Eni GROUP Saipem

A GREAT PAST

AHEAD OF US

SAIPEM

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By Giovanni Rosa

Foreword

The history of a company, not unlike the history of a man, bears the marks of certain identifiable characteristics and values. The inspiration for this book comes from a desire to trace the development of the Saipem Group from its beginnings in the 1950s through to the present day, providing perspective to the trials and achievements of the company over its 50 year history, while looking forward to the opportunities and challenges ahead.

Saipem's story is the story of risk-takers. It is the story of men who held the passionate belief that in helping to build a company, they were working towards some greater purpose. And while many of these pioneers names are no longer remembered, their commitment shines through in the quality of the projects to which, over the years, they devoted themselves.

Line up and Welding, Snam Gas Line System, Po Valley, Italy, 1953

Pride in technical excellence is a defining characteristic of the people of Saipem. From the outset, Saipem personnel have judged themselves against the highest standards, both their own and those of their competitors – particularly the many US companies rightly considered, at that time, to be among the leaders of the international oil and gas industry.

Because change within a company, as in life, is rarely fluid, this chronicle of Saipem's history has been divided in to 'periods', some distinguished by deliberate structural changes to the company's organization and others by major shifts in the industrial marketplace to which Saipem was asked to respond.

Finally, though every project carried out by Saipem has generated value to the company, some have had a fundamental impact on its growth and development.
For this reason those projects- milestones in their own times, have been detailed, often through the use of photos, by some of those Saipem people most closely involved at the time.

The Early Years
1953-1969

First european offshore well , Gela Field, Off Sicily, Italy,1958

Accurately dating the origin of company, especially one born as an offshoot of a parent organization, is rarely straightforward. For though Saipem existed in embryonic form when ENI was founded in 1953, unlike a newborn child, there is no birth certificate to refer back .

The origin of the company that was to become Saipem can be seen in the spirit that characterized the frontier days of ENI's formation – and, more specifically, that of Snam, then a small natural gas sales and marketing company (bought, in 1949, by Agip). Natural gas was fundamental to the growth of ENI, as well as helping to fuel Italy's transformation into a modern industrial country after WWII. For Italy, gas was an inexpensive alternative to imported fossil fuels; and it also generated a steady cash flow for ENI – a company with the vision of becoming an integrated oil and chemical group.

To achieve this aim, of course, cash flow would not be enough. People and technology would be needed too. So in Snam a small, young working group – named the Technical Services Department – was formed. This team – a portion of which eventually developed into ENI's engineering unit, Snam Progetti – initially worked as a project management team, before moving on to become a pipeline contractor dedicated to laying the network of lines needed for the burgeoning Italian natural gas market.

The inevitable internationalization of energy markets, central to ENI's industrial plans, led Snam to carry out its first project abroad between 1954-56: the Suez-to-Cairo oil pipeline in Egypt. This project proved a landmark for two reasons. One, it provided a training school for many of Saipem's first managers, and, two, it was conducted as a joint venture with another pipeline contractor. The experience can now seen to be formative of Saipem's culture: co-operative alliancing with newcomers in the best interest of a project's goals.
This groundbreaking project, carried out outside Italy was crucial to Saipem's development as a company.
The next milestone in the company history came in 1955, when Agip bought Petrofina stake in the Italian Egyptian Oil Company (IEOC), at a stroke taking part ownership of two onshore oil fields. One, the El-Belayim field (Sinai) would prove especially significant when, in 1957, oil was found in the offshore portion of the field .

A year earlier, a core Snam group operating in Egypt at the time – later to become the founding fathers of Saipem – were charged with the construction of an oil export terminal for El-Belayim in Abu Rudeis including a sealine (probably the first in Africa) that eventually used an oil tanker to 'lay' a line prefabricated onshore.
International competition in the open market helped to streamline corporate business processes, while firing the growth of technology and revenue within the company. ENI, seeing the potential for value-creation in this market, took the decision in 1956 to create an independent company, named Snam Montaggi, specializing in the construction of onshore pipeline and petrochemical plant.

SAIPEM, in the end, was founded in 1957 through the merger of Snam Montaggi and a then newly acquired drilling contractor SAIP (first set up in 1940). The name of the company derives from this tie-up: SAIP + E (Italian for 'and') + M(ontaggi).

Though the two halves of the new company may have been divided by distinct, market-driven approaches to their respective operations – drilling and construction, they were united by pride in being part of a winning team – and the knowledge that success was not achieved through privilege, but was rather a reward that came from confronting the challenges of any project with a combination of hard work and risk-taking. The company maintained an attitude exemplified by the phrase 'Nothing ventured, nothing gained'.

The Early Years
1953-1969

Finding a positive solution is these circumstances provides not only a sense of personal reward, but also allows – in true Italian style – to highlight that this solution was arrived at despite failures elsewhere in the company – usually at faceless corporate level.

The pioneering role Saipem was to play in the offshore industry started in earnest in 1958 with the construction of a jack-up in the US , Scarabeo(so named after Scarab, the sacred egyptian beetle, because the jack up was originally thought for the offshore development in Egypt), the conversion of a ship, eponimously named Saipem, as a tender, and the drilling of the first European offshore well on the Gela field off Sicily.
The contractor's entry into the offshore drilling sector was the result of shrewd strategic judgement with key technical people sourced from all ENI companies and from the market. What is clear is that Saipem's innovative approach to the market meant it could be counted on as a to provide a cornerstone to ENI's strategic development program.

Among its early offshore project work, Saipem fabricated and floated out Europe's first offshore production platform, also for Gela, and, in co-operation with Nuovo Pignone, built two jack-ups – the Perro Negro (Black Dog : the ENI Logo)(1960) and the Gatto Selvatico (Wild Cat : the expression of Exploration Drilling) (1961) – to support Agip in its gas exploration efforts in the Adriatic Sea off Egypt and Iran. In 1964, the company built a further jackup – the ill-fated Paguro – which collapse and sank the next year following a blow-out incident – an early and hard-learned safety lesson for Saipem.

Landmark though these initial contracts were, however, they represent just the first in a long list of sector 'firsts' and record-setting achievements that have marked the company's progress over the last 50 years – and served as 'key indicators' of its industry leadership.

Meanwhile, working under the Snam banner, Saipem moved beyond pipelay jobs and into the construction of oil storage tanks and gas bottling plants, a diversification that resulted in massive capital investment in the 1950s in order to meet ENI (mainly ANIC) demands, along with a booming global market. This wave of growth began with the construction of ANIC plants in Ravenna and Gela before expanding across Italy and into international markets.

Between 1954-69, Saipem undertook more than 50 large-scale petrochemical plant contracts, including 22 grassroot refineries, starting with one in Jordan in 1958. More than 320,000 t of pipe and equipment, along with storage tanks and spheres with a capacity of 3.5 million cubic meters, were erected during this time. Numbers often fall short in adequately describing the scope of these projects, but to Saipem's people they translated into many millions of man-hours worked in 20 countries in Europe, Asia, Africa and the Americas.

Rig Floor, Po Valley, Italy, Late 50s

As part of the broader strategic vision of ENI as an integrated energy group, then-chief executive Enrico Mattei embarked on the construction of a flagship nuclear power plant in Latina in 1958. The project made extraordinary demands of Saipem, calling on the contractor to meet standards of welding and x-ray quality control that were unknown at the time in the oil industry. The Latina nuclear project spawned a core competency and competitive advantage at Saipem .

The Early Years
1953-1969

Nineteen fifty-eight marked another milestone in the company evolution with the award of its first truly large-scale project: the construction , in India, of a 16-inch, 1100km long oil pipeline that was to cross more than 40 rivers, including the Ganges and Brahmaputra. This project was followed by others in Pakistan and Iran, as well as a number of megaprojects in Argentina, for which Saipem laid more than 1700km of 30-inch pipelines, 2000km of gathering lines and conducted some 600 drilling programs. By 1961, Saipem was positioned as one of very few large, truly international contractors.

Mechanical installation, pipeline and petrochemical plant sectors were, for many years, the prime corporate financial drivers, as well as a proving ground for Saipem management. Land pipeline construction, facing as it does all manner of obstacle in environments of every description, engendered a project culture rooted in innovation and ingenuity at Saipem. Moving personnel and equipment up mountains of impossible gradients or across the world's most inhospitable deserts, while maintaining strict logistic discipline – in an international, competitive market – calls for rigorous advanced planning and continuous monitoring. For Saipem, these onshore projects provided an education in modern project management.

Saipem laid more than 22,000km of pipelines in 22 countries between 1954-69. Though it laid only 5000km of this total in Italy, it is worth noting that the vertiginous layroute for the oil pipeline that connects Genoa, Italy, Ingolstadt, Germany, and Aigle, Switzerland, took the company's project team over the Alps and Apennines. On top of the practical challenges of such a scheme, the project also involved laying pipelines across countries for the first time, requiring creative and compassionate thinking in dealing with local populations. The conclusion of this project clearly exploited another of side of the character of Saipem personnel: the flexibility to adjust to local conditions and concerns while maintaining a solid commitment to project's desired final outcome.

Float out of the first european offshore platform, Licata,Italy,1960

Though pipeline and petrochemical plant construction, along with drilling, remained the principal activities of Saipem through to the end of the 1970s, the seed that would take the contractor into the offshore market had been planted in the early-1950s as it learnt to overcome the problem of river crossings during pipelaying. To meet Agip's offshore field transportation requirements, a vessel called Ragno (a name meaning 'spider' in Italian prompted by the appearance of the unit with its mooring lines extended) was built. First used offshore Egypt and later in the Adriatic to connect gas production platforms, the vessel was employed to lay small diameter lines or to act as a pull system for the heavier, large diameter pipelines needed to tie-in terminal buoys for oil tanker loading operations.

Offshore activity remained marginal to Saipem's corporate strategy through the 1960s, only becoming a stand-alone department in the company in 1969. The tremendous growth that sprung from this business unit in the 1970s is a tribute to the vision of a manager who steered the contractor through a number of difficult early offshore projects and into the field of activity that was to become central to Saipem's success. The Huelva Terminal project, carried out under contract with a US oil company, must be considered as decisive in Saipem's history, involving as it did the conversion of a WWII oil tanker into a laybarge , Castoro, Italian wording for 'beaver', the dam building animal, for the purpose of laying large diameter pipe. The Castoro became Castoro I when a second combination laybarge, Castoro 2, was added to the Saipem offshore fleet in 1970.

On the hunt for further offshore business opportunities – and taking full advantage of working relationships within the ENI Group, the company grew, passing through several changes to its organizational structure. In 1962, Saipem had become a division of Snam, and in 1965, a unit of Snam Progetti. And, at the end of that year, personnel and equipment were transferred from Agip's drilling division to Saipem.

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Bevel Cleaning, 26 Oil Line Genoa - Ingolstadt, Approaching Spluga pass, Italy, 1962

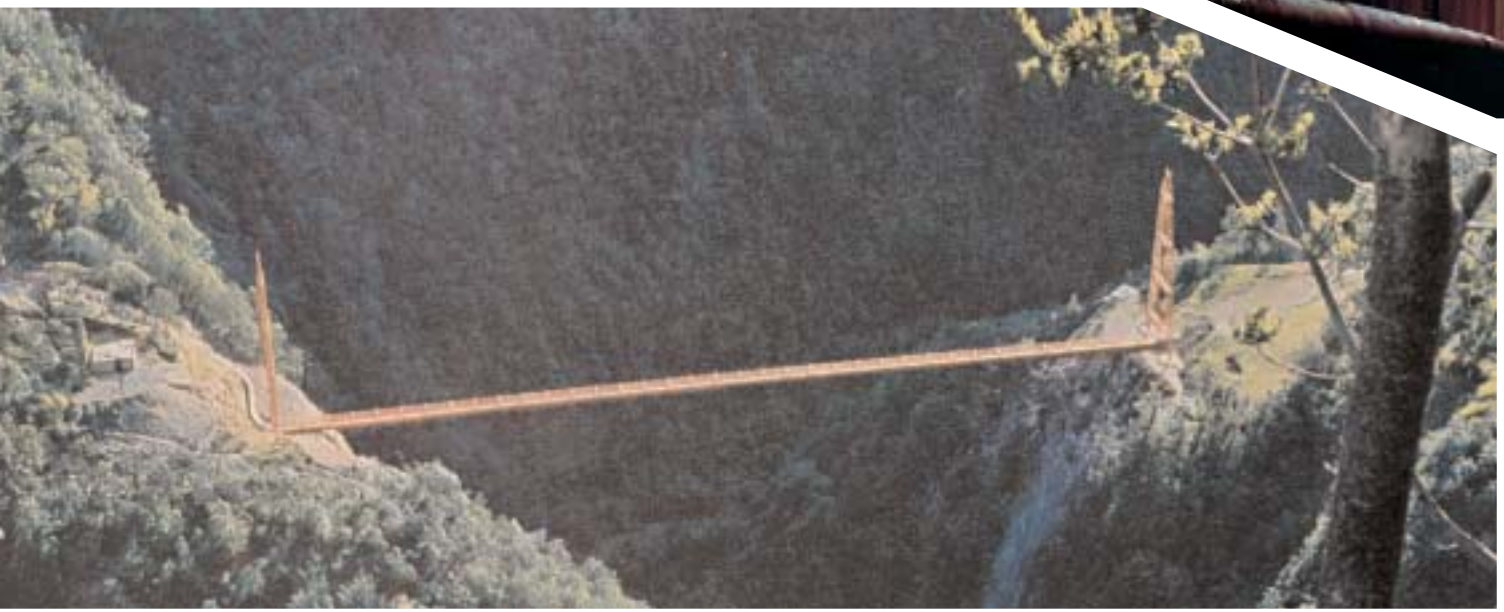
Pipe stringing, 26 Oil Line Genoa - Ingolstadt, Alps Crossing, Italy, 1962

Oleodotti Internationali (OI)

L. Gioielli, G. Molinari, U. De Censi, C. Mazzi

The transnational oil pipeline system Oleodotti Internationali (OI), connecting Genoa, Italy, Ingolstadt, Germany, and Aigle, Switzerland remains one of the most challenging projects ever undertaken by Saipem, and – as the first project of this scale – served also as a training ground for Saipem personnel in onshore pipeline construction. Laying the 800km oil trunkline across the Apennines and over the Alps (twice, in fact, via the Gran San Bernardo and Spluga passes), necessarily meant that the project team had to ford rivers and lakes and traverse many narrow mountain valleys in the process.
As such, the OI project made unprecedented demands of company technology, to say nothing of the pressures it placed on logistics planning and on the Saipem personnel themselves.
Beyond the operational challenges of such a project, however, there were also serious social, political and ecological issues surrounding the laying of a literally groundbreaking pipeline through several European countries. These nations' strongly-held views on any environmental damage that might be caused by the installation of OI, helped Saipem in its development of a minimum impact policy for all its operations.
The degree of environmental sensitivity demanded by OI can be seen, by way of an example, in the navigation of a layroute through a forest near Memmingen, Germany, where local Authorities set a very low limit on the number of trees that could be felled, irrespective of the further operational difficulties that this might present to the project's progress.

Line ready for the lowering in the ditch, 26 Oil Line Genoa - Ingolstadt, Forest near Memmingen, Germany , 1963



Bridging a narrow valley, 26 Oil Line Genoa - Ingolstadt, Varrone river, Italy, 1961

The Early Years
1953-1969

Pipe stringing, 12 Oil Line Suez- Cairo, Egypt, 1954

Welding, 12 Oil Line Suez- Cairo, Egypt, 1955

Land pipelines outside Europe

A. Miotti, A. Patriarca, G. Isabella, F. Cavallotti, S. Fadini

That from its founding Saipem has always ventured abroad in its operations is explained by two factors. The first was a desire to bolster company growth through internationalization; the second a corporate instinct to be internationally competitive, so as to better serve – in terms of quality and cost – its sister ENI companies' as a contractor.
These extra-European pipeline developments, due to their distance from corporate HQ, were exercises in operational autonomy and the involvement of a local workforce.

Coating and laying, 16 Oil Line Gahuati - Siliguri, India, 1960

Welding, 12 Oil Line Suez- Cairo, Egypt, 1955

Stringing in the rice fields, 16 Oil Line Gahuati - Siliguri, India,1960

Through these projects, training programs became an important facet of Saipem's field organization, an approach that has benefited Saipem's international competitiveness and served to open doors on to new regional markets for other ENI Group companies.
During this period in Saipem's development as a land construction contractor – to give some sense of scale to the total workscope undertaken – the company laid over 3500km of pipelines in Argentina, a further 3000km in India, more than 600km in Pakistan, another 600km in Syria, and some 1800km in Tanzania and Zambia.

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In the pampas, 30 Gas Line Santa Cruz - Buenos Aires, Argentina,1962

Rio Negro Crossing, 30 Gas Line Santa Cruz - Buenos Aires, Argentina,1962

Gas pipelines in Argentina

M. Porcari, M. Rossetto, F. Fratoni, L. Guerrini

The pipeline installation contracts carried out in Argentina between 1960-63 bear special mention, though the project data provides only a pale reflection of the work undertaken.
More than 1900km of gas gathering lines and 1716km of 30-inch gas line were laid between Santa Cruz and Buenos Aires, an installation route that traversed mainly barren country but also required the fording of some 40 rivers, including the Rio Negro, Rio Colorado and Rio Chubut.

Weld Cleaning, 30 Gas Line Santa Cruz -Buenos Aires, Argentina,1962

Stringing in flooded pampas, 30 Gas Line Santa Cruz - Buenos Aires, Argentina,1962

Because the layroute rarely passed anywhere near inhabited areas of the country or pipe supply depots, operation planning, particularly in the area of logistics, was paramount in keeping to the project timeline agreed with the client, Gas del Estado.
The project became a proving ground for a generation of Saipem managers and professionals who, in retrospect, have been to integral to the success of the company.

The Early Years
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Petrochemical plant Overview, Porto Marghera , Italy, 1960

Petrochemical Plant overview during erection, Gela, Italy, 1961

Large-scale petrochemical plants in Italy

D. Terenziani, N. Volpicelli, C. Fiore, A. Mezzadri

To live up to its remit as an integrated oil and chemical group, ENI – like any other major oil company – needed to add chemical plants and refineries to its corporate portfolio. In northern Italy, the country's traditional industrial heartland, Enrico Mattei initiated construction of a large-scale petrochemical plant at Ravenna, while in the south, to boost industrial development, he rolled out plans to build petrochemical plants in Pisticci and, later, Gela. Saipem was closely involved in each of these landmark Italian facilities.

Petrochemical Plant overview during erection, Ravenna, Italy,1958

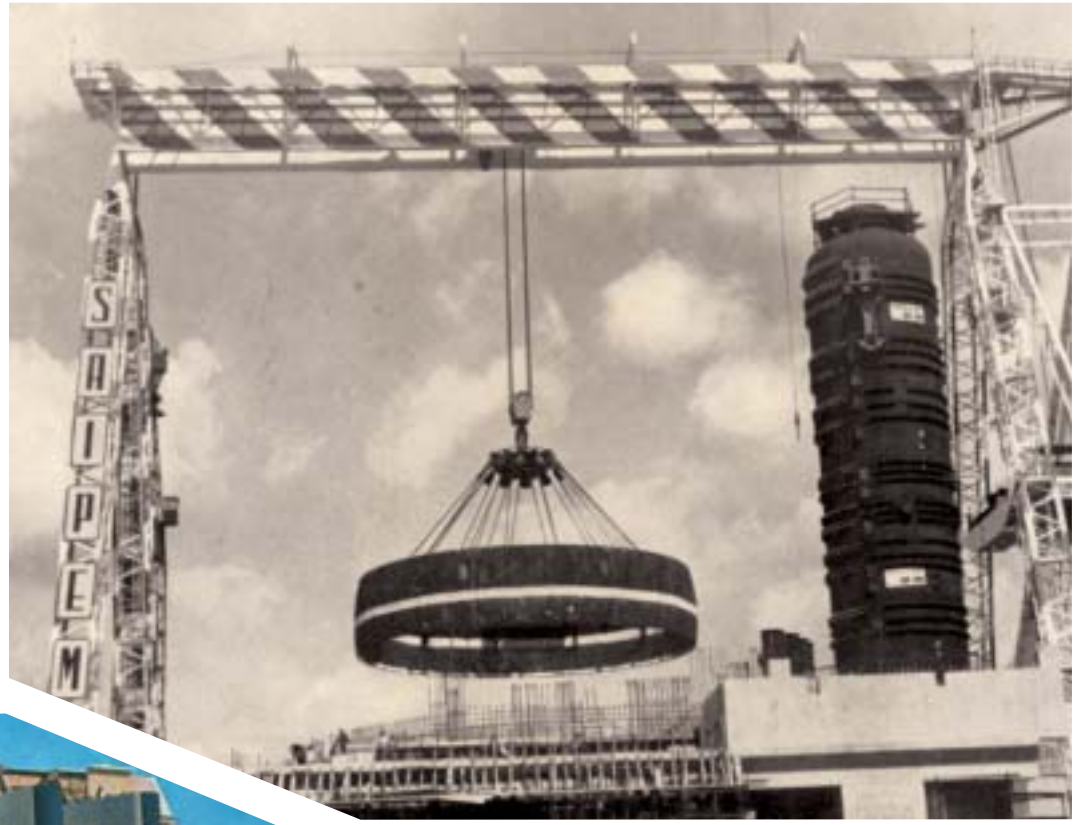
Petrochemical Plant overview during erection, Gela, Italy, 1961

Refinery overview during erection, Ferrera, Italy, 1962

For a pipeline installation specialist, the operational shift needed to step into the role of plant construction was considerable.
Along with changes to organizational structure and strategic planning, a new professional skills set, mainly in welding and lifting, was called for. On-site training became a natural adjunct to each grassroots development for Saipem.
By way of a crude quantification of the scale of the projects, construction of the Ravenna and Gela facilities required more than 30,000 tons of prefabricated pipe, as well as equipment and machinery.

The Early Years
1953-1969

Installation of a ring of the reactor containment sphere, Nuclear power plant, Latina, Italy, 1960



Nuclear power plant, Latina

G. Razzini, D. Terenziani, A. Mezzadri

As ENI was broadly charged with supplying energy to fuel Italy's rise as industrial power, Mattei took the decision to build a nuclear power station in Latina, Italy. Saipem was brought in to oversee the construction of the facility's containment sphere.
The technological challenge in fabricating such a unit – which measured 23m in diameter and had walls 120mm thick – came down to two issues: welding and quality control.

Nuclear power plant nearing completion, Latina, Italy, 1960

The extraordinary quality requirements set out by the project's standard-setting body, the UK Atomic Energy Agency, for construction of such a facility, fostered in Saipem an expertise in welding and x-ray control, capabilities which serve the contractor to this day during the installation of offshore pipelines.

The Early Years
1953-1969

Overview of the LNG Plant, Marsa el Brega, Libya, 1968

Erection, Refinery overview, Aigle, Switzerland,1961

International refineries and petrochemical plants

D. Terenziani, N. Volpicelli, A. Mezzadri, F. Fabiani, G. Gamondi

The global scope of Mattei's industrial vision, which foresaw the internationalization of the petroleum business, has been central to ENI's success, while aiding the development of those countries in which these early projects were based.
Starting with a petrochemical facility in Jordan in 1957, Saipem went on to construct and commission an impressive number of plants, many grassroots, in countries as diverse as Morocco, Ghana, Tunisia, Pakistan, Ceylon, and the Congo, at the same time as it built refineries in Germany, Portugal, Norway, Sweden, Greece, and Italy, and carried out numerous plant upgrades across Europe.
The construction of the LNG plant at Marsa el Brega, Libya, in 1967-69, stands out as the largest and most complex project of this period.

Refinery overview, Mohammedia, Morocco, 1960

Refinery overview, Zarqa, Jordan, 1959

Petrochemical plant overview, Burghausen, Germany, 1966

The Early Years
1953-1969

Offshore drilling

G. Benedini,M. Bernini, F. Scolari

Evidence of Saipem's now proven ability to use innovative technology to open doors onto new areas of activity for its sister ENI companies was seen early in the offshore drilling and construction sectors, when, in 1958, the contractor spudded the first well offshore Sicily (Gela 21) with the Scarabeo, before going on to build and install the field's production platform.
Further wells in the same offshore area, as well as in the Adriatic Sea, were drilled in 1961, followed by spuds off Sinai (Egypt) in keeping with Saipem's philosophy of internationalism.

107 Scarabeo 2, Offshore drilling, Adriatic Sea, Italy, 1969

First european offshore oil well, off Gela, Italy,1958

Gatto Selvatico, Offshore drilling, Persian Gulf off Iran

Scarabeo in transit to Sinai through Suez Canal,1961

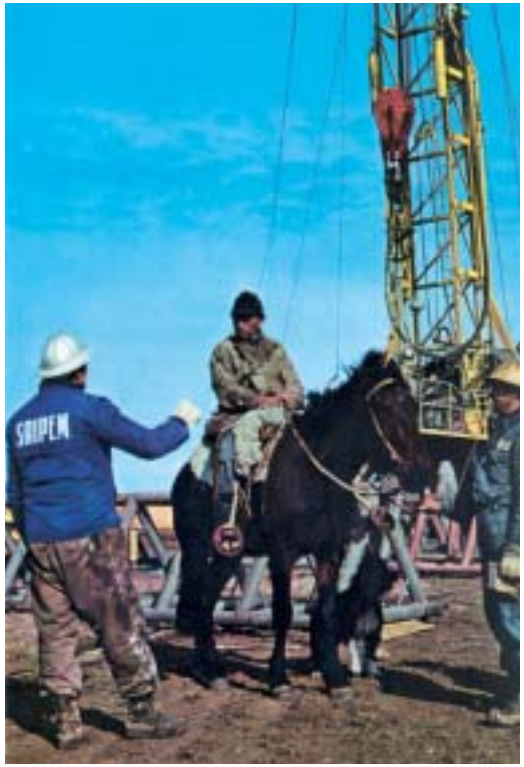
The tradition of innovation begun on these first offshore projects, an early sign of the pioneer spirit intrinsic to Saipem, was reinforced by the construction of three jackups – Gatto Selvatico (1960),initially owned and operated by Agip, Perro Negro (1961), Paguro (1964) – and the semisubmersible Scarabeo 2 (1968).

The Early Years
1953-1969

Land drilling, Egypt ,1968

Land drilling, Meseta Espinosa, Patagonia, Argentina ,1959

Land drilling, Meseta Espinosa, Patagonia, Argentina ,1959



Land drilling outside Europe

G. Badolato, L. Rovelli, G. Pittui. G. Carretta,

Though Saipem's land drilling fleet was small, its first projects outside Italy came soon after the merger with SAIP, via drilling in France (1958) and Algeria (1958).
Land drilling has always been fundamental to Saipem's fortunes, and, in many cases, has provided the company with a kind of 'letter of introduction' in to new regions of operation, including Argentina, Nigeria, Tunisia, Libya, Iran, Algeria and, most recently (1996), Kazakhstan.

Land drilling, Zagros Mountains (3,000 mt a.s.l.), Iran ,1967

One example of the strategic importance of land drilling to Saipem was its contract, signed with Argentina's YPF in 1959, to drill some 600 wells in Meseta Espinosa near Pico Truncado, a deal which proved to be key to the acquisition of the Argentina gas lines system.
For this contract, Saipem personnel averaged monthly production of 4.5, 1850m deep wells – in winds, sometimes, of more than 200km/hr – that were of such quality that the company was contracted for a further 2000 by the Argentine company, a program later cancelled following a shift in political power within the South American country.

The Early Years
1953-1969

Castoro, Terminal Installation, Marsa el Brega, Libya, 1969

Castoro, Firing Line, 30 Oil Sealine, Huelva, Spain, 1966

The Huelva project and Lay barge Castoro (1966)

A. Silvestri

The Huelva project, for which Gulf, an US oil company, contracted Saipem to lay a 16km, 30-inch line in water depths of 23m off Spain, marks the true start to Saipem's offshore pipelaying activities.
The project was all the more of ground-breaking due to the fact that that all designs for the converted laybarge used in for Huelva, a US WWII oil tanker that was re-christened the Castoro, were carried out in-house by Saipem. That the barge was without accommodation quarters provided a further challenge on the project: that of regularly transferring all personnel to a tendering vessel in an offshore environment that could be relatively hostile, the Atlantic Ocean off Spain. Operations may have sometime been 'adventurous', but the experience gained was unmatched.
The Huelva project became the foundation for further formative projects in Libya (Esso), Iran (160km of lines for Sirip), Qatar (Shell), and Iran (a 52-inch line for OSCO).
Equipped with a 400 tons 'A' frame, the Castoro went to prove itself instrumental to the development of various Agip fields in the Adriatic Sea, projects which, in turn, helped Saipem build heavylifting experience.

Castoro, Jacket Installation, Adriatic Sea, Italy,1967

Castoro ,Laying, 30 Oil Sealine, Huelva, Spain, 1966

1966:
The “Battle” of Stavanger

Among the innumerable strangely similar ‘social’ episodes that occurred at different times and in different countries, the so-called ‘Battle of Stavanger’ is an exagerated reflection of the immense challenges encountered in the course of everyday business.
The Sola refinery near Stavanger in Norway was under construction, and some 400 young, innocent, hard-working, and totally harmless Italians were involved.
In order to boost their motivation, and no doubt to contribute to the local colour, they decided to develop a more intimate knowledge of the local community, focussing mainly on the more receptive female contingent.
This generous initiative was not well understood by the overly suspicious local male community and led to several days (or more accurately, several nights) of vigorous exchanges – of opinions, and something quite a bit more physical.

The strenuous ‘debate’ ended amicably however, when both camps got sociably drunk.
This positive outcome was achieved in spite of the Italians’ highly sporting bare-fisted approach being met with - according to verifiable accounts by the police and local press - combat by the locals, armed with chains and bats.
A lingering doubt remains however; were the Italians really so noble or were they just quicker at hiding their weapons? A meticulous investigation still left the vexed question unanswered.

1969:
The Kwale tragedy

Several moments in Saipem's history concern the attempts to continue operations in countries suddenly afflicted by war. Saipem has found itself caught up in several local conflicts, where war suddenly breaks out sometimes on either side, as was the case of the wars between India and Pakistan, and more recently between Iraq and Iran. Normally Saipem was able to continue to operate, because its contribution was invariably considered as contributing to national development. In all so-called 'hot spots' an emergency plan was always in place for evacuation of employees.
This meant that we have almost never suffered casualties as a result of war; except one tragic occasion in Nigeria, during the civil war that followed the Biafran secession.
Even this conflict did not at first interrupt the activities of foreign companies.
Agip the client, and Saipem the contractor, were operating in isolated areas considered non-strategic by both sides in the conflict, and in any case controlled by federal troops.
All seemed relatively calm and besides, the secessionists had never issued any threats to foreign workers.
Unexpectedly, a Biafran patrol suddenly attacked Kwale, killing eleven Saipem and Agip technicians and capturing a further three.
The same day near the Okpai field, fifteen more technicians were captured.
One technician who succeeded in escaping from Kwale, raised the alarm, while the eighteen prisoners were force-marched through the Owerry forest in Biafran territory, where they were sentenced to death.
A column of vehicles from NAOC, Agip's Nigerian subsidiary, arriving at Kwale discovered the massacre.
Paradoxically this proved to be the turning point in the negotiations between ENI top management, the Italian government, Caritas, and the Biafran authorities, and resulted in the release of the eighteen prisoners.

Expansion
1970-1985

HP/HT Drilling, Malossa Oil Field, Po Valley, Italy, 1973

Granted its independence at the start of 1970, Saipem drove a process of consolidation via a massive capital expenditure program that saw the company position itself as a frontline contractor in three fields of activity: onshore construction, drilling, and offshore construction – with a sharp focus on the offshore business areas.
Though the offshore industry's rapidly evolving operational demands could not be met by the vessels available to the market, the sector still needed specialist personnel in the areas of basic engineering, equipment design and vessel specifications before shipyards could undertake construction contracts and manufacturers fill the accompanying specialist equipment orders.
For Saipem, the mere recruiting of a sufficient number of new personnel to bolster its internal resources during the construction boom of the early 1970s was in itself an outstanding achievement.

The pace of offshore vessel construction in the first half of the decade was hectic, with seven Saipem newbuilds operational by 1975. In April 1970, Castoro 2, a state-of-the-art combination barge outfitted with an 800t crane and 40t pipe tensioner, was launched .
The next year, offshore work barges Castoro 3 and 4 join Saipem's offshore construction fleet. In 1972, the dynamically positioned Saipem Due is built, and in 1973, Castoro 5 – a lay-barge that working in the field a record 14 months after its construction was approved – is added. In 1974, construction of the Scarabeo 3 and Scarabeo 4 semisubmersible drilling units gets underway in Germany: the rigs are operational by 1975.

Scarabeo 4, Well Testing, Mediterranean Sea, Off Libya, 1976

Large levels of capital investment were simultaneously being made in onshore construction equipment to support Saipem's work in the pipeline installation and petrochemical plant construction sectors – still its chief revenue streams – and to maintain the company's place at the forefront of international pipeline contractors.

The role played by Saipem's onshore construction business can be better understood by recalling the distances of pipeline laid in countries such as

Expansion
1970-1985

Line up, 36 Gas line, Carinthian Alps, Austria, 1972

Australia and Algeria. To add perspective: by the end of the 1990s, Saipem had laid in the region of 7000km of pipelines in Australia, and a further 5,000 km in Algeria, while building petrochemical plants for a total of 70,000t in Australia, and some 30,000 t in Algeria.

Drilling came to the fore as a business unit in the mid-1970s and remained of primary importance to Saipem through the global oil price collapse in 1985.
Sparked by the crisis in the Middle East in 1973, international oil companies were forced to begin developing new oil provinces in more politically stable regions, the North Sea was chief among these.
The North West European offshore province became – and for 25 years remained – one of the world's primary producing regions due to a number of important oil and gas finds in deeper and more hostile conditions than the birthplace of offshore technology, the US Gulf of Mexico.

Distance from shore, harshness of the environment, water depths, and size of these new discoveries, all combined to fuel the rapid and impressive development of offshore technology. In the space of five years, Saipem, until then a marginal player in the offshore industry, made a name for itself as a world leader in the laying of sealines – advancing through the ranks driven by concerted effort and substantial risk-taking.

The start of this historic change in direction followed the decision to participate in a tender, issued by BP, to carry out sea-trials testing the feasibility of laying large diameter lines (32-inch plus 4-inch concrete coating) in water depths of 130m that would connect the operator's giant Forties oil field to landfall near Peterhead, Scotland.
The scale of the challenge can be better appreciated when one considers that the industry standard for pipelaying at the time was a mere 50m – and in environments much less hostile than the North Sea.
Forties would require that Saipem make the quantum leap in knowledge and technology needed to transform lab tested theory into field proven practice. Saipem management, counting on Castoro 2, and willing to venture out of the Mediterranean region into a promising new market, set aside its understandable misgivings and decided to bid in competition with Brown & Root, the then-world leader in the field. The Italian contractor won.

Expansion
1970-1985

Performed in 1972 offshore Gaeta to test the real field conditions of all procedures – line laying, abandonment in bad weather, and line recovery – the seatrials for BP Forties were a milestone in Saipem's technology development and key to the future success of its offshore business unit.

Led by the Castoro 2, Scarabeo 3 and 4, and the Saipem Due, the contractor established as its mission to target a high ranking position in the international offshore markets on the basis of the quality of its fleet and equipment.

In 1970, in line with this strategy and to meet Snam's requirements of natural gas supply from Algeria, Saipem launched an ambitious R&D project.
The aim was to develop technologies and equipment that would make it possible to overcome a step change in water depth and an uneven seabed to lay a pipeline across Messina Straits and Sicily Channel. This project would give birth to the construction of the Castoro Sei and the successful installation of the Transmed sealine, a pace-setting undertaking in the global offshore industry.

Battle-hardened by years in the open market, Saipem mapped the way forward for the later privatization of ENI Group companies.
First quoted on the Milan stock exchange in 1984, the contractor, though chiefly oriented toward operational activities, nonetheless in the same year was awarded the "Oscar" , the Italian Best Presentation of the Year for its flagship annual report, The prestigious award is given annually by IPR , an italian Institute, whose partners range from public and financial institutions, to Universities and to non-profit organizations .

Castoro Sei sea trials, Adriatic Sea, Italy, 1978

Expansion
1970-1985

Approaching Forties Platform, 32 Forties Oil Sealine, North Sea, Off Scotland, 1975

Castoro 2, Land Fall, 32 Oil Sealine, Peterhead, Scotland, 1973

Gaeta sea-trials and BP Forties

D. Dall'Aglio, A. Silvestri, E. Catini, P. Brando

Full-scale sea-trials for BP's landmark UKCS Forties oil development took place off Gaeta in the Tyrrhenian Sea in the autumn of 1972, under the direction of joint BP-Saipem technical management team, in 'ante litteram' partnership. Under offshore conditions similar to those in the North Sea, the sea-trials were designed to test the feasibility of laying large diameter lines (32-inch plus 4-inch concrete coating) in water depths of 130m to connect Forties to landfall in Scotland.

The sea-trials, which included an actual line emergency abandonment, proved the innovative technologies required at Forties in the field and laid the groundwork for a long and fruitful working relationship with BP.

Set against the backdrop of the first global oil crisis in 1973, Forties was of unparalleled financial and strategic importance to western nations.

To accelerate development of the offshore oil field, BP set up innovative contracts with the project's contractors, Saipem and Brown & Root, whereby Saipem began its operations from landfall, near Peterhead, while B&R started laying pipeline shoreward from the field.

Castoro 2, Above Water Tie-in, 32 Forties Oil Sealine, North Sea, Off Scotland, 1975

Castoro 2, BP Sea Trials, Tyrrhenian Sea, Off Gaeta, Italy, 1972

Each was paid a set dayrate with a substantial incentive based on mileage covered.

While Saipem did not equal B&R's top layrate, it did without mishap finish by laying some two-thirds of the total length and – using technology jointly patented with BP – carry out the above-water tie-in connecting the two portions of the sealine.

To illustrate just how far technology has come in the intervening years, it is interesting to note that a project of this scale and difficulty could today be completed in around three months using a vessel like the Castoro Sei, whereas then it took, using two laybarges, three 'operational seasons'.

Castoro Sei, Laying, 20 Transmed Sealine , Sicily Channel, 1980

The Transmed project and Castoro Sei

A. Silvestri, S. Cao, G. Rosa, G. Cassone

Perhaps no other project in the history of Saipem or the ENI Group has been of such singular importance to the current success of the company than the Transmed project, the laying of 2500km long gas line from the Sahara Desert in Algeria to the heart of northern Italy. Taking 10 years from conception to completion – and involving many ENI Group companies – Transmed may be better understood in the light of the multitude of technological, contractual and organizational challenges posed by the project. That the project was even completed in the timeframe is a tribute to companies' collective willingness to follow a creative, determined and, above all, risk-taking approach.
The Transmed project stimulated a catalog of innovations too long to list. From Saipem's perspective, by far the most significant of these advances were of a technical nature and, in sum, led to a leap in technological thinking which has propelled the company forward to its current position of leadership among offshore pipeline contractors.
Ten years of research, tests and sea-trials cannot be summarized quickly, though to understand the advances that took place for Transmed in broad strokes, it is useful to judge the project against the standards of its day.

1980 World water depth Laying Record, 608 meters b.s.l., Picture taken by PC 1601 Submarine

When, in 1969, Snam thought to begin importing natural gas from Algeria via a newbuild pipeline, the crossing of the Messina straits and Sicily Channel were necessarily implicit in its plan – as was the fact that to do so would require a pipeline be laid in water depths of 600m, over an uneven seabed in heavy currents (i.e. over 2 knots). The state-of-the-art at the time of offshore pipelay was a mere 50m water depths, with no current and a level seabed.
The first feasibility study performed for the project, the work of a leading US engineering company, concluded that the channel-crossing was possible, but only if the diameter of the lines was kept small, necessitating the use of between 10-12 lines to transport the required rates and volumes of gas – and driving up project costs to the point of being uneconomic.

Expansion
1970-1985

That Saipem prevailed where its predecessor fell short is down to two key interactive factors: the choice of surface vessel and the required new operational technologies. The ten-year process was ultimately a success because it was the fruit of far-reaching studies and analytical modeling that were verified by numerous, small- and full-scale tests – all gauged against the experience of recent projects, including Forties.

For Transmed, Saipem, using the upgrade lay barge Castoro 5, conducted two major sea-trials to test the technology needed to lay, recover and, if weather dictated, abandon the line, as well as carrying out emergency recovery procedures to insure itself against cases where the pipe might be damaged during laying opeartions. Following a crossing of Messina Straits (360m water depth) with a 10-inch line in 1974, the vessel laid 16-inch line in the Sicily Channel (560m water depth) two years later, substantially confirming the practicality of the new technology needed for this pioneering project. Saipem, in under four years, progressively pushed the pipelaying water depth record from 50m to 130m (1972), to 360m (1974) to, finally, 560m (1976). The company had changed the then-state-of-the-art by an order of magnitude.

While the final touches were being put to the technology for Transmed, exhaustive studies to determine the surface vessel for the project were ongoing. The eventual success of Transmed – so dependent on the vessel that would ultimately handle the record-setting work, Castoro Sei – is explained by the corporate environment in which the project was carried out.

During the four years that the Castoro Sei was in development, an internal debate raged within Saipem as to whether the vessel that would be dedicated to Transmed should be of conventional or innovative design. Happily – as there was no room for compromise – the eventual winner, a semisubmersible type design, proved an unmitigated success.

Though less easily quantified, another formidable force at work during Transmed came from the large number of young engineers involved in the project, both in absolute terms, as well as in ratio to the total number of personnel engaged in both the construction and pipelay parts of the projects and many of these engineers have been influential in Saipem's fortunes over the years.

Saipem PC 1602 Submarine, Post laying Survey, Sicily Channel, 1980

Castoro Sei, Detail of the pivoting Ramp, 20 Transmed Sealine , Sicily Channel, 1980

Castoro 5, Landfall,10 Gas Sealine, Messina Straits, Italy, 1974

Castoro 5, Deep water Sea Trials, 16 Line, Sicily Channel, 1976

Expansion
1970-1985

Castoro 10 and Castoro Sei, Trenching and Laying, 20 & 30 Sealines Dong Project, North Sea, Off Denmark, 1983

Castoro 10, Lowering the trenching Sled, 20 & 30 Sealines Dong Project, North Sea, Off Denmark, 1982

Sealines in North Sea

S. Cao, V. Oliveri, A. Gebbia, A. De Domenico

Completion, in record time, of the Transmed project, paved the way for Saipem's return into the hostile environment of the North Sea with renewed vigour, where the operational capabilities of Castoro Sei proved a decisive competitive advantage on projects looking to widen the traditional summer offshore 'season'.
Saipem, based on the leadership in sealine installation, was awarded the DONG project in 1982 – a project that should be remembered both for the risk-taking required during the bid itself, and then for the execution of scheme noteworthy for the sizes and resources required.

Castoro Sei, Laying, 24 Magnus — Ninian Oil Sealine, North Sea, Off Scotland, 1981

Success on this project was by no means assured: after the contract was won, Saipem was contractually obligated to find ,to lease and to operate suitable installation vessels – later purchased and christened as the Castoro Otto and Castoro 10 – for the job.

Castoro Otto, Laying, 20 & 30 Sealines Dong Project, North Sea, Off Denmark, 1982

Expansion
1970-1985

Gaslines to Italy

G. Isabella, D. De Stefano, A. Boscaino

Natural gas was increasingly important for energy hungry Italy and indigenous sources were increasingly in short supply.
In the face of the rising demand Snam took the decision to import gas from Russia and The Netherlands. These two projects presented an opportunity for Saipem to repeat the earlier experiences in crossing the Alps installing more than 1100 kilometers of 36" line from the Netherlands border and from the Czech border down to the Snam hubs of Sergnano and Mortara.
To meet stringent environmental requirements large portions of the lines were installed using cable cars.

Welding, 36 Gas Line from Czech border to Italy, Austria, 1972

Line up by cable car, 36 Gas Line from Czech border to Italy, Austria, 1972

Line up in Tunnel, 36 Gas Line from The Netherlands to Italy, Switzerland, 1973

Laying, 36 Gas Line from The Netherlands to Italy, Switzerland, 1973

Laying and Tie in, 36 Gas Line from Czech border to Italy, Austria, 1972

Stringing by cable car, 36 Gas Line from The Netherlands to Italy, Germany, 1972

Expansion
1970-1985

Large diameter land pipelines (1978-85)

G. Isabella, D. De Stefano, N. Volpicelli, G. Tamborini, M. Ranco , S. Cavalli, S. Fadini

Most of the large diameter pipelines crisscrossing countries including Saudi Arabia, Algeria and Iran were laid by Saipem. Over a span of eight years, the company installed a total of more than 4000km of lines of diameters of 48-inch or larger, along with a further 5000km of smaller diameter lines.
In Italy, meanwhile, Saipem completed the onshore portion – around 1000km – of the 48-inch Transmed pipeline. Operations in the Middle East and North Africa – and to a lesser extent Italy – called for a new standard in logistics management at Saipem, particularly in overcoming the environmental challenges presented, for example, by the IGAT II project, in the Zagros mountain range in Iran, by the East West through the barren deserts of Saudi Arabia, and, in Italy, by the landscape between Sicily and Minerbio near Bologna.

Welding, 48 Transmed Gas Line, Algeria, 1979

Laying, 48 Transmed Gas Line, Algeria, 1978

Laying, 56 IGAT II Gas Line, Zagros Mountains range, Iran, 1978

Welding, 48 Transmed Gas Line, Tunisia, 1979

Welding, 42 Twin Oil Lines Suez - Alexandria , Egypt, 1974

Expansion
1970-1985

Saipem in Australia

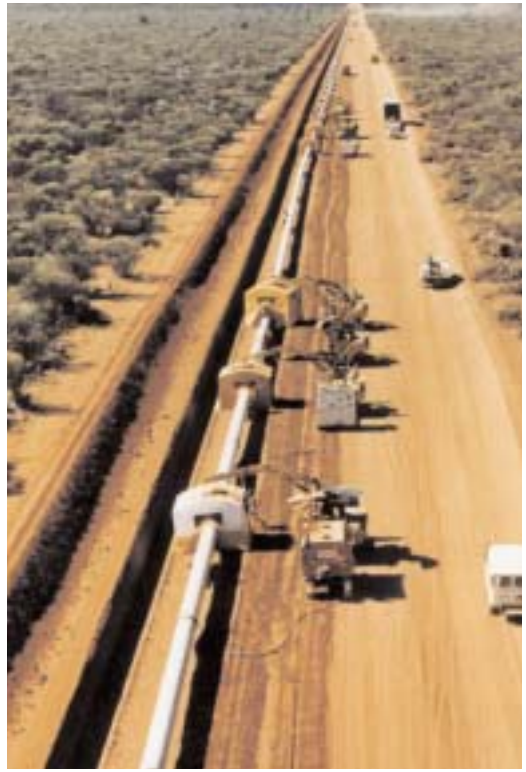
F. Cavallotti, G. Isabella, D. De Stefano, E. Grandi, F. Fabiani

Saipem made it first foray into Australia from India, in 1968, with the construction of the 170 km long- 30 inch gas line from Dutson to Dandenong and of the 781km long 22-inch gas line between Moomba and Adelaide, and has since maintained its position in the country through boom times and lean times.
In total, the company has laid some 7000km of lines across Australia, making it by far the leading contractor in this country's onshore construction sector.
The company was also responsible for the installation of a gas line in New Zealand, a demanding environment not dissimilar to regions of Italy.
The 1497km, 26-inch Dampier-Perth gas line, completed ahead of schedule, stands out among Saipem's most noteworthy project in Australia – though building two large-scale power plants in the country, in the downtime between pipeline projects, must not be considered of lesser importance.

Welding, 22 Moomba — Adelaide Gas Line , Australia, 1968

Overview during erection, Mount Piper power plant, NSW Australia,1988

Welding, 26 Dampier- Perth Gas Line, Western Australia, 1983



Laying, 26 Dampier- Perth Gas Line, Western Australia, 1983

Stringing, 34 -Oanui-Huntly gas line, New Zealand, 1975

Expansion
1970-1985

Erection, overview of the refinery, Freeport, Bahamas, 1972

Erection, lube oil plant, Basrah, Iraq, 1979

Erection, overview of the petrochemical plant, Skikda, Algeria, 1976

Petrochemical plants and refineries

A. Baratta, A. Ferrara, L. Franco, F. Fabiani, P. Sellerio, A. Mezzadri

Building on its position as a worldwide leader in land pipeline construction, Saipem expanded in involvement in the construction of refineries and petrochemical plants, maintaining a wide geographical coverage.
The catalog of projects carried out during this period, totaling some 550,000 tons, includes facilities at Tabriz, Arak and Kangiran in Iran, Skikda in Algeria, Basrah in Iraq, Freeport in the Bahamas, Curaçao in the Antilles.

Site unloading at the site refinery, Cura ao, The Netherland Antilles, 1971

Erection, overview of the refinery, Cura ao, The Netherland Antilles, 1971

Expansion
1970-1985

Saipem Due ,Drilling, North Sea, Off Norway, 1973

Saipem Due ,Bridge,North Sea, Off Norway, 1973

The rise of offshore drilling

G. Benedini, G. Cassone, F. Scolari, M. Bernini, A. Angelucci, R. Bergamini

At the end of 1960s, Saipem's ranking among onshore and offshore drilling contractors – a field chiefly dominated by large US companies, outfitted with top-end rigs and equipment – was comparatively low.
To overcome this disadvantage, the decision was taken to selectively build on its offshore drilling fleet by adding two state-of-the-art semisubmersibles, the Scarabeo 3 and the Scarabeo 4, and one of the industry's first dynamically positioned units, the Saipem Due.
Between 1972-75, this capital investment gave Saipem among the highest operational limits of any contractor in the North Sea or off West Africa and catapulted the company into upper echelons of international drilling contractors.

Scarabeo 3, Drilling, Mediterranean Sea, Italy, 1975

Scarabeo 4, Drilling, Mediterranean Sea, off Libya

Put to work offshore Ireland, Saipem Due, was the only vessel at the time capable of drilling in extreme weather conditions, thanks to a patented thruster-assisted mooring system later fitted to the Castoro Sei.

Saipem Due , Dynamic Positioning Testing in Heavy Sea , North Sea, off UK, 1973

Expansion
1970-1985

Drilling, Rourde Nousse , Algeria, 1978

Deep HP/HT land drilling

G. Carretta , E. Copertini

Foreseeing that the onshore drilling market would be decidedly bullish in the wake of the 1973 global oil crisis, Saipem selectively expanded its fleet of rigs and bought a 3000 HP rig dedicated to deep drilling.
Malossa, its first project (1973), was an operational leap forward for Saipem and secured a number of world firsts for the contractor based on depth (around 6000m) and pressure and temperature (10,000 psi and 110 °C).
The operation, managed jointly by Agip and Saipem, was so successful that it prompted the purchase of a further eight land rigs for deep drilling within a few years.

Drilling, Malossa field, Po Valley, Italy, 1973

1971:
War, danger, fear and reality

The Castoro 1 laybarge and its assisting tug were undergoing a complete overhaul in Bombay, following two major projects in the Persian Gulf.
Everything was going according to plan, when suddenly war broke out between India and Pakistan.
An order arrived from Milan to leave port immediately, and the barge and its tug completed emergency formalities and provisions for the voyage.
Understandably every possible effort was made to visually emphasise the peaceful dispostition of the vessel, even to the extent of storing vegetables on the helideck.
Everybody on board was anxiously evaluating the distance to the 'sacred 12 mile' limit to international waters.
It must have seemed the longest twelve miles in Saipem's history.

Sunset was approaching when suddenly the crew saw flashes from the Indian ships followed by noises that sounded like anti-aircraft guns.
There was fear and panic on board as the Captain quickly looked though his binoculars and confirmed 'yes, the flashes appear to be from heavy machine guns'.
As the sun got lower in the sky the real truth gradually emerged; the flashes were nothing more dangerous than the glinting sun on the wheelhouses of the vessels.
And the noises? Well, quick investigation revealed that in their hurry to set sail, some temporary works had not been properly lashed, and were bumping loudly against the hull.

1975:
Cows, sheep and sealine testing

The famous Forties Pipeline – Sealine, since it was mainly offshore from the Forties Platform to shore – had been laid and preparations were underway for testing. The onshore end of the Pipeline was two kilometers inland, and according to the testing procedure three large rubber balls were launched from the platform end and pumped though the Sealine to shore using compressed air. They would logically drop out on land at the other end. Right? Well, not quite....

Near the shore a strange device called a 'blind tee' had been incorporated in the Sealine. This 'blind tee' is actually the 'stub' of a future branch in the Sealine. Of course it is blocked off in the meantime. But as the first rubber ball passed the branch at low pressure, it got partially lodged in the branch section. When the second ball arrived at the tee, it couldn't get past the first ball. The third rubber ball travelling at higher speed dislodged the second ball, which then proceeded to the end of the line, where the arrival was heard.

The end of the shift was approaching and according to procedure the air pressure was relieved by opening a small valve near the end of the line. The new shift noticed the zero pressure reading, and believed all was well, not realising of course that only the short section beyond the fatal 'blind tee' was actually depressurized. The line was opened and one ball dropped innocently on the ground according to procedure .

And the other two balls?

The remaining 160 kilometers of sealine back out to Forties platform was still under pressure! The mobile phone had not even been dreamt of, and radio communication was not what it might have been. But the 'message' arrived soon enough, when suspicious vibrations were felt; building further to ominous, urgent and worrisome noises.

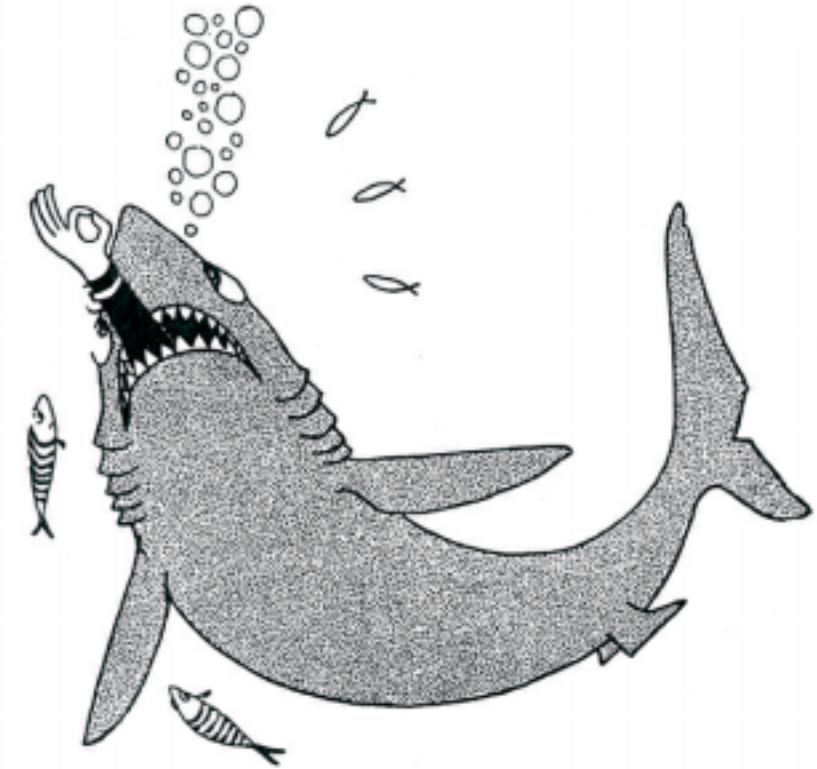
The balls, initially trapped at the 'blind tee' branch, suddenly freed themselves, and shot out of the end of the line, like horizontal rockets. They landed three kilometers away, among a herd of peacefully grazing cows. Though rubber, the balls still destroyed some fences, and a few enterprising sheep ran away and were never seen again.

Luckily the losses were limited to the few sheep, the fences, and - according to the claims arriving at the Saipem offices from the local farmers – several days of severely reduced milk production by the traumatised cows.

1976:
An unexpected companion

With apologies to animal rights interest

Summertime; Qatar.
The shore approach for a large offshore pipeline had been almost completed by Saipem's subcontractor.
It was an enclosed channel - 700meters long, 10meters deep and only 15 meters wide - blocked on all sides, mainly by material from the excavation itself.
Of course the excavation itself and frequent use of explosives meant that the water was thick with mud.
Visibility zero.
But everything was being done according to approved procedures.
The work was almost complete; just one last explosion in the channel, to break up some compacted rocks.



A Saipem diver inspector was making final checks that the charges had been correctly located in the rock – a totally tactile check, because of the zero visibility underwater.
Having completed the check, and still in his diving gear, the diver inspector gave the 'thumbs up' that the charges could be detonated.
The usual huge water cascade accompanied the explosion, but also a three meter long grey shark, which unfortunately didn't survive the blast.
The shark had been in what he must have considered a rather small 'bathtub' along with the Saipem diver, and sensing , with his longitudinal sensors ,the noisy presence, had kindly decided to allow the inspector to continue his inspection.
We doubt that the shark was shy, and he certainly didn't appear vegetarian.
It was two days before the inspector returned to work, and even then, with a strong inferiority complex about personal sensors and convinced that the Koran saying 'machtub' (arabic "it is written" , which implies that destiny of each person is pre-ordained), at least that time and in those waters, was playing an important role.

1980:
A recovery with a final surprise

It was July 1980 in the Mediterranean Sea near Sicily. The diving support vessel 'Ragno Due' with its PC16 Class submarine and an atmospheric diving bell were preparing to start an offshore survey of the massive Transmed gas pipeline. A totally unrelated failure during a NATO test had led to the loss of a new prototype torpedo in over 600 meters of water. NATO thought about the matter in secret for two days. Eventually, because of the sensitivity and importance of the prototype and the fact that the 'pinger' locator signals being emitted by the torpedo would only last another 7 days, an emergency 'request' was made to Saipem. 'Interrupt your own activities, and to go and recover the torpedo'.

The transit to the lost torpedo site took three days, leaving only four more days of 'pinger life'. Luckily, after only two 'dives' with the submarine, the torpedo was located. The torpedo manufacturer of course confirmed that the device was unarmed, but nevertheless asked our divers to be as gentle as possible, so as to avoid damage to the electronics, and enable the technicians to understand the cause of failure after recovery.

Oil 'patch' submarine pilots are used to big structures, valves, flanges and the like, and are not great respecters of electronic delicacy. The submarine pilot on 'Ragno Due' was 'true to breed'. He saw the torpedo stuck, nose-first, in the seabed. Naturally he bumped it a few times with his submarine to dislodge it. He then 'lassoed' the torpedo with a steel 'choker', attached to an overboard davit back to the Ragno Due on the surface. After some tugging from the surface, the torpedo still wasn't coming free too easily, so as a final touch; one last 'bump'. There...free at last. The recovery was successful and, unlike Saipem's pilot, the NATO technicians very meticulously and carefully checked the electronics and transferred the torpedo onto their own ship. Mission accomplished.

A few years later at a convention, one of the NATO technicians met one of the Saipem people involved in the recovery. He had been living with a secret it seemed, and possibly to get it off his mind, admitted that when they checked the torpedo after recovery, they had found it fully armed and ready to explode!

The Trials
1986-1992

Micoperi 7000, In the Stavanger Fjord, 1991

Saipem – as Enrico Gandolfi, president of the company from 1969-85, suggested– is somewhat like a three-legged table, each leg representing one of the contractor's core activities: onshore installation, drilling, and offshore construction. The legs may not be of consistently equal length (depending on the revenue and cash generated by any one business unit at any one time), but the table, even if skewed, remains stable. Up until 1985, this simile, reflecting as it did the disparate industrial cycles of Saipem's three areas of activity, proved true.

But in 1984, following a period of impressively bullish market activity, particularly offshore, the global oil price crisis struck. Numerous factors were behind the freefall of the per barrel price of oil, but two stand out: the structural world-wide production overcapacity and a high level of outstanding debt among the world's oil producing nations.
Debt forced these countries to maintain production rates in order to meet the terms of their repayment, a fact that only further undermined a slumping market.

Saipem's drilling operations bore the brunt of the immediate impact of the crisis, though it was not long before its other business areas were feeling the effects. Like contractors the world over, Saipem was ill-prepared for the speed at which its markets began to shrink, as much because – apart from occasional commercial hiccups – the trend had always been one of steady expansion and opportunity.

To better understand the hard times that followed the 1984 oil price shock - and continued through to 1990 -, it is important that one examines the reaction of the international oil companies at the time.
Drastic cost cutting was the order of the day among the IOCs: exploration drilling was largely abandoned and development projects were shelved in anticipation of better times to come.
Drilling contractors, especially those working mainly offshore, watched helplessly as years of rising demand evaporated almost overnight.
Ruin loomed for the many that had assumed a heavy debt burden to pay for the high level of investment in equipment needed to match demand in

Line up and Welding, Transmed 2, Gissi, Central Italy,1992

The Trials
1986-1992

the run-up to the crisis. With oil company contracts drying up, a large number of contractors disappeared into the abyss of oversupply. Almost all came face to face with Chapter 11.
Two facts give an even clearer depiction of the depth of the crisis facing drilling contractors in these days: dayrates fell to less than a third of pre1984 rates; equipment was sold off at fire sale prices, 10 cents to the dollar of original capital value. Every drilling contractor's foundations were shaken by the collapse of the market. All were fighting for survival, Saipem among them.

Securing new project work was imperative, if only to keep the corporate machinery up and running. To get some idea of the depth of the effect of this bearish market on Saipem, some period financials may be helpful. Company revenues were knocked sideways – from Lit 1,545 billion Lit in 1986 to just over 1,000 billion Lit in 1990 – while net profits fell precipitously – from a net profit of more than 62 billion Lit to a net loss of 253 billions Lit in the same period.
Nor were these figures helped by problems that arose out of projects taken on during these lean times. Everything from variable currency exchange rates to mismanagement of integrated detailed engineering and procurement issues within the then-novel EPIC contract structure contributed to these poor results.

Regular reversals of fortune are not uncommon for any contractor during a project's execution, and Saipem is not immune to twists of fate. But it should be noted that the company has never left a project uncompleted, no matter how onerous or daunting, for any reason, be it geographical, meteorological, or political.
Unwavering commitment is another of Saipem's characteristics, a fact that has led to its being awarded extraordinarily challenging contracts on several occasions. The rebuilding of Kuwait's oil transportation system following the Gulf War, for example, could be viewed as paradigm of Saipem's ability to operate successfully in emergency conditions.

In the years following the collapse the oil price, Saipem found itself grossly overstaffed in a deteriorating marketplace. This was true across its three business areas, but onshore drilling was particularly hard hit by the industry downturn, in Italy perhaps more than anywhere else.

Drilling, Trecate, Italy, 1992

The Trials
1986-1992

Inside three years activity fell from 42 wells (108,000m) to eight (35,000m).
To complicate matters, there was the problem of trying to find new employment for the large population of semi-skilled workers in this sector. Public infrastructure projects, waterworks, pier and harbor and railway construction were targeted by Saipem.

Though several sizeable contracts came out of this effort, the overall result was a disappointment.
This is largely explained by the numerous fundamental differences between the anatomies of private industry and public works. In industry, cost and time are the governing factors, and clients are generally prepared to pay, in keeping to contracts that can accommodate changes to schedule and project specifications.
But in the case of public works, by contrast, the client (that is, government) is less interested in a project's completion, and the project's finance is a set sum. Should any changes be required by a project, and those changes exceed the allocated budget, a project can be put on hold indefinitely, only resuming as refinancing allows.
Identifying the link between cause and effect is never easy, but it remains clear that during this period of Saipem's involvement in public infrastructure projects bids were heavily influenced by representatives of the then-ruling political parties. This reality led to cases of corruption within the upper echelons of several Italian companies at the time, including Saipem.
Saipem, fortunately, suffered no lasting effects from this regrettable period in its history, and, put its house in order, recovered in time to take advantage of a fast-approaching transformation in the global oil industry markets.

Semac 1, Laying, 40 Zeepipe, North Sea Italy,1991

Two key organizational changes made during this period can be credited for steering Saipem's redirection: de facto control of a key part Micoperi Group was leveraged through the Italian courts, and the formation of EMC joint venture.
Together these created the conditions that broadened Saipem's activity base into heavy lifting and deepened its penetration into the North Sea offshore market, which, in turn, helped foster diversification into a group of companies, a formative change that would take root in the coming years.

The Trials
1986-1992

Castoro Sei and Semac 1, Schiedam Base, Netherland, 1991

EMC (European Marine Contractors)

A. Andreani, A. Silvestri, V. Oliveri

With the North Sea sealine installation market slipping into decline, Saipem – following detailed market analysis and painstaking negotiations with one of its fiercest competitors, Brown & Root – decided to forge an historic joint venture.

The industrial logic of this alliance was founded on two facts: first, each contractor owned one of the three existing third generation lay vessels; Saipem, the Castoro Sei, and B&R, Semac; second, while both companies aimed to continue operating in the North Sea, where their respective vessels were well-equipped to deal with the region's meteorological and operational challenges, the market could just about sustain one vessel.

To survive, Saipem and B&R concluded, cost-sharing was the way forward.

The European Marine Contractors (EMC) JV, formed in 1987, would afford both a means of seeing both companies through the hard times.

Conceived as a stay against financial collapse, the JV in fact turned out to be a win-win agreement for the contractors for two reasons. First, as the pair were fighting a joint rearguard action, their respective company cultures, normally at odds due to competitive interests, suddenly produced an EMC culture that drew on the best from each partner – strict cost control from one and a philosophy of improvement from the other.

Secondly, with an offshore fleet which now included two of the industry's premier installation vessels, the JV could bid for projects with conflicting timetables, hedging its bets on winning both; particularly relevant at a time when the natural gas transportation market was expanding.

This double coverage resulted in EMC winning the contract to lay the 809 km of 40" Zeepipe trunkline off Norway in 1989.

EMC, a company born of industrial necessity, continued to thrive through the boom years of the North Sea offshore sector well into the late 1990s. In 2002 Saipem took the complete ownership of the JV.

Castoro Sei, Laying, 40 Zeepipe, North Sea, Off Norway, 1991

The Trials
1986-1992

Micoperi 7000, in the Bay after crossing the Atlantic Ocean - Rio de Janeiro, Brazil, 1988

Micoperi Acquisition

P. Ciaccia, G. Rosa, V. Messina

From a position of supremacy in the heavylifting sector in early-1970s, led by its 800 ton capacity crane Castoro 2 vessel, Saipem slipped to one of near marginality by the end of the 1980s. Heavylifting primacy now required a crane capacity of over 4000tons, and Saipem had only the 2400tons capacity Castoro 8 to offer. To make inroads into a market, dominated at the time by giants Heerema and McDermott, the company needed to add new high-end equipment to its name.

On the surface, Micoperi, which had the state-of-the-art semisubmersible heavylifting vessel M7000 under construction, appeared an ideal merger candidate, but on closer scrutiny Saipem judged the contractor – burdened by debt and nearing insolvency – to be ill-suited to such a tie-up.

When, in 1990, Micoperi finally declared bankruptcy, Saipem – keenly aware of the high technology value of the M7000 as well as the large number of specialist personnel within Micoperi ranks – set out to acquire the contractor with a plan leveraged through the Italian courts.

With the takeover complete, and the frontrunning M7000 leading in its construction fleet, Saipem was back in contention in the offshore heavy-lift market.

The success of the Micoperi takeover can be seen in the many highly-profitable contracts won by Saipem using the M7000 – later rechristened the S7000 – during the 1990s.

But the longer term value of the acquisition lay not only in the high technical standard of the equipment bought, but also in the skill and technological knowledge of Micoperi personnel drafted into Saipem following the takeover.

A good number of former Micoperi personnel, it bears mentioning, were placed directly into key management roles within Saipem, allowing for the seamless corporate integration of the two contractors.

M700 and M45 , Ersine jacket installation, North Sea, 1996

The Trials
1986-1992

Led by the S7000, Saipem reclaimed its position as a world leader in the offshore heavylift market – and to this day holds the industry record for a single DP lift (10,400tonnes), carried out during installation of the production platform at BP's North Sea Andrew development.
Setting this record, like the many others Saipem has set over the years, was symbolic of the spirit in the company that will always rise to the challenge of surpassing limits.

living quarters installation,Tiffany Field, North Sea, 1992

Micoperi 7000, Piling operation start up, Tiffany Field, North Sea, Off UK, 1992

Saipem 7000, Jacket installation, Varg Field, North Sea , Off Norway, 1997

Micoperi 7000, Flare installation, Bruce Field, North Sea, Off UK 1991

The Trials
1986-1992

Quiet Laying, 26 Transmed 2, Sicily Channel, Italy, 1992

Transmed 2

S. Bianchi, F. Piccio

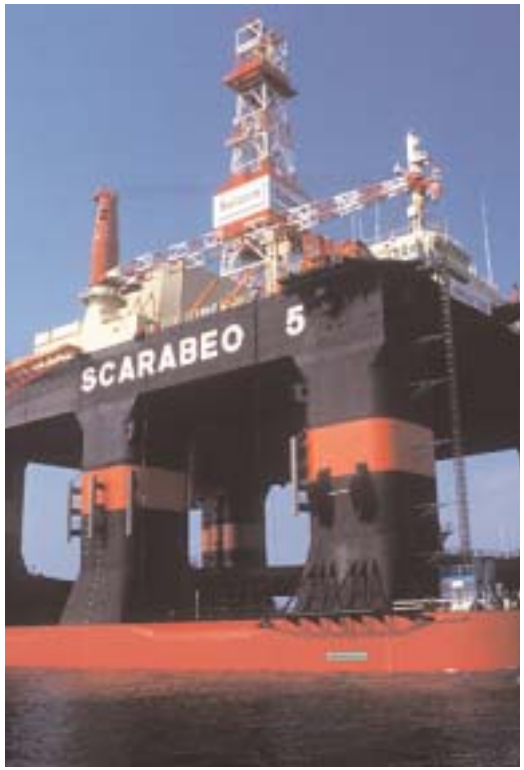
Laying Transmed's twin line, similarly, showed Saipem's ability to go beyond simply matching its original performance on a challenging deepwater project.
For Transmed 2, the company exceeded its earlier performance, accelerating daily pipelay rates from 1000m to over 3000m with a 26-inch, rather 20-inch, line, and setting a new water depth record of 618m in the process.

Castoro Sei, Laying, 26 Transmed 2, Sicily Channel, Italy, 1992

The Trials
1986-1992

Scarabeo 5 sea trials, Genoa, Italy, 1990

Scarabeo 5 christening, Genoa, Italy, 1990



Scarabeo 5 nearing completion, Genoa, Italy, 1990

Scarabeo 5

S. Polito, M. Brambilla

In the midst of the oil crisis, Saipem, in line with its strategy of maintaining the highest standards in equipment quality, set out to build a semisubmersible drill rig so technologically advanced that it would remain at the vanguard of the sector for many years to come. Saipem's approach was to incorporate state-of-the-art technologies across the board, from naval design of Moss Maritime, to drilling operations to the management and control of onboard systems and processes. Taking advantage of the favourable financing terms of the Italian Government for marine operators, Saipem constructed the Scarabeo 5, a unit that, after 12 years of operation, is still classed among the world's foremost offshore rigs.

The rig, it should be recalled, was the first designed with deliberate consideration of the issues of safety, environmental impact, and the quality of the onboard working environment. Among the innovative aspects of the thinking behind the Scarabeo 5 was Saipem's integrated control system approach, based upon two main principles, failure tolerance and supervisory control.

The functional analysis detailed priorities and importance of the various functions affecting the rig performances and safety as well as the role of the various subsystems involved in critical functions. The conclusion led to having subsystems physically and functionally partitioned and split in different locations, rather than using the usual straight redundancy, to improve system tolerance to failures.

The outcome was a system in which critical functions are supported by architecture of basic subsystems, making the rig less vulnerable to the failure of critical components. The supervisory paradigm, based on a predefined set of co-operative efforts between the man and the machine, frees the operator from many routine operational concerns to focus on important, high level, split-second decisions as they arise.

Scarabeo 5 under construction, Genoa, Italy, 1989

The Trials
1986-1992

Laying, 56 Khurais to Yanbu Oil Line, Saudi Arabia, 1987

Line up and welding, 56 Khurais to Yanbu Oil Line, Saudi Arabia, 1987

IPSA 2

D. De Stefano

For Saipem, IPSA 2– construction of a 780km long, 56-inch pipeline with five pumping stations connecting Khurais to Yanbu in Saudi Arabia – represented a true challenge not only because of the dimensions of the line, and the topography of the route (barren, rocky desert), but also due the fact that, as leader of a five-company JV tasked with the turnkey project, the company had to manage a full spectrum of cross-organizational complexities. Nonetheless, despite the tightest of timelines, IPSA 2 was completed ahead of schedule, and consolidated Saipem's position as a leader in onshore pipeline construction.

Ditching, 56 Khurais to Yanbu Oil Line, Saudi Arabia, 1987

Line up and welding, 56 Khurais to Yanbu Oil Line, Saudi Arabia, 1987

The Trials
1986-1992

Castoro Otto, Lifting, Bouri Field, Mediterranean sea, Off Libya, 1987

Borgland Dolphin Flotel, Hook-up, Bouri Field, Mediterranean sea, Off Libya, 1987

Bouri field development

L. Petrilli, C. Saggini

Though not its first EPIC project, Agip's complex Bouri field development ,offshore Libya, represented Saipem's first large-scale offshore engineering, procurement, installation, and commissioning contract.
Carried out in joint venture with Korea's Hyundai, which fabricated the project's process and utility modules – apart from drilling modules, designed and with fabrication follow up by Saipem, the contract covered the installation of two drilling and production platforms in 160m water depths.
In the final tally, 27 modules, ranging in weight from 500-1700 tons, and totalling 26,000 tons, were installed.

Castoro Otto, Laying, Bouri Field, Mediterranean sea, Off Libya, 1988

Castoro Otto, Laying, Bouri Field, Mediterranean sea, Off Libya, 1988

Production Platform nearing completion ,Bouri Field, Mediterranean sea, Off Libya, 1988

Faced by the prospect of a large number of suppliers labouring to hook up more than two dozen modules in the traditionally restricted offshore working environment, Saipem took the enlightened decision of managing the project's various activities, services, and supplies from a base in Malta using state-of-the-art logistics software.
Together with the more conventional factors – namely, a strong work ethic and applied offshore experience – Bouri proved an unmitigated success.

1992:
Facing the 100-year North Sea storm

Late October 1992. The usual 'summer pipelay season' was almost over.
Just a few more days to complete a project. The client was nervous. If the job wasn't done now, it would have to wait until next year.
Though the weather appeared unusually calm, a strong gale warning was suddenly issued.
The 'Castoro Sei' interrupted pipelay and thought about heading for shelter.
Somewhat against the client's wishes, the captain of the vessel decided to prepare the Castoro Sei for what was forecast to be an increasingly tempestuous storm.
This involved abandoning the pipeline on the seabed.
But the Captain told the client he would try to 'keep connected' to the pipeline using the abandonment winch line; and he would then try to finish the work as quickly as possible after the storm passed.

He would stay near the site, position the Castoro Sei on all twelve mooring lines with properly secured anchors, the bow heading North into expected storm. Luckily the sea remained calm during these preparations.
Almost immediately, the storm began to rage with hurricane gusts from the North, and massive waves bashing the vessel.
Tension in the bow mooring lines exceeded 250 tons -the operational limit- so the thrusters were activated.
The crew played a constant balancing act, alternately tensioning and slackening the mooring lines - now at bow, then at stern, continuously almost every minute - regulating the winch tensions with the use of the thrusters, as 22 metre high 'walls of water', as measured at the nearby platform, passed incessantly through the vessel.
The hurricane raged from 24 hours.
When it was over the crew were exhausted, but had a huge feeling of being both brave and fortunate.
This was confirmed when the extent of the damage was revealed; all piping and light structures below the lower deck had been washed away by the hurricane.

The making of a Group
1993-2000

Pipe Storage, Zeepipe Project, Maadulakte, The Netherlands, 1993

Precedent-setting change, once recognized, is swiftly affixed with a date, despite this act glossing over the fact that the change has most often been in incubation for a lengthy period of time.
From its earliest excursions out of Italy, Saipem has prided itself on its strong working relationships with other companies, often incorporating them in instances where a close fit met with local legal requirements or benefited operations. Most often these companies would function as separate divisions with limited autonomy, operating backed by resources and equipment sourced from the parent company. In some specific cases, however – as dictated by geographic area, resource type, activities and equipment – Saipem opted to forge temporary joint ventures.

Team-based working practices have long been at the core of Saipem's corporate culture, doubtless having grown out of project experience in the field where the distance from corporate HQs is great and the need to co-operate on day-to-day operations and emergency situations alike, demands instinctive collaboration.
There is also the fact that the sheer number of projects being bid in the global offshore market at any one time, taught Saipem that it had either to grow by scaling-up its personnel base or, when necessary, to join forces with other contractors.

G 125 Rig, Drilling, Campagna 1 Well, Po Valley, Italy, 1996

To respond in a timely fashion to the changing project demands of the oil and gas market – without leaving the company vulnerable to market vagaries – Saipem took the strategic decision to attempt to build on the success of its original JV with Brown & Root. That JV, EMC, formed in 1988, marked the start of Saipem's transformation from a contractor of near monolithic structural organization into the parent company which, through 50% ownership agreements, oversaw existing autonomous business units with their individual resources, exclusive commercial policies and areas of operation.

EMC opened the door to a number of international JVs in the 1990s, including Saiclo, with Clough Engineering (1995), Saibos, with Bouygues Offshore (1996), Saitre, with Trevi (1996), Sasp, with SnamProgetti (1996), and FPSO Firenze, with Single Buoy Moorings (1995).

The making of a Group
1993-2000

Most impressively, one might note, set against the not uncommon experience of conflict when a company attempts to serve two masters and their disparate management policies, every JV entered into by Saipem has been fruitful. It is a success rate perhaps partly explained by the positive attitude with which change is regarded by Saipem personnel and their willingness to co-operate with any newcomers who share a desire to achieve a project's targets.

While some might argue these ventures demonstrate that partner co-operation can be assured so long as the threat of reciprocal veto hangs over a JV, there is greater evidence to suggest that the marriage of distinct management cultures and technological expertise is behind their accomplishments.

Changes to Saipem's original, monolithic organizational structure, also partly the consequence of there being a relatively small number of company shares on the open market, were accelerated by the privatization of ENI.
With so many Saipem shares flowing out into the market, there was a major shift in ownership of the company – and this brought with it its own changes. Whereas most projects had, in the past, been funded by a series of cash payments, making finance integral to company operations, now, with Saipem quoted on the Milan stock exchange and the oil industry in a state of flux, the financial structure of the contractor became central in a market that valued financial strength as much as operational prowess.

Pipeline ready for installation in the ditch, 56 Hawiyah Gasline, Saudi Arabia,1999

Being publicly listed forced Saipem to sharply improve its performance to ensure it won the approval and backing of investment communities. Without this, pace-setting new projects such as Blue Stream would likely never have made it off the ground.

During the late-1980s downturn in the global oil industry, oil companies underwent comprehensive organizational restructurings, retreating to concentrate on their core businesses, slashing costs as they went.
One fundamental means of cost reduction came from various innovative approaches to the award and execution of – mainly offshore – projects.
To fully appreciate the radicalism of this change, it must be remembered that the revenues (costs + profits) of contractors are equal to the costs of the oil companies – and that the overarching ambition of any

The making of a Group
1993-2000

company involved in a given project, including the oil company, was to improve their overall financial results. The only way to improve overall performance, therefore, without eating into a service company's profits was to eliminate costs.

This fundamental change in the relationship between oil company and contractor produced numerous new approaches to project award and execution, mostly hinging on performance-related risk/reward mechanisms.
As front-running projects in these days of change, BP's Andrew development in the UK North Sea and drilling at Agip's Barbara field in the Adriatic, should be highlighted for their positive contribution to the industry.
Meanwhile, organization changes in the oil companies resulted in their making swingeing cuts to in-house engineering departments, which in turn dictated that engineering specialists be brought into project teams from outside.

Castoro Sei, Laying, 22 Gasline across Gibraltar Straits, Spain landfall,1995

Together, cuts to oil company engineering capabilities and new contractual approaches made its imperative that lead contractors be involved intimately with field development project from the outset. To remain competitive, Saipem soon saw, it would need to beef up its engineering arm with an emphasis on installation engineering – Sasp, a JV between SnamProgetti's offshore engineering divisionand Saipem's installation department – was formed.

The making of a Group
1993-2000

Scarabeo 5, Drilling, North Sea, Off Norway, 1994

Scarabeo 5 in the North Sea: Saga contracts

G. Taffetani, R. Cesaroni

Saipem's Scarabeo 5, already among the most highly respected offshore drill rigs internationally, set a new standard for operation when it established a new record for the longest running contract with a single operator following more than 10 years of drilling in the North Sea for Norway's Saga Petroleum (the operator later absorbed into Statoil and Norsk Hydro).

Scarabeo 5, in the Stavanger Fjord, Norway, 1991

The rig, meanwhile, in 1997, also set new Norwegian North Sea record for the deepest well drilled while station-keeping in dynamic positioning mode (1351m, Vøring Plateau), as well as receiving an award for operational excellence – including acknowledgement of an 'accident free' year – from the client. In 2001 Scarabeo 5 improved its previous Norway's Water Depth Drilling Record to 1,495 m (Havsule well)

The making of a Group
1993-2000

Pipe Storage Area, Rotterdam, The Netherlands, 1994

Castoro Sei, Pipe transfer, 40 Europipe Gasline, North Sea, Off Norway, 1994

Zeepipe

V. Oliveri, L. Menichelli, O. D'Onghia

Statoil's giant Zeepipe phase 1 project – a gas trunkline linking the Sleipner field off Norway to landfall at Zeebrugge, Belgium – represented a major contract for European Marine Contractors, Saipem's JV with Brown & Root, and was, at the time, the largest pipelay contract yet awarded.
Everything about Zeepipe was record-setting: the project called for the laying of 729km long, 40-inch line, a 39km long 30-inch line, and a 227km, 20-inch line – along with a number of additional jobs added to the workscope during project execution – while keeping to a very tight contract schedule.
Part-way through operations, Saipem turned in a world record performance by laying in 24 hours 6.5km of the 20-inch line between Kårstø and Y61 using the Castoro Sei.
EMC's performance on Zeepipe led Statoil to award the JV further pipelay contracts totaling some 1300km.
Among these, Zeepipe phase 2 – a 293km long, 40-inch line – and Europipe, a 600km long, 40-inch line, completed between 1993-95, stand out as landmark projects.

Semac 1, Laying, 40 Zeepipe Gasline, North Sea, Off The Netherlands, 1991

Castoro Sei, Laying start from Sleipner A platform,40 Zeepipe Gasline, North Sea, Off Norway, 1991

The making of a Group
1993-2000

Castoro Sei, Welding, 22 Gasline across Gibraltar Straits, Off Spain, 1995

Castoro II, above Water tie-in, 22 Gasline across Gibraltar Straits, Off Spain, 1995

Castoro II, 22 Gasline across Gibraltar Straits, Moroccan Landfall, 1995

Gibraltar Straits crossing

S. Bianchi , L. Ferroni

Successfully laying twin 45km long, 22-inch gas lines across the Gibraltar Straits was a significant technological accomplishment for Saipem due to the extreme environment – currents of more than four knots and rocky seabed topography – conquered to complete the project.
Improved survey technology and continuous monitoring of line touchdown, coupled with Saipem's ever-growing pipelaying experience, proved instrumental to the project's success.

Castoro Sei, 22 Gasline across Gibraltar Straits, Spanish Landfall,1995

That Saipem completed the crossing ahead of schedule was all the more of an achievement given that the waterway sees some 62,000 passages per year and the laying operations covered a three kilometers radius at any one time.

The making of a Group
1993-2000

Saipem 7000, installation start up, Diana- Hoover Project, Gulf of Mexico, Off USA, 1999

Saipem 7000, mooring chains preparation, Diana- Hoover Project, Gulf of Mexico, Off USA, 1999

Saipem 7000, upper module installation in DP mode, Diana-Hoover Project, Gulf of Mexico, Off USA, 1999

Diana-Hoover: offshore integrated services in deep water

H. O' Donnell, B. Mc Guire

Exxon Mobil's Diana-Hoover field development – a moored 'Spar' floating production platform standing in 1,480m of water in the US Gulf of Mexico – presented one of the most testing challenges faced by Saipem to date, both because of the project's commercial and organizational requirements, as well as its unrivalled technological demands.

Saipem 7000,lower module installation in DP mode, Diana- Hoover Project, Gulf of Mexico, Off USA, 1999

The S7000 was used as a 'marine powerhouse' installing the massive spar with its mooring & piling system and then performing heavy lift and pipelay scopes, all in DP mode, over a continuous period of 7 months.
It was certainly the first, and is perhaps the best example of integrated marine services on a major deepwater development, and marked the transformation of the S7000 to include J-Lay.
The specific challenges of the project included installation in DP mode of the world's largest DDCV (deep draught caisson vessel), a 705ft tall cylinder measuring 122ft in diameter, its mooring system – 28km long and weighing some 6,500t, numerous modules ranging up to 8,790t in weight, and multiple flowlines and steel catenary risers ranging in diameter from 6-inch to 18-inch.

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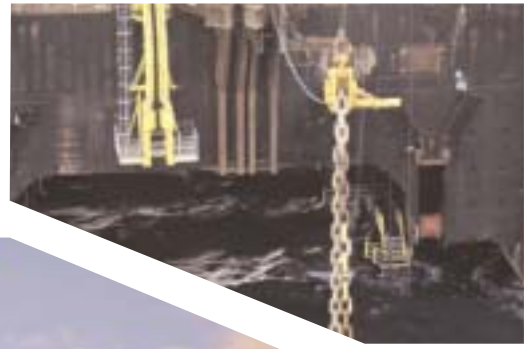
Saipem 7000, Detail of the J laying, Diana- Hoover Project, Gulf of Mexico, Off USA, 2000

Saipem 7000, J- Lay operation, Diana- Hoover Project, Gulf of Mexico, Off USA, 2000

Technological successes aside, the Diana-Hoover project would not have been possible but for a concerted effort by Saipem to integrate and coordinate its various regional subsidiaries, often located long distances from the field development area.
Saipem's Houston-based project team received support from Saipem S.p.A., both in transforming the S7000 for J-Lay and on the installation of lines and risers, from Saipem UK on design and operational issues, and from Saipem Inc on procurement.
Sonsub Inc – using its Innovator ROV – provided deepwater operational assistance.

Saipem 7000, mooring chains Installation, Diana- Hoover Project, Gulf of Mexico, Off USA, 1999



Saipem 7000, completing the installation, Diana- Hoover Project, Gulf of Mexico, Off USA, 2000

Diana-Hoover was undoubtedly Exxon-Mobil's flagship project in this period, and a special relationship was developed with Saipem which was probably instrumental in obtaining future work such as Kizomba in Angola.

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JOINT VENTURES

L. Sgubini , F. D'Adda, S. Russo, F. Nanotti , S. Cao

Forging joint venture companies that broaden regional coverage at the same time as sharpening market penetration without overstretching company resources, a strategy set out by Saipem at the end of the 1980's through its JV with Brown & Root, EMC, continues to prove a winning formula for the contractor.
Key to the success of these JVs is Saipem's practice of bringing in a select number of personnel from a partner company through secondment, while hiring the majority via the JV company itself, thereby creating a strong company identity.

The making of a Group
1993-2000

Saibos FDS, Testing, Gulf of Mexico, Off USA, 2001

Castoro Otto, laying, off Nigeria, 1998

Saibos

G. Rusconi, S. Porcari, G. Tocchio, K. Ardavanis, G. Bozzini

Though the joint participation of partners does not necessitate the splitting of a venture's equipment down the middle, in the cast of Saipem's paradigmatic 1995 JV with Bouygues Offshore, Saibos, the total value to the two contractors must be equivalent, with appropriate cash balancing, if needed.
Saipem's multipurpose construction vessel, the Castoro Otto, fit well with Bouygues' high profile presence offshore West Africa, where French oil companies have historically been dominant, and Saibos has been able to move quickly up the ranks to establish itself as a regional market leader.

Point Noire Yard-Republique Populaire du Congo-1996

Castoro Otto, Ashtarte 3 platform installation, Off Tunisia, 1995

The many successful projects completed under the Saibos banner in recent years led Saipem and Bouygues to jointly design and build an advanced multipurpose vessel, the Saibos FDS, dedicated to the emerging market for large deepwater field developments.

The making of a Group
1993-2000

Maxita, flowlines installation to FPSO Firenze, Aquila Field, South Adriatic Sea, Italy ,1997

FPSO Firenze installation nearing completion, Aquila Field, South Adriatic Sea, Italy 1997

Sonsub ROV, installation survey, Aquila Field, South Adriatic Sea, Italy, 1997

Aquila

C. Saggini, R. Cesaroni, G. Stani

For any company to break into a new market requires a willingness to take risks along with the perseverance to carry strategic plans through: so it was for Saipem in its first incursion into floating production.
Teaming up with Single Buoy Moorings, a contractor with a track record in floating production projects, the Saipem-SBM JV took on development of Agip's Aquila deepwater field in the Mediterranean, a development in then-world record water depths of 850m.

Aquila's workscope involved capital expenditure toward the field's floating production facilities, an FPSO named Firenze, as well as life-of-field production management responsibilities, based on a rental agreement with Agip, with performance-related financial risks/rewards.

Maxita, flowlines installation to FPSO Firenze, Aquila Field, South Adriatic Sea, Italy 1997

The making of a Group
1993-2000

G125, close up of the drilling deck, Monte Ferrante 1 Well, Enna, Italy, 1997

Saitre

R. Cesaroni , B. Pini

Though of a much smaller scale than most of Saipem's JVs, Saitre remains remarkable for its role in developing and operating innovative onshore drilling equipment.
The JV married Saipem's onshore oil well drilling experience with its partner's expertise in the manufacturing of drilling equipment for water wells to create a highly automated rig that is very competitive in the onshore shallow drilling market.

G125, drilling, Monte Ferrante 1 Well, Enna, Italy, 1997

Performances turned in by this rig have been impressive, as exemplified by operations at the Oritupano-Leona field in Venezuela where, in 10 months, instead of the nine 8,000 ft wells contracted, 25 wells, same depth, were drilled with the rig –averaging 12.5 days per well, inclusive of moving the rig well-to-well.

The making of a Group
1993-2000

SASP

P. Veronelli, A. Mazzoli

To better answer the offshore industry's growing demand for integrated EPCI services, Saipem moved to merge its in-house installation engineering division with the management and design capability of sister company Snam Progetti's offshore business unit.
The resulting JV, SASP, has won numerous significant projects, including – via a project JV with Rossetti and Saipem companies Intermare and Saipem UK – a risk/reward-style fabrication contract for two 3,500t modules for Statoil's Asgard B platform.
This project has laid the groundwork for future similar joint efforts for developments in the Adriatic Sea and offshore West Africa.
Saipem, in 2001, took the complete ownership of the JV and merged it in Saipem Energy Inc., to be in a position, having organically developed Design Engineering and Management, to project itself as a global EPIC Contractor.

Mwafi (Republique Populaire du Congo) platform integrated deck. Computer model superimposed on the deck under construction, Intermare Sarda, Arbatax , Italy , 2000

The making of a Group
1993-2000

Innovative Contracts

L. Sgubini , F. D'Adda, S. Russo, F. Nanotti, S. Cao

Forced by the oil price crisis of the mid-1980s to slash production costs on their offshore field developments, E&P companies pared their organizations to the core.
With traditional in-house capabilities, including all engineering and project management, passed in to the hands of contractors, the oil companies found themselves reliant on external resources – and vulnerable because of this reliance.
To compensate, they explored new contractual structures, based chiefly on co-operation and risk/reward, in order to economically bring their fields into production.
The following case histories are examples of contractual 'firsts' for Saipem in the changing industrial landscape of this era.

The making of a Group
1993-2000

Saipem 7000, installation, World Heavy lift Record(10,400 tons) in DP, BP Andrew Field, North Sea, Off UK, 1996

BP Andrew

A. Gebbia, B. Mc Guire

Owning an advanced offshore construction vessel like the S7000 provides a strong competitive advantage, but in a market where oil companies and major engineering firms rule supreme sometimes an innovative contractual arrangement can be the difference between winning and losing a tender.
For the Andrew development, operator BP chose an 'alliance' structure under which the primary contractors, including Saipem, committed themselves to complete the project within preset costs and time frame, sharing risks and rewards associated with overall performance.

Saipem 7000, installation, BP Andrew Field, North Sea, Off UK,1996

Because the ultimate profit – or loss – for each alliance partner would be a function of its – and its partners' – performance, the organizational mechanisms employed for the Andrew development drove the alliance partners to co-operate in mutual confidence.
From Saipem's perspective, the Andrew project carried a further significance; for it was here that the S7000 set the world heavylift record of 10,400tons.
Many more offshore installation projects, carried out by Saipem, followed the Risk/ reward mechanism: among them we may mention the ExxonMobil Diana-Hoover Project and the Agip Kitina Project .

The making of a Group
1993-2000

Agip Barbara

R. Cesaroni, D. Moreni

Capitalizing on its internal management skills and experience in handling projects of great complexity, Saipem proposed to take on responsibility – traditionally borne by the oil company – for management of those other contractors' activities related to the offshore drilling program at Agip's Barbara field using a partnership-style agreement, which served to reduce risk and cost exposure linked to conflicting project schedules for the oil company. Agip proposed a contract with a risk/reward structure that rewarded performance at Barbara against previous performances on similar operations.
The measure of the success of this drilling contract was derived from Saipem having completed 15 wells in 99 days (an average of 6.7days/well) as compared with the contractual baseline of 162 days.
In a follow-up contract secured with Agip in 1996 , Saipem set a new Adriatic Sea record , by drilling 1,619m in a single day, at Angela Field, eclipsing the previous record, set by a US contractor, of 1,219m.

Gas Production Platform- Agip Barbara- Adriatic Sea, Off Italy, 1996

The making of a Group
1993-2000

2000 HP Rig, Drilling, Madonna Taz-Zeit 1 well, Gozo Island Malta 1998

Land drilling, Malta

F. Bulf, A. Galleggioni

The stratigraphic Madonna Taz-Zeit 1 well drilled on Gozo Island for the government of Malta provides a useful example of how innovative contractual agreements can be applied to drilling activity, based principally on dayrates.
For Saipem, the challenge was to drill, on a turnkey basis, a 5000m (TVD) well in 180 days at a fixed total price. Going beyond the call, Saipem's drilling team reached the project's target depth in 92 days – a European record in this class of drilling and prompting the Maltese government to continue the well down to a TVD of 8,012m. The well ended up being one of Europe's deepest and a world record depth for a 2,000hp rig.

The making of a Group
1993-2000

Land pipelines and Petrochemical Plants

G. Ampollini

The strength of Saipem's reputation in petrochemical plant and land pipeline construction, the sector in which the contractor first made its name, is rooted in the company's experience in moving personnel and equipment along with its ability to apply highly efficient techniques to meet the specific environmental requirements of a given project. To maintain a presence in markets where Saipem's normal commercial advantage of applying advanced technologies is unsuitable, calls for a commercial acumen in developing relationships with clients and partners. Project activity remains at the heart of Saipem's operations, however, and the following are among the company's landmark achievements from this period.

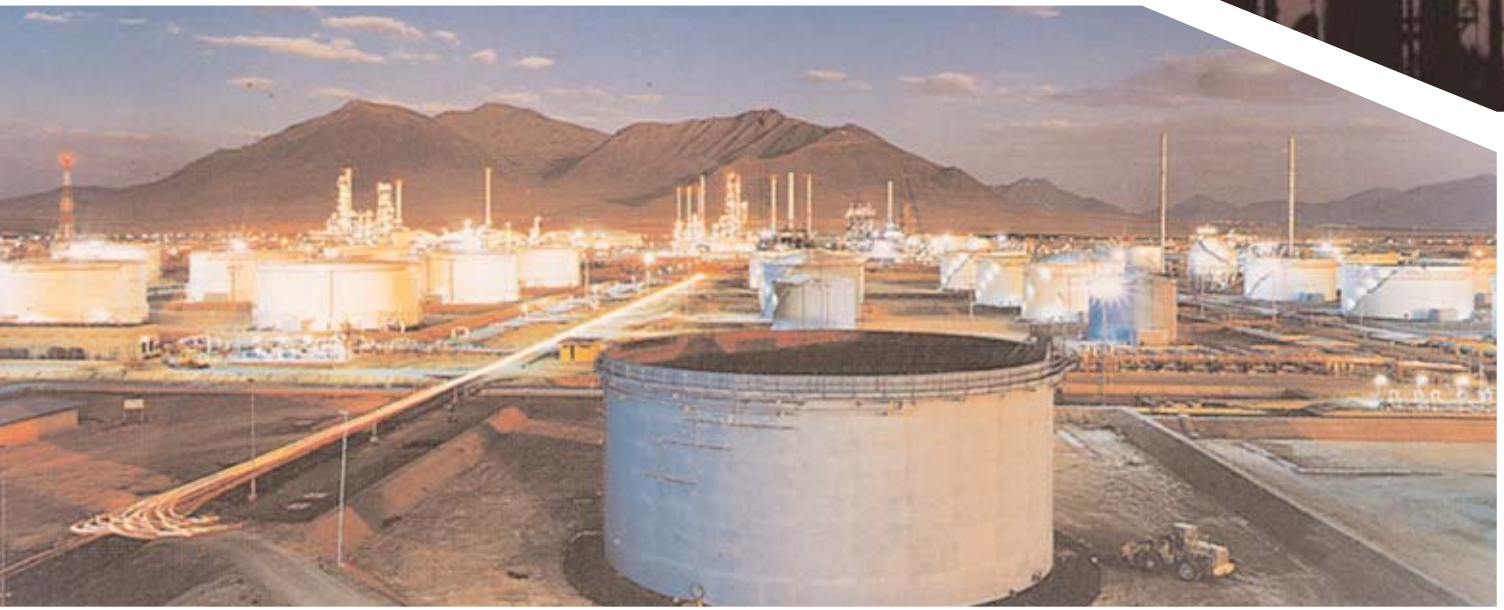
The making of a Group
1993-2000

Installation nearing completion, Leuna 2000 Refinery, Germany,1997

Arak in Iran and Leuna in Germany

G. Meneghini, A. Olivares

Petrochemical plant erection, though no longer in Saipem the cornerstone that it once was, played an important role in the development of Saipem's 'doing' culture.
Projects such as the construction of the grassroot refinery in Arak that called for 5 million direct man-hours and the erection of 25,000t of pipes and equipment, or the 2.7 million man-hours required to build the Leuna refinery, which involved the mechanical erection of almost 17,000t of pipes and equipment, are exemplary of this spirit.



Installation nearing completion, Arak Refinery, Iran,1993

The making of a Group
1993-2000

Goldfields gas transmission, Australia

D. De Stefano

Laying 1380km of 14-16-inch gas line, plus a further 55km of 8-inch line in the space of 10 months would have been a difficult enough task in a temperate environment, but to complete the Kargoorlie gold fields project, Saipem had to overcome a range of hostile conditions presented by one of Australia's most barren and remote areas – with temperatures rising to 50ºC and winds reaching velocities of 150km/hr – as well as a tight schedule.

Backfilling, 16 Goldfield Gas Line, Australia, 1996

The company had the further challenge of having to train up the majority of the project personnel specifically for Kargoorlie.
Notwithstanding these difficulties, Saipem completed the project in 200 working days, setting what is very likely a world record installation rate of seven kilometers a day.

The making of a Group
1993-2000

Stringing, 36 PGU III Gas Line, Malaysia, 1996

Launching Yard, 36 PGU III Gas line, Malaysia, 1996

Peninsular gas utilization project, Malaysia

C. Savini

The peninsular gas utilization project in Malaysia earned its place in Saipem's annals not for its dimensions (184km of 36-inch line), but rather for the terrain along the layroute.
Traversing swamps and several river crossings meant that the techniques employed by the company on this 'onshore' project were closer to those used in laying marine lines, with prefabrication of stretches of pipeline of up to eight kilometers in length launched floating into the trench.

Assembling for launching, 36 PGU III Gas Line, Malaysia, 1996

Trench Preparation, 36 PGU III Gas Line, Malaysia, 1996

It is notable that this project's specific attention to safety resulted in an accident- and injury-free 2.5 million man-hours worked.

The making of a Group
1993-2000

Welding, 30 Vasconia-Covenas Oil Line, Colombia,1995

Laying, 30 Vasconia-Covenas Oil Line, Colombia,1995

Vasconia-Covenas oil pipeline, Columbia

L. Gravina, G. Tassinari

With more than half of the total 800km line laid for this project having to be installed alongside an existing live line (10m down and 5m apart), the Vasconia-Covenas oil pipeline presented unusual challenges for Saipem. Navigating the layroute was further complicated by undulating terrain and the multiple river crossings necessary – often in torrential rains – to complete the project.

Welding, 30 Vasconia-Covenas Oil Line, Colombia,1995

Welding, 30 Vasconia-Covenas Oil Line, Colombia,1995

That Saipem's capabilities as a land pipeline contractor and nous as a negotiator with local politicians stood the test of this project, with completion to schedule, is an unqualified achievement.

The making of a Group
1993-2000

Trenching, 56 Hawiyah Gas Line, Saudi Arabia, 1998

Pipelines in Saudi Arabia

E. Maggi

The core role played by Saipem in the construction of much of Saudi Arabia's oil transportation infrastructure is well-known, but several key projects bear mention nonetheless: the Hawijah project, a 700km long gas line, and UBTG-3, a 209km long, 56-inch gas line (where a record 182 lengths of pipe were installed in a single working day).

Laying, 56 UBTG 3 Gas Line, Saudi Arabia, 1999

The making of a Group
1993-2000

Saipem 7000, installation of the upper portion of the J-lay Tower, Rotterdam, The Netherlands, 1999

Saipem 7000,J- lay full scale test, Stavanger Fjord , Norway,2000

Upgrading the S7000 and Technology Trials

V. Oliveri, U. Giovannini, C. Saggini

Ambition, to Saipem, is as much about outperforming one's competitors as it is about developing the company's wider operational capabilities and branching out into new markets.
Transforming the S7000 into the most advanced pipelay vessel in the world, through the addition of a purpose-built J-lay tower and increased thruster and power capabilities for its DP system, was a clear step toward fulfilling these ambitions.

Saipem 7000, installation of the lower portion of the J-lay Tower, Rotterdam, The Netherlands, 1999

The upgrading of the S7000 proved to be trump card in Saipem's bid to lay the twin Blue Stream gas lines across the Black Sea between Turkey and Russia – but says as much about the company daring in investing in pace-setting technologies.
To make the technological leap needed for Blue Stream, Saipem trusted in its own experience, verifying all basic technologies via full-scale tests (using a line identical in design to those destined for Blue Stream) in a Norwegian fjord in 2001.
Following the faultless heavylift and pipelay construction work at Diana-Hoover, the ultimate success of Blue Stream underscores the wisdom of the decision to upgrade the S7000 for such frontier operations.

The making of a Group
1993-2000

Saipem 10000, top drive, Sparviero well, South Adriatic Sea, Italy, 2000

The SAIPEM10000 drillship

S. Polito, C.A. Colucci, R. Cesaroni

Embodying technology frontiersmanship and entrepreneurial courage, construction of the S10000 drillship is one of the clearest examples of Saipem's strategic determination to maintain its place among the leaders in its field. Capable of drilling in the deepest water depths on the face of the globe, the S10000 is designed for the offshore oil and gas industry's frontier basins and water depths down to 3000m (10,000ft).
Built to the highest standards of quality, including being outfitted with class III DP and an integrated operation management system, the drillship's systems – in keeping with the functional priority philosophy developed for Scarabeo 5 – are robust and safeguarded against operational failure.
To meet the S10000's technological, budgetary and construction timeline demands was a difficult mission made more complex by the need to oversee and co-ordinate the project's numerous service and supply contractors – a task which can be more accurately valued when one takes into account that the shipyard was in Korea and that the drillship sailed out into service only 27 months after the contract for its construction was signed.
Offshore Gabon, in the Total Astrid Marine concession (2001), the drillship set then-world water depth record of 2,791 m.

Saipem 10000, drilling, Sparviero well, South Adriatic Sea, Italy, 2000

The making of a Group
1993-2000

Quadruple joints Fabrication Yard, 24 Blue Stream Gas line, Samsun, Turkey, 2001

Castoro Otto, landfall, 24 Blue Stream Gas line, Dzhudga,, Russia, 2001

Castoro Otto, landfall, 24 Blue Stream Gas line, Samsun, Turkey, 2001

Blue Stream

S. Bianchi, F. Piccio, A. Vozzolo

At the heart of the Blue Steam project was a strategic agreement for the supply of gas, up to 16 billion cubic metres annually, between Russia and Turkey. The gas supply aims to greatly strengthen strategic links between this two sovereign states. While the Soviet Union had crumbled and Russia was coming to terms with its new-found capitalist economy, there was still considerable instability, real and perceived, and Turkey on the other hand was traditionally a staunch American ally. To label the Blue Stream project 'politically highly charged' would be euphemistic and its detractors sought solace in the opinion that ' in any case the project, requiring the installation of massively heavy pipelines in 2,150m of water right across the Black Sea, was not technically feasible'.

Castoro Otto, crossing the Bosphorus Straits, 24 Blue Stream Gas Line, Turkey, 2001

The fact that the project needed to be underpinned by a special tax treaty between Russia and Turkey, which had to be specifically ratified by both parliaments, and that a complex financing package involving Italian, Japanese and British export credit guarantee agencies had to be finalized, added to the bewildering complexity of the undertaking. Blue Stream was 'on-again/off-again' as the project negotiated the intricate array of political, fiscal and financial hurdles, implied that the S7000 effectively 'sacrificed' almost two seasons of North Sea work to the bidding and sanction of Blue Stream. It could have been an heavy penalty for a large marine contracto and all for might have been only 'Blue Dream'.
In so many ways the project was 'high risk' right from the feasibility stage. As the Blue Stream project crossed its final political hurdle – ratification by the Turkish parliament in November 1999 – suddenly the pro-

The making of a Group
1993-2000

Saipem 7000, laying, 24 Blue Stream Gas line,Black Sea, 2001

ject was seen in a totally new light. The 1999/2000 and 2000/2001 seasons in the North Sea were the worst in over a decade. No longer the hazy 'pipe dream that was blocking all S7000 commercial proposals for years on end', but the probable 'saviour' of Saipem in two particularly lean years.
For the deepwater Blue Stream project – twin 24-inch, 400km long gas lines linking Dzhudga, Russia and Samsun, Turkey across the Black Sea – Saipem has set a world water depth record for pipelay: 2,150m. The fact that the both the diameter and water depth exceed the previous records by close to 40% implies a veritable 'step change' in deepwater pipelay. This along with the length and weight of the line, and the very difficult seabed conditions led many observers to consider the Blue Stream Project beyond the limits of current technology. As with the Transmed project in the late-1970s, the success of Blue Stream reflects the innovative determination needed to, among other operations, handle quadruple pipejoints, lay – and abandon and recover, if necessary, the 32mm thick lines, all in DP mode to say nothing of the pipelay support activities such as route monitoring ,trenching operation

Saipem 7000, crossing the Bosphorus Straits, 24 Blue Stream Gas line, Turkey, 2001

and post lay stabilization, along a route which included the uneven steep rocky slopes from the Russian and Turkish shores to the abyssal plain of the Black Sea .
Blue Stream provided Saipem with another 'first'. For this was the first project on which Saipem was responsible of the management of the entire financial and contractual structure, a breadth of remit well beyond those traditionally handled by a contractor.
Looking at the numerous parties involved -the various States, the companies, the banks, the financial institutions- it can be seen that Saipem's task required a great effort in integrated project management, tayloring a complex web of activities (permits, materials procurement and delivery, installation, subcontractors control, cash inflows and outflows) with the aim of controlling their effects on the project's overall financial results.

The making of a Group
1993-2000

Equipment dressing, Karachaganak Project, Kazakhstan, 2001

Train A, Karachaganak Project, Kazakhstan, 2002

Karachaganak

G. Ampollini, L. Caselli

Karachaganak Field is a huge gas and condensate reservoir located in NorthWest Kazakhstan near Ural'sk. Saipem scope of work, in J.V. with CCC, includes the construction of the processing facilities needed to increase the yearly production from 4.5 million ton to 7 million ton, and the installation of 650 kilometers 24" pipeline from the field to Atyrau terminal in the Caspian Sea.
The most challenging aspect of the project is logistic , both for the equipment and materials required by the project , and people, almost 10,000, requiring training, lodging, feeding, clothing, supervision, all in what many would consider the 'middle of nowhere'. This exceptionally isolated area is an extreme frontier with extreme environmental conditions, very 'rigid' winters, exceptionally poor transit conditions in early spring due to 'oceans' of melting ice, and torrid weather in summer time. Notwithstanding these difficulties given the size of the field and its characteristics, quality and adherence to a very tight schedule are of the essence. Saipem's ability to deliver and its reliability in these conditions is demonstration of its appreciation that these are the really essential requirements of the oil & gas industry of today and tomorrow.

Fabrication shop, Karachaganak Project, Kazakhstan, 2001

Slug catcher, Karachaganak Project, Kazakhstan, 2000

Sub station 4, Karachaganak Project, Kazakhstan, 2001

1997
Italy on shortwave radio

Land-based oil and gas projects, especially onshore pipelines normally cross inhospitable terrain. So for Saipem moving men and machines up very steep mountains or through jungles, while observing strict logistical rules, is normal. The 800 kilometre oil pipeline across Colombia had its share of 'normal' challenges; complicated undulating terrain, multiple river crossings often in torrential rain. But Colombia had an abnormal challenge – the area was under constant threat by a fragmented guerrilla movement. Everybody thought they had a fullproof plan to deal with this threat. The convoy constructing the pipeline remained compact as it moved along, and the army encircled the group 24-hours a day.

The careful plan was not enough to protect Lino Chioccioli, a Saipem technician. He was kidnapped, but fortunately lived to tell the tale. An extract from his account is as follows:

'The day began like any other: problems to solve, personnel to organise, checking that everything that I was personally responsible for was in order. In the afternoon I went out on the site in my pick-up, and along the way came across three guys apparently trying to mend a fence. They looked like normal 'campesinos', but one suddenly blocked the road, and pointing a machine gun at me, he ordered me to get out of the truck. Then pressing the gun to my throat he said to come with them. After a four day journey by mule, I stayed a few days in a guerrilla camp.

A few weeks later we moved deeper into the Colombian forest where I was to spend the rest of my time in captivity. But I was give a radio with which I could hear Italian radio programmes – a precious link with the outside world, but also a measure of time passing, and the feeling that I was slowly being forgotten. Soon my name stopped being mentioned altogether. By Christmas I felt so depressed that one of the guards tried to cheer me by saying that negotiations were still continuing. But I saw nothing happening. Then one Friday right near the end I was told we would be leaving the camp. Nothing happened until Sunday and again I lost hope. Then suddenly the order to move: after four days journey, again by mule, we reached the agreed venue and I was left alone. A little while later I heard the sound of a helicopter and when it appeared, it looked set to land. I thought my ordeal was over. Then the helicopter turned and flew away! It was a devastating moment, but I was assured by the guerrilla commander that it was only a last minute hitch. The next day everything went to plan; a 30 minute walk to reach a helicopter bound for Bogota', transfer to the airport, pass through formalities, board a flight to Paris. There I met my family. I was over. My ordeal was finally over.'

1998
The Opera can wait

Gozo Island is connected to Malta by a regular ferry boat. The harbour is so small it is only suitable for tourist vessels, and the Saipem ship bringing its third consignment of drilling rig components, just about completely blocked the little place. But the ship was unloaded and the convey of trucks with was leaving the harbour area when the surprise occurred. The ferry arrived; late of course having been blocked by the Saipem vessel leaving, but full of distinguished guests. Ladies in long evening gowns; men in formal dinner suits, all dressed to go to the opera theatre in Gozo. A bizarre scene developed. The Saipem workers in overalls trying to get out of the port (they weren't getting paid to wait around) and the distinguished opera lovers trying to get in. Everybody blocking the road. Suddenly, there was a sense that something more urgent was happening. Sure enough the guards came and cleared everybody out of the way for the President of Malta. He certainly didn't want to be late for the opera.

1998
Chronicle of a Cyclone

Saipem makes money by doing tough jobs. What happened in Jamnagar, wasn't tough. It was devastating, and well beyond any previous experience.
Jamnagar in India was the site for a huge tanker terminal, and looking back at the events on that day – for some the longest day of their lives – it started with a weather forecast that indicated the arrival of a tropical storm.

05.00hrs Local Time

The 13000 tons displacement pipelay barge 'Castoro 5' was on standby, moored approximately 10 kilometres from shore. The weather forecasts were increasingly alarming. Soon a fully fledged cyclone with 230km/hour winds hit the area. The crew took shelter below deck.

10.00hrs (L.T.)

The barge mooring lines popped one after another and the barge drifted, rolling and pitching violently in the cyclone. All communications failed and there was no way to evacuate any of the 227 people on board.

13.35hrs (L.T.)

Another Saipem vessel the 'Castoro 7' Jackup a few miles away, was frantically to establish radio contact with the Castoro 5, but without success. Emergency procedures were enacted by head office in Milan, with the Italian Embassy in New Delhi, to take all possible rescue measures.
The scene onshore was just as devastating; the cyclone swept away warehouses, equipment, containers and much of the refinery under construction.

14.35hrs (L.T.)

At last...a signal.
Castoro 7 reports a message from Castoro 5 with its position co-ordinates. The vessel has run aground on rocks after drifting nearly 11 miles. But the crew is safe and unharmed. The cyclone is heading Southeast and slowing receding at it leaves the area.

19.30hrs (L.T.)

The situation on board has stabilised to a 'more normal' emergency. The emergency generator is on and the crew is settling for the night waiting for the rescue teams to commence evacuation the next morning.

1998
‘A little bit of trouble’

It looked like they had ‘passed the exam’. All day Saipem’s MD and GM had been on board the S7000 in Rotterdam with the CEO of ENI and an impressive entourage. The topic: Was Blue Stream actually feasible? The whole trip on board was set up as a detailed review, with ENI’s CEO encouraging his team to take ‘pot-shots’ at Saipem, to try to discover all the weaknesses in Saipem’s plans for the epoch-making project.

The MD and GM were friends. They had been through ‘all kinds of hell’ together over more than two decades; the toughest ‘industry first’ kind of pipeline jobs in the North Sea, Transmed, China. The number of times they had to sit in front of worried clients and provide reassuring answers to difficult questions, was beyond counting. Today’s inquisition had been tougher than usual, but these ‘old pros’ had been preparing a lot for the meeting and had all the answers to the toughest “what if” scenarios.

ENI’s CEO appeared satisfied. During the dinner on board he made all of the expected remarks about the Blue Stream project; highly charged politically, financially complex, technically daring, and vitally important to the group. He reminded everyone that after pipelay started in 2001, the project would be in the limelight for more almost a full year. So many technical experts had shaken their heads in disbelief. One could almost imagine their condescending smiles if the massive pipe leaked, or was dropped, or the S7000 broke down, or the DP system failed to negotiate the 2km high underwater ravines on the Russian side, or the schedule stretched to years instead of months. They would say ‘Well, we told you so. They wouldn’t listen when we called it a Blue Dream’. Many of the feigned condolences would come from ENI’s peers. The pain would be unbearable.

Then ENI’s CEO looked directly at the two Saipem managers and made things absolutely clear in his own distinctive way: if the Blue Stream project was a disaster, his own career would be in a shambles. But he would sure as hell be ‘taking a few people with him’. As he considered this matter-of-factly, his look passed from Saipem’s MD to the GM, and fixed each of them with his penetrating gaze for several seconds. There was absolutely no doubt about what he meant.

Later on. The ENI entourage had retired. The Saipem MD and GM were now alone inside the cavernous J-Lay tower. Up, up, right to the top of the tower. It was silent. There was no light, but as they looked back down into a seemingly bottomless black hole, the atmosphere was dramatic. They could see the shadows of hundreds of open hydraulic circuits, thousands of partially terminated cable runs, empty trays in abundance, scaffolding everywhere. A huge bewildering complex; a monster ‘Casino!’. In a few weeks time the S7000 would sail to Stavanger to perform its 1st trials before starting the Diana project. The world would be watching; and no-one more intently than ENI’s CEO.

At this stage, all the “what if” scenarios suddenly reappeared and, this time, all seemed potential nightmares….. The old pals looked at one another. ‘Hey Stefano’ said Vincenzo, ‘I think this time we might be in a little bit of trouble’.

Further
Challenges beyond 2000

P.F. Tali, H. O' Donnell

Deep with Saipem's chromosomes lies the urge to pursue new innovative lines of thought and modifying old frames of reference; a desire – in the words of Stefano Cao, president from 1999 to 2000 – for perpetual rebirth.
For Saipem, as in the evolution of any species, Darwin's principle of natural selection holds true.
The meltdown of the so-called 'communist block' in the 1990's caused a major wave which continues to have a fundamental impact on business in the new millennium. This was backed by another major 'wave' in our own oil & gas industry – consolidation.
Each would have fundamental implications for Saipem.
Consolidation in the second half of the last decade wrought a dramatic transformation of the client base in the oil & gas industry.
BP acquired Arco and Amoco; Total acquired Elf and Fina; Exxon merged with Mobil, and Chevron with Texaco. Shell and ENI acquired smaller independents such as Enterprise, Lasmo, British Borneo etc.
These new very large, powerful supermajors and majors accelerated downsizing in order to concentrate on their core businesses.
In parallel with this, the traditional 'pools' of work – the North Sea and the Gulf of Mexico were 'drying up', at least in relative terms.
In 1996 Saipem embarked on a massive capital investment program.
The decision, essentially implying development of an impressive array of hardware that would allow Saipem to distinguish itself at 'Doing' the increasingly tough jobs required by the oil & gas industry, particularly in deep and ultradeep water, required courage and foresight.
As the massive capital investment programme drew towards a successful completion, the emphasis turned increasingly to people. Always characterized as a 'Doing' company, the engineering that historically came naturally to Saipem was 'method engineering' – pipelay, heavylift, drilling, construction – or if in the area of 'design and management', it was generally design and management of equipment 'to do' a certain activity.
In the 1980s and 1990s, regional JVs became one of Saipem's distinguishing characteristics as the company moved offshore and became an increasingly international player in the then 'hot' areas of the oil & gas industry.
In general the JVs were inaugurated for marine work in defined geographic areas and appropriate vessels were allocated to the JV to perform the work in those areas. EMC, SaiBos and SaiClo were organized on this basis.
These were enlightened moves, thoroughly appropriate to their time, and for much of the '90's they enabled Saipem to achieve a widespread international presence with strong profitable businesses.
Saipem thought carefully about 'where' and 'how' the newly consolidated client base of international oil companies was likely to spend its money in the first years of the 21st century.

Further
Challenges beyond 2000

The question of 'where' resulted in a four-pronged market perspective: offshore projects, many of them in deep or ultra-deepwater; projects in isolated areas, mainly in the FSU and Caspian; projects in so-called 'traditional oil provinces' of the main OPEC producers; and large associated projects associated with the gas-to-market challenge, i.e. large pipeline or LNG projects. Two further trends will affect the future oil & gas business: a much more global approach than before and , in addition to the consolidated majors, the major national oil companies would have a much bigger 'say' in these massive 'Frontier' projects.

The question of 'how' to develop these 'Frontier' projects where the most difficult part of the work was destined to be the 'Doing' part. Saipem's mantra - 'to lift, to lay, to construct, to drill, to drive, to store, to produce, to transport, to transit, to intervene, all in a safe and environmentally sound manner' - was more important than ever at the 'Frontiers'; the courageous capital investment programme based on excellence in 'Doing' on its own would not be sufficient, because the preferred contracting strategy of the majors and major nationals on these large projects was emphatically EPIC, with a significant 'Local Content' in the country of origin, and, whatever couldn't be 'Local Content' would inevitably have to be 'Low Cost'.
These simple concepts were the basis of Saipem strategic moves early in the new millennium, to globalize the marine based joint ventures, EMC, SaiClo, and SaiBos, to develop EPIC capacity and capability with the correct balance between 'Low Cost' and 'Local Content'. Seeing that EMC and SaiClo were running out of 'regional market', in an increasingly global marine business, Saipem opted to buyout its partners' shares in these joint ventures.

In the case of SaiBos - Saipem's regional joint venture with Bouygues Offshore - the situation was somewhat more complicated.
Of all the regional markets, the South Atlantic was perhaps the only one that appeared sustainable at least in the medium term, but in 2001 it became clear that delays to several projects in West Africa would lead the JV vessels spending most of the following year outside the 'SaiBos area'.

In parallel with this, and in accordance with the second part of the selected strategy, early in 2001, Saipem began to search for an 'ideal partner' in order to become " the complete global EPIC contractor". The choice was almost immediately obvious. Bouygues Offshore had strengths and weaknesses that were almost totally complementary to Saipem's. The French contractor had succesfully anticipated several trends in the industry including recognizing the importance of Engineering and Project Management, Local Content, Low Cost, Gas-to-Market. Saipem's early approaches to Bouygues in spring 2001 were not successful. Bouygues wasn't interested in selling one of its prized possessions. Their decision looked definite and indeed led the company to believe that Bouygues Offshore and Saipem would eventually become global competitors rather than collaborators.
By the end of 2001 of the long process of becoming a global EPIC contractor, the SaiBos issue had become the

Further
Challenges beyond 2000

most strategically urgent. There were letters, meetings, phone conversations, 'squeals' from innocent bystanders, innumerable twists and turns.
It was mid-April 2002. Saipem and Bouygues Offshore were in the throes of heated discussions on the future of SaiBos. Suddenly a miracle! Those in Saipem who knew could hardly believe it when parent company Bouygues, let it be known that for Bouygues Offshore: 'maybe, if the price was right and the people were given a fair deal'.
The 'crunch' came quickly. Bouygues Offshores' parent wanted an offer but legally could not guarantee that it would be accepted, because French labor law requires that the relevant workers' committees be adequately notified 'before any implementation'. Saipem had very little experience of the so-called French establishment, but it seemed extraordinary that a process leading to a combination that rivalled an existing thoroughly French EPIC powerhouse would be allowed 'free passage'.
By May 13th in an historic internal memo, Saipem's President was able to confirm to his key managers that Saipem had agreed with Bouygues to acquire its 51% stake in Bouygues Offshore.
Of course, the acquisition represents a real 'opportunity'.
The challenge is great but there are grounds for optimism. The previous acquisitions of Saipem and Bouygues Offshore - Micoperi, Sonsub, Sasp, Sofresid, Doris, Moss Maritime, PetroMarine, Barnett & Casbarian, ODE - while not always painless, have been very successful. Even more importantly, the deals improved with time. While each acquisition was very important in its own right without Micoperi and Sonsub, the exceptional Blue Stream project would have been impossible; without Sofresid, Girassol would have been difficult in some ways its as if all this was leading up to the combination between Bouygues Offshore and Saipem.
The combination of Bouygues Offshore's and Saipem's activities would provide both companies with a unique opportunity to become a powerful global EPIC contractor with wide-ranging capabilities and capacities that compare very favourably with its major competitors. The new entity would be ideally suited to perform the very large oil & gas projects required by the modern energy industry in the coming years.
Just as the rewards that lie ahead are great, so are present challenges.
At this time and as far as we can see, the principal foremost challenge can be summarized by saying that Saipem must preserve all of the recognized 'Doing' capability that characterizes it as one of the most powerful forces in the oil & gas services industry, while at the same time successfully integrating the newly acquired Engineering and Project Management companies to become a true global 'EPIC Powerhouse'. Above all the enlarged Saipem group must build the appropriate international human resource base to overcome whatever unknown challenges may lie in wait.

Witnessing the culture that has developed at Saipem over the last 50 years, we appear to possess most of the attributes necessary to face this fast-changing future: for proof of the company's innate 'can-do' attitude, one need look no further than its past successes – and the odds overcome.

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Challenges beyond 2000

That Saipem's people have a specific nous for working co-operatively with 'outsiders' to achieve a desired aim, important as this is, will not be the company's trump card. Rather it is something deeper in our genetic make-up. Examining the company's history, Saipem's 'trademark' appears to be the ability of its people to turn in pace-setting performances in the face of real emergencies – when other companies fall short.

Field experience is the key; a clear appreciation of the stark difference between ideas and proposed solutions and the actual taking of a decision, when problem solving. Information flows in a torrent during a crisis and the boundary between decision and action is razor thin. The man who makes the right decision will likely be the man who has been listening – and can now act with decisively.

Listening has always been at the core to Saipem's culture.
Listening will now be even more important in achieving successful integration with the newly acquired Engineering and Project Management companies.
And though it is an ever more difficult task the higher one climbs in the corporate hierarchy, it remains crucial to the success of a company increasingly intent on integration, particularly as it relates to the amalgamation of different cultures in our living work force.

SAIPEM

Historical and Performance Records

(1956) First (probably) sealine in Africa: Abu Rudeis, Egypt
First European Jack-up: Scarabeo
(1958) First off-shore well in Europe: Gela 21- Scarabeo and Tender Saipem, off Sicily -Italy
(1961) First European oil production platform: Fabrication, Launching and Installation, Gela field, off Sicily-Italy
First (probably) offshore well in Africa: Scarabeo and Tender Saipem, Abu Rudeis, Egypt
First Alps Crossing: 26" Oleodotti Internazionali Oil Line Genoa- Ingolstadt- Aigle
(1968) Second European drilling semi-submersible: Scarabeo 2
(1972) World Water Depth Lay Record: 130 m, 32" Test Line, Castoro 2, BP Sea trials, off Gaeta, Italy
(1973) World (probable) HT/HP (110°C-10,000 p.s.i.) Drilling Record: Malossa Field, Po Valley, Italy
Drilling Vessel Saipem Due: the only operational ship in winter time, offshore Cork, Ireland
(1974) World Water Depth Lay Record: 360 m, 10" Test Line, Castoro 5, Messina Straits
(1976) World Water Depth Lay Record: 560 m, 16" Test Line, Castoro 5, Sicilian Channel
(1980) World Water Depth Lay Record: 610 m, 20" Transmed, Castoro Sei, Sicilian Channel
(1992) World Lay Record: 6.5 Kilometers of 20" line in 24 hours, Castoro Sei, Karlsto to Y 61
(1996) World Lifting (in Dynamic Positioning) Record: 10,400 Tons, BP Andrew, North Sea
World Installation Record: 7 Kilometers/day average Goldfield Gas Pipeline, Australia
Single day Drilling Record in Adriatic Sea: 1,619 m, Angela Platform, Italy
(1998) World Record FPSO Water Depth Record: Firenze in over 850 m, South Adriatic Sea, Italy
European Drilling Record: 92 days for a 5,000 m stratigraphic well,Madonna taz zeit well, Gozo Island, Malta
World Well Depth Record: 8,012 m (T.V.D.)with a 2,000 CV Rig , Madonna taz zeit well2, Gozo Island, Malta
(1999) Norway's Water Depth Drilling Record: 1,352 m, Gjallar well , Scarabeo 5, North Sea, Norway
(2000) World Daily Land Pipeline Welding Record: 182 joints of 56" UBTG-3 Gas Line, Saudi Arabia
(2001) World Water Depth Drilling Record: 2,791 m, Judy 1 well, Gabon
World Water Depth Sea-laying Record: 2,150 m, 24" Blue Stream Gas Line, Black Sea
Norway's Water Depth Drilling Record: 1,495 m, Havsule well, Scarabeo 5
(2002) World Record heavy weight deck mating in open sea: 16,500 Ton, Cakerawala Project, Thailand

Remarks : In red characters records still valid as of end of June 2002