斯教授:** 当时的学术研究已经表明, 科学上取得重大突破的创新并不一定会带来商业上的可行性与收益回报, 但是我提出来的问题跟别人不同。为什么创新者即使发明了具有商业可行性的技术, 仍然无法获益? 通常创新的线性模型认为: 如果有人抢先发明了某种技术, 并且成功进行概念验证, 就必将获得成功, 先入为主。显然, 这种线性模型和先行者优势是错误的。但在当时, 没人能拿出一个更合理的说法或者更好的框架去解释这种现象。经过思考, 我发现其中有三到四个关键因素: 首先是独占性机制。创新者是否拥有很好的知识产权保护? 如果有, 那就可以通过许可证模式将技术创新投放市场, 问题也就变得比较简单了。有了发明, 就可以进行许可证保护, 最后便可获益。部分公司在许可证战略上做得很好, 但估计如果公司自己将技术商品化效果会更好。但是我当时在搭建的模型不仅仅涉及知识产权问题。我开始思考制造业, 以及制造能力的重要性。野中郁次郎教授在《哈佛商业评论》中发表文章, 名为《新型产品研发游戏》, 是关于将一项创新从实验室转向工厂的困难性。你也可以看看阿尔弗雷德·斯隆 (Alfred Sloan) 的《我在通用汽车的岁月》, 里面有一个大家都没有认真读的好故事, 有关铜冷却发动机。通用汽车在二十世纪二十年代发明了铜冷却发动机, 最终装在了“大众甲壳虫”上, 但铜冷却发动机在市场商业化中失败了, 因为没有任何一个通用部门想去制造这个发动机, 而且也没有能力做好。所以, 商业化进程其中的一个障碍就是制造质量问题。我们所需的互补性资产 (即制造能力) 没有在关键时刻发挥作用。

**Prof. Teece:** So I focused on complementary assets, and at that time (the mid-1980s) in the PC industry, there was a lucrative market to share. The profit shifted from upstream to downstream once competition in PC production emerged, and that was because the computer retail stores would only carry maybe five or six brands, which made shelf space a bottleneck. The PFI model predicts that the profit goes to the owners of the bottleneck asset. Retail companies like Computerland did very well for a while. Then Dell Computer, with its direct-to-the-consumer business model emerged and earned profits by bypassing the bottleneck. A bottleneck in the PFI model is a complementary asset that is difficult for others to replicate, and these seemed to matter. So I brought the idea of complementary assets into the business and innovation literatures.

**梯斯教授：**我开始重点关注互补性资产。对于当时 80 年代的个人电脑产业，市场的蛋糕是很大的。一旦有了个人电脑生产方面的竞争，收益便从上游转向了下游。原因是电脑零售店可能只售卖五六个品牌，因此货架空间变成为了瓶颈。创新收益框架认为，收益将流向瓶颈资产的所有者。像 Computerland 这种零售公司有一段时间表现非常好。接着，戴尔电脑公司打入市场，拥有直接面向消费者的商业模式，通过绕开瓶颈获得收益。所谓的瓶颈在创新收益框架中是难以复制的互补性资产，这种互补性资产比较关键。由此，我在商业和创新方面的文章中开始引入互补性资产的概念。

**Prof. Teece:** Intellectual property and complementary assets are key explanatory factors. So is the whole question of timing and standards. Ford Motor was not the first company to make an automobile, but it was the first to really open up a mass market. So being there at the right time to shape the dominant standard is critical. The Ford Model T car became the dominant design. There is no point having an impact early on but dropping out before the mass market emerges. Ampex sold expensive VCRs to television stations and so forth, but they were no longer competing when a mass market emerged after the cost came down enough that most households could afford a VCR. So I had these key factors in the PFI model: standards, dominant design, complementary assets, intellectual property, and timing. I said to myself: “Let’s create a predictive model around those key elements.” And, in fact, PFI is a predictive model. No one has actually done a full-blown empirical study to test it, but it is testable. The dynamic capabilities framework is much harder to test than the PFI model. But I think the original 1986 PFI article and my 2006 update provide insights even today. What was lucky was my emphasis on complementary assets. Because of the digital economy, complementarities are now incredibly important. So the framework still works reasonably well, perhaps even better than in the pre-Internet period.

**梯斯教授：**知识产权和补性资产是其中两个关键因素，同样重要的关注点便是时机和标准。福特汽车并不是最早发明汽车的公司，但是福特汽车却是最早开启汽车大规模市场化的公司。所以，把握好时机，在主导型标准开始成形的时候扮演关键角色，这一点很重要。福特 T 型车就成为了当时的主流车型。如果你在早期拥有影响力，但是在大规模市场成形之前就退出去了，意义不大。比如说，安派克斯公司以高价向电视台出售 VCR，但是实现大规模市场化之后，录像机的成本降低了，大部分老百姓都买得起 VCR，而安派克斯公司却已经淡出市场。这样一来，我便有了创新收益框架中几个关键因素---标准、主导性设计、互

补性资产、知识产权和时机。我当时想用这些元素创造一个预测模型，创新收益框架就是这样的模型。尽管没有人从实证角度去测试这个框架，但是这个框架是可以测试的，比起动态能力框架要容易得多。我认为“创新收益框架”即使在现在依然有借鉴意义（最早的研究成功发表于 1986 年，2006 年发表更新版）。我运气也算比较好，当时就在强调互补性资产，而在数字化经济中，互补性资产恰好是非常重要的因素。所以这个框架至今还是可用的，可能比互联网时代之前的那段时间还要适用。

**Prof. Teece:** Ron Adner, in his 2012 book “The Wide Lens”, without applying the PFI model, tried to come up with an innovation story about the importance of complementary assets and complementary technologies when bringing new products to market. It’s a very good book, but Professor Adner doesn’t make any distinction between the complements that are replicable and the ones that are not. This causes him to predict that profits go to the company that possesses the last complementary asset or technology needed to bring a product to market. However, unlike the case of a unique physical asset like real estate, many assets can be replicated and do not become bottlenecks. So I think Ron Adner approached a similar problem to PFI but, without my model, he ended up saying some things that were not correct from an economics perspective.

**梯斯教授:** 美国达特茅斯学院的罗恩·阿德纳教授写了一本《创新的广角镜》，2012 年出版。他在书中没有借鉴创新收益模型，试图自己解释向市场推出新型创新产品时，互补性资产和技术的重要性。这本书写的很好，但是我认为阿德纳教授没有对可复制的资产和不可复制的资产做区分，因此他得出了错误的结论，认为那些拥有推出产品过程中最后阶段所需的互补性资产或技术将获得收益。但是，除了像房地产这种独特的实体资产，很多资产都是可以复制的，所以不会成为瓶颈。所以我认为阿德纳教授试图解决的问题与创新收益框架相似，但是没有我的模型，他得出的结论从经济学的角度而论是不正确的。

**Mei:** I found that the profiting from innovation framework mainly targeted value capture. How does it relate to value creation? How do you define the boundary between value creation and value capture in the profiting from innovation model?

**梅亮:** 我发现您的“创新收益框架”主要是聚焦创新者（创新公司）的价值获取。如何将其与价值创造相联系呢？您是如何界定价值创造与价值获取这两个概念？

**Prof. Teece:** Your observation is correct. PFI uses a single-minded focus on value capture. In my view, if you try to look at both together, it gets very complicated. It would then be impossible to create a manageable model. So one of the reasons that PFI was successful is that it asks a limited question: how do you capture value from innovation? You know there is a huge literature on how you create value. But until the profiting from innovation model, no one focused on this narrow but critical downstream issue: if I have created a commercially viable product, how can I win in the market? That's a simple enough question that I could build a theory around it. So I don't apologize that PFI doesn't cover value creation. If I tried to put that in, the theory would be too complicated. PFI is at about the limit of what most executives can handle. It's already too much even for some academics.

**梯斯教授:** 说的没错,“创新收益框架”的确聚焦价值获取。我认为,如果试图将价值创造与价值获取都放进来,事情会变得很复杂,就无法创建一个可行模型。所以,创新收益框架能够获得成功的一个重要原因在于这个框架聚焦有限的问题,也即如何获取价值。关于如何创造价值,有很多研究都有提及,但在“创新收益框架”提出以前,没有人集中精力研究这个狭窄而又关键的问题:创建一个可行商品后,如何在市场中获得成功?从这个简单的要点切入就足以建构一个理论。因此,我对没有涉及价值创造并不感到遗憾,因为如果同时讨论价值创造的话,这个理论会变得过于复杂。创新收益框架已经差不多达到企业高管理解能力的极限了,甚至已经超出了部分学者的理解能力。

**Mei:** My third question is about how the theory is presented from the pioneer's or innovator's perspective. How does the framework extend to the imitators, followers, or latecomers?

**梅亮:** 我的第三个问题是,“创新收益框架”本质上是从创新者的角度来谈论分析问题的。那么从创新的模仿者、跟随者、后发者的角度,这个框架的意义体现在什么地方呢?

**Prof. Teece:** Actually chapter 6 in my book “Managing Intellectual Capital” (Oxford University Press, 2000) focuses exactly on that question. You can look through the binoculars the other way and ask “even if I'm not an innovator, but I own complementary assets, how can I still benefit from the innovation of other companies?” So offshore partners or competitors that provide complements for the pioneer's innovation can end up getting increasing value just by owning the complement. For example, in the VCR industry in the 1980s, Matsushita made the magnetic heads

to the high level of tolerance required. No one else could do it as well. So Matsushita siphoned off money from the other firms in the industry because it had dominance with respect to that subsystem. Every nation state can use regulatory powers to control access to the distribution system. So quite frankly the Japanese in the 1960s, 70s, and 80s captured a lot of value from western technology by regulating foreign investment and requiring foreign firms to license their technology in exchange for some form of market access. The first company to break that down was IBM, and IBM was successful in Japan for many decades because it was able to invest directly there because it refused to license its computer technology to Japanese firms.

**梯斯教授：**事实上我的书《智慧资本管理》(Managing Intellectual Capital)的第六章专门谈论了这个问题。可能有人会问，如果我不是一个创新者，但拥有互补性资产，是否依然可以从其他公司的创新中获益？我们可以看到，为创新者提供互补性资产的跨境合作伙伴或者竞争对手仅仅通过拥有互补性资产而获得更多价值。举个 80 年代录像机行业的例子。当时日本松下电器做的磁头耐磨性很好，其他公司无法媲美。因此，松下电器通过在这个子系统中的主导地位从同行那里获得利益。每个国家都可以利用自己的监管制度来控制国内分销系统的进入权利。所以坦率地说，日本在六十年代、七十年代和八十年代就是这么做的，日本通过管制外来投资和要求外国企业对将技术许可给日本公司，从而换来某种形式的市场准入，因而西方的技术中获取了很多收益。第一个改变这一局面的是 IBM 公司，IBM 公司在日本几十年中都非常成功，因为 IBM 能够在日本进行直接投资并且拒绝将自己的计算机技术许可给日本企业。

**Prof. Teece:** So the point here is that the framework is not just useful for the pioneer, it is useful particularly for the owners of complements, who may also be competitors. Go back to the story of the California Gold Rush. The guys who made the most money were not the people who found the gold, but the people who sold the blue jeans and gold pans and picks and shovels. You can look out the window here in the direction of San Francisco and see Levi's Plaza and the Levi's headquarters. The founder, Levi Strauss, sold clothing and other products to the workmen from the gold fields starting in the 1850s. So the producers and sellers of complementary goods ended up making more money than most of the guys digging in California's gold fields.

**梯斯教授：**所以我想说的是，“创新收益框架”不仅仅对创新者是有用的，对于互补性资产的拥有者也尤其重要。我们回想一下加利福尼亚州的淘金热年代，钱赚的最多的人并不是

那些发现金矿的人，而是那些卖牛仔裤、淘金盘、铁镐和铁锹的人。你们从这个窗户望出去就能看到李维斯广场和李维斯总部。所以加州淘金热年代生产和销售互补性资产的人比挖金矿的人赚的钱更多。

**Mei:** as you mentioned about the follower's perspective, I want to expand the profiting from innovation framework to the Chinese context. China is a country with relatively weak IP protection, but a powerful national innovation system, huge domestic market, and strong manufacturing capability. How do you think the framework applies in the China context?

**梅亮:** 您从跟随者的角度进行了解释，那我们来谈谈“创新收益框架”在中国的大环境下该如何应用。中国一方面在知识产权保护方面是有待完善的，而另一方面中国又拥有健全的国家创新系统、巨大的国内本土市场以及强大的制造能力。在这一情境下，该如何应用“创新收益框架”？

**Prof. Teece:** Well, to be blunt, I think China's government understands profiting from innovation quite well and restricts market access. By controlling access to the market, the government helps Chinese companies to get better technology deals. Or they can simply imitate, either copying exactly or adapting and even improving on foreign innovations. Consider DiDi, Uber's competitor in China, and also Alibaba, which is similar to Amazon. It's very hard for the western pioneers to access the same complements inside China. So the Chinese government understands profiting from innovation and uses its control of market access to create a bottleneck that blocks certain firms. The WTO agreement tries to regulate and prevent this, but it's "edgy." I think Japan played this game quite well in the 1950s and 1960s, then it eventually changed. Tremendous value is extracted when access to the market is limited. Even if the limitations are informal, they have a big impact. This can (but need not) lead to disputes between nations.

**梯斯教授:** 坦率地说，我认为中国政府懂得如何从创新中获益，限制市场准入，帮助中国公司获得更好的技术交易。或者，他们可以选择模仿，要么完全模仿国外创新，要么将国外创新进行调整，甚至改进。比如滴滴（优步在中国的竞争对手），或者很亚马逊很相似的阿里巴巴。对于西方的创新者而言很难享受中国本土的互补性资产。所以中国政府对这些本土的互补性资产做了很好的管控，创造瓶颈，阻碍部分公司获得这些资产，从创新中获益。世贸组织有一项协议试图对这种现象作出监管，防止政府有这样的做法，但事情并不简单。

五十年代和六十年代，日本在这方面做得很好，但是后来情况渐渐发生了变化。人们可以从受限制的市场中获取很多价值。即使这种限制是非正式的，还是会有很大的影响。这可能会造成国家指甲的争执，但也可以避免。

**Mei:** The next question refers to applying the profiting from innovation model to current contexts like the digital economy, or the IOT, or AI. What can we say about who will capture the profits from these technologies?

**梅亮:** 下一个问题涉及“创新收益框架”在目前的一些新背景下该如何应用，比如数字经济、物联网或人工智能。您认为谁会从这些新技术中获益？

**Prof. Teece:** So let me address that in the following way. There will be many winners and many losers. Their stage in the value chain matters. You are familiar with the smile curve, proposed around 1992 by Stan Shih, the founder of Acer. It has value added on the vertical axis and stages of the value chain on the other. And the smile has R&D on the left end and the customer on the right. According to Stan Shih, the profit goes to the R&D or it goes to the people that are close to the customer. I don't think that conclusion is always correct. The profiting from innovation model would say that may often be true. But the PFI model asks what is the bottleneck asset? What assets in the value chain are difficult to replicate? And according to Mr. Shih, manufacturing is always easy to replicate, so it's not where the money is. In some cases, yes, but the story of the VCR showed that manufacturing (of magnetic heads) could be very profitable because Matsushita's skills were hard to copy for many years. So the smile curve could be inverted or could be horizontal. The whole point of the PFI model is that you can't assume any particular outcome or any particular scarcity. You have to look at each stage to see what is required to support a particular innovation. You must then ask questions such as: "Are there many suppliers? Is that replicable? Must that segment of the value chain be built? Can that segment be bought? Is it a commodity good, or does the segment require access to special assets?" And if manufacturing is easy, then you get a smile like Stan Shih says, but it is also possible to get an inverted smile.

**梯斯教授:** 我这么说吧，在这当中会有很多赢家，也会有很多输家，并且他们处在价值链的哪一个阶段也很重要。你应该熟悉“微笑曲线”吧？最初是由宏基的 CEO 施振荣提出的。纵轴代表增加价值，横轴代表价值链中的阶段。“微笑曲线”的左端为研发，右端是客户。施

振荣认为，经济回报主要会流向研发端，或者跟客户很近的人。我认为这不一定是正确的。根据“创新收益框架”的理论，这个结论可能在大部分情况下是正确的，但创新收益框架”会关注哪些资产属于瓶颈性的资产，价值链中哪些资产难以复制。而施振荣认为，生产制造肯定容易复制，因此从中赚不到钱。某些情况下确实是这样，但是比如刚刚说的录音机的例子就可以证明，制造磁头可以获得大量收益，因为松下电器的制造磁头的技术在很长一段时期内都难以复制。所以，这种情况下，“微笑曲线”就应该倒过来了，或者扁平化。“创新收益框架”的核心就是：你无法肯定会有某种结果和稀缺性，你必须根据每一个阶段而判断创新所需要的支持性要素，然后要看是否有供应商提供这些东西，是否可以复制，价值链中的这一阶段是否要自己构建，还是可以买来。再想一想，这个阶段需要的是大宗商品，还是特殊资产？如果制造方面很容易，那么确实如施振荣所说的一样，得出“微笑曲线”，但这个图也有可能倒过来。

**Prof. Teece:** There is a secondary question lurking in the background. Let's suppose the profits are earned close to the customer, or with R&D. How do you position your company at the right stage in the value chain, assuming you know what the right stage is? How do you build the capabilities required to compete at a particular stage? This is quite frankly where the academic literature is pretty limited. We know that at some level the answer is that you get there by learning. There's no doubt multinational companies are usually quite eager to help suppliers. They get suppliers started at one level of the value chain, and then the supplier starts moving to another level if they are good. Let's take Foxconn. Foxconn seems to be stuck. I don't know if they are stuck as a matter of strategy. If they start making phones for their own brand as well as assembling them for Apple, perhaps Apple would drop them, and maybe they have a formal agreement with Apple that says they must stay out of the smartphone business. To break out of its trap, Foxconn's recent controlling investment in Japan's Sharp has moved it both toward owning a valuable brand and toward high-value R&D. Other companies in Foxconn's position start selling to third world markets. Maybe Foxconn could make its own phones and sell them to Pakistan and maybe Apple wouldn't care. The point is that we don't have a good theory in management about how learning takes place. There are studies by Alice Amsden, Linsu Kim, and others about Korea that underscore the importance of learning. When I look at all that literature, there are few stylized stories about how it

all works. So there's no framework. Researchers just say that companies learn. I don't find that particularly helpful. We need to know how and when and why.

**梯斯教授:**这其中还有一个问题。假设经济价值主要集中在研发和市场两端,那么该如何将公司置于合适的价值链阶段中?我们又能否判断什么是合适的阶段?我们如何能够发展某一阶段中国呢所需的能力?这方面的文章其实很少。我们知道,一般来说解决方案是学习。毫无疑问,跨国企业通常希望帮助他们的供应商在价值链的一端站稳脚跟。如果供应商表现得很好,就会开发展到另外一个级别。举个富士康的例子,最近富士康似乎在原地踏步,不知道这样做是否是他们的一个战略。但是假如富士康开始制造属于自己的手机品牌了,我想苹果会离开他们,苹果可能要求富士康正式签署协议,规定富士康不能做手机业务。为了打破这种束缚,富士康最近投资日本夏普公司,获得一定控制权,推进自身品牌和高价值研发能力的发展进程。一些跟富士康情况比较相似的公司会选择在第三世界国家开展业务。所以富士康可以去做自己的手机,在巴基斯坦销售,苹果可能不会管。结论是研究层面没有一个很好的管理理论去解释这种现象背后的学习机制是如何发生的。另外,还有一些艾莉丝·阿姆斯特丹和金麟洙发表的关于韩国的研究,认为学习机制并不重要。我在阅读相关的文献的时候,发现很少有描述学习机制的文章,所以没有什么架构可言。有些研究人员认为公司自然而然就会学习,我觉得这么说没什么用处。我们得明确其中的前因后果。

**Henry Chesbrough:** I did want to say that the one of the things that has made profiting from innovation such an enduring model is that it illuminates a very important question using a very parsimonious framework. There are some important considerations but there are a limited number of them, yet you can understand quite a lot with the framework. When we get to the stories of learning, it becomes very diffused. And there is no elegant simple framework that would rival the profiting from innovation framework. The other thing I wanted to say was that the original PFI article came out in Research Policy back in 1986. It is by a factor of two the most cited article Research Policy has ever published, so it's been tremendously influential and it probably lifted up the journal Research Policy in the process.

**亨利.切萨布鲁夫教授:**我想提一点,“创新收益框架”能够持续产生价值的重要原因在于,这个框架非常简洁,但阐明了一个极为重要的问题。另外,“创新收益框”探讨了少数而又关键性的问题,却从中可以获得很多思考。当我们思考其中的“学习”机制时,这个框架变得有更多的意义了,没有一个框架可以在创新收益上与之媲美。“创新收益框架”最早是在

1986年的《Research Policy》杂志上发表的，这篇文章成为《Research Policy》杂志这么多年来引用率最高文章，比排在第二名的引用率多两倍，也很有可能提升了《Research Policy》杂志整体的影响力。

**Prof. Teece:** I'm glad it helped the journal too. It's a very good journal. Let me just add to what Hank said. In my mind, the Dynamic Capabilities framework picks up where profiting from innovations left off. Because in order to really start to innovate rather than just focus on specifying the right business model to capture value, you also need to know, as we discussed earlier, how to create value and figure out the "next big thing." That's the "sensing and seizing" story at the core of dynamic capabilities. It's one thing to innovate and another to innovate where there is untapped market demand. So connecting the two, connecting the capability to create new products with the understanding of how the market is evolving, that is the essence of dynamic capabilities. If you ask about how do you innovate and create, then there is a great co-creation story from Jiro Nonaka and a great open innovation story from Henry Chesbrough!

**梯斯教授:** 我很高兴这篇文章能够让杂志受益。《Research Policy》是个很高的杂志。对于亨利刚刚说的，我想再加几句。我认为，“动态能力”理论讨论的是“创新收益框架”没有涉及的问题。因为当你开始思考创新，开始考虑如何创造价值，而不是仅仅关注商业模式创新的收益时，你需要弄清楚一些事情，这就是动态能力理论中感知(sensing)、抓取(seizing)所关注的。我们需要针对市场需求极强的领域进行创新。所以要将创新能力和对市场的理解相互联结起来，这就是动态能力的核心。如果你想知道该如何创新和创造，那么可以读读野中郁次郎教授关于“共同创造”的研究(co-creation)，以及亨利·切撒布鲁夫关于开放式创新的研究。

**Mei:** The next question extends to dynamic capabilities, and I want to know how it came to you. What was the original fundamental reason you began exploring dynamic capabilities?

**梅亮:** 下一个问题是关于动态能力的。我想知道你是怎样受到启发，形成了动态能力理论？其背后深层次的思想来源又是什么？

**Prof. Teece:** As Hank said, the PFI framework was simple and it was focused not on firms but individual products. It was a skeletal story. It says "okay here's an innovation. Who can win with it in the market?" That's a narrow and manageable question. It doesn't try to answer the question of

who is going to win in the long journey of innovation. So I had to build a framework to get from the individual product to the business enterprise level; and I asked the question “what drives continuous innovation and long-term enterprise success?” That was a more ambitious question, and it required a much broader framework. So once again, the problem is ten or twenty times more difficult than the profiting from innovation question. Because at the enterprise level, there is not just a single innovation to consider but multiple innovations. Trying to create a theory about what drives not just innovation but innovation that fits comfortably with the evolution of the market is a big task. You can innovate small stuff every day. A lot of companies in Silicon Valley do that. But how do you figure out the next big thing? How do you conceive of the iPhone or of the best configuration for an autonomous car? How do you discover latent demand? So the first component of that is “sensing” and “sense making”; and then “seizing” must follow. So your question is where did this come from. It probably came from classroom interaction with my graduate students like Gary Pisano and Henry Chesbrough; it came from reading the literature across multiple disciplines; and it came from thinking hard about real problems.

**梯斯教授:** 正如亨利刚才所说的, “创新收益框架”非常的简单, 聚焦的不是企业而是个体产品。“创新收益框架”关注的是, 有了创新之后, 谁能够通过这个创新获胜。这个问题很狭义, 很简单。“创新收益框架”没有说明是什么样的企业会从这个产品的创新演进过程中获胜。所以我需要搭建一个新的框架, 从个体产品层面上升到企业层面。于是我提出了一个问题: 是什么能够推动持续创新和企业长期的成功? 这个问题就更复杂了, 需要更广义的框架。所以呢, 这个问题比“创新收益框架”要难十倍活着二十倍。原因是对于企业来说, 企业不仅仅有一种创新产品, 企业拥有很多不同的创新, 以及在思考推动创新的动力因素之外, 进一步思考与创新过程相关的演化、匹配、适应等问题。你可以每天创造一个新产品, 很多硅谷的公司都是这样的, 但是你如何创造出下一个大的发展机遇呢? 你如何创造出像苹果手机这样的产品, 或者眼福出最好的自动驾驶技术? 如何发现潜在需求? 所以首先需要感知, 然后抓住机会。你刚刚问我, 这个框架是如何形成的。我觉得这个想法最早的来源是在上课的时候跟我的研究生们(比如皮萨诺、亨利等)互动收到的启发, 以及阅读不同学科的文獻, 思考富有挑战性的问题。

**Henry Chesbrough:** Pisano graduated in 1989 and I arrived in 1992, so Gary and I didn't actually overlap at Berkeley.

**切萨布鲁夫教授：**皮萨诺是 1989 年毕业的，我 1992 年入学。所以我们俩并不是同一时间在伯克利就学的。

**Prof. Teece:** But you had already been out in industry so you were a little bit older than he was.

**梯斯教授：**但是亨利你当时已经在产业有了实践经验了，所以你也可能会比皮萨诺稍微年长一些。

**Henry Chesbrough:** That's right. I think another point I would say from a student's perspective is that dynamic capabilities is also answering a fundamental observation about persistent differences between firms, in their ability to innovate. Profiting from innovation was at the level of individual innovations. Dynamic capabilities looks at persistent differences between firms. Transient differences can be easily arbitrated away or killed by regression to the mean; but when these differences are persistent, we need a good story or a good theory for why those differences persist.

**切萨布鲁夫教授：**没错。我想再加一点，从一个学生的角度出发，我认为动态能力同时回答了一个非常根本性的问题：企业之间的持续差异在于其创新的能力的差异。“创新收益框架”更多聚焦于单个创新的层面。而动态能力理论则关心企业间的持续差异。短暂的差异可能很容易被套利，或者很容易使企业退回到平均水平，但如果这种差异持续存在，那么就缺少一个很好的故事或者理论去解释这种现象。

**Prof. Teece:** That is very fair observation. Let's go back to Jay Barney's Resource-based theory of strategy, which is based on David Ricardo's analysis of the scarcity of economic resources. The resource-based view has valuable insights but was clearly missing the whole entrepreneurial side of competition. So dynamic capabilities was essentially trying to take elements of the resource-based approach and put it in motion. By the way, the resource-based approach - I just thought about this recently - is really a simplified version of profiting from innovation because difficult-to-replicate complementary assets or inventions that complement a commercially viable innovation meet Barney's VRIN criteria.<sup>1</sup> But the resource-based view is not as rich as PFI because there's no story

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<sup>1</sup> Note: VRIN stands for “Valuable, Rare, Inimitable, and Non-substitutable.”

of intellectual property, which is one way you make a technological resource non-imitable. I've always been a fan of Joseph Schumpeter, who studied market dynamics in the first half of the 20th century; so the question was how you get this from a static framework (the resource-based approach) to a dynamic framework. And that's what led to the initial idea of dynamic capabilities.

**梯斯教授:** 你说的挺好。我们再回到巴尼的企业资源观。企业资源观被认为是大卫李嘉图之后, 探讨经济资源稀缺性的另一个重要的理论。但是很明显, 企业资源观虽然提供了很好的洞见, 但却忽视了竞争当中创业方面的因素。动态能力理论试图对企业资源观的框架要素做一个有力的延伸。近期我又对此进行了思考, 认为企业资源观其实是“创新收益框架”的一个简化版本, 因为资源的稀缺性、有价值性、不可模仿性等等这些和“创新收益框架”所讲的是一回事。但是, 企业资源观没有“创新收益框架”那么丰富, 因为它缺乏了知识产权的内容, 而知识产权是一种将资源变得不可复制的方式。我一直很欣赏约瑟夫·熊彼特, 他在1950年代研究市场动态, 因此问题变成了你如何从一个静态的框架转换到一个动态的框架, 这就是动态能力理论最初的思想起源。

**Prof. Teece:** But suddenly you're now talking about not just the elements of the value chain and the company. You're talking about decision-making processes, and the level of complexity is much greater. And so the initial paper took a while to get published. The first version was a 1990 working paper and the final version was published in 1997. But I was not happy with the working paper because I knew it was incomplete. Well, everything is always incomplete, but it didn't have elegance to it. Meanwhile our working papers shot around the world and I was busy building companies so I didn't put any energy into publishing them. I thought we were too late, but Gary said we have to publish it because he needed it for career purposes. So we did a short version that came out in an Oxford University Press journal called *Industrial and Corporate Change* in 1994. I think this was right around the time Gary was coming up for promotion. Perhaps if it hadn't been for Gary's initiative the paper still wouldn't have been published! Actually, an unusual thing happened. Dan Schendel approached me. He was the editor of the *Strategic Management Journal*. The longer working paper had still not been published. He said that the working paper was so well known that it had to be published in SMJ. So it was submitted to SMJ and accepted with a request to fix the footnotes. Unfortunately, I literally forgot about it. So it sat for two years waiting for very minor revisions. Finally, Mary-Lou Schendel called and reminded me that the editors had only asked us to

fix the footnotes. So we fixed them. And that's why it took so long to get published. It was not controversial at all. No one knew what to do with it, but they knew that somewhere in there, there was a pony. That's a phrase from English. Not sure how it translates in Mandarin. The idea is that people weren't sure they understood everything in the paper, but they believed that it contained important insights.

**梯斯教授:**但是现在我们不仅仅是关注公司价值链中的要素活着公司本身了,还需要关注决策过程,问题也就更加复杂了。所以最早的文章就是关注于这个问题,第一稿是1990年出版,最终稿是1997年出版。但是我对这个初稿并不满意,因为我觉不够完整。当然了,没有哪项研究是完整的。但是初稿略显粗糙。但是这个初稿在世界各地传播,而那个时候我主要的经历在创办公司,发表文章方面没有放太多心思。我认为当时发表已经来不及了但是皮萨诺告诉我,出于对他研究职业发展的考虑我们必须发表。所以这个早期的简版于1994年刊登在了《Industry Corporate and Change》杂志上,这对皮萨诺职业晋升是一个很好的发表时间。如果不是因为这一点,我想这个文章恐怕到现在还没有发表。后来发生了一些神奇的事情。《战略管理》杂志的主编丹·申德尔联系到我,他告诉我这篇文章受到高度关注,他们希望这个文章的完整版发表到《战略管理》杂志。所以我们将完整的版本投稿过去了,且仅仅被建议对脚注等信息做一些简单的修改。我当时完全忘记了这件事,所以最终版本的发表整整拖了两年。最后是玛丽璐·施耐德给我打电话,提醒我只需要改一下脚注就可以发表了。我们改了之后就发表了。这就是为什么这篇动态能力的理论文章持续了这么久才发表出来的原因,根本没有争议,只是我没有回复前编辑不知道该怎么处理,但他们知道这篇文章肯定有价值。

[Note: question missing]

**Prof. Teece:** This is a deep question. Michael Porter claimed with Five Forces to provide a theory of competitive advantage. His framework is basically that of Joe Bain, an industrial organization economist who was on our faculty here at Berkeley in the 1950s. Porter put Bain's static structure-conduct-performance framework into the vocabulary of executives. The idea behind it is that if a firm has competitive advantage, it must flow from the structure of the market. Concentrated markets support high profits. Fragmented markets do not. That was Bain's theory. But Bain got the causation wrong. The structure of market reflects the success of companies. So Michael

Porter also got the causation wrong. I knew from the moment I saw the Porter framework that there were major shortcomings. However, the Five Forces framework was news to executives even if it was yesterday's standard (and incorrect) textbook wisdom. Executives like Jack Welch at GE took from it that it is advantageous to build high market share, so there was an impact. It was frustrating to me that no one was pushing on the deeper question of how you explain individual firm-level competitive advantage, as that's what every executive gets up every morning trying to think about. That's what every good stock analyst that is recommending stocks for the long term should care about. It is what every nation-state that wants to have robust firms with growing employment should think about. So that's the origin of dynamic capabilities. The framework was built to take on the biggest questions. I would say the biggest questions not just in the field of strategy but also the biggest questions in the economic theory of the firm.

**梯斯教授:** 你这个问题比较深奥。哈佛商学院迈克尔·波特是用五力模型来解析竞争优势的。他这个架构跟贝恩很相似。贝恩是产业组织经济学家，20世纪50年代以来一直是伯克利的教职员工。波特对贝恩的静态架构做了调整，变成高管可以理解的语言。贝恩认为，公司的竞争优势必然源于市场结构，高度集中的市场能够产生高收益，而碎片化市场则不能。所以波特也把起因搞错了。我第一次接触到波特的理论就看出了架构中的很多缺陷。虽然说五力模型已经过时了，但对于高管来说这种解释很新奇，并且通用高管杰克·韦尔奇也受到该理论的启发，认为创造高市场份额是个好战略，所以五力模型也产生了一定的影响。但是使我感到懊恼的是没有人试图去探讨个体公司竞争优势的深层次问题，因为这是每一位高管早上起来第一个思考的问题，也是每一位在做长期股票推介的优秀股票分析师所思考的问题，同时也是希望拥有持久发展的企业并不断创造就业岗位的国家政府所思考的问题。所以，这一些深层次的思考便是动态能力理论的起源，该理论关注于这种大难题，不仅仅是战略方面的，也包括公司经济理论的难题。

**Mei:** OK, the next question is in your latest research paper published in AMP. You discussed ordinary capabilities and dynamic capabilities. Why? And what's the difference?

**梅亮:** 好，下一个问题涉及您最新的在《Academy of Management Perspectives》的研究成果，你提到了常规能力(ordinary capability)和动态能力。为什么这么说？两者有何区别？

**Prof. Teece:** Very good question. I spent ten years talking about dynamic capabilities and realizing that, when I used the term "dynamic capabilities," people were not understanding how dynamic capabilities were different from other forms of capabilities. So I thought it was important to be explicit about it. And actually Sidney Winter used the term operating capabilities. So I thought one way to get this idea across (it's a complicated set of ideas) is to talk not only about what dynamic

capabilities are but also about what they're not. And the reason why the distinction matters is that it has competitive implications. Ordinary capabilities are inherently replicable, which makes them much less important for capturing value. The framework is not trying to explain the wealth of nations, but the wealth of firms. It's about how firms get to be profitable and remain profitable in environments with strong competition, like the global economy today. Of course, to say that ordinary capabilities don't matter for shaping competitive advantage is a bit of an exaggeration, but it's not entirely wrong, either. If you're trying to set up a Coca Cola bottling plant and you're planning to sell carbonated beverages in the Congo, then you can probably make money with ordinary capabilities. Accessing clean water and making a carbonated beverage are everyday things we take for granted in developed countries, but they are more challenging in the developing world. So when I say a capability is ordinary, I don't mean to say it's not important. It depends on the context. The "ordinary" activities have to be done by somebody. In fact, there are a lot of jobs associated with providing ordinary capabilities. But competitive advantage requires more. Competitive advantage is about having a firm that's more profitable than the rest and that survives longer term. Achieving robust profitability requires strong dynamic capabilities that support innovation. And not just any innovation and not just any R&D, but R&D that's consistent with market needs. It must be consistent with evolutionary fitness.

**梯斯教授：**非常好的问题。过去十年，我一直在谈论动态能力理论，发现每当我提到动态能力时，人们总会问到动态能力和其他能力的区别是什么。所以我认为有必要对此做一个解释。西德尼·温特（Sidney Winter）曾使用过运营能力（operating capabilities）的概念。因为关于能力的讨论包含许多复杂的概念，所以我想一个好的办法是不去谈论动态能力到底是什么，而去谈论哪些能力不属于动态能力我们必须做一个区分，因为不同的能力会决定一个公司的竞争优势。常规能力本质上是可复制的，因此在捕捉价值方面就没有那么重要了。动态能力的研究并非关注国家财富，而是关注企业的财富，关注企业如何收益，并在在目前极具竞争性的全球环境中维持收益。当然了，如果说常规能力对于竞争优势没有任何贡献，可能过于极端，但是也有一定道理。因为如果你想创建一个可口可乐装瓶厂，想在刚果出售碳酸饮料，你当然可以通过常规能力赚钱。干净的饮用水和碳酸饮料在发达国家都是习以为常的，但是在发展中国家就没那么容易获取了。所以，当我提到某些能力是“常规”能力的时候，我并不是说这种能力不重要，要根据不同情况而定，而且总需要有人去完成那些看似“常规”的事情。有跟多工作东欧与提供常规能力相关。但是如果要有竞争优势，就必须有

更多的能力。竞争优势是说一个企业需要比竞争对手获利更多、存活更长，这便需要能够支持创新的动态能力，而不仅仅是普通的创新或者研发，而是与市场需求，与进化和适应性需求相匹配的研发。

**Mei:** So I have a practical question from the enterprise perspective. Consider state-owned enterprises, incumbents, SMEs or startups, such different types of enterprises. How do they leverage dynamic capabilities?

**梅亮:** 从企业实践的角度来看，作为一个企业，比如说国有企业、既有企业、中小企业或者初创公司，他们该如何利用动态能力呢？

**Prof. Teece:** First of all, consider the startup company. When getting started, it is relatively easy for a company to achieve evolutionary fitness because there isn't much old company "baggage" or "structure" in the way. When you observe a successful startup company, you know that it's got evolutionary fitness, at least for now. Otherwise, it would be likely to fail. So when you observe a startup that succeeded, it must have some level of dynamic capabilities. It has proved at least once that it is able to match the technology (or business model) to an opportunity. But then the question is "can the management keep developing and growing the firm by following up that early success with more innovation? It is relatively easy when a firm gets bigger, it starts to focus on cost. It starts to focus on technical efficiency, which involves strengthening your ordinary capabilities. And then you face this tension between static efficiency and dynamic effectiveness. So it's easier to have strong dynamic capabilities if you're a fifty-million-dollar company, but they become harder to maintain if you're a five-billion-dollar company. But you often need to be a five-billion-dollar company to get global distribution, to get the benefits of scale, to get the benefits of brand. So as you grow and try to succeed, you then get yourself into a trap where your dynamic capabilities are harder and harder to hold on to every day, they get squeezed out unless you guard against it.

**梯斯教授:** 首先，我来讲讲初创公司。一个公司刚起步的时候，进化和适应来得比较容易，因为不会像大公司那样臃肿，有着繁琐的流程。你会发现，成功的初创企业，肯定在进化与适应方面做得很好，至少现在是这样的，不然很可能会失败。所以成功的初创公司事实上肯定已经拥有了一定程度的动态能力。这些企业至少有一次实现了技术与商业模式机会的匹配。但之后的问题是，公司管理层是否可以通过更多的创新推动企业继续发展壮大？公司

不断发展壮大时,就会开始关注成本、关注效率,也就意味着需要开始强化公司的常规能力。这样一来就会在静态效率和动态效能之间有摩擦。所以动态能力对于五千万美元的公司来说是相对简单的,对于五十亿美元的公司来说是很难的。但是,通常来说只有五十亿美元的公司能够有全球性销售网络,实现规模收益与品牌价值等。所以当公司成长并试图获取成功的时候,会逐步陷入一种窘境:动态能力越来越难以管理,除非做好防范措施,动态能力可能会被挤出公司。

**Henry Chesbrough:** David, please disagree with me if you wish; but I think your recent work around explicating dynamic capabilities points out that other scholars are using the term dynamic capabilities when they are actually using it in reference to operating capabilities or ordinary capabilities. The concept has become muddled in the literature because other professors that use the term are using it in ways that aren't consistent with your thinking. So another reason for this more recent work is to try to clarify things and make a separation between the ordinary or operational and the dynamic or longitudinal capabilities.

**切萨布鲁夫教授:** 大卫,请允许我表达自己的观点,您也许不会同意。您最近在试图澄清动态能力的定义,从中发现很多学者口中的“动态能力”其实指的是运营能力或常规能力。不同文献中对动态能力的阐述也变得模糊不清,因为其他教授误解了您对动态能力的真实思考。所以最近我们也想更好地澄清常规能力、运营能力、动态能力和纵向能力之间的区别。

**Prof. Teece:** Quite frankly, in my view, Kathleen Eisenhardt keeps muddling this up for me. I don't think she means to, but it is an unintentional side effect of some of her writings, which claim that dynamic capabilities are more or less replicable by competitors. It's the economist in me that is emphasizing the importance of replicability. If a capability is easy to replicate, then any competitive advantage based on it disappears quickly. If you're not sheltered by government protection then competition is very strong in today's connected global economy. In global competition, things that are ordinary get replicated quickly, if not immediately, at least by the leading competitors. You only need half a dozen companies with the same ordinary capabilities to drive economic profits to zero. You don't need the whole industry to have the same, “best practice” level of technical efficiency; to have competitive advantage competed away, you only need a few firms competing head to head. And this is one of the difficult things we have got to get across to my friends. Some don't get the

point that even if you're doing best practice but making the wrong stuff, you cannot get out of the zero or negative profit trap. The world does not understand this point well enough. My Organizational Behavior friends don't always think this way. They don't really realize the significance of this issue. Economists have less trouble understanding this point.

**梯斯教授：**坦率地说，我认为艾森哈特总是在给我添乱。她应该不是故意的，但是她的研究报告中总会说动态能力多多少少都是可以由竞争对手复制的。我是从经济学家的角度出发，想强调可复制性的重要性。如果在当今高度互联的全球经济中没有政府的保护，那么竞争是非常激烈的。全球竞争中，常规能力会快速被复制，大部分情况下会被强大的竞争对手瞬间复制。从生产力的角度来看，竞争优势只需五到六家拥有相同常规能力的公司推动并驱动利润。只要有五六个公司，具有同样的常规能力，公司的收益就会化为零。不是说全行业达成同样水平的技术，公司的竞争优势才会化为乌有，只要有几个公司直接竞争，就很可能失去竞争优势。这一点可能难以接受，但是我们必须传达给我的同事朋友们。有些人没有意识到，即使你遵循最佳实践，但是做的事本身就是错的，你也很难赚到钱。有太多人没有认清这一点。我做组织行为学研究的朋友们跟我的想法也不同，他们没有意识到这个问题的重要性，但是经济学家会更容易理解这个问题。

**Mei:** And maybe the last question, do you think dynamic capability could be measured? Because in my reading of the dynamic capability literature, I found there were ever few empirical studies.

**梅亮：**好，这应该是最后一个问题了。您认为动态能力是可以衡量的吗？我在阅读动态能力相关的文献时，发现研基本没有任何动态能力相关的实证研究。

**Prof. Teece:** I'll say a couple of things about that. It's "appreciative" theory that's empirically based but not fully formalized. It is a workable general systems framework of the business enterprise and competition. We can test it indirectly. For instance, the framework suggests that firms that are more entrepreneurial in the allocation of their financial capital should do better than firms with more bureaucratic allocation. We have shown this to be true in a recent empirical study co-authored with Dan Lovullo. Is that a full test of the dynamic capabilities framework? No. But it's evidence that's consistent with the framework.

**梯斯教授：**对于这个问题，我想提一些我的看法。动态能力是个理论框架，基于实证，但未完全形成。动态能力理论是通用、系统性的框架，关注的是商业与竞争。我们可以间接地进行测试。比如说，基于动态能理论可以总结说用创业原则分配资源的公司比那些通过官僚主义色松浓厚进行资源配置的公司要更成功。我们最近与洛瓦洛共同发布了一篇实证研究，证明了这一点。这项实证研究并不是对整个动态能力理论的测试，但是确实从测量的角度反映了动态能力框架的某一个要素。

**Prof. Teece:** The same challenge faced Williamson’s transaction cost theory. In the 1980s, I was the first scholar to show any empirical foundation to transaction cost economics. I took one little element of the theory that applied to switching costs. My 1982 article with Monteverde about this helped transaction cost theory gain traction. Without studies like that, you would never have gotten acceptability because the academy wants to see statistically significant evidence; and there were so many people eager to find support for transaction cost theory that I had an easy job getting this research published. My point is that you can statistically test elements of a framework. I think there are a number of elements of dynamic capabilities that can be tested. A key point is that the individual elements won’t help you understand the world that much because dynamic capabilities is a systems theory. This should not prevent acceptance of dynamic capabilities. You can read Joseph Schumpeter’s work, and there is no single test. You can read John Maynard Keynes’ book, and there is no single test. The same is true for Nate Rosenberg’s important work on technology. Richard Nelson uses the term “appreciative theory” for these fact-based, qualitative approaches. The dynamic capabilities framework can also be called an appreciative theory.

**梯斯教授：**同样的情况在威廉姆森的交易成本理论框架中也存在。我是第一个将威廉姆森交易成本理论推向实证研究的人，关注了“转换成本”（switching cost）这个要素。关于这个话题，我于1982年与蒙特维德（Kirk Monteverde）发表了文章，为交易成本理论获得关注。如果没有这项研究，交易成本理论是不会被接受的，因为学术界希望看到基于统计学的证据。当时有很多人都希望看到可以支持交易成本理论的实证证据，所以我在发表这项研究方面基本没有什么阻力。我想说的是，你可以用统计学的方式去测试一个架构。我认为有一些动态能力的要素是可以测量的，但是仅仅去测试个别要素是没有意义的，你无法通过这些测试获得很全面的知识，因为动态能力是个系统性理论。所以，对于动态能力理论的片面测试不应该防止理论的接受度。你可以读读熊彼特（Joseph Schumpeter）的书，书中没有提及

任何的测试,凯恩斯(John Maynard Keynes)的书也没有,纳丹·罗森伯格(Nathan Rosenberg)关于科技的重要文献,里面也没有任何测试。理查德·纳尔逊(Richard Nelson)用“鉴赏式理论”(appreciative theory)去描述这种基于实证和数据的研究,我认为动态能力理论也属于鉴赏式理论的范畴。

**Mei:** Actually, I did some homework. According to my readings I found dynamic capability from your works already have thousands of theoretical papers, conceptual papers, but fewer papers tried to measure dynamic capabilities.

**梅亮:** 其实我做了一些功课,读了很多关于动态能力的概念性论文和理论性论文,但是实证研究比较少。

**Prof. Teece:** It is hard. It was the same way for Williamson's transaction cost theory. Several scholars replicated what Kirk Monteverde and I had found in the automotive industry, that "asset specificity" (which is part of transaction cost theory) had a significant impact on make/buy decisions. Scott Masten did a similar study for the aircraft industry. Dynamic capabilities are the core of a framework for understanding the creation and continuance of firm-level advantage. In a new article, I describe it as a workable application of systems theory. If you look back at an article by Kenneth Boulding in a 1956 issue of Management Science, the aspiration was to create a general system theory of management. The field of management went in a different direction for three reasons. One is that declaring that "everything is connected to everything else", like systems theory does, is not particularly helpful. Early systems theorists like Russell Ackoff didn't specify causation and didn't specify which elements of the system are most important. The dynamic capabilities framework does have causation and does say what's more important. What's less important for competitive advantage are ordinary capabilities. So in a way I'm trying to respond to the aspirations of the founders of the field of management science to create a general systems theory of management. And I remember talking to Professor James March about fifteen years ago about whether the idea of a general systems approach to management is a fool's errand. He thought that it was. Well I think that with dynamic capabilities I've arrived at a workable systems approach. Engineers have systems theory. If you're building a new bridge, you have to take into account all the entering and exiting traffic. If you don't see the roads as a system, a bridge may be well-built but have too many or too few lanes. So

engineers use a systems approach. In management, we don't. Why? Not because the organization is not a system. It is because of the way research is rewarded. In the academic world, we create individual disciplines to go deeper and deeper, so we can apply measurement, do statistical analysis, and recognize “good” scholarship. It's just easier to run the university if faculty are separated into separate silos for each discipline. If you're trying to pull things together across disciplines, then finding support for research is much harder. The Harvard Business School and some other business schools, since their early days, had courses called “general management.” Few schools do now because few professors know what it means and how to teach it. I think that the dynamic capabilities framework provides the best approach for understanding general management.

**梯斯教授：**想找到测量动态能力的研究确实比较困难，威廉姆森交易成本理论也一样。我与蒙特维德发现汽车行业中资产专用性(asset specificity)对于买卖决策有显著影响。资产专用性也是交易成本理论的一部分。斯科特·马斯滕 (Scott Masten) 也针对航空业做了相似的研究。动态能力是形成和维持公司竞争优势的关键。我最新的一篇文章认为动态能力是一个可行的系统理论。1956年,《Management Science》杂志发表过一篇博尔丁的文章,他试图创建一个管理学方面的总体系统性理论,但管理学的发展方向在他意料之外,其中有几个原因,其中一个,“万物互联”这种笼统的说法并没有实用价值。另外,像艾可夫这样的早起系统理论家并没有说明因果关系,也没有说明系统中哪些因素最重要。而动态能力涉及到因果关系,也说明了那些因素比较重要,就比如常规能力对于竞争优势的重要性不大。因此,我想通过这项研究回应那些创建管理科学系统理论以及创建管理科学领域的早期学者,达成他们未完成的心愿。我还记得十五年前和詹姆斯·马奇教授谈过关于一般系统性的管理方法是否是愚蠢的,他确实是这么认为的。我认为动态能力理论可以说是一个“可行的系统管理法”(workable systems approach)。工程业当中系统理论,比如说,如果你要建造一座新的大桥,必须要考虑到双向的交通问题。如果没有把道路想成一个系统,最后大成的桥梁可能很稳固,但是车道会太多或者不够。所以工程师工作都是使用系统性的思维模式。在管理领域,我们没有这种系统性的思维模式。为什么呢?组织机构确实是一个系统啊。原因是何种研究才会被人们认可。在学术界中,我们希望在组织研究的细分领域深入探索,这样便可以做测量,做统计分析,辨别出所谓优秀的研究成果。如果能把大学的教职员们都细分到特定的领域,其实更方便管理。找人支持跨学科研究是一件困难的事情。哈佛商学院和其他的商学院,在早期就设有“一般管理学”(general management)的课程。现在很少有这样

的课程，因为很少有教授知道“一般管理学”到底是什么，更不用说去教这方面的课程了。我认为动态能力理论是了解一般管理的最佳方式。

**Mei:** I think I have finished my prepared questions.

**梅亮:** 我今天准备的问题应该都问完了。

**Chen Jin:** I just want to add one question. As a management master, what's your perspective on future management.

**陈劲教授:** 我想再问一个问题，作为一位管理大师，您认为管理学的未来将是怎样的？

**Prof. Teece:** That's a very good question! I think many business schools are making themselves increasingly irrelevant, because faculty research and interests are getting narrower and narrower. Let me give you the histories. Business schools like Berkeley began in the 1890s, and they were very much like practical trade schools. Then, in the 1960s, after the publication of the Gordon and Howell report in 1959,<sup>2</sup> there was a great desire to bring science to business education. Schools got rid of the teachers with practical knowledge and brought in the academics. So now we have the opposite problem, which is that, in most faculties of business schools, the research is often not relevant, except for the narrowest of business problems. If you have a very narrow technical issue, you can get some help from a business school. But when you consider what Henry is doing with open innovation, what I'm doing with dynamic capabilities... We are some of the few scholars that are trying to create a lens for understanding the top management team's problems. If you're the chief marketing officer, then all this big data stuff that schools teach in marketing is very helpful. But what is it that they can provide to the top management of the company that is trying to stay ahead (or jump ahead) of their competitors in the years to come? Not very much. So I think the future is in trying to synthesize and integrate the knowledge that we have, and also take into account new technologies like artificial intelligence. Artificial intelligence is an example of how an ordinary capability will become strategically valuable for a while until everybody catches up again. And then the big question is about the so-called "singularity" when artificial intelligence takes over and tells

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<sup>2</sup> Note: The 1959 report called "Higher Education for Business" by Gordon and Howell was privately commissioned by the Ford Foundation.

us what to do. But I think the future in the next ten to twenty years is to create meaningful frameworks that help people—not just managers but also policy makers—make decisions. Look at Trump right now. He has an instinct that what he was being told by the academics up till now about economic policy isn't quite right. He can't tell you what's wrong about it but he knows something is not right. And there's no coherent framework for filling the void. Take income inequality in the United States. Where does it come from and why? What economic forces are driving this? Does corporate governance prevent managers in the US and Europe from making bold decisions and investing for the long run? Is the stock market so dominated by traders and raiders that good managers are paralyzed? You've got people studying management who don't understand capital markets. So the corporate governance issue is left to legal scholars. And the legal scholars rarely talk to strategy scholars. Why don't they talk to each other? Because of the reward system in the university. It says: no, we don't know how to evaluate joint scholarship by legal and business scholars. So it's the old story: “if you can't measure it, then you can't manage it.” And if you constantly measure one thing, you can end up not being able to manage the system that it belongs to. So I think the business schools have to go through another revolution; otherwise they run the risk of becoming irrelevant. Managers today have to understand all the elements in the global multi-stakeholder environment, which is a huge challenge. There is a distinction in the literature between leadership and management. Management is doing all the ordinary stuff; leadership, to me, is what I call “entrepreneurial management,” and it's about exercising dynamic capabilities.

**梯斯教授：**这是一个很好的问题！我觉得商学院现在越来越落后了，因为他们的研究变得越来越狭窄。我给大家上个历史课吧。像伯克利这样的商学院是从 19 世纪 90 年代开始发展起来的，当时的商学院跟技校非常相似。戈登与豪厄尔研究报告于 1959 年发表，随后到了 20 世纪 60 年代，有很多商学院想把科学引入商学院教育之中。商学院纷纷解雇了有实践经验的老师，招了一批学术北京的教授。现在我们有相反的问题了，也即对于大多数商学院来说，除了一些范围非常小的商业方面的研究，他们的研究项目没有什么实用价值，除非某一家企业有一个范围非常窄的技术性商业问题，才有可能在商学院寻找到一定的帮助。但是像亨利这样做开放式创新研究的，我又在做动态能力研究……我们是能够为企业高管提供管理问题解决视角与思考的少部分学者。如果你是首席营销官，那么大学里营销课程当中大数据相关的内容是有用的。但是商学院无法为公司高管提供实用性知识，帮助他们长期保持或获得竞争优势。所以我认为未来的管理应该需要我们整合现在拥有的知识，并同时关注新的

技术，比如人工智能。人工智能就是一个很好的常规能力的例子。一开始，这种能力是有战略性价值的，但是其他人赶上来的时候，当人工智能开始掌控我们生活的方方面面，我们就需要开始认真考虑所谓的“奇点”这种问题了。我认为未来十年到二十年中，我们需要创造有意义的框架去帮助人们---不仅仅是管理者，还包括政策制定者---做决策。你可以看看现在的美国总统特朗普，他能感觉得到，他身边经济政策学者说的那些话不太对劲，但是也说不出到底哪不对劲，只是有种直觉。但是，除了听这些学者嘴上说的，没有其他的架构可以参考。就比如美国收入不平等的问题。为什么会有收入不平等？是什么原因导致的？有哪些经济要素造成这种现象？欧美的公司管制系统是否妨碍主管大胆做出抉择，做出长期投资？股市是否完全被交易员占领，优秀的主管便束手无策？学习管理的人不懂资本市场，所以治理的问题就由法学家来研究了，而法学研究者几乎从不会跟管理学者交流。为什么他们彼此很难有交流？因为大学的奖励机制，因为难于评测法学和商学共存的跨领域研究。早就有人说过，如果没法衡量就没法管理。凡事如果你不断去衡量，你可能最后不知道如何去管理它所属的系统。所以我认为商学院必须实施变革，否则就会变得没有实用价值。当今社会的管理者必须理解全球化条件下多利益攸关环境中的各种要素。这是一个巨大的挑战。研究报告中，领导力和管理能力是有区别的。管理就是做那些常规的事情，而对于我来说，领导能力就是创业管理，去利用动态能力。

**Henry Chesbrough:** I would like to ask David a question that I hope is helpful for your new article. We focused so far on profiting from innovation, dynamic capabilities, and the body of work that David has done which has been so important. He is also a very successful executive and we haven't talked about it yet. He is himself an entrepreneurial leader of an organization currently that has twelve hundred employees. You really wear two hats as a systems thinker and academic scholar, and also as an entrepreneurial leader who has founded multiple successful companies. What do you take from your entrepreneurial experience, and how does that inform your thinking?

**切萨布鲁夫教授:** 我想问大卫您一个问题，希望对梅亮的这个采访有所帮助。我们讨论了两个重要的研究议题：创新收益和动态能力。但与此同时，您又是一个成功的企业高管，这方面我们还谈得太少。大卫您本身就是一个企业领导者，您的企业目前有 1200 名员工。所以我的问题是，既然您身兼研究者思想家、以及企业家领导者的多重身份，且您创办了多家成功的公司，这些企业管理的经验是如何影响您的思想和研究思考的？

**Prof. Teece:** I have a tremendous advantage in managing a company. I now have considerable practical experience, and, as a scholar, I've also got the experience of thousands of other executives at my fingertips in the form of academic research. This informs me every day and enables me to make decisions quickly. I don't have a lot of time, and I have to quickly make up my mind. Daniel Kahneman talks about “thinking fast and slow”, and the two modalities complement each other. I do the fast thinking; but I can only do this well because of my familiarity with the scholarly literature in strategic management and innovation. Others help me with thinking slow.

**梯斯教授:** 对于管理公司来说,我是有巨大的优势。我有很丰富的实践经验,并且我在长期的学术研究工作中也汇集了成千上万公司管理者的经验。我从这些经验中能够时刻提取灵感,快速做出决策。时间有限,所以动作要快。丹尼尔·卡尼曼曾经提到快速思考和慢速思考,这两种思维方式是相辅相成的。我需要快速思考,但是我之所以能够做到是因为我非常熟悉战略管理和创新方面的研究。其他人帮我慢慢思考。

**Henry Chesbrough:** If I understand what you're saying, your academic training and experience provide you a theory, and when the situation arises, you don't just look at the situation on its own terms, you can also to apply a framework from your training, match that situation to this theory, and come to a decision quickly.

**切萨布鲁夫教授:** 我是否可以理解为你的学术经历和实践经验帮助你思考并构建理论。遇到一些情况时,你不仅仅需要自己的去观察,你也可以从你的经验中提炼应用一些框架,将外在条件与理论进行匹配以快速做出相关的决策。

**Prof. Teece:** Yes. If I was a robot, I would be able to access all the academic literature and see what's in it and apply it to my decisions. I've invested in reading hundreds and thousands of other people's papers. There's some knowledge that comes from that but experience is also needed to be able to take that and put it to work in a specific context. There's no problem that pops up that I haven't seen before somewhere, which gives me a head start. But the other thing I notice is that what's really difficult is getting consensus in my own organization. Once a year, or maybe every two years, we encounter a strategic issue where it's unclear what to do. And that's where I feel I have an advantage. The organization is frozen, my team doesn't know what to do, and then I get to make that decision. In some sense, I don't need to be around for a lot of the other stuff. It's only making

those tricky choices where my involvement is critical. And of course the tricky problems exist where there is deep ambiguity and deep uncertainty, and people's careers are implicated, and the company is at risk if we go down the wrong path. So I think I really benefit because my academic background helps me to make the hard decisions. My job is to make the obvious even more obvious. A lot of people can't connect the dots, but I think I'm able to connect the dots, which comes from the general systems view of things and understanding all the deep connections.

**梯斯教授：**是的。如果我是一个机器人的话，我就可以将所有看到学到的文献应用于我的决策之中。我投入了大量的时间阅读成千上万他人的研究文献，许多的知识来源于文献，但是如果真真正用到这些知识，就必须有实践经验。我遇到的所有问题都是我之前读过或者碰到过的，所以在这一点上我也比其他人抢先一步。但是我发现在组织内部达成共识是一件很困难的事。公司每年总会有一两次遇到战略问题，大家都不知道该怎么办。这个时候我认为我是有优势的。当组织停止运作，团队不知道如何推进的时候，我会去做这个关键的决策。很多事情是不需要我在场做主的，我只需要去做那些比较棘手的关键性决策。当然了，这些决策是存在很大的不确定性和模糊性的，且关系到很多人的职业，如果选错方向会给公司造成很大的风险。所以我认为自己是从学术研究中获益的，能够欧帮助我做出很多艰难的商业决策。我需要做的就是让别人看清已经很清楚的事物。很多人无法在不同事物之间找到关联，但是我认为我可以，因为我了解一般系统的思维方式，能够理念深层次的关联性。