40 Years Later, Lessons From the Rise and Quick Decline of the First ‘Killer App’

Remember VisiCalc, the world’s first spreadsheet? Today’s tech giants do, and that is why they buy up and invest in potential competitive threats

VisiCalc originally ran only on the Apple II. The software cost $100, while the computer cost $2,000 or more. Photo: Dan Bricklin

By
Christopher Mims
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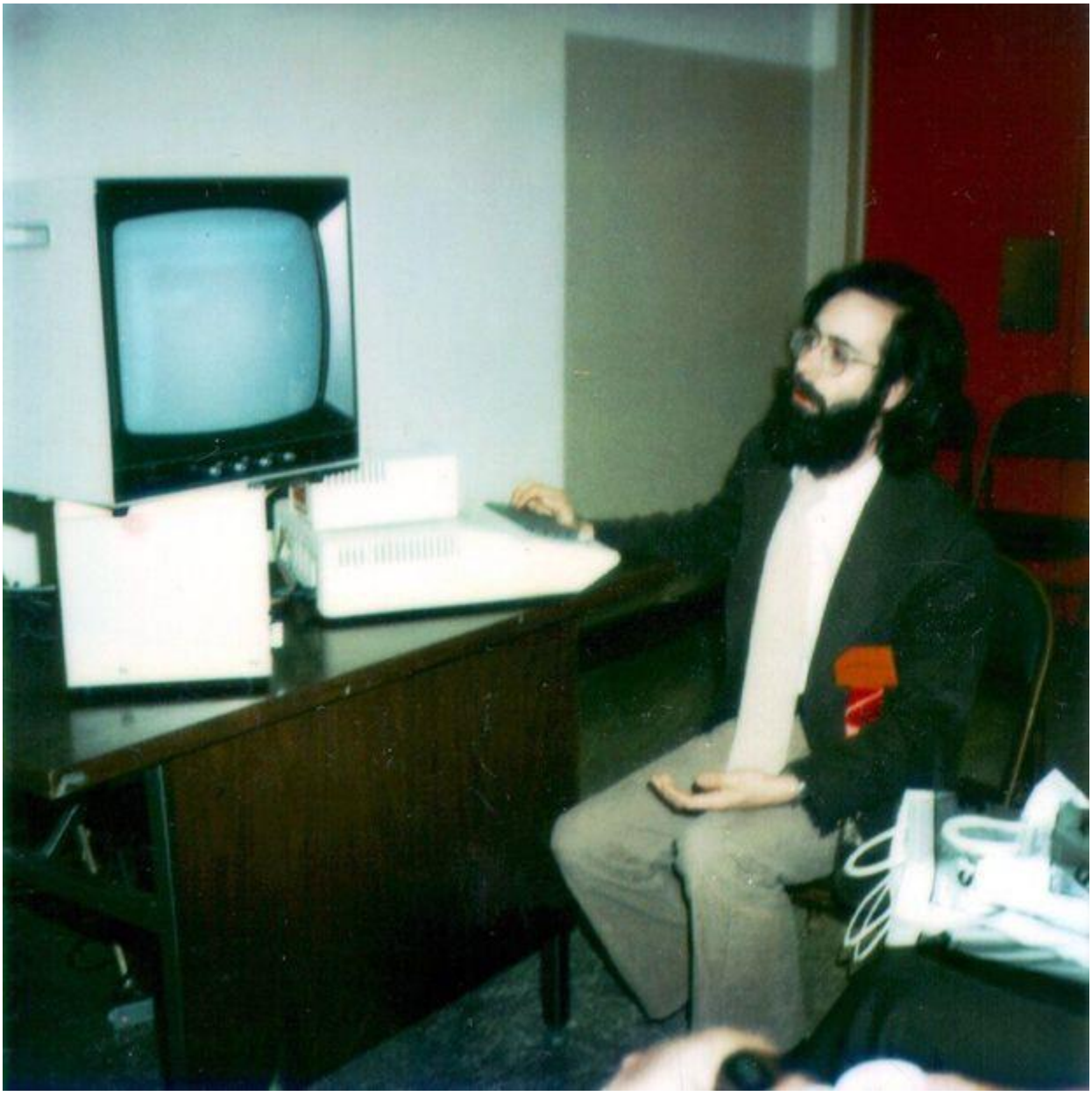
It was the first killer app, the spark for Apple ’s early success and a trigger for the broader PC boom that vaulted Microsoft to its central position in business computing. And within a few years, it was tech-industry roadkill.

The story of VisiCalc, a humble spreadsheet program that set the tech world ablaze 40 years ago, has reverberated through the industry and still influences the decisions of executives, engineers and investors. Its lessons include the power of simplicity and the difficulty of building a hypergrowth company in a hypergrowth industry.

Indeed, its lessons have been so internalized by today's tech titans that they have significantly inoculated themselves against that sort of tumultuous, competitive dynamism—aka disruption.



Dan Bricklin, shown at the West Coast Computer Faire, before the public unveiling of the VisiCalc spreadsheet. Photo: Bob Frankston

VisiCalc was unveiled on June 4, 1979, and shipped that October. Dan Bricklin first dreamed it up in a classroom at Harvard Business School—the room now bears a plaque commemorating his idea—and partnered with Bob Frankston, who coded VisiCalc and collaborated in its design.

When users opened VisiCalc, they would see a character-based grid where numbers or text could be manipulated. It was handy for budgeting, financial projections, bookkeeping and making lists. Today it's instantly recognizable as a spreadsheet, as familiar to us as a blinking cursor, but at the time it was a novel idea that had to be experienced to be understood.

Initially VisiCalc ran only on the Apple II, a then-revolutionary new personal computer and Apple's first major consumer product. While some Apple II models had just 4 kilobytes of RAM, VisiCalc demanded a whopping 32KB. (Even the cheapest of today's iPhones have tens of thousands of times as much RAM.)

"It was a cute little program but who was going to expect anything big out of it?" recalls Mr. Frankston.

Bob Frankston, at left in 1988, coded and helped design VisiCalc. Photo: Ann E. Yow-Dyson/Getty Images

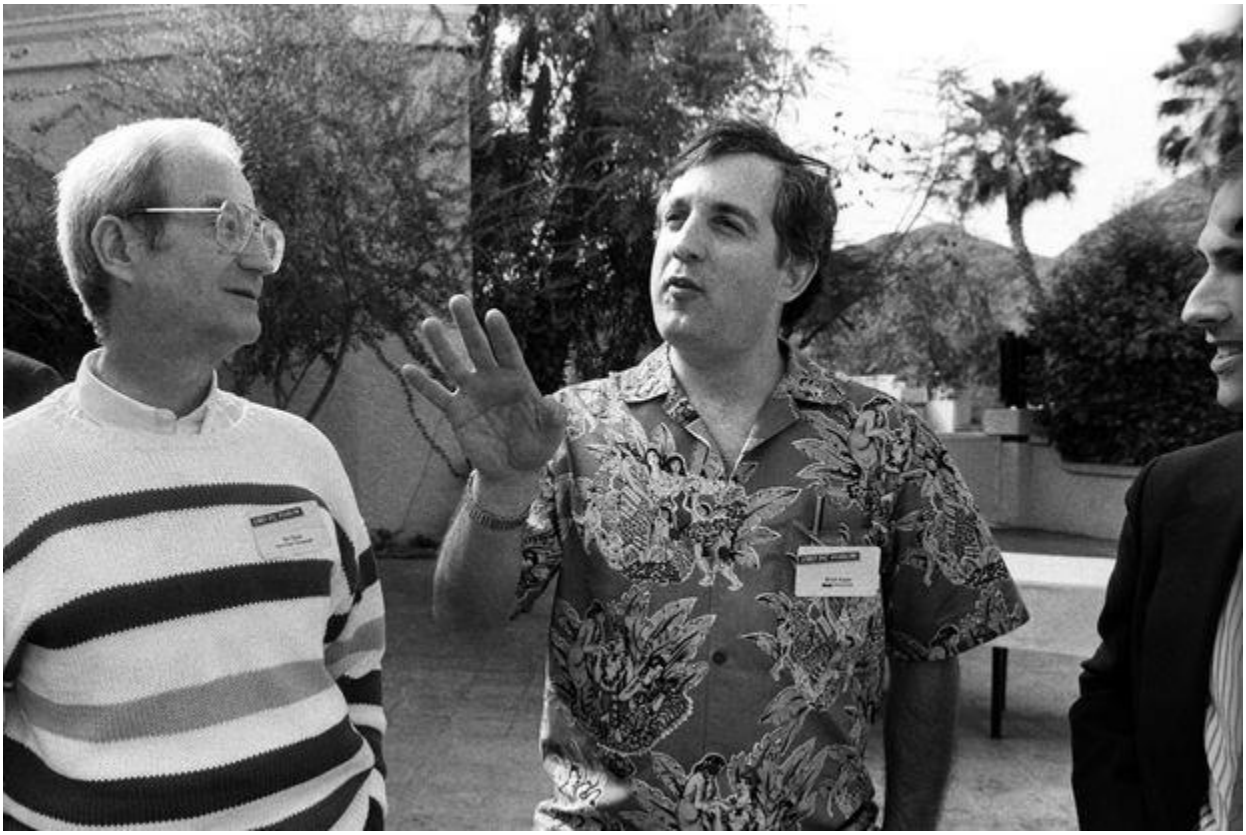
Steve Jobs subsequently said that VisiCalc "propelled the Apple II to the success it achieved more than any other single event."

VisiCalc was the first piece of software that was so popular that it drove people to buy computers just to run it. A 1984 article for PC Magazine noted: “People entered computer stores to purchase VisiCalc and something to run it on.” At the time, VisiCalc cost $100, but the Apple II to run it could set you back $2,000 or more—much more. The revenue of VisiCalc’s publisher, which was almost entirely attributable to VisiCalc itself, mushroomed from virtually nothing in 1979 to more than $40 million in 1983, says Edward Esber, who was VP of marketing at the company.

This was the first lesson of VisiCalc—that the dawn of a new platform is when empires are built. In this case, the shift was from the paper ledgers that accountants had used for centuries, to their digital equivalent on the PC.

The PC was arguably the first modern tech platform—that is, a thing that had value because it enabled many different types of software and services—and much of what happened next became typical of every computing platform that has come since.

Unfortunately for Messrs. Bricklin and Frankston, the second lesson of VisiCalc was that a killer app doesn’t guarantee enduring success. The software might have been the first tech victim of what academic Clayton Christensen would later call “disruptive innovation”—when a smaller company outflanks an incumbent by targeting an overlooked market.



Mitch Kapor, gesturing, leveraged his familiarity with the spreadsheet market to launch Lotus 1-2-3. Photo: Ann E. Yow-Dyson/Getty Images

Mitch Kapor, who worked for VisiCalc's publisher as a product manager, left the company and began working on his own spreadsheet program. Instead of creating it for the Apple II, Mr. Kapor put his money on another horse: the brand-new IBM PC. Released in 1983, his software—Lotus 1-2-3—took the world by storm on a scale that even VisiCalc's success couldn't have foretold.

"It honestly seemed to most people like a very risky thing to do, because in the market at the time, Apple II was the dominant machine," says Mr. Kapor.

A Lotus 1-2-3 spreadsheet program diskette Photo: Alamy

Lotus 1-2-3 included the major features of VisiCalc, and even allowed direct import of VisiCalc files. But it could do more. As someone who was very familiar with the spreadsheet market, Mr.

Kapor knew what customers were clamoring for. Lotus 1-2-3 had variable column widths, a macro language to allow simple programming in cells, and the ability to create charts and graphics. Plus, it was fast.

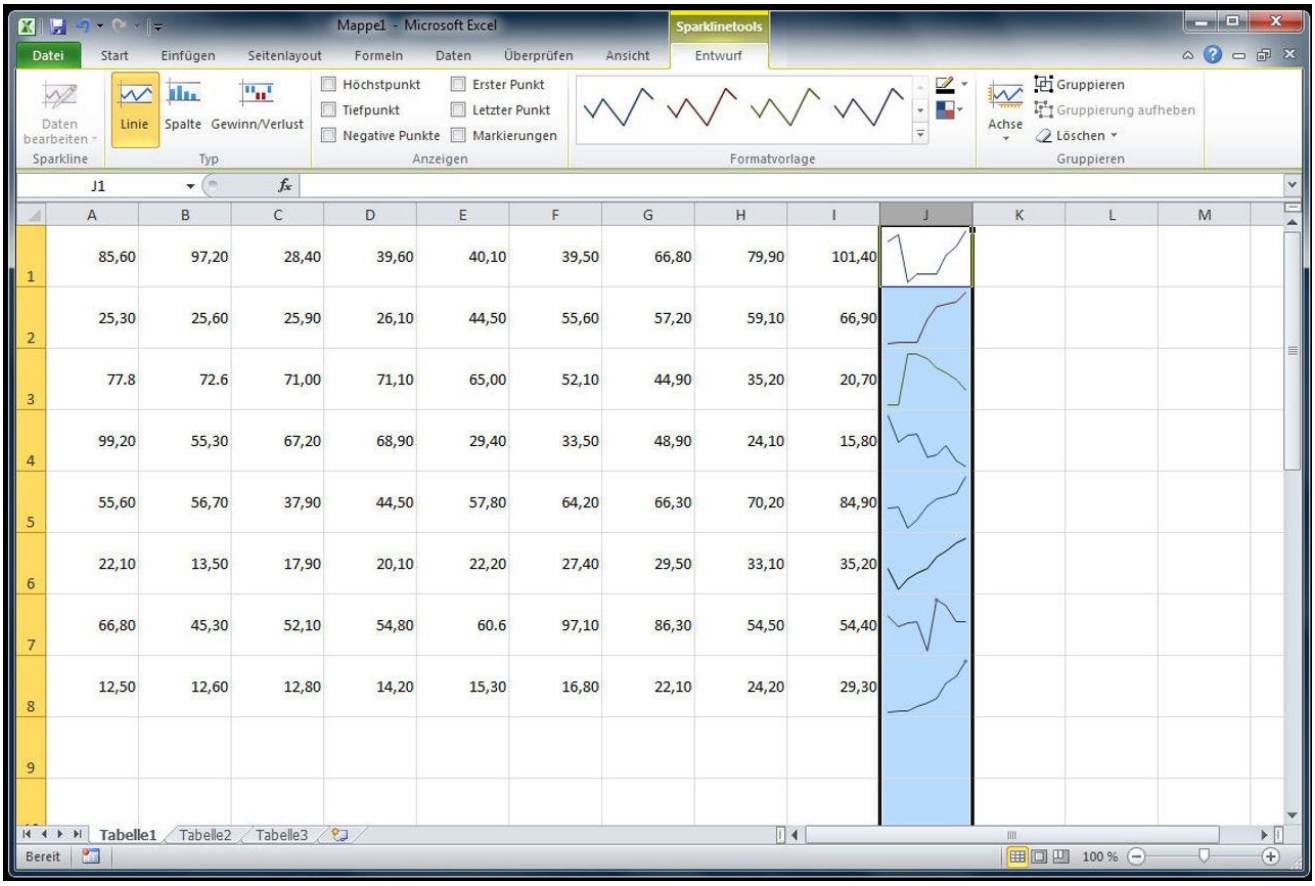
VisiCalc, meanwhile, was mired in a lawsuit between its creators and its publishers—software in its early days was distributed under an author-publisher model, like books. The acrimony was likely one reason the developers failed to capitalize on the rise of the IBM-compatible PC.

One year after the IBM PC debuted, fewer than 100,000 units had shipped. In that time Lotus 1-2-3 shipped $53 million of spreadsheets. By year two, the IBM PC had sold 280,000 units and Lotus achieved $156 million in sales.

On the strength of pre-orders alone, Lotus Development, the parent company, won a then-extraordinary $5 million in venture capital, and in 1983 the company went public. Within a few years of its founding, Lotus had thousands of employees.

Remember VisiCalc? A Brief History of Spreadsheet Disruption

VisiCalc, released in 1979, was the original computer spreadsheet, and it was huge—until Lotus 1-2-3 came along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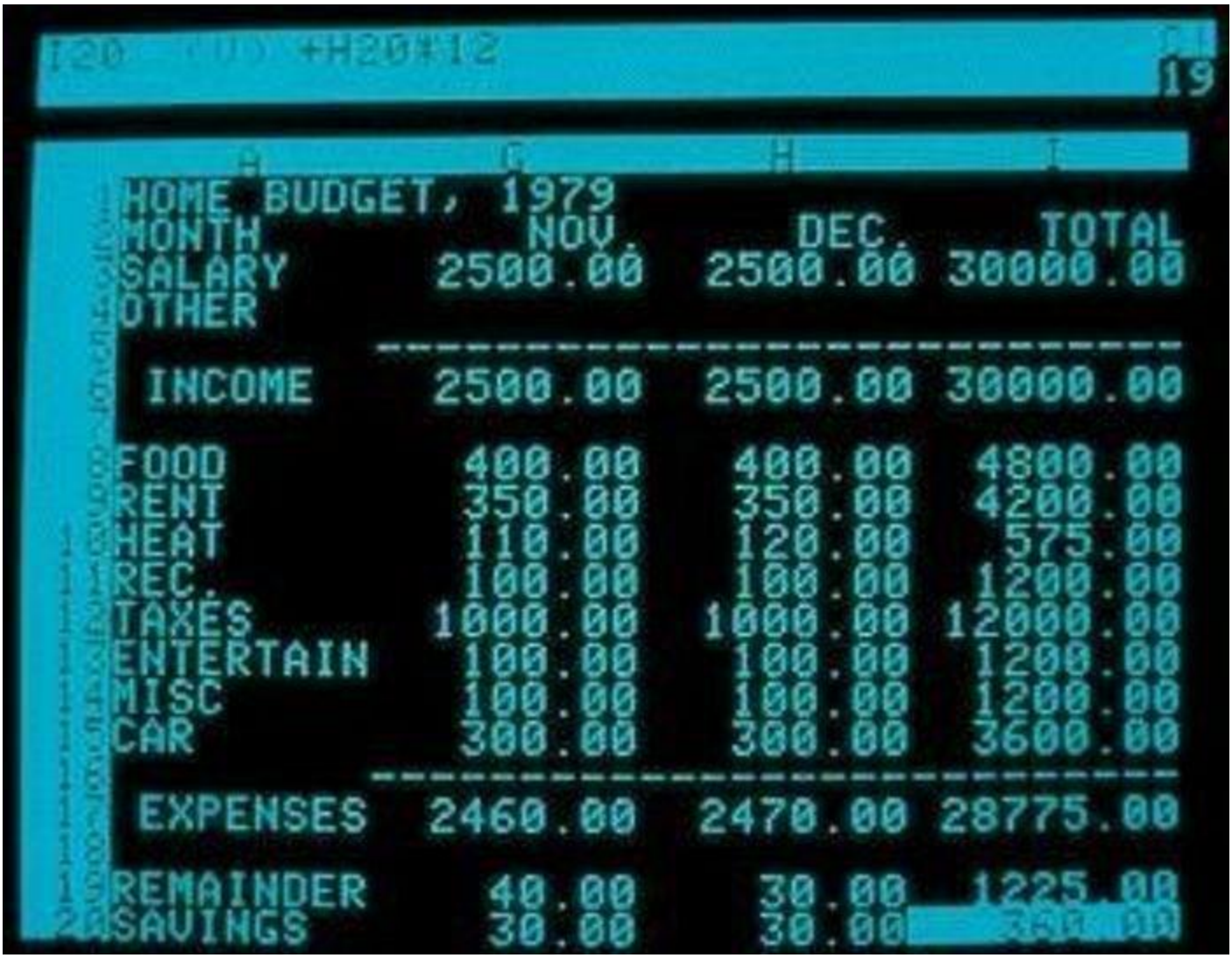
HOME BUDGET, 1979
MONTH NOV. DEC. TOTAL
SALARY 2500.00 2500.00 30000.00
OTHER
INCOME 2500.00 2500.00 30000.00
FOOD 400.00 400.00 4800.00
RENT 350.00 350.00 4200.00
HEAT 110.00 120.00 575.00
REC. 100.00 100.00 1200.00
TAXES 1000.00 1000.00 12000.00
ENTERTAIN 100.00 100.00 1200.00
MISC 100.00 100.00 1200.00
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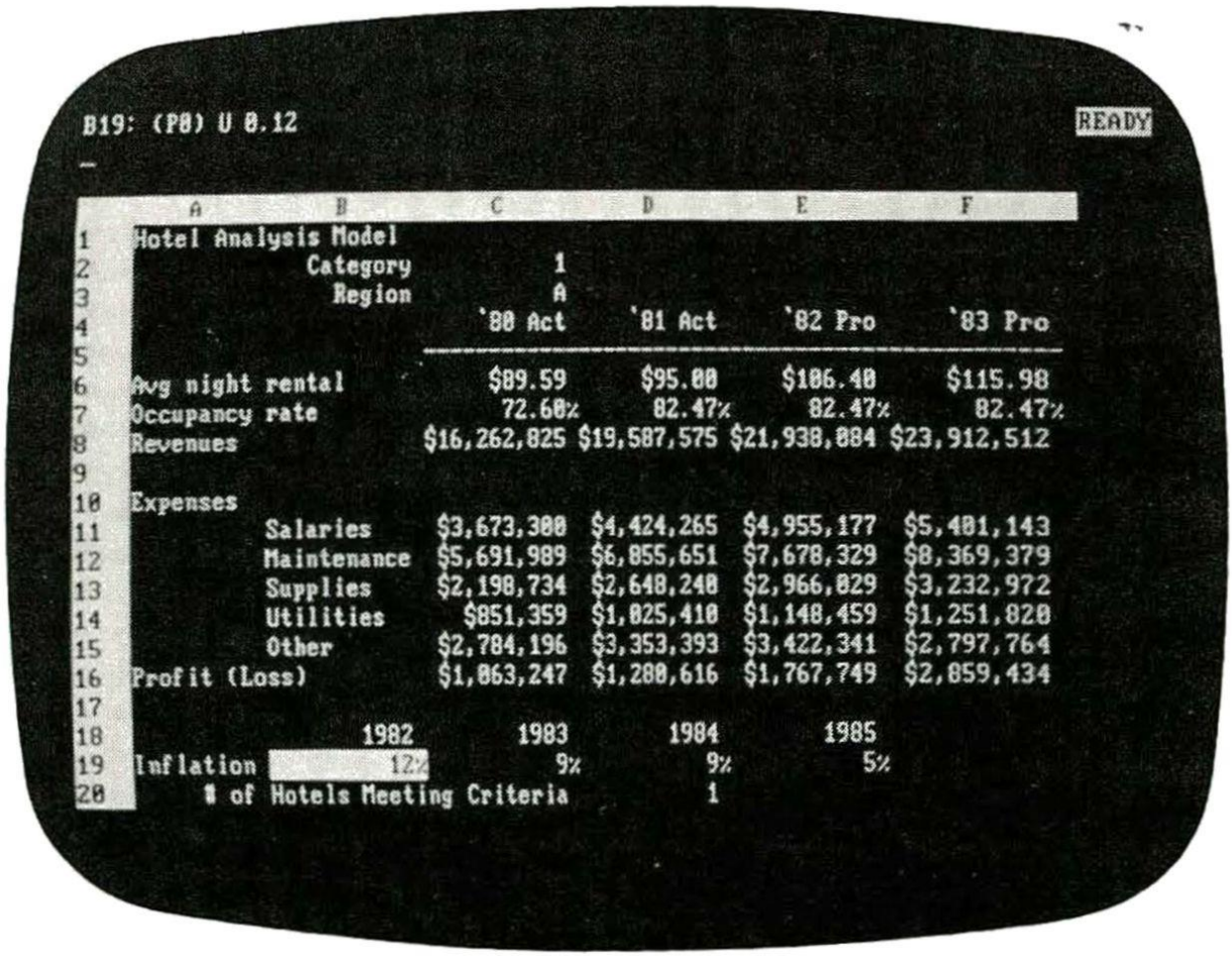

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1	Hotel Analysis Model					
2		Category	1			
3		Region	A			
4			'80 Act	'81 Act	'82 Pro	'83 Pro
5						
6	Avg night rental		$89.59	$95.00	$106.40	$115.98
7	Occupancy rate		72.60%	82.47%	82.47%	82.47%
8	Revenues		$16,262,825	$19,587,575	$21,938,084	$23,912,512
9						
10	Expenses					
11		Salaries	$3,673,300	$4,424,265	$4,955,177	$5,401,143
12		Maintenance	$5,691,989	$6,855,651	$7,678,329	$8,369,379
13		Supplies	$2,198,734	$2,648,248	$2,966,029	$3,232,972
14		Utilities	$851,359	$1,025,410	$1,148,459	$1,251,820
15		Other	$2,784,196	$3,353,393	$3,422,341	$2,797,764
16	Profit (Loss)		$1,863,247	$1,280,616	$1,767,749	$2,859,434
17						
18		1982	1983	1984	1985	
19	Inflation	12%	9%	9%	5%	
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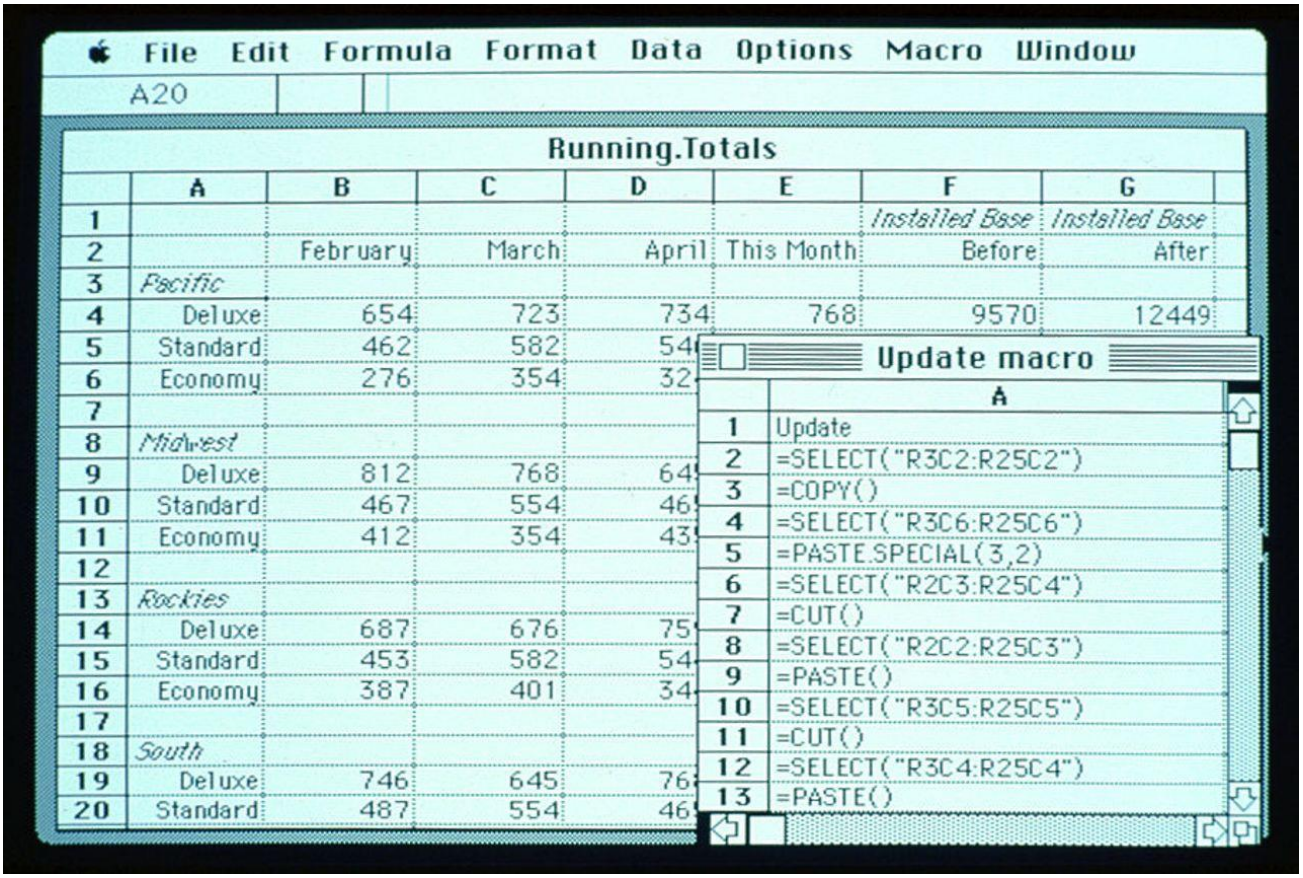

In 1979, Dan Bricklin and Bob Frankston launched a seemingly modest spreadsheet program called VisiCalc that sparked the home computer revolution. It could be used for home budgeting, as shown here, and at first ran only on Apple II.
Dan Bricklin
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“At the time we were the world’s largest independent software company, and two years before that we didn’t exist,” says Mr. Kapor.

The third lesson of VisiCalc and its successors is that the tech industry’s biggest players now understand the threat of disruption, and make it harder for upstarts with innovative ideas to challenge their dominance.

Now, when trend watchers spot a potential new platform, even the largest companies invest heavily in it—especially if it might mean their disruption, says Steven Sinofsky, former head of the Windows division at Microsoft and current partner at venture-capital firm Andreessen Horowitz.

After Mr. Kapor stepped down as CEO of Lotus, the company focused on porting its product to IBM’s OS/2, its attempt to beat Microsoft at PC operating systems, missing the shift to

Microsoft's Windows. That shift was driven largely by users clamoring, yet again, for the best system to run the best spreadsheet—in this case Excel, which Microsoft announced for Windows in 1987.

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Microsoft went on to largely flub other platform shifts, especially to mobile computing. But more recently, it managed the shift to cloud-based software with great success by embracing the disruptive technology—witness the fact that it is again the world's most valuable publicly traded company.

Big companies getting ahead of their own disruption is now common. The iPhone was born out of Apple's paranoia that someone else might supplant the iPod. And Facebook 's acquisition of potential disruptors Instagram and WhatsApp gave the company the dominant social platforms on mobile, where most online social networking subsequently moved. Amazon's dominance in voice-controlled assistants is a product of the company's willingness to launch startups within itself and allow them to quickly fail—as the Fire Phone did—or disrupt much bigger incumbents, as Alexa took both Apple and Google by surprise. And Google, of course, had the foresight to acquire and invest heavily in Android.

Certainly there are still examples of new companies rising, but it's hard today to imagine the handful of giants that loom so tall over the tech world allowing themselves to go the way of VisiCalc or Lotus. And the more wealth they accrue to buy into new technologies, spreading their bets evenly around the whole roulette wheel, the more invulnerable they appear.

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