New Technologies, Old Methods Eyed to Tighten Security; September 13, 2001; The Boston Globe

Almost exactly 31 years ago, an eerily familiar hijacking drama unfolded, with a lesson that security specialists say still holds true.

On Sept. 6, 1970, a carefully coordinated group of terrorists boarded four passenger jets in Europe. The hijackers succeeded in taking control of three of the flights, diverting them to Jordan. But on the fourth, operated by El Al, Israel's national airline, the hijacking attempt was foiled by a guard on board who killed one hijacker and overpowered the other. The plane landed safely in London.

Specialists are now looking to measures used by El Al, as well as a host of developing technologies like hand-scanning and automated face recognition, as a way to guard against airborne terrorism.

Although the details of Tuesday's hijackings are still sketchy, it seems clear that the traditional security curtain - the metal detectors, the bomb scanners - would not necessarily stop a group of determined hijackers armed with improvised weapons. For authorities, the new challenge is not how to find a bomb or a gun, but how to keep the wrong passenger from getting on the plane and taking over the cockpit.

Many of the tactics, they say, already exist - it's just a matter of money, and changing a set of priorities that has put cheap, convenient travel above protection from terrorists.

The problems at US airports are well documented. According to a report issued last year, the Inspector General of the Department of Transportation had its agents try to wander into supposedly secure areas at airports, and succeeded on 117 of 173 attempts. Another report last year, issued by the General Accounting Office, found that the poor performance airport security is due in part to wages that are often lower than ``airport fast-food restaurants."

In aviation security circles, by contrast, El Al is spoken of with a kind of awe, as an airline that is willing to pay more money or inconvenience passengers in the name of security - but which refuses to let one of its planes be taken down.

``These guys don't mess around," said John Hansman, an MIT professor of aeronautics who is a consultant to the FAA and also holds a commercial pilot's license. ``They take their security much more seriously than American carriers have."

El Al's approach, the product of many attacks on Isreali citizens, starts with stringent airport security, interviewing the passengers who fit suspicious profiles, and includes tight control of the airplane itself.

The cockpit is an especially crucial and especially vulnerable area of the plane. Because the pilots are positioned close to the windows, facing forward and surrounded by controls, they are vulnerable if somebody bursts in and attacks them, said Hansman.

On U.S. passenger planes, the door to the cockpit is kept locked during flight, but is designed to be breakable, so that the crew can get out in an emergency - a feature which also means a determined attacker can break in. El Al locks its crew in before passengers board, and is thought to reinforce its doors to prevent entry, although the airline discloses very few details about its security procedures.

``El-Al maintinas a high level of security, to the benefit of its passengers, by not disclosing its security procedure to the media," said Nachman Klieman, a company spokesman.

El-Al also makes much more extensive use of armed guards than airlines in the United States. The guards travel in plainclothes, and the airline does not disclose how many of its flights are patrolled, or how many guards it uses.

More advanced technology is also available to help control who has access to the planes in the first place. San Francisco International Airport uses devices that can read the 3-D geometry of a hand, to verify whether a person matches the list of people authorized to enter an area. The devices, which are extensively used in sensitive areas of nuclear power plants, mean that a someone cannot sneak into a protected area simply by stealing an entry code or badge.

This concept, called ``biometrics," is a way of taking the old idea of a fingerprinting into the new century.

Perhaps the most famous example of the possibilities of biometrics is face recognition. The technology uses a computer to measure a large number of parameters about a person's face, such as the distance between eyes, or the curve of the bridge of the nose - and reduce this to a unique face signature that can be recorded and compared to faces of criminals or suspects.

``This technology exists today," said Joseph Atick, president of Visionics, a company that builds face-recognition software. The system is used in Tampa, Florida to warn police when criminals pass in front of security cameras. It is also in place at airports in Iceland and the United Kingdom, he said, and could be widely used to verify the

identity of passengers, or to identify people who are known to have terrorist connections.
Atkins envisions a world where a video of a terrorist training camp, or a photo of a known terrorist sympathizer, would be fed into a computer, logging the faces, and then sent to a central location so that airports, embassies and other locations could armed with their own banks of video cameras could be on the lookout.
This would be similar to the FBI's computerized fingerprint records, which has nabbed criminals who thought they had long since escaped.
But it has already raised objections.
``It's very important not to loose sight of the importance of an open and democratic society that safeguards rights as a way to promote safety," said Marc Rotenberg, president of the Electronic Privacy Information Center, a Washington, D.C. advocacy group.
``I don't believe it's true that if we were to have widespread face-recognition technology and other new ways to ID our citizens, that would make us a safer society," he said.

Federal Computer Week ; New air tech faces challenges ; by Greg Langlois July 20, 2001

Air traffic control in the future will involve computers on the ground communicating directly with flight management systems in airplane cockpits-but achieving that and other innovations won't be easy, aviation experts said July 19.
With the National Airspace System (NAS) reaching the saturation point - and with an increase in commercial air transport expected over the next 10 years-a House Science Committee subcommittee hearing focused on efforts to bring about new technologies and other changes to improve air traffic management.
Steve Zaidman, FAA's associate administrator for research and acquisitions, said that in the future, the interchange between ground computers and aircraft will provide for better predictions of traffic and weather conflicts, and flight computers will be able to accept or reject proposed routings electronically.
The future system also will likely rely on satellites to allow precision approaches to every runway in the nation, without relying on installing expensive ground-based equipment, said Sam Venneri, NASA's associate administrator for aerospace technology. A global communication, navigation and surveillance system will allow for precise position and trajectory knowledge and enable flight paths to be adjusted en route, he said.
Boeing's plan for air traffic management, which the company outlined last month, is based on a satellite infrastructure, John Hayhurst, president of Boeing Co.'s air traffic management unit, said during the hearing. He explained that it will synthesize information about a plane's position, altitude, speed and other factors; lay out a common information network linking system users and operators; and open up the airspace for simplified traffic flow.
But incorporating new technologies into the air traffic control system has traditionally been difficult, the Zaidman said.
"Understanding what we want and understanding how to get there are two different things," Zaidman said. "One of the greatest challenges we have faced thus far in our modernization efforts is the deployment of new technologies without excessive disruption to a demanding and complex NAS."
In addition, most air traffic management development now takes place at NASA, making the implementation of new technologies more difficult for the FAA, said John Hansman, director of the Massachusetts Institute of Technology's International Center for Air Transportation.
"The FAA is consumed with near-term operational problems and has traditionally been poor at anticipating and working long-term research needs," Hansman said. "In the past few years, the research budget has been cut dramatically and the FAA has essentially ceded much of its long-term research responsibility to NASA."

Avionics The De-Hijacking Switch ; *By David H. Freedman, November 2001 Issue;* Business 2.0

Assuming the cockpit controls could be disabled, how would an autoflight system be triggered? Two options are worth considering -- with caution. First, a signal from ground controllers could flip the kill switch, once they had reason to be suspicious about the plane's status. But that would create a new vulnerability, explains John Hansman,

an MIT researcher who specializes in avionics, since "it would provide a clever path for a hacker to start bringing down airplanes." Another possibility -- an onboard system rigged to activate whenever it detects a flight path that deviates from the planned one -- would solve that problem, but might cause yet another. Aircraft occasionally must deviate to avoid weather or collisions. As Hansman says, "It's very difficult to distinguish a benign deviation from a dangerous one."

Perhaps engineers should accept the fact that a self-triggered system would occasionally force a non-hijacked plane to land. But that scenario assumes another risk: Autolanders aren't fail-safe. Radio signals on which autolanders depend, for example, can suffer from "drop-out" due to faulty equipment or interference. Autolanders also can't handle crosswinds of greater than about 17 mph; they compensate for crosswinds by lifting a wing, allowing the plane to "slip" into the wind, but at higher crosswind speeds, the plane would roll so much that the lower wing would hit the runway. (Pilots can compensate for a crosswind of up to 35 mph by keeping the wings level and pointing the nose into the wind, and then straightening the plane at the last moment. Autolanders aren't programmed to perform this trick because it's riskier and requires more complex judgment and timing.) In addition, autolanders don't recognize conditions that would normally mandate aborting a landing, such as obstructions or ice on the runway, sudden engine failure, wind shear, or dangerous tailwinds.

Of course, avionics manufacturers could theoretically make the systems smart enough to recognize poor landing conditions and look for another runway or airport, but recent experience shows that a glitch-free system is a ways off. A case in point is Airbus, which installed a system in the A320 designed to override a pilot's control in some situations: If the nose pulls up too steeply at the hands of a distracted or disabled pilot, the engines automatically rev up, or (in the case of an aircraft low enough to land) the nose is forced down, regardless of what the pilot subsequently does with the controls. But this feature has been implicated in at least three fatal A320 crashes, and one near-crash. (Airbus has since made a series of adjustments to the override systems, which still operate in A320s.)

Airbus's experience has convinced Hansman, for one, that the technology isn't yet far enough along to make for an entirely trustworthy autoflight system. "Fully automated systems work reasonably well in highly constrained environments, such as elevators and train tracks," he says. "They don't yet work well in highly complex and dynamic environments."

But NASA's Bushnell is among those who believe that not only can we build reliable autoflight systems suitable for emergencies, but that the time is nearly ripe to take humans out of the loop even on routine flights. "All you'll need in the cockpit is a pilot and a dog," he says. "The dog would be there to bite the pilot if he tries to touch anything."

ABC News ; Popular Plane; Despite Controversy Over State-of-Art Technology, A320 Is a Bestseller ; Aug. 23

When the Airbus A320 debuted 12 years ago, controversy soon clouded its inception.

Many thought the planes, made by the European consortium Airbus Industrie, based in Toulouse, France, were simply too complicated to fly and too dangerous.

But adjustments were made and pilots retrained, and the aircraft soon became thought of as one of the most reliable flying machines in the industry. The plane has a good accident record; the crash in the Persian Gulf today that killed 143 people was the aircraft's fourth fatal air disaster.

"The 320 is a good bird," said ABCNEWS aviation expert John Nance. The plane is "an extremely reliable, state-of-the-art airplane."

The plane involved in today's crash was delivered to Gulf Air in 1994 and had accumulated about 17,177 hours on some 13,848 flights, according to a statement by Airbus Industrie. It was powered by CFM56-5A engines manufactured by CFM International, a joint venture between General Electric and the French company SNECMA.

There is no indication that any particular problems with the A320 model of the plane contributed to the crash. An air traffic controller said he received no word from the pilots that anything was wrong with the plane shortly before it plunged into the Persian Gulf.

Fastest-Selling Aircraft

According to its maker, the Airbus A320 is the fastest-selling jetliner family in the world.

There are 840 A320s used worldwide, about 200 of them in the United States. Chicago-based United Airlines has been one of the consortium's best customers in this country, currently operating a fleet of more than 90 A319s and A320s. Earlier this month, United announced it had ordered a total of 164 A320 aircraft. US Airways uses the A320 jetliners to fly the popular shuttle route between New York and Washington, D.C.
The A320 is a twin-engined, short- to medium-range aircraft - it can fly 3,400 miles - and designed to carry typically 150 passengers.
The A320's state-of-the-art flying technology, called fly-by-wire, is a computerized system designed to prevent pilot error by prohibiting pilots from meaneuvering the plane into extreme banks, climbs and dives.

Debate Over Flying Technology

Still, the technology continues to stir debate in the aviation field with pilots and other air experts questioning whether the planes or the pilots should have more control over the aircraft.
"There were several problems in the early service of the A320 where pilots had difficulty flying the airplane and basically made mistakes using the software and the airplane had accidents," said John Hansman, an expert at the Massachusetts Institute of Technology.
The A320 was the first of its kind, according to Nance, to incorporate two major innovations in its operational structure. The first is a sidestick controller that operates "kind of like a joystick," Nance said.

'It's Safe'

The Airbus A320 model, in use since 1988, is one of the world's most widely used aircraft. The plane can be set up with 150 or 164 seats and has a range of about 3,500 miles.
Airbus has built more than 1,000 single-aisle 320-family planes. French, German, British and Spanish companies own parts of Airbus, which is considered the world's second-biggest manufacturer of large passenger jets after Boeing.
The fly-by-wire system has only previously been incorporated into the flying systems of fighter jets and the supersonic Concorde. In the system, computers onboard the plane transmit what the pilot inputs into electrical signals, which are then sent through wires to control hydraulic valves.
On conventional planes, cables that run through the airplane control the hydraulic devices which move the flight-control surfaces. Pilots can override the onboard computers on conventional planes, if necessary.
But the common feeling, Nance says, has come to be that "it's safe. There's no question that it is as safe" as the conventional way of control.
ABCNEWS' Lisa Stark and ABCNEWS.com's Andrew Chang contributed to this report.

Cell phone technology may blow cover of stealth bombers ; by CHRISTOPHER NEWTON -- The Associated Press

WASHINGTON (AP) -- America's stealth bombers may be in danger of having their cover blown by a new type of radar that uses cell phone technology, researchers say.
The Air Force says it's a limited problem and America's unique stealth fleet is in no danger. Yet U.S. intelligence reports label the radar a serious threat, and several scientists agree.
"We're talking about radar technology that can pinpoint almost any disturbance in the atmosphere," said Hugh Brownstone, a physicist at the Intergon Research Center in New York who has worked for the cell phone giant Nokia.
"You might not be able to distinguish between a stealth plane and a normal one, but you might not need to. The point is, you can see the stealth plane as a blip."
The potential risk comes from radar towers used by cell phone companies to draw in signal patterns. The new technology, called passive radar, watches signals from common cell phone transmissions. When a plane passes through, it leaves a hole in the pattern, giving away its location.
Traditional radar -- the kind stealthy B-2 and F-117A bombers can fool with their angles and radar-absorbing paint -- sends out signals and waits for them to bounce off large objects in the sky and return.
Some aviation experts suspect the Serbs used a rough version of passive radar -- plugging computers into their existing air defense system -- to locate an F-117A Nighthawk stealth bomber, shot down in 1999.
There are more than 100,000 cell phone towers and other sites within the United States. Coverage is heavy in Europe, too, but firm numbers for much of the world are hard to come by because of spotty reporting requirements.

The passive radar system has drawbacks. It can't effectively pinpoint whether a plane is indeed a stealth plane or some other aircraft, scientists say. It's also much more difficult to make work.
"The success rate of these systems is just below the success rate of traditional radar," said Air Force Capt. Eric Knapp.
A major hurdle is the complex math necessary to translate cell phone signals into easy-to-understand blips that move across a computer screen. Without the computer programming to make sense of the cell phone signals, it would be impossible to fire a missile at a plane.
Still, the passive radar technology is basically sound, said Nick Cook, an aerospace consultant for Jane's Defence Weekly.
"It needs further work, but the theory is there," he said. "Still it would be some time before I could imagine something like this compromising stealth technology completely."
John Hansman, professor of aeronautics and astronautics at the Massachusetts Institute of Technology, said passive radar is still in its "infancy, but is something that will lead to new stealth research."
"This is another trick that will force stealth researchers to push forward," Hansman said.
The British defense contractor Roke Manor Research is in the forefront of passive-radar technology.
Peter Lloyd, head of research there, said, "We would be utilizing technology that we already have available. The mobile telephone base stations would not have to be altered at all. "
His company's Web site claims existing stealth technology already has been rendered obsolete.
Brownstone believes China, Japan and Russia already have passive radar in various stages of development. He is concerned that those countries might sell the technology to smaller countries that are hostile to the United States.
Keeping stealth planes safe from enemy radar has always been a back-and-forth contest, pitting American ingenuity against developing concepts in radar.
The F-117A, developed in great secrecy in the 1970s, was not disclosed until 1988. It saw its first combat in the 1989 invasion of Panama and was a star of the 1991 Gulf War.
The B-2 bomber, which saw its first combat in NATO airstrikes against Yugoslavia, uses stealth technologies that are more advanced than the F-117A's. An even newer version of stealth is used in the F-22 fighter now in development. No other country has stealth aircraft in active use, although Russia and others have researched the idea.
Six of the $2 billion B-2s, in their first combat use, flew about 50 secret missions out of a total 30,000 NATO bombing runs over Kosovo in 1999. They dropped about one of every 10 bombs in the campaign.

TUESDAY, JULY 18, 2000; USA TRAVEL; As record numbers of Americans fly, delays at airports reach historic peaks for the second year in a row; Alexandra Marks ; Staff writer of The Christian Science Monitor

Advice to travelers planning to fly this summer: When you go to the airport, bring plenty of food and water - not to mention a good book.
That, in fact, is official advice from the Air Travelers' Association - and it typifies how grueling US air travel has become.
Indeed, the nation's airports are experiencing record delays this summer - for the second year in a row. Reasons vary, from the ephemeral thunderstorm to chronic problems with air-traffic control and a lack of capacity at airports.
But experts agree on one thing: Travelers will have to learn to exercise patience, because delays are likely to get worse before they get better, despite unprecedented efforts by the Federal Aviation Administration. "Nothing I can see on the horizon will fix it," says R. John Hansman, a professor at the Massachusetts Institute of Technology.
A primary cause of the packed tarmacs is the booming economy, which has freed up more Americans to fly than ever before. In 1978, 275 million Americans took to the skies. More than 650 million did last year.
The end result: an antiquated air-traffic-control system coping with a record number of full flights departing from and arriving at overcrowded airports. Put those together with the unpredictable summer weather and you get delays, and lots of them.
Last week, the FAA announced that in June, 48,448 flights out of a total 14.2 million were delayed 15 minutes or

more. That's a 16.5 percent increase over June a year ago.
That's why the Air Traveler's Association added food and water to its list of recommendations. "You now have to assume that you're going to have some delays," says David Stempler, president of the association. "Bring plenty of reading material and change for phone calls, as well."
CROWDED SKIES: Passengers wait in line to check their baggage at Los Angeles International Airport June 30. Americans are flying more than ever, causing record delays.
It's advice that Kathryn Dotlich wishes she'd gotten before she left her home in Clearwater, Fla., for a 5:30 p.m. flight to Boston to visit her grandchild last week.
"Well, in the beginning, they didn't know how long we would be waiting at the airport. They announced, 'We'll know at 6 p.m.,' then, 'we'll know at 6:30 p.m.,' then they said might be as long as 10," she says. "We finally did get on at 7:30 p.m. and arrived at 10:30 p.m."
Dotlich was told weather was the cause of the delay, then air-traffic-control problems. She never found out for sure.
The FAA estimates that weather accounts for 70 percent of airline delays. In June, several banks of thunderstorms rolled across the northern part of the country, increasing that percentage to almost 80.
Similar unusual weather problems plagued air travelers last summer, leading the FAA and the airlines to share more information than ever before. The goal was to create alternate routes for the airlines so planes could fly around bad weather. The main air-traffic controllers in Washington were given more authority to route traffic nationwide, and the airlines started sharing information and schedules. By May, the changes seemed to be making an impact. Delays were actually down 7 percent from last year.
But June's stormy weather, combined with pilot dissatisfaction with some of the new runway procedures designed to increase air traffic, quickly overwhelmed the system.
David Fuscus of the Air Transport Association, the airline industry's lobbying organization, says he's not surprised. While the changes might have dealt with the symptoms, the primary cause of the delays remains the nation's antiquated air-traffic-control system. "Basically, we have a two-lane highway when we need a six-lane highway," he says. "When you have severe weather, the system can't handle it."

The FAA began planning to upgrade the system almost 20 years ago. But many of the proposals ended up being outstripped by technology even before they got off the drawing board. In 1996, the FAA abandoned an advanced automated system after spending $2.9 billion developing it. "But these are tools we really need today," Mr. Fuscus says.
But the FAA is upgrading its radar and other systems where possible. And Congress this year also authorized $40 billion to overhaul the air traffic system. But a final fix could still be as long as a decade away.
"Without any question, air travel is not the pleasure it used to be five or 10 years ago," says David Tyrrell, a frequent traveler from Tampa, Fla.
Mr. Tyrrell says he's escaped most of the travel nightmares - although there was that one time he was rerouted on a flight from San Diego and had to spend the night in Cincinnati. Mostly, the delays he's experienced have been inconveniences - a half-hour here, a missed connection there - but there have definitely been more of them. "There are routinely more delays, routinely more cancellations."
Mr. Hansman says the system will probably start to adjust to the dramatic increase in traffic. Already, many high-end businessmen are moving away from commercial airlines to private jets. Alternative airports are gaining more traffic. For instance, many people now fly from Manchester, N.H., to Baltimore, instead of Boston to Washington.
Eventually, Hansman says that large hub airports might start popping up in underutilized places, such as Newburg, N.Y., or West Virginia. Ticket pricing might change, so a passenger would pay more to be guaranteed to leave at a certain time. The FAA may also step in and require airlines to fly bigger planes that can accommodate more passengers.
"It may become critical enough in the future that we'll have to decide to expand the airports, even though that may not be popular locally," says Hansman. "That requires political will that doesn't exist right now."

New Boeing plane may be marvel of jet age ; Revolutionary design promises efficiency at near sonic speed ; *Saturday, March 31, 2001*
By JAMES WALLACE; SEATTLE POST-INTELLIGENCER REPORTER

Boeing's engineers on the new Sonic Cruiser aren't ready to tell secrets just yet.
But aviation experts say that if the company is right in its claim to be able to produce an efficient jetliner that can cruise just under the speed of sound, they have conquered a problem that has baffled airplane designers since the dawn of the jet age.
"There has to be something very clever here and they are just not releasing it yet," said John Hansman, head of the aeronautics and astronautics department at the Massachusetts Institute of Technology.
"Those guys are smart and they understand this issue very well," he added. "They would not move forward with this plane unless they are confident they have some means to make it competitive."
Boeing executives announced Thursday they will develop an all-new jetliner, known for now as the Sonic Cruiser, that will be able to fly between Mach .95 and Mach .98, or nearly the speed of sound. That's about 20 percent faster than today's commercial jetliners.
Other than the supersonic Concord, the fastest commercial jetliner for the past 30 years has been Boeing's 747, the latest version of which cruises at Mach .85 (Mach 1 is the speed of sound, or about 740 miles per hour at sea level and 32 degrees Fahrenheit).
Pilots will sometimes push the 747-400 above Mach .90. But for only short bursts. The jet's four engines gulp too much fuel at the higher speeds. And there's the rub.
Fuel costs airlines big bucks. The bigger the fuel bill, the less cost-effective the plane.
For the Sonic Cruiser, the obstacle that must be overcome to make the plane fuel efficient is drag, Hansman said.
Air flowing over an aircraft wing actually moves faster than the plane, Hansman explained. And when that air hits supersonic speeds it produces small shock waves that create drag.
"So as I get closer and closer to the speed of sound, the drag goes up dramatically," Hansman said.
There are ways to minimize that drag, such as sweeping the wings, he said. Boeing has done that with the Sonic Cruiser, which has a delta-wing shape.
Another way to push the plane through that higher drag is to use more powerful engines, he said.
Boeing has done that, too.
The Sonic Cruiser will be powered by two 777-type engines. Those engines are the most powerful ever built for a subsonic commercial airplane.
"They are using big engines to cruise fast, and you can do that if you are willing to pay a fuel penalty," Hansman said.
Fuel efficiency is determined by the lift-to-drag ratio at cruising speed, he said. As drag goes up the lift-to-drag ratio goes down. And so does the fuel efficiency.
Airbus was quick to say that it studied the concept of a plane that could fly at near sonic speeds and determined it would burn 40 percent more fuel at cruising speed.
But Mike Bair, vice president for business strategy and development for Boeing's commercial airplanes, said the Sonic Cruiser will pay only a "small" fuel penalty. Even that, he said, will be offset by the jet's higher cruise speed.

"Everything we have looked at says this plane will be cost competitive with today's airplanes," he said.
There is no magical technology on the Sonic Cruiser that allows it do what other jets have not -- fly efficiently at transonic speeds.
"The design itself is what is revolutionary," Bair said.
Boeing said yesterday its top engineers on the Sonic Cruiser are not available for interviews.
Until they are willing to talk in detail, aviation experts can only speculate about the new design.
Hansman said Boeing's engineers are probably using a technique called advanced computational fluid dynamics modeling to develop a design that minimizes drag at high Mach numbers.
Such fluid dynamics modeling allows the design to be studied on computer models.
Another challenge Boeing faces, he said, is how to make the jet stable at the higher speeds.
As a jet approaches the speed of sound, he said, the center of pressure moves around, which makes the plane less stable. Aircraft stability was the main challenge when the sound barrier was finally broken in 1947, he said.
In announcing the Sonic Cruiser development program, Alan Mulally, chief executive of Boeing's commercial airplanes, said the jet would be even more stable than current commercial planes. That stability, he said, comes from the small wing-like canards near the plane's nose.
The canards essentially perform the same function as the horizontal stabilizer at the rear of today's jets. The stabilizer can be moved in flight to trim the plane. The canards on the Sonic Cruiser also move.
Boeing will be working with about a dozen airlines from the United States, Europe and Asia as the development program goes forward. That's what Boeing also did with the 777 program.

So far, the response from airlines to the Sonic Cruiser announcement has been enthusiastic -- assuming Boeing can do what it claims.

Typical of the comments was one from Air Canada Chief Executive Robert Milton, who was quoted by Dow Jones News Service as saying, "It's a tactically brilliant move, if the jet is cost-effective and the price is right."