How United and Boeing Worked Together to Design and Build the 777 Airplane

When United Airlines signed up as the launch customer for the new 777 airplane in 1990, it recalled some baggage associated with over 70 years of working with The Boeing Company in which expectations often fell short because communications did not always connect in the right place or at the proper time. This article describes the background against which Boeing and United crafted a unique "Working Together" agreement that took the manufacturer and customer back to achieving mutual objectives in building "a truly great airplane," and provides some strategic insights that point to new directions that can be implemented in supplier-customer relationships.

by Gordon A. McKinzie

In Leonard Wibberley's 1954 ribald tale *The Mouse That Roared*, the miniscule kingdom of Grand Fenwick (three miles wide by five miles long) was able to prevent a nuclear holocaust by declaring war on the United States. In the process, it was able to fulfill its demands for fair treatment and respect by leveraging against the weakest trait of the most powerful nation on earth—a preoccupation with mega-events and an ill-advised lack of attention to small voices willing to help.

At the time of its launch order for the 777 aircraft in 1990, United Airlines proposed that the airline customer (the mouse) be permitted to peaceably invade the Boeing Kingdom as an equal participant in the development of the seventh launch airplane model that it would obtain from the giant Seattle plane maker. United was fully prepared to go to maximum roar in seeking entree to the process, but instead United and Boeing created a unique "Working Together" agreement. Their pact fostered a totally new customer climate over the five-year development period for the 777. During that time, United was joined by three other Working Together airline customers to review over 1,200 design issues and influence 300 significant design redirections for the airplane.

Drawing parallels with roaring rodents in highlighting yet another reengineering concept aimed at customer satisfaction may seem unnecessarily cruel. After all, United and Boeing were once joined at the hip as part of a huge transportation conglomerate (United Air Transport Corporation or UATC) and had prospered in that unique industrial collaboration until it was disbanded in the 1930s for antitrust reasons. Also with Boeing and United at UATC were Pratt and Whitney (aircraft engines), Hamilton-Standard (propellers), and a few landing fields. Left unchecked, UATC might have ultimately emerged as the first megacorporation to encapsulate all aspects of the flying experience. This historical anecdote is interesting in its telling, but not too relevant as a case study in how customer involvement can bring success to the marketplace.

WHAT WENT WRONG? (THE PAST WAS NOT A GOOD PROLOGUE)

Ideally, the separate companies should have continued to mutually coalesce in the design, production, delivery, and operation of airplanes even after the UATC conglomerate was history, but somehow the binding medium was lost and

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CCC 0277-8556/96/1601007-09

the surviving relationships were preserved only through personal friendships and involvement with the airplanes themselves. Once the coalition disbanded, the acquisition process reverted to traditional protocol for six decades, and even though the airplane models evolved and the personalities changed, the selection, negotiation, and procurement of new aircraft remained very predictable: The customer would peruse the brochures (particularly the operating data, cabin configurations, and amenities), attend endless briefings and elegant dinners (interspersed with spectacular Pacific Northwest fishing expeditions), and then wait approximately four years for the airplane to materialize on the delivery ramp. The obligatory progress payments constituted the only evidence of continuing interest by the customer in the airplane during this period. In reality, the moment of truth did not come until airline representatives showed up to critically examine the airplane for conformance to the specification that had been drafted years earlier at the time of contract signing.

However, hidden from view beyond the specification for the airplane—which many have branded over the years as the "Three B" document, or Basic Boeing Boilerplate—have always been the insidious concerns and comments for design tweaking that airline customers perpetually harbor and fervently hope become incorporated into subsequent airplane designs. Later airplanes do not absorb design refinements by osmosis; there has always been a natural reluctance by the manufacturer to encourage design changes unless a compelling hue and cry from many customers dictates product improvement or a regulatory mandate based on safety is clearly heard at the very highest levels of the company. In this respect, Boeing is similar to any well-managed company that continually assesses the need for product improvement as a stimulus for increased marketability, with the instinct to leave unwarranted design changes (if it ain't broke...) off the drawing board until legitimate justification forces action.

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To the frustration of the airline, however, the myriad little design improvements that become ignored in the swirl of negotiations and the press of normal business could have meant the difference between a lengthy operational delay or cancellation at the gate under full (paying passenger) scrutiny. On a broader note, many design deficiencies, although not directly affecting the ability of the airplane to perform its flying mission, lie in wait for the time when the airplane is in heavy maintenance or undergoing a major overhaul. Far from the critical spotlight of the flying public, an airplane that is not "mechanic friendly" can become an instant liability if it takes on the persona of a "mystery machine," which is all too often the case. This aspect of an airline's operation drives directly to the bottom line; a fast turnaround out of maintenance is essential, and the goal is always to return the airplane to service absolutely 100-percent "clean." Situations may arise where the design does not permit timely removal or reinstallation of a component, or the documented procedures may be misleading or ambiguous, all contributing to a return-to-service delay. In this regard, the maintenance-related deficiency is the hardest to capture and feed back to the manufacturer. Over the years, airlines have continually searched for the perfect communication channel that would relay their concerns to the manufacturer with enough energy and visibility so that they would actually see results on subsequent deliveries of new airplanes, or see service bulletins issued that would help the airline aggressively treat maladies on existing airplanes. However, it is rare to find an overhaul mechanic who can attest to prompt and precise turnaround of a problem he may have scratched out on a memo and sent forward.

United's intent was to work with Boeing to establish the best possible conduit for sharing information in the development of the new 777 airplane: face-to-face involvement at the most basic level of airplane design. In the winter of 1989, United drafted an agreement with Boeing that specified that *should* United become a launch customer for the new airplane, it would enter into a mutual pact that would make United an integral member of the design team. Just exactly how this would be implemented gave United's managers much to think about: The idea that United (or any customer) could encroach on the bastions of Fortress Boeing to any meaningful extent, especially to the point of presumably influencing the design of a new airplane, sounded like a good script for one of David Copperfield's TV illusion acts. The one trait that could best describe Boeing from an outsider's view was its absolute *impenetrability*. The Boeing "face" to the customer usually appeared in two circumstances only: (1) when initially negotiating for a new airplane and meeting with the marketing and contracts groups when the terms of the new purchase were being established and (2) after the initial delivery of the airplane when the customer services aspect would come into play and Boeing would staff field offices (normally at all major airports) to oversee the mechanical performance of its products and assist the airlines at a local level.

LESSONS LEARNED FROM THE BOEING 7J7 EXPERIENCE

The principal impetus Boeing had for considering an alliance with United in this unprecedented "customer in"

concept stemmed primarily from some disappointments it had experienced in another, quite unrelated, major airplane development program. In fact, Boeing had come dangerously close to putting into production an airplane that few airlines would have purchased, the 7J7. This airplane was conceived in the early 1980s with aggressive new technology, including innovative engine configurations, to address what Boeing felt was a perceived need by the airlines for dramatic high technology and drastically reduced fuel consumption. Although Boeing had good engineering solutions and a well-oiled production plan for the 7J7, the entire initiative was halted because when Boeing made the final rounds of potential customers, it discovered they were not interested in the model. The 7J7 simply did not spark the interest from a few target airline customers to the extent that a program could be safely launched. The 7J7 was a major effort at Boeing, and almost made it to the irreversible "design freeze" stage. At a number of postmortems conducted shortly after the program was officially halted, many attributed the high energy and nonstop momentum of the 7J7 effort within Boeing to the technically adventuresome engineering mind-set, which allowed the program to move ahead with the perception that the customer would appreciate and support what only Boeing (as it turns out) felt was best for the airlines.

The 7J7 was a vivid example of "if you build it, they will come" fallacy that too often pervades the thinking of engineers and innovators who become narrowly focused on their breakthrough concepts. Boeing faced the same dilemma in the early 1970s with the supersonic transport, and would have put that revolutionary airplane into production only to find that no airline would have been able to economically justify such a radical new design in service. The Boeing 2707 SST would have gone into very limited production and would have been fortunate to spawn as many copies as the Concorde SST, of which only 20 were built and subsidized at a loss by two, Air France and British Airways.

THE "GANG OF EIGHT" GETS HEARD

Against the background of a near miss with the technically exciting but virtually unmarketable 7J7 program, Boeing proceeded to host a series of "ask the customer" sessions. On three separate occasions over a nine-month period in 1989-1990, eight principal airlines representing all regions of the world congregated in a specially configured room in Renton, Washington, to participate in a free-wheeling exchange of ideas with senior Boeing engineers and marketing specialists. Although some of the airlines were already being seriously courted by Boeing as potential launch customers for a new airplane (known at this time as the 767-X), there was no apparent agenda from Boeing to suggest that the primary strategy of the sessions was to sell airplanes. During the presentations from Boeing, various elements that would bear on the design of a totally new twin-engine airplane were presented by Boeing, followed immediately by discussion and often tedious attempts to reach consensus among the airlines. Coming to agreement was often a major challenge because of the broad range of market and service objectives each airline represented. But in areas of maintainability and reliability, the criteria that directly affect operational success and assure aircraft readiness to support scheduled departures, the "Gang of Eight" were quick to converge on singular design goals for Boeing to consider.

One aspect of these sessions particularly impressed the airline representatives: At the conclusion of each session that focused on a particular design feature, such as cockpit layout, flight controls, or landing gear, the Boeing facilitators made a point of confirming that the information coming back from the airlines was accurately documented and basically "getting through" to the Boeing design cadre in attendance. The session host would summarize all of the specific points that had been volunteered from the airlines on handwritten viewfoils under a heading of "This is what we thought we heard." Divergent points of opinion that tended to disrupt attempts at consensus were also recorded, with special annotations indicating that the issue was still unresolved.

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The Gang of Eight sessions proved to be invaluable in helping Boeing achieve an early glimpse of customer thoughts concerning new aircraft acquisitions. There was little doubt within Boeing that had the same feedback opportunity been available during the formulation of the 7J7 program, a very early and powerful signal would have persuaded Boeing to deflect its energies into alternative offerings. The Gang of Eight concept has now become a standard process template that Boeing continues to use to gauge the potential of a new aircraft design variant, or even a totally new airplane, with its customer base. The template was used with eye-opening results in 1992 as Boeing again invited a representative conglomeration of customers to consider the New Large Airplane project, with variations of new model designs and derivative 747 airplanes, which would offer capacities of up to 600 seats. Boeing came away seriously pondering airline responses that pointed out some genuine shortfalls that a totally new mega-airliner would encounter in attempting to achieve even a modest breakthrough in economic improvement over existing airplanes. True, Boeing had spent thousands of hours in refining the design alternatives to present a realistic assessment of the airplane, but in the end losses were still held to a minimum

by terminating the project before any serious design activity had been launched. The same process, incidentally, was put in motion for a stretch version of the 777 (known as the 777-300), which was ultimately successful and is now a committed program. At the present time, Boeing is again asking customer airlines to help critically evaluate derivative versions of the 747-400 aircraft, which will be designated 747-500 and 747-600. This effort has now supplanted the previous New Large Airline exercise and will, if successful, develop the largest airplane ever built by Boeing and flown by the airlines. Also, in an effort to tap virtually every vestige of input that may be factored into the new 747 design, the Gang of Eight has now escalated to the Gang of Fifteen, with a surprising success rate in achieving consensus on major issues to provide Boeing an invaluable reference point for proceeding with a design initiative that will enjoy widespread airline acceptance.

Commandeering the time and energies of potential customers to define in broad terms what the size, shape, and mission of a new model airplane should be as an attractive program offering was exactly what Boeing had in mind when the "Gang" meetings were proposed and ultimately staged on several occasions. However, following the round of Gang of Eight conclaves in 1990, there was still much left unsaid that could figure prominently in crafting a new airplane that would enable every single design element to be reviewed and critiqued by the customer. As the launch of the new 777 program became imminent in the closing months of 1990, United and Boeing both recognized that a major new ingredient of customer participation would be necessary to amplify and solidify the precepts of the Gang of Eight many times over.

THE 1990 WIDE-BODY ACQUISITION: MEASURING WHAT MATTERED MOST

The 777 was not the only new aircraft acquisition that was being studied by United Airlines in the fall of 1990. Also in the hunt for United's new wide-body that could seat approximately 350 passengers in a two-class (first-class and coach) interior was the MD-11 from McDonnell Douglas, a high-technology derivative of the DC-10, and two new entrants from Airbus Industrie in France, the A330 and the A340. The MD-11 airplane was already in flight test, and the A340 was close to rollout and first flight. The A330 and A340 had very much in common; they were the same size and shared major structural attributes such as the wings, fuselage, and cockpit. The primary difference was in the number of engines each airplane sported: The A340, which was designed for longer routes, had four engines and was reminiscent of the DC-8 or 707 aircraft in appearance, except the fuselage was definitely wide-body, with twin aisles and expansive seating accommodations. The A330 featured the identical cabin configuration as the A340, but it had two engines instead of four.

Over a one-week period at United's corporate headquarters in Elk Grove, Illinois, in mid-October 1990, a tense drama played out in the meeting rooms and hallways adjacent to the executive suite. United's objective was to conclude a major new wide-body acquisition by the end of the week, Friday afternoon at the latest, which would culminate in a multibillion-dollar order that would fall to one of the airframe companies (i.e., Airbus, Boeing, or McDonnell Douglas) as well as the engine provider (General Electric, Pratt & Whitney, or Rolls-Royce). Each of these major original equipment manufacturers (OEMs) had commandeered separate meeting rooms on the United property and set up telephone lines, fax machines, and a host of computers. Some of the workstations were dedicated to monitoring configuration details so that specific features could be manipulated and priced out, while other computers harbored contractual terms and conditions that could be instantly transformed into well-scrubbed, executable legal documents, should the deal happily go down for that manufacturer.

Losses were still held to a minimum by terminating the project before any serious design activity had been launched.

On United's team, four financial analysts well versed in fleet planning concepts were "flying" each of the airframe-engine proposals over fictitious routes with assumed payloads and myriad revenue and cost factors to evaluate the basic economics associated with each. Already prepared, and assisting the effort as background information from United's engineering department, was a 200-page technical evaluation summary of the candidate airframes and their associated engines. A total of 33 possible airframe-engine combinations became available for evaluation, and all were summarized in a matrix that attempted to remove the subjectivity of the exercise by means of a numerical rating system. Inside the numerical matrix were 11 categories that were assigned weightings to reflect areas of prime importance in establishing a total score. Receiving the highest weighting was *mission*, which was relegated to 20 percent of the total, the rationale being that no matter how attractive or comfortable the interior, or how efficient or reliable the engines or systems, if the payload could not be flown over the required distance, the basic revenue potential of the airplane could not be achieved.

The second category in the list of 11 weightings was *interior*. This attribute weighed in at 15 percent, since the appearance, comfort, and service level offerability to a customer is a major factor in creating and perpetuating revenue

for the airline. By rating the interior so high in the numerical scheme, United was sending a clear message to the airframe representatives that the revenue potential of the cabin had to be instantly spectacular; that is, the cabin had to go far beyond the "aluminum tube" perception many passengers relegate to their airline travel experience. We were asking for something that would immediately set new standards for passenger appeal, and create such a positive image with travelers that they would remember United's cabin and be back for more.

It was appropriate to highlight the schedule aspect of performance.

On an almost equal footing with the first two categories was *mechanical reliability*, which could, if not adequately represented in the design of the airplane, cause the elements of mission and interior to not even get their chance to perform. Clearly, the airplane becomes a unit of production only when it is airborne *on schedule*, and then only when flying safely between its designated cities. It was appropriate to highlight the schedule aspect of performance, since passengers have rated on-time performance as very high in their success criteria for airline preference. Today's sophisticated airline passenger has high expectations for schedule performance in addition to comfort and service, and loss of market share can usually be attributed to shortfalls in either category.

The remaining weighting categories included *facilities*, *cargo*, *ground handling*, *flight operations*, *training*, *product support*, *technical issues*, and *cockpit*. In the last item, a minimum allocation of 5 percent was assigned, much to the distress of many pilots participating on the evaluation team. The lack of strength here had to do with the relative importance of the cockpit compared to the other categories, particularly in terms of satisfying the key attributes for schedule performance and reliability. *Safety* was a given, and evaluations of competing flight decks were entirely focused on whether there were workload benefits or other efficiencies that could enhance the overall performance of the crew and, therefore, the flight itself. To the financial analysts of any airline, the cockpit represents a veritable "candy store" opportunity for the high-technology electronics suppliers to push their state-of-the-art bells and whistles, often with very little tangible benefit to the crew or the bottom line. However, United quickly found that in the three competing flight decks there was a high degree of standardization and commonality as a result of numerous industry committees participating in design efforts, as well as broad perspectives shared by senior pilots who transition through numerous fleet types during their careers and are quite vocal about which cockpit design features deserve attention in future airplane programs.

The final negotiations for United's next wide-body acquisition came in a 70-hour marathon session that started on a Tuesday evening and did not conclude until Friday afternoon. During that period, each of the six OEMs was subjected to a serious interrogation during their proposal presentations. Dismissal from each session was usually accompanied by a request from the review committee of senior officers to "do better" in substantially improving their terms and conditions to remain competitive with the OEM that had just preceded them. The entire process of ratcheting each proposal upward until the best proposal emerged was exhausting on both sides. By the end of the final ratchet, the Boeing 777 had emerged as the new wide-body of choice and the Pratt & Whitney engine had been selected for the power plant option.

For United, the decision to select an airplane design that had not yet been built, or even moved through any detailed engineering stages to "freeze" the configuration, was based solely on the confidence shown by the Boeing engineers in depicting estimated performance of the airplane. The other candidate airplanes in the competition were either flying or virtually ready to fly, and their marketing presentations were all supported by hours of wind-tunnel testing and specific technical analyses. The 777 had none of this, but past experience with the accuracy of Boeing's ability to meet, or exceed, contractual guarantees was a thumbs-up for United to once again become a first-of-model launch customer. With the 777, this would mean *seven* new Boeing launches over the years, including those associated with the UATC conglomerate, dating to the late 1920s.

FROM INSOMNIA AND A YELLOW LEGAL TABLET, A NEW VISION

Within hours United's decision to purchase 34 firm and an additional 34 optional aircraft, a pivotal event occurred that set in motion a phenomenal cultural change within Boeing and United that dramatically changed the tone and texture of Boeing's future relationships with its customers. Jim Guyette, United's executive vice president of operations (now retired), had orchestrated the major elements of the 70-hour negotiation session and went home after two sleepless nights satisfied that a deal finally had been concluded. But, as he tells it, "At 3 A.M. I was wide awake sitting on the edge of my bed staring out the window. My wife thought I was nuts. All I could think about was what we had just done—we had just bought another *new* Boeing airplane."

Guyette's concerns were appropriately linked to the recent experience United and a number of other carriers had had with Boeing's development and production of the spectacular 747-400, a sophisticated version of the popular 747

airplane. The 747-400 featured many new innovations and technical breakthroughs that were basically underscoped in terms of actual complexity as Boeing attempted to maneuver the airplane through an overly optimistic production schedule. The delays associated with massive changes and rework at the final assembly and functional checkout phases of each airplane virtually brought the delivery process to a standstill, and early customers for the airplane were enduring delays ranging from six months to one year. In United's case, the airplane was eagerly anticipated for a major new market introduction, flying nonstop flights between San Francisco and Hong Kong. In fact, reservation clerks had been selling seats for the initial flights months in advance, and when the full extent of the delays were finally known, United scrambled to find available seats on other, less efficient equipment, or on other carriers. The overall impact was a major loss of potential revenue as reservations were refunded, but of even greater significance was the possibility that United's stature as an emerging transpacific international carrier had suffered a major setback in passenger goodwill.

With the 747-400 experience foremost in his thoughts, Guyette rushed back into a now quiet executive headquarters Saturday morning and collared two of his technical advisors who had been intimately involved in dealings with Boeing over the past year. Even after three days with virtually no sleep, he was very lucid: "We know that our recent acquisition programs haven't been all that smooth, and neither Boeing nor United has been totally happy with these recent outcomes. How can we tell Boeing what's *really* important to us, so we don't repeat the problems of the past? Most important, if we don't do something about *changing the process* now, we could very well be spending our days anguishing over why we couldn't have made this next airplane the best one we would ever operate."

With that charge, Guyette began writing on a yellow legal tablet a set of guidelines, titled "777 Objectives," which have defined for all time the concept of Working Together between the two companies (**Exhibit 1**). The brief one-page agreement set the tone for the entire 777 program, the preamble reading, "In order to launch on-time a truly great airplane, we have a responsibility to *work together....*" The key points in the body of the agreement specified that "from day one" the airplane would have the "best dispatch reliability, greatest customer appeal, and be an airplane that is user-friendly and [in which] everything works." With these simple but powerful words, the journey had begun, and endorsing the document on behalf of Boeing were Phil Condit (then head of its New Airplane Program and now president of Boeing), and Dick Albrecht, an executive vice president of Boeing representing its sales team.

EXHIBIT 1.

B777 Objective
United & Boeing

In order to launch on time a truly great airplane, we have a responsibility to work together to design, produce, and introduce an airplane that exceeds the expectations of flight crews, cabin crews, and maintenance and support teams, and ultimately our passengers and shippers.

From day one:

- Best dispatch reliability in the industry
- Greatest customer appeal in the industry
- User-friendly and everything works.

James M. Guyette
Exec. V.P. Operations
United Airlines

October 15, 1990
Chicago

Richard R. Albrecht
Exec. V.P., BCAG

Phil Condit
Exec V.P. & G.M., New Airplane Prog., BCAG

YOU'RE HERE TO DO *WHAT*?

The first steps in putting the new agreement into place amounted to totally unnerving Fortress Boeing by infiltrating the most sacred domain of its development program, the design-build teams. This was a major cultural blow to the established institutions at Boeing, and the initial experience has been described most vividly by a United engineer who said he "felt like he had just wandered into the ladies' locker room—it was a very awkward and nervous time, and everybody there was wondering when I was going to leave." On more than one occasion, the presence of the customer suddenly appearing in these sensitive sessions would induce an uncomfortable silence, followed by considerable foot-shuffling and nervous eye movements indicative of a rampant virus turned loose and out of control. For those who were not yet aware of the "yellow sheet" and the dramatic new roles each side was now committed to support, the eyes would normally say it all: "You're here to do *what*?"

However, the process soon worked itself out as a result of the top-down endorsement and solid support of senior management on both sides. Before long, the "Yellow Sheet" had made the rounds in both companies, and at Boeing it had been enlarged to a 3-foot-by-4-foot poster with dozens of copies conspicuously displayed in virtually every meeting room and hallway. The concept became inescapable,

and as customer involvement became the accepted format throughout the 777 Division, the design meetings often would not start until the airline representative arrived.

"Working Together" Success Strategy No. 1

Use major triggers to energize the process. *Don't go "quietly into the night" in promoting Working Together, but* light up the sky! *Cultural realignments of this magnitude require 400 volts, not 120! Think* industrial strength *to get the job done, not the normal tools. It is critical to* start at the top *and work down. Before you announce, make sure the entire management team buys in; detractors can become an insidious deflection from your objectives. Make sure that everybody knows the expected outcome and can look forward to sharing in the journey. Boeing and United crafted a simple one-page handwritten statement to start the infusion.* ■

In time, the initial United cadre installed at Boeing (there were approximately six engineers attending 12 specific design sessions every week) was joined by other early customers for the airplane: All Nippon Airways, British Airways, and Japan Airlines. Each of these airlines accepted the basic tenets of the "yellow sheet" as their own and were able to field senior engineers at Boeing throughout the duration of the design process. The visibility of the concept quickly spread, supported by a program of continuing communication from Boeing that kept the Working Together commitment under bright lights. This was occurring at all levels, through internal media, team meetings, and a seemingly endless display of banners, stickers, pennants, and labels that gave a continuous charge to the high voltage necessary to keep the concept alive.

"Working Together" Success Strategy No. 2

Keep customers in front of the teams at all times. *Once they are signed up, customers have a vested interest in the success of their supplier. Look at their presence as a* gift *in helping to unearth root causes for past problems. Tapping their* tribal knowledge *of your product that you don't have will enable you to achieve mutual success in your shared journey. Candor, openness, and never having to "manage a secret" are at the core of Working Together.* ■

As the teamwork matured throughout the first year of operation, the Working Together airlines evaluated over 1,200 design issues on the new airplane. Most of these issues were reviewed against a backdrop of previous experience that each airline had accumulated, with the result that most items were merely "checked off" as being appropriate for the 777. However, over 300 design improvements were recommended by the airline representatives as new design directions Boeing would take into final design deliberations. Working together, the airline members and the Boeing engineers would often engage in spirited debate as the merits of a design concept went forward, but consensus was achieved in virtually all cases. There was no lip service paid to the airlines; anecdotes and data flowed freely, and the eventual proclamation of buy-in was usually accompanied by back-slapping and elaborate coffee breaks (or a highly modified tea ceremony courtesy of the Japanese delegates). **Exhibit 2** depicts some of design changes on the 777 attributed to the Working Together airlines.

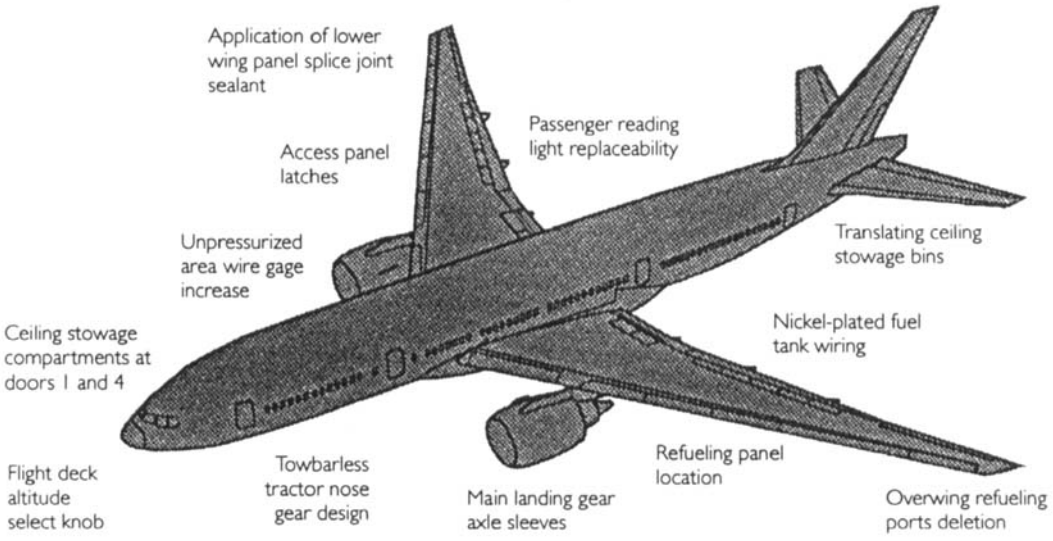
"Working Together" Success Strategy No. 3

Continually compare past processes with new expectations. *Approach the prospect of change with the expectation that revisions can be accommodated without having to be* invented. *Continually validate the need for change. In the Boeing 777 program, the majority of design issues that were examined* did not need changing. ■

Throughout the five-year development and certification period of the 777, the discipline to maintain schedule was behind virtually all the activity that the design teams faced. Because of the technically adventuresome mind-set of the typical engineer, it was often difficult to curtail the search for the perfect design so that the program could continue moving forward. The presence of the airlines was especially valuable in helping Boeing with the rationalization of its designs that brought realistic expectations, and not always perfection, to the final outcome. This was made clear on numerous occasions when major issues confronted the program that were quickly dispatched by the airlines against their backdrop of experience that said, "It's never broken before, what makes you think it needs *fixing*?"

As discussed previously, the Working Together spirit that was infused into all facets of the 777 experience was kept alive through constant reminders of what the participants were trying to achieve—the very best product that would bring value to the customer, marketability for the manufacturer, and pride for the workers. At every program review conducted at the highest levels within Boeing, the essence of Working Together was reviewed as an ingrained ritual before any deliberations would take place. On a well-used viewfoil, bent and battered with time, these thoughts were always in the forefront at every meeting:

EXHIBIT 2. Working Together Airlines' Influence on 777 Design



- Clarify the objectives.
- Document the details.
- Review the plan often.
- No individual has all the answers.
- Boeing is not an airline.

A SHARED TRIUMPH: THE BENEFITS OF WORKING TOGETHER

A sobering sidelight to the reality of the Working Together concept as described here is that many business relationships may not be able to muster and deploy resources in the same fashion as Boeing and United. The five-year development period for a new airplane is unique in itself, as is the narrow customer base and tight focus on issues toward which each side of the process can direct its energies. On a more global note, however, the underlying principles of Working Together should find a repository in every business relationship. Simply put, *every seller has a buyer*, and the need to work to the mutual enrichment of both is a valid paradigm that will result in increased value to the product.

Some will contend that in the hard glare of reality, the customer is always asking for the moon but is unwilling to pay the freight, or that the manufacturer is driven to produce cheaply but charge extravagantly. In the Boeing-United relationship, United never probed Boeing's cost structure, nor did Boeing, in turn, press United for the return-on-investment targets that were driving its purchasing decisions. They did come to a mutual understanding, however, of how complex these other forces could be and how they could occasionally blur each participant's vision.

In March 1996, the National Aeronautic Association awarded the 777 team the prestigious Collier Trophy for 1995 at a lavish black tie dinner and reception in Washington, DC. In capturing the Collier tribute, which is awarded for the most significant achievement in aviation, the 777 program has joined company with the Space Shuttle, the Apollo Moon missions, and the Concorde. In a manner quite different from previous Collier banquets, however, a conspicuous thread of *team* recognition and appreciation pervaded every aspect of the evening's events. As representatives from Boeing, the engine manufacturers, the Working Together airlines, the Air Lines Pilots Association, and the Federal Aviation Administration accepted laurels on behalf of their organizations, each in turn recognized the contributions and support of their partners. Clearly stated, without any innuendo, was consistent reference to this amazing five-year journey that was launched on the strength of a handwritten agreement and the absolute faith and support of leaders who continually nurtured the belief that looking at issues through clear glasses, *together*, could get them where they wanted to be. ■

"Working Together" Success Strategy No. 4

Respect boundaries. *The paradigm of Working Together tells us to respect limits, but to continually push for the perfect amalgam that will produce mutual benefits. The paths to these objectives are amazingly uncluttered once the ability to alter boundaries and codevelop expectations has been mastered. A "time out" is often necessary to remind us why we started the journey in the first place.* ■