



PHOTO BY CHRIS CRISMAN

BUSINESS

David Teece describes himself as a “practicing business intellectual.” That’s not an oxymoron.

By Samuel Hughes

In a sense, it all began with a note from the late Ed Mansfield.

At the time, David Teece G’73 Gr’75 was a graduate student at Penn, having come to Philadelphia from New Zealand to study international economics and industrial organization. That turned out to be the bailiwick of Mansfield, the economics professor who was internationally recognized for his systematic studies of industry. He had gotten his hands on a paper Teece had written on foreign direct investments, and apparently liked what he saw.

“I got this note in my box, saying would I have lunch with Ed Mansfield,” recalls Teece, sitting in the lounge off the Faculty Club during a recent visit to campus. “No other faculty member had ever asked me to have lunch. He said that he was interested in my undergrad thesis and was interested in being my advisor.”

Mansfield, Teece recalls, was something of a loner in the economics department, which was then dominated by such legends as Dr. Lawrence Klein Hon’06, now emeritus professor of economics, who would soon win a Nobel Prize for his work in developing the Wharton Econometric Forecasting Model. As Mansfield saw it, some of the theories that then held sway among economists didn’t always hold water in the fast-changing field of industrial research.

“Ed openly displayed almost a disdain for modern economic theory because of the field’s infatuation with static analysis, and its abject failure to embrace the study of technology and technological change,” wrote

Teece in a 2005 article in the *Journal of Technology Transfer* honoring Mansfield and his contributions. While it was a “daunting task” to undertake research in an area where very little scholarly exploration had been done, Mansfield’s advice that it was “sometimes a little easier to receive recognition if you were the first into a field” resonated. Besides, Teece added: “As a young graduate student, I wanted to believe that the hard problems of the world were solvable.”

The professor and his graduate student learned together, as Mansfield sent Teece out into the field to gather data, interview executives and managers of large corporations, and glean the hidden costs of transferring technology from one country to another. Mansfield, a strong statistician who preferred to “get the right data and a small sample, rather than having the wrong data and the universe,” favored a multi-disciplinary approach that was ahead of its time in the way it incorporated the often messy data of real-world industry.

“Mansfield ignited an interest in me in technology and technology transfer,” says Teece, and that ignition would have deep implications for the study of the business enterprise. “He gave me the courage to believe that there was a methodological approach there, based on understanding things at the enterprise level, which was accepted in the academic world.”

In the 33 years since he finished his Ph.D. dissertation on the costs of international technology transfer, Teece has gone on to achieve a rare level of success inside and outside the academy—despite, or perhaps because of, what he calls his “lifelong battle with mainstream economics.” Currently the Tusher Chair in Global Business and professor of business administration at the University of California-Berkeley’s Haas School of Business, as well as director of Berkeley’s Institute of Management, Innovation and Organization, his deep research into the ever-evolving nature of the business firm has been highly influential—at least among those outside of the economics orthodoxy.

“David has done some of the most original, provocative, powerful work on the theory of the firm of anybody that I know,” says Dr. Richard Nelson, the Blumenthal Professor of International and Public Affairs at Columbia University, and a for-

mer economics professor at Yale. “But much of what he has done has been structured outside of the boundaries of what was considered the appropriate framework for theorizing about firms in economics departments.”

“Deep down, really what I am is a practicing business intellectual, and that’s almost an oxymoron,” Teece says matter-of-factly. “Business intellectuals are not taken seriously, either by intellectuals or business people.”

“In economics, the death of bad theory seems to take much longer,” says Teece. “I’ve always had one foot in the real world.”

Press him a bit and he admits that he may be the exception that proves the rule. He was named one of the world’s top 50 living business intellectuals by the Accenture Institute for Strategic Change, and he is not above bringing up the fact that he was the lead author on the most cited article in economics and business worldwide for the decade of 1995-2005 (“Dynamic Capabilities and Strategic Management,” in *Strategic Management Journal*). He is also one of the top 10 most cited scholars for that decade. His 1986 “Profiting from Technology Innovation,” in *Research Policy*, is the most widely cited business article in that journal’s history, and one that prompted the editors to issue a sort of *Festschrift* a few years ago celebrating it.

His international background and his desire to be a good citizen of the world prompted him to play a key role in founding St. Petersburg State University’s School of Management, the top business school in Russia, which he helped start from scratch shortly after the collapse of the Soviet Union. (He currently chairs the school’s International Academic Council, and was presumably pleased with the subject of its most recent international conference: “Dynamic Capabilities and Beyond.”)

On the practicing side, the LECG (Law and Economics Consulting Group) Corporation, which Teece co-founded in 1988,

is an international provider of expert analysis, testimony, and consulting services on a broad range of business topics. *The Wall Street Journal* described him as a “renowned expert on lots of things and pioneer of a lucrative consulting niche that has transformed business litigation” in a front-page article last March; *lucrative* in this case means that he clears between \$2 million and \$3 million a year for his own expert testimony and a cut of the action from the

other experts, many of whom make their living in the academy.

Through his expert testimony, he is sometimes able to influence business-related law by debunking unsound economic theories that have made their way into the books.

“David’s articles have actually been cited by the U.S. Supreme Court,” said Tom Campbell, dean of the Haas School, during a 2006 presentation. Noting that Teece had been a “very important witness on behalf of Oracle when the government attempted to stop Oracle from acquiring PeopleSoft,” Campbell pointed out that LECG was “unique in harnessing attributes of the Academy in an area which was greatly in need of them, namely the prestige of individual faculty with the nimbleness of a private company.”

“I find that the academic training and familiarity with genres of research is extraordinarily valuable in helping me understand the complex reality that you get to see up close in the context of litigation,” says Teece. “And, moreover, if you can speak plain English, you do have a shot at distilling their complex reality down in a way that a jury can understand, too.”

“As a testifying expert, I frequently find myself putting down bad theories,” he adds. “Some expert has assumed that the world looks like some model that they’re familiar with, but they haven’t looked

enough to discover that the world is nothing like the model.”

“Professor Teece’s economic work was so panoramic that he could be plugged into almost any industry dispute and presented as knowledgeable,” noted the *Journal*. “He didn’t fluster under cross-examination. And his New Zealand accent worked nicely on the witness stand; it made him sound erudite without being pompous.”

It is certainly true that Teece does not fluster easily. During the 1991 Oakland-Berkeley firestorm, he and some friends ignored the “very persistent” evacuation warnings of the police and stayed to fight the fire, brandishing hoses and saving both his own house and his neighbor’s in the process. In conversation he projects a comfortable tenacity that undoubtedly serves him well in his own business enterprises. Those include Canterbury International, a New Zealand-based rugby-apparel company that he bought and reorganized, and I-Cap Partners, a group of private-equity funds that he started. He also has plans for a new state-of-the-art winery in New Zealand. (“We already have 200 acres of flourishing vineyards in sauvignon blanc, pinot gris, pinot noir, and riesling,” he says.)

“I’m really running a twin career, one of an academic and one that is manager/entrepreneur/investor,” he adds, quickly pointing out that Berkeley has been kind enough to let him work in a half-time capacity. “What tends to happen to academics if they get interested in business is they quit the academic world and become full-time executives or entrepreneurs or goodness knows what. I’m sort of the last man standing in terms of doing both simultaneously.”

“I don’t want you to overdo this ‘battle with mainstream economics,’ because that will piss off even more of my economics colleagues,” Teece says at one point in our interview. “But you know, there is good theory and there’s bad theory, and the mix of bad to good is unfavorable.

“In physics, if you’ve got a bad theory and there is evidence out there that clearly shows it wrong, it tends to die. But in economics, the death of bad theory seems to take much longer. When

bad theorists get control of resources in a university, they can keep replicating themselves. I’ve always had one foot in the real world.”

Economists, especially those in the academy, “are ordinarily concerned above all that their arguments be found persuasive by other economists,” wrote Teece and Sidney Winter (now the Deloitte & Touche Professor of Management at Penn, then a professor of economics and management at Yale), in a 1984 article titled “The Limits of Neoclassical Theory in Management Education.” Since those economists “rarely suffer in their professional lives the discomforts and anxieties of reliance on indispensable expertise operating from an alien conceptual framework,” they are “ill-equipped to deal with the complexity and diversity of management problems.”

While most management issues deal with dynamics, Teece and Winter argued, economic theory deals “almost exclusively with static equilibrium analysis.” For that and other reasons, “one can doubt very seriously that the discipline thus shaped makes a wholly constructive contribution to management.” Though that article was written 24 years ago, its message still resonates.

“Mainline economics in the U.S. and to a considerable extent in the U.K. has, over the last 30 to 40 years, grown very narrow and very stylized,” says Richard Nelson. “Two of the topics that it has grown very narrow and stylized about are, first, what business firms are and how they operate, and second, what technological change is all about, how it occurs, and who does it. As a result of that, a number of people who got their Ph.D.s in economics, such as David Teece and Sid Winter and myself, have gone down a very different intellectual path than our brothers and sisters in economics have gone down, and a lot of what David Teece does is not recognized at all as economics by many of the people in standard economics departments.”

Teece’s contribution to understanding the business firm has been “enormously important,” in Winter’s view. “It’s been particularly important in teaching management, particularly in the importance of the term *capabilities*, and his thinking about strategy in capabilities terms.

“I think he has a great instinct for the

big picture, which may be one of his more outstanding traits,” Winter adds. “The style is top-down. You don’t bury yourself in details without orientation. On the contrary, you start with a conceptual orientation and ... drill down.” And for all the complexities inherent in Teece’s subject matter, he brings to bear “a set of intellectual heuristics that are very orienting for a very wide range of problems.”

“My academic research has been involved with trying to incorporate innovation into the theory of a firm,” Teece is saying. “When you think about it, that is the quintessential issue that everyone in the world is interested in, but only a handful of scholars are touching it—because it’s interdisciplinary; it’s hard to do; you can’t formalize it very well. I’ve done it, I suppose, as well as anybody, and that’s really why my stuff is getting cited. As Mansfield said, ‘You always get brownie points for asking the right questions, even if you don’t get a very good answer.’”

The essence of his research, he adds, “is: ‘What is the foundation of the world of business enterprise?’ Adam Smith did *The Wealth of Nations*, and I’m trying to keep a record. It sounds highfalutin, but I’m trying to do the same thing in terms of distilling the key essence of what makes companies great.”

Among the questions that Teece has addressed, in his own words:

- Why do firms exist?
- Why are they hierarchical?
- Why don’t firms outsource everything, if markets are as efficient as the economics textbooks claim they are?
- Why are firms diversified if there are gains to specialization?
- Why should economies of scale and scope lead to large diversified firms rather than strategic partnering?
- If firms have know-how, where does that know-how reside? If it is merely in the minds of the employees, how can the firm prevent the employee from extracting all the value?
- How can firms profit from innovation if they don’t have strong intellectual property?

“These questions might sound banal to the layperson, but I can assure you they are deep questions, and we don’t have answers as good as we would like,” he told the graduating scholars at St.

Petersburg State University School of Management, where he was delivering the Commencement address. That was nearly six years ago (before it became the Graduate School of Management), and though he's been working on those questions since then, they've still got some depth to them.

In his 1986 "Profiting from Technological Innovation: Implications for integration, collaboration, licensing and public policy," Teece addressed the subject of why innovating firms often "fail to obtain significant economic returns from an innovation, while customers, imitators and other industry participants benefit." Among the examples he cited was that of EMI, the British electronics corporation, which developed the first CAT scanner in the late 1960s but soon lost its market leadership to "imitator" companies such as Technicare and GE because of their superior "complementary capabilities"—training, technical support, servicing, and the like. Conversely, IBM's PC offered only a "very modest technological advance" over other home computers, but succeeded wildly because it was able to offer its name and commitment to the project, with all the marketing, servicing, retail-distribution, and technological advantages that implied.

By teasing out some very tangled threads, such as industries and technologies in which patents are effective and those in which they aren't, Teece was able to build a very persuasive case. It's fair to say that the article had a significant effect.

"The greatest homage that can be paid to a scholarly contribution, is, in my view, the reader's private acknowledgement that *the world looked different to me* after I read that," wrote Winter in a 2006 article for *Research Policy* titled "The logic of appropriability: From Schumpeter to Arrow to Teece," which heaped praise onto Teece's paper and traced his intellectual lineage from two highly influential economists, Joseph Schumpeter and Kenneth Arrow. The paper's "well-justified fame," Winter added, "is attributable to the fact that a *great many readers* had such a reaction, recognizing the change the article produced in their basic perceptions."

"I see this paper as an important early step in David's more general research and writing on the nature and importance of

dynamic firm capabilities," says Nelson, and indeed, Teece's work on dynamic capabilities may be his most important legacy. His 1997 "Dynamic Capabilities and Strategic Management" (with Gary Pisano and Amy Shuen) sought to identify the decision-making process that supports the "orchestration capability" of a firm's core and complementary assets, and explored a new framework for analyzing the "sources and methods of wealth creation and capture" by firms. The core elements of dynamic capabilities are its three organizational and managerial processes—"coordination/integrating, learning, and reconfiguring"—which represent a "subset of the processes that support sensing, seizing, and managing threats" to a firm.

Dr. Constance Helfat, the Quinn Professor in Technology and Strategy at Dartmouth's Tuck School of Business, recalls Teece working on the theory of dynamic capabilities as far back as 1985. "He probably had it in his head before then, but I remember that he drew it out on a piece of paper in early 1985," says Helfat.

"I thought it was a phenomenal idea," she adds, explaining that its importance lies in the way it elucidates "how an organization can strategically adapt to change and even create change. There is a stream of literature on organizational capabilities, activities that firms are able to perform in teams, that was starting to become important at the time. But it was not focusing on how do you change. What David identified [concerns] the range of capabilities that is important for different types of change."

While Teece is not shy about saying that the article has been "absolutely explosive in terms of its impact"—with good reason, given its most-cited status for the decade—he and his colleagues acknowledged that it was basically an "outline" for the dynamic-capabilities approach. Further theoretical work—and Mansfield-style empirical research—would be critical to helping understand "how firms get to be good, how they sometimes stay that way, why and how they improve, and why they sometimes decline."

Ten years later, he extended the theory's reach in "Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance." Dynamic capabilities, he wrote, can be broken down into the capacity to "sense

and shape opportunities and threats"; to "seize opportunities"; and to "maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets."

The two yardsticks for measuring/calibrating those capabilities, Teece wrote, are "'technical' fitness and 'evolutionary' fitness." The former refers to how well a capability performs its function, regardless of how well it enables a firm to make a living, while evolutionary fitness refers to "how well the capability enables a firm to make a living." Contrary to certain earlier models (such as the Five Competitive Forces model of Michael Porter), Teece argued that strategizing against competitors is less effective than identifying and taking advantage of new opportunities: "Entrepreneurial management has little to do with analyzing and optimizing. It is more about sensing and seizing—figuring out the next big opportunity and how to address it."

"David has an unusual skill at being able to identify phenomena that, once you say them, are completely obvious, but until then nobody has identified and articulated what they are," says Helfat. The fact that the dynamic-capabilities theory has "practically taken over the field of strategy today," she adds, "tells you how right he was."

On November 29, 2006, Russian President Vladimir Putin laid the cornerstone for the future campus of the Graduate School of Management of St. Petersburg State University, located on 256 acres that once belonged to Grand Prince Mikhail Nikolaevich. It was a lavishly orchestrated ceremony, recalls Teece. "They must have spent \$100,000 on tents with controlled heat, serving fine French wines and wonderful food..."

In his remarks, Putin talked about how the school would "contribute to the development of the national economy," how its alumni would "have to meet real-life business challenges" and "defend Russia's interests in international markets," and how they would "need professional training and skills, leadership and entrepreneurship, and of course deep, fundamental knowledge."

He also had some kind words to say, in English, about the help the school had received from Russia's former Cold War enemy.

"He was very generous in his recognition for what the United States—in particular the University of California-Berkeley and some of the independent donors—had done for Russia," says Teece. "He showed genuine gratitude and warmth to those who had helped. I thought the fact that he took the time to do that was not just a very nice thing but contrary to the image that Putin has in the world."

Now that Putin has made the GSOM an official National Priority Project, the school is on sound financial ground. But it wasn't always so. Until Teece got involved, the school was only a gleam in the eye of its current dean, Dr. Valery Katkalo.

Katkalo had come to Berkeley from St. Petersburg as a Fulbright Scholar to study under Dr. Oliver Williamson, the former Penn professor of economics whose many books included *The Economic Institutions of Capitalism*, and whose work, like Mansfield's, greatly influenced Teece. At Williamson's suggestion, Katkalo went to see Teece shortly after the Soviet Union collapsed.

"He said, 'David, there's no business school inside a university in Russia. We need one,'" recalls Teece. "He said, 'If I initiate the process of starting one, would you help me?'"

After thinking about it for a minute, Teece said he would. The reasons, he says now, boiled down to "high-minded idealism."

"The obvious thoughts of 'Win the Cold War, lose the peace,' went through my mind," he recalls. As a U.S. citizen, he had a "desire to see Russia progress in a way that Russia would be an ally to the United States—because if Russia and the U.S. can see eye to eye, then a lot of other issues in the world become simpler. And the best bet for doing that would be to get them on a market-based economy."

He also had confidence in the enormously capable Katkalo—a good thing, since Katkalo's next comment to Teece was, "Of course it will take a lot of money." When Teece wondered aloud where that would come from, Katkalo said quietly, "Well, I have some ideas."

"He was very shrewd," says Teece approvingly, adding: "I was not without a little bit of political wiliness myself."

Knowing how to negotiate the labyrinths of the academy was a valuable asset for someone trying to steer money to the other side of the world. Teece enlisted the support of the Haas School, as well as that of other Berkeley faculty experts on Russia and the Soviet Union; latched onto some grants to supplement the meager faculty salaries at St. Petersburg; helped round up an advisory board and some potential private donors; and along with his wife helped convince his mother-in-law to give a small rental house to Berkeley and earmark the proceeds for the program.

The school "had no computers and no supplies," notes Susanne Campbell, executive director of the Berkeley-St. Petersburg program since 1993, in a piece she wrote for the Haas website. "For the first few years people from Haas brought boxes of office supplies in our suitcases. The faculty numbered four to six. Many had basic knowledge of economics and mathematics, but they lacked the knowledge to teach business subjects at the MBA level."

She credits Teece with setting the tone of the partnership from the outset: "What makes a business school is the faculty," he said. "Our job is to train a Russian faculty, not to replace them."

"David played a central role in creating our very successful partnership with Haas, which was key for starting and developing the School of Management at St. Petersburg University," says Katkalo. "David made tremendous intellectual and organizational contributions, especially in choosing the right strategy and business model for our school," but also in bringing Haas faculty to teach and to develop joint research projects with the St. Petersburg faculty—and in bringing the latter to Berkeley to develop courses, audit classes at Haas, and do research.

"David's involvement has always been critically important because of his status as one of the world leading scholars in management research, especially in strategic management and management of technological innovation," adds Katkalo. "Both these fields have been quite new for Russian students of management and still today are on the forefront of our teaching and research in the context of the booming Russian market economy."

Though the school is still a work in progress, it's come a long way since then.

It has 1,500 students in undergraduate, MBA, Ph.D., executive-education, and other programs taught by some 70 full-time faculty members.

A few years ago, Teece met with philanthropist George Soros, whose Soros Foundation provided one of the grants that supported the Berkeley-St. Petersburg program.

"He started Central European University, which is basically a hole in his pocket," recalls Teece. "So he said, 'I've got to give you credit: You did a hell of a lot better with the money that you had than I did with mine. What's the difference?'"

The difference between the two schools is that the GSOM was built onto a major university—which, though weaker than it had been historically, still had a 300-year history of scholarship, notes Teece. "Even though the B-school part was completely de novo, the institutional apparatus of the university was there. There was infrastructure there."

For Teece, the positive effect that the university system has had on his own life can hardly be overstated—or repaid.

"You do it because you believe it's a good thing to do," he says. "You don't get rewarded for it. I feel extremely fortunate; the university system here has treated me so well. I mean, I really believe in these institutions. They are the institutions that make America great."

Near the end of our interview, I ask Teece if he ever wished he could talk to Ed Mansfield now, or if he ever had any conversations in his head with him.

"You know, Mansfield wasn't a particularly chatty guy," he says. "But about 10 years after I graduated, I sat down and wrote him a nice handwritten note, telling him that he had really been influential, and essentially thanking him for his dedication to his field and his willingness to [mentor] me as a graduate student."

"It's not something that I'm sure he would have expected, or is normally done," he adds. "And five years later—and I didn't know this would happen—he was dead. Maybe this is a selfish feeling, but I'm glad that I'd at least had my chance to thank him for his investment in me—and, implicitly, to thank the University of Pennsylvania for accepting me as a graduate student. If he'd passed away and I'd never done that, I would have regretted it." ♦