In the Beginning There Was the Vision

In January 1951, only two and a half years after the establishment of the State of Israel and about a year after the end of the War of Independence, an historical meeting took place in Burbank, California. The prime minister of Israel, David Ben Gurion, and the head of the Defense Ministry’s delegation in the US, Shimon Peres, came to talk with Al Schwimmer, founder and manager of a small aviation company known as Intercontinental Airways, whose chief business was the maintenance and reconditioning of obsolete military aircraft at an out-of-the-way corner of the Burbank airfield. Schwimmer, a young Jew from Connecticut, had dreamed about aircraft from childhood. He studied aircraft machinery, qualified as a flight engineer, and served in WW2 in the transport command of the US Air Force. In 1947, he began procuring and arming aircraft on behalf of the State of Israel, despite the embargo imposed by the American administration on arms shipments to the Middle East. On his arrival in the new state of Israel, he was appointed head of maintenance of its nascent airforce. At the end of the Israel's war of independence Schwimmer returned to the US, where he was indicted for breaking the embargo laws and given a suspended sentence and fine. His ties with Israel continued, the embargo was lifted, and his company purchased surplus military aircraft, which it reconditioned and delivered to Israel.

Israel of the early 1950s was a tiny state encircled by enemies many times its size who still burned with the shame of their 1948 defeat and waited for the “second round” that would eradicate the young state. During the War of Independence, Israel had lost thousands of the cream of its youth. Now it was burdened with absorbing vast numbers of immigrants, some from a devastated Europe, others from the Arab countries, almost all of them destitute. The trade and budgetary deficit was enormous, and Israeli industry was in its infancy. Under those conditions, it is difficult to believe that Ben Gurion and Peres could seriously have considered establishing an aviation industry in Israel. Then, as now, the aviation industry was considered the scientific and technological spearhead of industries. Only the major powers – the US, Britain, France and the USSR – plus a handful of countries with a longstanding technological tradition, had a aircraft industries. But Ben Gurion and Peres were cast from a mold of leaders for whom adversity is enthusiastically viewed as a challenge.

WW2 on a global scale, and the Israeli War of Independence on a regional scale, illustrated the vital importance of the aircraft in modern combat. Israel’s geopolitical situation, isolated within a ring of hostile countries, consigned it a priori to dependence on developed and reliable air transportation.
The Israeli Air Force required technical civilian support; the new national airline, El-Al, required maintenance at a reasonable level. Al Schwimmer was the person able to provide Israel with both. Fortunately, Ben Gurion and Peres did not have a hard time convincing him.

“Schwimmer was enthusiastic. Israel must build its own ‘bona fide’ aviation industry, a real industry - almost American style in both scope and management methods,” Shimon Peres wrote many years later, describing the historical meeting in Burbank. “Our dream was, at the same time, both grandiose and modest. The grandiose aspect was the establishment of a maintenance base in Israel rather than the US. The modest aspect reflected our hope that that small corner of the Burbank airfield would be the cornerstone of an Israeli aviation industry.”

The original plan, which was worked out and approved in early 1952, called for the establishment of an Israeli company called Bedek Aviation, that would set up an aircraft maintenance facility near Israel’s only international airport at the time, in Lod. Schwimmer, together with Heyman Shamir (Shachtman), a navigator with the US Air Force during WW2, who volunteered during the War of Independence and achieved the rank of deputy commander of the Israeli Air Force, and Danny Agronsky, a veteran and experienced procurement man, began taking the necessary steps. The assumption was that the new facility would perform routine maintenance on IAF aircraft and, concurrently, maintenance of the small El-Al fleet. But from the outset Schwimmer did not conceal his dream that Bedek would be able, within a few years, to expand its operations to include engine reconditioning. Most people with whom he shared his dreams thought he was out of touch with reality, but others were enthusiastic, drawn to the “crazy” American.

Initially, the founders of Bedek – the political leaders as well as Al Schwimmer, Shalom Yoran and their colleagues – understood that a necessary condition for success was the quality of the human resources that they would be able to recruit. Even if no one talked then in terms of “human capital”, the concept per se was at the core of the new plant from the outset. Its founders knew that, in terms of initial capital, accumulated experience and technological tradition, they had little chance of competing with similar plants in other countries. The only chance of success lay in the intelligent recruitment and professional training of manpower and, above all, in instilling workers with a feeling of pride and uniqueness. In this respect, opinions are unanimous that Bedek – and subsequently IAI – was one of Israel's greatest success stories. From the first day in the workshop, the laboratory, at the drawing table and in the office, the workers were trained to believe that they were not inferior to their foreign counterparts. The combination of knowledge, original thinking, initiative, daring, and the workers’ awareness that their work was vital for the security of the state, and that they were leading Israel to a place of honor among modern nations, proved a winner.

Obviously, this could not be achieved simply by propaganda and successful slogans. IAI, from early on was known as a workplace that invests more than others in the training and fostering its workers, and that offers opportunities to those with talent and abilities. Young people joining IAI immediately after military service and starting as junior technicians, were sent to the Technion to study engineering, and to foreign countries for in-service training. And they repaid the investment in them.
In 1955, Bedek won its first accreditation from the US Federal Aviation Administration, granted after a thorough inspection of the facilities and of the workers’ professional abilities. Since then, IAI has been awarded numerous accreditations and certifications by the world’s leading aviation authorities.

Bedek underwent its first “baptism by fire” during the Sinai Campaign in late 1956. Out of approximately 600 workers, some 300 were called up for reserve duty. Despite this, Bedek was assigned the task of reconditioning and repairing all the IAF aircraft in its care, and rose magnificently to the task. The limited number of staff worked round the clock. People didn’t leave the plant for a moment, staying to sleep on folding cots. Aircraft that had been hit or that had broken down in battle left the plant in record time and in mint condition. French pilots and observers who saw Bedek in action, returned to their country singing paean of praise to the Israelis’ professionalism and dedication. The Israeli Air Force, which until then had regarded Bedek with skepticism, finally grasped its importance.

**Manufacture of the Fouga Magister**

But instead of resting on their laurels, Bedek's directors plunged into a new challenge, more daring than its predecessors and, in the opinion of many, even somewhat presumptuous – the manufacture of aircraft. Much thought was invested in deciding which aircraft would be the first to go into production in Israel. Finally, the choice landed on the Fouga Magister jet trainer aircraft, manufactured by the French company Fotage which, four years earlier, had been chosen as the standard NATO airforce trainer aircraft.

Manufacture of the Fouga forced the plant to undergo comprehensive structural, engineering and logistic changes, since serial production is completely different from a repair and reconditioning workshop, however big it may be. The plant’s engineering staff grew rapidly, both in number and by comparison with the other teams. Manufacture began in 1958, with Shalom Ariav, an IAI pioneer appointed to head production.

Although the Fouga Magister was the first aircraft to be manufactured by IAI, no less impressive, professionally, was the opening of the tail of the Stratocruiser, designed to turn it into a major vehicle for special IAF transport missions. This combination of aeronautical engineering, avionics and electronics was the first of its kind at the Israel Aircraft Industries, and its successful accomplishment increased IAI’s design, development, production and maintenance capabilities in the areas of aeronautical and military engineering, hydraulics and radar. The defense establishment, realizing that it was holding an invaluable tool, upped its demands of IAI – which proved equal to the task.

As a result of the unprecedented concentration of a large and talented pool of engineers in Israel, all with demonstrated development and production capabilities as well as proven record of dedication and confidentiality, IAI began receiving many projects, not all of them necessarily to do with aircraft. The development of the Gabriel sea-to-sea missile in the mid-1960s, jointly with the Weapons Development Authority (Rafael), was one notable project – but certainly not the only one.
Establishment of the Engineering Division

This capability led to the establishment of the Engineering Division, headed by Professor Moshe Arens. This division spearheaded the planning and development of the Arava transport aircraft and of the Nesher and Kfir combat aircraft. It also coordinated upgrading work on executive jets, such as the Westwind, whose design was based on the American Jet Commander executive plane, but which contained many improvements, exceeding its “progenitor”.

Establishment of the Production Division

In 1965, IAI's new Aircraft Production Division was setup, headed by Shalom Ariav, who had acquired experience in the manufacture of the Fouga. This division was slated, in the coming years, to set up the Arava, Westwind, Nesher and Kfir production systems. In early 1967, prior to the Six-Day War, IAI payroll had reached 7000, more than three times the number of Bedek workers in 1959. It was Israel's largest plant and had already proven its aircraft development and production capabilities, as well as its ability to develop sophisticated electronic systems.

The French arms embargo, imposed during the Six-Day War, presented Israel with an unprecedented technological and industrial challenge. Israel, which until then had regarded its relations with France as an unshakable strategic alliance, was cut off from its chief source of armaments. The Mirage 5 aircraft that had been planned to form the backbone of the Israeli Air Force, never materialized.

Necessity became the mother of invention. In a forward-looking decision, testifying to courage and determination, the Government of Israel decided to develop and manufacture a local combat aircraft that would replace the Mirage 5. The task was entrusted to the Israel Aircraft Industries.

Aircraft Development and Production

By its very nature, work on the Nesher was semi-clandestine, under conditions of uncertainty regarding the supply of engines and other essential parts. However, Israel Aircraft Industries took up the cudgel, first undertaking to fulfill all its assigned tasks, and only then to begin developing the conditions and resources for implementation

The Israeli model of the Mirage 5 was actually assembled in Israel. Called the “Nesher”, it was destined to distinguish itself in the battles of the Yom Kippur War.

Moshe Keret, today IAI's presinet and, at the time, one of the engineers working on the Nesher project, recalls: “Everything was top secret. We even thought about the well-known technique of ‘reverse engineering’, which means taking an existing aircraft, dismantling it, preparing drawings from it, and building a plane on the basis of the drawings. Truth to tell, this would have been an act of near suicide.”
Luckily, many in France's defense and industrial establishment were opposed to De Gaulle’s embargo. They were unable to understand why France, Israel’s main weapons supplier, was imposing an embargo, while the USSR was freely supplying arms to the Arab states. These opponents sought, and found, ways of aiding Israel.

“It was our great good fortune that the embargo had not been applied to spare parts, which eventually began to arrive,” Keret recalls. “But how? Here a drama was played out, of many hours, days and nights of anxiety, apprehensions and fears. Mirage 3 parts and systems arrived from France in lifts sent by returning Israeli emissaries. Once, a very large aircraft part arrived wrapped in old clothing, disguised among the furniture and personal effects of a particular family... In Paris, we had people who became ‘wizards’ at packing and transporting these parts in any number of weird and wonderful ways. Whenever we received one of these crates, we would quickly unload it and transfer the part to the production line, in order to move production ahead one more step.”

At Israel Aircraft Industries, the aircraft was converted to serve as both an attack plane and an interceptor. Nesher fighters downed about one hundred enemy aircraft in the Yom Kippur War, and carried out thousands of sorties. At the same time, Israel was able to find a new source for its vital weaponry - the United States - which supplied Sky Hawk and Phantom aircraft to the Israeli Air Force. The American aircraft industry, the largest and most advanced in the world, discovered in IAI technological skills and inventive capacities that at times even surprised the Americans. IAI, for its part, rapidly moved into new areas, obtained and assimilated new technologies and was able to meet new, more stringent criteria. Ties with the American industry expanded and deepened, undergoing structural changes. Beginning with limited contract work, IAI moved on to close cooperation, and from the initial stages of know-how development and laboratory trials through to serial production.

The 1970s saw IAI grow into a bona fide aircraft manufacturer. Although development of the Nesher, the Arava transport plane and the Westwind executive jet had begun in the late 1960s, serial production commenced only in the 1970s.

The Arava was the first aircraft developed by IAI from start to finish. The team of designers was headed by Professor Moshe (Misha) Arens, later Defense Minister in three Israeli governments. Its development was touched by tragedy when, in 1970, three of the company’s employees – chief test pilot Avraham Hacohe n, aeronautical engineer Aharon Ozeri, and instrument technician (copilot) Eitan Spiegel – were killed in an accident. In the same accident, Dave Levine, who later died in a demonstration flight abroad, was also injured. Production of the Arava nevertheless moved ahead, and it proved itself as a multi-purpose aircraft suitable for short takeoffs and landings on improvised runways, mainly in South American countries.

Not long after the Yom Kippur War, IAI began supplying Kfir fighters to the Israeli Air Force. The IAF was due to receive some 200 of these aircraft. Numerous avionic and electronic enhancements have been introduced in each production series, making this Israeli fighter a serious competitor for its equivalents manufactured in other western countries.
Development and Manufacture of Missile, Radar and Electronic Warfare Systems

In the late 1970s, IAI's payroll was 14,000, double the number of employees ten years earlier. Since then IAI has continued expanding its activity to include radar for both sea- and aircraft, advanced models of Gabriel missiles, communication systems, electronic warfare systems, etc. All these products have proven their test and actual combat effectiveness, giving the IAI a significant competitive edge. Working tirelessly, the company was able to exploit this advantage to increase its exports. In 1976, the IAI, for the first time in its history, reached break-even between sales to the Israeli market and sales to foreign markets.

During its almost fifty years, the IAI has undergone comprehensive structural reforms. Being the largest and most sophisticated enterprise in Israel, it has set new and ever higher standards, not only for development and production, but also for organization, management, product costing and marketing.

The IAI’s current structure is similar to that of major sophisticated industrial concerns in the United States and Western Europe. Today, the IAI's divisions constitute its four main operational arms, each of which enjoys a great degree of autonomy, although they are all subordinate and accountable to the central management.

Bedek Aviation Group

Historically, the first division is the Bedek Group which started out as a small workshop for the maintenance of military aircraft. Bedek still maintains aircraft, but has meanwhile developed into one of the world’s leading enterprises for overhauling and converting passenger aircraft. The main “step-up” in this direction was made by Bedek in the 1970s, when it embarked on an ambitious project –reconditioning Boeing 707 passenger aircraft purchased from TWA. The Boeing 707 was, at the time, the world’s number one passenger plane. The IAI’s proven ability to recondition it, restoring it to mint condition, as if it had just rolled off the Boeing plant’s production line in Seattle, impressed both Boeing and commercial airlines all over the world.

Since then, Bedek has reconditioned and converted hundreds of passenger planes. An area in which Bedek has gained a worldwide reputation is the reconfiguring Boeing 747 (“Jumbo”) jets from passenger to cargo planes.

In addition to reconditioning and maintenance work performed by Bedek for dozens of airlines, it is one of the few plants in the world able to take a “normal” passenger plane and to reconfigure it, modify its design, furnish it, install new systems and convert it for new customized applications. Bedek, the oldest of IAI's groups, currently employs some 3200 workers in three plants in Israel (each specializing in different areas: engines, aircraft and accessories) and one in Miami, USA. Out of an annual turnover of $500 million, 90% is generated by mostly civil aviation exports. Whereas Bedek previously also provided maintenance services to the IAF, today it no longer handles combat aircraft.
“Civil aviation,” explains David Arzi, IAI Corp. VP & General Manager Bedek Group, “revolves around a single key element, which dictates and the work ethic and norms in this industry – flight safety. The passenger boarding a plane and reclining against the pillow expects the plane to take off and land without problems, without giving a thought to the people, the techniques and the processes that fulfill these expectations in more than 99 percent of takeoffs and landings. We, at Bedek, are one of the plants with the proven ability to guarantee our customers – airlines, state leaders, businessmen and owners of private planes – maximum value, in the form of 100 percent safety in flying, a short lead time, from receipt of the plane – either for regular maintenance or general reconditioning – until it is released, and a reasonable, although not necessarily low price. Our serviceability rate for aircraft we handle is very high.”

The Electronics Group

The IAI Electronics Division employs some 5200 workers in four plants: Elta, MBT, Tamam and MLM. Elta is one of the world's three leading companies in the fields of radar, electronic warfare and electronic intelligence. It also engages in advanced communications, and develops and manufactures base technologies (telephone receivers, signal processors, micro-electronics, etc.) that support the products they develop.

MBT (acronym for “Mifal Bet” – Plant No. 2) specializes in space work, and is responsible for the Ofek and Amos satellites. MBT recently established a partnership with a US company for the planning and implementation of the EROS program (Earth Observation System), and is also a partner in the ELIPSO program for the establishment of a system of communications satellites in collaboration with foreign companies. Additionally, Mabat develops a number of weapons systems, including the Barak sea-to-sea precision homing missile, the Harpy – a “suicide” pilotless aircraft (i.e., a pilotless aircraft loaded with explosives that homes in on its target and destroys it) notable for its ability to remain airborne for a relatively long time, and laser-guided weapon systems.

MLM is Israel's leading missile enterprise. It developed the Shavit, a satellite launcher manufactured in Israel, and it developed and manufactured the Arrow- Anti Ballistic Missile system. The creativity and innovation demonstrated so far in that project have earned the praise of senior US experts.

MLM also develops command and control systems, and built the communications infrastructure for Israel's cellular phone companies. The experience and know-how accumulated by MLM in this area enabled it, when the third cellular operator, Partner Orange, moved in, to set up a system of 400 cells within only six months – an achievement unparalleled anywhere in the world.

Tamam deals primarily in inertial navigation systems. Globally, this area has seen revolutionary changes and innovations while, at the same time, the market has significantly contracted.

To combat the difficulties presented by these developments the plant is moving into new areas, such as the upgrading of helicopters with electro-optical systems which provide enhanced nighttime operational ability, and the development of various satellite components.
“IAI Electronics Group” says Zeev Nachmoni, Corp. VP & Group General Manager, who joined IAI as a junior technician, with unconcealed pride “contains the greatest concentration of hi-tech brain power in Israel, and is the industry leader in products, solutions and in business turnover – thanks to its manpower, whose initiative and creativity is a amazes me afresh each day.

Military Aircraft Group

The Military Aircraft group comprises three divisions, of which the largest is Lahav, employing some 900 workers. Lahav maintains and reconditions combat aircraft and upgrades combat aircraft systems manufactured by different countries, starting from Israel, through the United States and Western European countries, to aircraft manufactured by the former USSR and other Communist Bloc countries. The plant also manufactures main subassemblies for sophisticated combat aircraft of companies such as Boeing, Lockheed Martin and others.

Some of the plant’s major projects include:
Upgrading Phantom fighters for the Turkish Air Force; upgrading F-5 fighters for several airforces; upgrading T-38 trainers for the USAF , subcontracted by Boeing. manufacture of assemblies and main subassemblies for F-15 fighters, also manufactured by Boeing and used as the main fighter-bombers in the airforces of the United States, Israel and some NATO countries.

Malat employs about 500 workers. As indicated by its name [Malat = Hebrew acronym for unmanned aerial vehicle], the division designs, develops and manufactures UAVs which are rapidly assuming a position of importance in armies around the world. UAVs are used for a wide variety of purposes, such as intelligence, reconnaissance and more. Due to their low price compared to manned aircraft, the savings in human life and the lack of need for trained pilots, most advanced armies in the world are interested in increasing the share of UAVs in their air power. IAI is one of the world’s leading plants in this area, and it has won accolades from the professional press. Several years ago, the division was awarded a tender by the Swiss Air Force for the manufacture of the Ranger UAV system pilotless aircraft systems. A number of countries have opted for IAI’s Hunter model, and IAI has also won tenders to supply Searcher pilotless aircraft. It should be noted that competition in this area is extremely fierce.

The group’s third division is Mata Helicopters, employing 300 workers and specializing – as indicated by its name – in helicopters. Mata maintains and reconditions transport, assault and fighter helicopters, upgrades helicopters and enhances their capabilities, including capabilities for nighttime operations, for carrying and launching weapons, etc.

Some of the plant’s key projects include:
Upgrading the CH-53 configuration to the advanced CH-53 2000; reconditioning blades and rotor heads for various models of helicopters for the IDF and the US Army; upgrading and converting helicopter cockpits for night vision and for carrying weaponry not included in the original configuration.

The GROUP also operates a small plant on the Golan Heights – Golan Industries, which employs a few dozen workers and focuses on the production of energy absorbing helicopter seats. The plant’s customers include the US Navy’s helicopter fleet.
Commercial Aircraft Group

IAI’s Commercial Aircraft Group develops and manufactures commercial aircraft. Conventional wisdom in Israel and the world predicts a continued downsizing of defense budgets in the foreseeable future, mainly due to the end of the Cold War and the diminished danger of global military confrontations. In view of this fact, divisions which for many years focused on military aviation business, have recently begun making efforts to switch to civilian business. IAI is an integral part of this global trend.

30 years ago the heads of IAI already realized the importance of developing civilian lines as part of IAI operations. To this end the company purchased an American executive jet manufacturer which produced the Westwind for many years. IAI subsequently began manufacturing a new-generation executive jet – the Astra.

The most advanced of IAI’s executive jets is the Galaxy, a transatlantic plane that provides its passengers with maximum comfort and the possibility of working during the flight. The plane received rave reviews in professional journals and is considered one of the outstanding executive jets of the 21st century.

The Civil Aviation Division includes an engineering center that develops technologies for the division, and also serves as subcontractor for IAI plants in the military sector, mainly for work on pilotless aircraft and in upgrading combat aircraft.

Another plant belonging to the group is Shahal, which specializes in the development and production of aircraft landing gear systems, flight control systems and testing facilities.

The Company’s Managers

The saying that “every IAI employee knows that he may one day hold the baton” is not mere hyperbole. Al Schwimmer, founder and first president retired in October 1977. He was replaced by Gabriel (Gabi) Gidor, who joined IAI in 1966 after retiring from the IDF, and held senior positions over the years, including manager of the Kfir Project and head of the Aircraft Production Division.

In October 1982, after serving five years as general manager, Gidor was replaced by Dr. Meir Dvir, an IAF veteran who joined IAI in 1964 and was one of the founders of Tamam. His positions prior to his appointment as general manager included manager of Tamam, manager of Elta and IAI R&D deputy general manager. In May 1983, Shalom Nimrod Ariav took over from Dvir. Ariav, one of IAI’s pioneers, started out as aircraft maintenance manager, set up the Fouga production system, and at the end of 1958 began to set up IAI’s general production system for aircraft, at the instruction of the then general manager, Al Schwimmer. In 1965, Ariav was appointed head of the new Aircraft Production Division. Thereafter, he served as senior deputy general manager and worked to develop the production systems used for building the Arava, Westwind, Nesher and Kfir aircraft. In 1974, Ariav retired from IAI and began an independent career of marketing aircraft and defense products worldwide. He returned to IAI following an absence of nine years, and served as general manager for two years.
In 1985, Ariav was succeeded by Moshe Keret, the first Israeli-born president of the IAI. Keret joined the IAI immediately following his release from the IDF, in 1955. He started his career with the company as an aircraft mechanic, studied at the Technion and returned as an engineer in the Production Engineering section.

In the following years, Keret held numerous and diverse positions at IAI. Among other things, he was manager of the fighter-plane assembly section, in charge of production of the Nesher aircraft, deputy general manager managing the Aircraft Production Division and head of the Kfir production program. In 1982, he was appointed deputy general manager for marketing, and a year later was promoted to the position of assistant general manager for marketing, research and business development. On the retirement of Shalom Nimrod Ariav, in mid-1985, Keret was appointed general manager of IAI, a position he holds to this day.

The Lavi

The story of Israel Aircraft Industries is not one of entirely unbounded success. The affair of the Lavi fighter-plane, one of the most painful and traumatic in its annals, is a case in point.

In the early 1980s, the IAF increased its purchases of aircraft in the United States, cutting back significantly on orders for Kfir aircraft. Demand for the Gabriel missile also declined at this time, and world sales of executive jets slumped.

Israel Aircraft Industries, with its enormous experience in developing fighter planes and all their avionic and electronic systems, felt ready to confront the biggest challenge: planning, development and production of a modern first-line fighter for the Israeli Air Force. The Lavi was intended as the main component of the airforce, supplementing the American F-16s already in service. To do so it had to be an outstanding assault plane, equipped with advanced weaponry and electronic systems, with high future battlefield survivability and excellent self-defense capabilities. Two models were designed: a single-seater, intended mainly for air battles, and for the development of technologies in data processing, aeronautics, avionics, weapon systems, radar and electronic warfare systems, etc.

In July 1986, IAI ceremoniously unveiled the Lavi, and on the last day of that year, a test model of the Lavi performed a successful premiere flight. The Israeli public responded enthusiastically, and the future of the Lavi appeared to be assured. However, the United States brought increasingly heavy pressure to bear, the Israeli Air Force withheld support for the Lavi, and the government ultimately voted – by a majority of one – to discontinue the project.

It cannot be denied that this decision caused an extremely severe crisis in IAI. Of a record 22,000 workers employed at that time by the company, 5000 left within a short time, morale dipped to an all time low, and the future of IAI appeared to be in question.
However, the strength of successful companies lies in their ability to use crises as a springboard. So it was also with IAI, and the credit for this goes mainly to its workers: After recovering from the heavy blow, they applied themselves with renewed vigor to the fight for the company’s future and success. The knowledge accumulated during the years of developing the Lavi did not go to waste, but aided in the development and production of advanced radar systems, electronic warfare systems, precision weaponry, navigation systems, electro-optical systems, missiles and UAVs (unmanned aerial vehicles). The conversions and configuration changes were expanded and improved in both civilian and military aircraft. During this time, the IAI racked up significant achievements in the area of intelligence gathering, most of which have not yet been publicized. The company moved ahead mainly in the area of pilotless aircraft, in which it is considered one of the world leaders.

**The Arrow**

The Arrow advanced antimissile missile program, for which IAI is the main contractor, also contributed to the company’s recovery. This program forms part of the “Strategic Defense Initiative”, more popularly known by the name “Star Wars”. To date, the Arrow has had most promising achievements at the test level. The program includes not only the actual Arrow missile, but also its launch and control systems as well as the radar system. The achievements so far are very impressive, and practical implementation of this program is expected to begin soon, initially in Israel.

The early part of the current decade saw defense budgets in the United States and Western Europe shrink dramatically due to the collapse of the Communist regimes. This plunged all of the world's defense industries – including IAI – into a crisis. Unfortunately, civil aviation experienced a slump at exactly the same time, leading to a sharp drop in orders from airlines. As a result of these two trends some five to six years after the Lavi crisis, IAI found itself facing a new crisis. It was forced to cut back further, and the payroll was reduced from 17,000 to 14,000. A succession of years ensued marked by continuous financial losses, resulting in a severe and prolonged financial crisis that was cause for concern.

**The Ofek and Amos Satellites**

Despite these developments, the Israel Aircraft Industries continued developing, choosing just this time to build the Ofek, a technical test satellite which, according to foreign publications, is used by Israel for intelligence gathering, and the Amos, a modern communications satellite. Needless to say, IAI's demonstrated ability in launching satellites, and in their contents, is in itself a valuable contribution to the security of Israel and to its deterrent power. This ability also stimulated considerable interest in various civilian markets and sectors, notably oil and mineral exploration, geological applications, weather forecasting and environmental protection.
Concurrently, contracts were signed for upgrading military aircraft, most notably the contract for upgrading F-4 (Phantom) aircraft of the Turkish Air Force, the largest in the region after the Israeli Air Force. Achievements were recorded in the Arrow program and in the UAV program, with UAV's currently being sold to a substantial number of foreign countries. Renewed growth in civil aviation made a further contribution to recovery. At the end of December 1997 IAI presented a new-generation executive jet, the Galaxy, which was well received by the experts. Bedek added new airlines to its list of customers, including a number of the world’s major airlines.

So it was that in 1997 the company was able to breathe a sigh of relief following several very difficult years: the order backlog grew, sales were up significantly, and a net profit was reported for the first time after successive years of losses.

Economic data are usually regarded as dry and boring material, but the economic data of Israel Aircraft Industries reflect a tale of enthusiasm and pride.

**Business – Economic Data**

Israel Aircraft Industries is Israel’s top exporter, year after year. In 1998, for example, IAI was responsible for no less than 9% of Israel’s total industrial exports. The majority of IAI sales – 75% in 1998 – are to foreign markets. Exports previously focused on military markets, but in recent years the company strategy is to target commercial exports. Efforts in this area met with success, and commercial exports today account for 40% of total IAI exports.

One of the most important figures in any industrial enterprise, and particularly a high-tech enterprise, is the average sales per worker. Obviously, the higher the ratio of sales to workers, the greater the efficiency and profitability of the enterprise. An average of $100,000 in annual sales per worker is considered very respectable by international comparison. IAI exceeded this marker for the first time in 1994, with an annual $102,000 per worker, and has improved the figure every year since. In 1998, average annual sales per worker totaled $133,000, and further improvement is expected in 1999, bringing this figure up to an annual $140,000.

An analysis of IAI’s business contracts also reveals the efforts to increase and diversify exports and, mainly, to locate new customers. In 1993, contracts with Israeli companies accounted for 32%, i.e. almost one-third, of all contracts. In 1999, this was down to 23%, i.e. less than a quarter. The share of North America (US and Canada) remained stable – 36% in 1993, 33% in 1998. However, the past six years have seen an almost doubling of the shares of Asia (from 12% to 23%), Europe (from 7% to 13%) and South America (from 4% to 7%).

In addition to IAI’s direct contribution to the Israeli economy, it should be noted that the number of plants and people employed by IAI as subcontractors is the largest in the Israeli economy: some 14,000 workers, almost equal to the number of actual IAI workers. In 1998, IAI purchased products totaling $366 million and services worth $167 million from Israeli suppliers. Additionally, the training of hundreds of workers every year in aviation and technology professions constitutes a significant contribution to the Israeli economy, even if not all find a place in IAI. The added value (i.e. profit plus labor costs) contributed by IAI to the Israeli economy is one of the highest. In recent years, the proportion of IAI workers out of all workers in the economy has remained stable, at 0.7%. However, IAI’s added value as a
percentage of the total GDP has grown steadily: 1.1% in 1996, 1.3% in 1997 and 1.4% in 1998. This is an increase of 27% in only four years – a most impressive achievement.

1998, the last year for which complete and final figures are available, was the second successive year in which IAI reported unprecedented achievements. The business results show that the company has gotten back on the track of growth and profitability. During the year, all of the company’s business indexes improved. Sales totaled $1.88 billion, and net profit reached $50 million, among the highest in the company’s history. The company’s order backlog is also trending upwards, currently standing at $3 billion, a figure promising stability and hope for the coming years.

A Visionary Industry

“The uniqueness of Israel Aircraft Industries,” says president, Moshe Keret, “is that it was established and developed as, and remains, an industry that is guided and moved by visionaries who translate their vision into a way of life. This vision was based on the constant aspiration to achieve technological eminence in all areas.”

This importance of IAI was also realized in its inestimable contribution to the defense forces. IAI owns buildings, machines and laboratories, but its wealth and abilities are measured in its people who have made, and continue to make, the company what it is.

Unlike other Israeli industries, that are able to compete only, or mainly, on the domestic market, IAI has been forced since its inception to contend with global giants. The manufacture of aircraft, the design and manufacture of avionic and electronic systems, satellites and space development, missiles and UAV's reconditioning and conversion, are all areas garnered by 10 to 15 of the most developed nations and with which IAI must compete. This is true of the defense sector, and even more so in the civilian sector. IAI’s success is illustrated by the fact that 80% of its entire output is export-oriented.

The company’s robustness is revealed particularly in times of crises, of which there have been many, particularly in the past decade. Throughout these years, investment in R&D and in the accumulation of human capital continued on a large scale.

The years 1998-2000 mark the start of the third millennium as well as one hundred years of modern Zionism and fifty years of Israeli statehood. To a great extent, Israel Aircraft Industries is a symbol of the coincidence of these historical reference points.

Zionism began with the aspiration of “returning to the land”, and it concentrated on the establishment of the State. However, implementation of the achievements of the Industrial Revolution in agriculture resulted in a significant decline in the number of people required for agricultural work. The visionaries at the helm of the State of Israel in its first years observed this process and directed efforts to realizing Zionism by other, new means. IAI was the crowning achievement of efforts to transform Israel into a technologically advanced country.
IAI has always been a “good home” to its workers. Over the years, many thousands of workers have passed through its gates. Even those who moved on share positive memories of IAI as a workplace that knew how to combine employment with personal security for the worker and his family, technological challenges, contribution to export, development of some of the world's most sophisticated weaponry systems, group pride and, as the common motif – the modest but certain knowledge that working for IAI constitutes the fulfillment of Zionism each and every day.

We have celebrated the jubilee of the State of Israel and soon we will be celebrating the jubilee of Israel Aircraft Industries. On occasions such as these we may allow ourselves a small pat on the back: It can honestly be said that the early vision of Ben Gurion, Peres, Schwimmer and the other idealists, founders and builders, has been realized.

**A Leading International Company – also in the Future**

But we must fix our eyes on the future; in which Israel Aircraft Industries will maintain its position at the forefront of Israeli technology and keep in step with the leaders of global industry; a future with a wealth of modern civilian planes of all configurations and for all purposes, as well as advanced products and services for the civilian market, all competing and winning the competition against the giants; a future of advance warning and intelligence gathering systems that are the stuff of sci-fi writer’s dreams; a future of sophisticated and viable unmanned air vehicles; a future of advanced defense systems such as the Arrow, which has positioned IAI as a front-line player in the Star Wars Project that seeks to reduce the danger of mass destruction; a future of developing products and services for space initiatives.

This is the vision for the coming fifty years; it is up to us, our children and grandchildren to realize it.