



# Argentine Shipbuilding Industry 100 Years (1937–2036)

## Industry

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**Abstract.** Authors Raúl Podetti Sr. (87) and Jr. (60) add up to a century devoted to the shipbuilding industry, in which they have pursued their career as naval architects and marine engineers. Here they contribute their view as active players in the sector, having managed private and state-owned shipyards, as well as professional and industrial business entities.

This paper is about shipbuilding policies in Argentina. It is divided in three chapters: Industry, Policies and Future.

The first one, Industry, describes its evolution and the main players providing a thorough qualitative and quantitative analysis of the sector's performance.

**Keywords:** Shipbuilding · Marine industrial policy in Argentina · Shipyards

## 1 Introduction

Several are the reasons that led to the inclusion of the concept of “one century” in this paper's title: 100 years have recently passed since the famous publication by Cap. Storni, on “Argentine Maritime Interests”. In 1917 started the first shipbuilding union organization. One hundred years is the period analyzed in this paper. Starting in 1937 – going back eighty years in history to the beginning of modern shipbuilding industry with the construction of a series military vessels by the local industry. Reaching up to 2036 – projecting twenty years into the future in order to achieve a consolidation of the nation's industrial activity at levels of employment and exports similar to the maximums reached in the past.

One hundred years is additionally the time added up by the authors in their professional maritime dedication to this engrossing activity.

This industry is very broad and in order to analyze it, it can be divided along at least three dimensions. According to the type of service, into Construction or Repairs; according to the type of vessels, into Heavy or Light; and according to position within the industrial chain, into Shipyards or Parts/Services Suppliers to the shipbuilding process. The focus of this paper is on the Heavy Construction industry of ships, from the standpoint of the Shipyards.

## 2 Industry

The first shipyards in the region, gradually established along the basin of the River Plate, as well as inland, to make use of the rivers to sail their products down to Buenos Aires, and in the far southern region, to repair those ships that were wrecked while trying to make their way through the extreme South, around to the Pacific Ocean [1].

## 3 Industry Evolution

The last eighty years (1937–2016) of Argentine Shipbuilding Industry history fall into four stages. They are clearly seen when graphing (at Contract Dates) the values (MMUSD - Millions of dollars) for newbuildings in argentine yards during the last 80 years (Fig. 1).

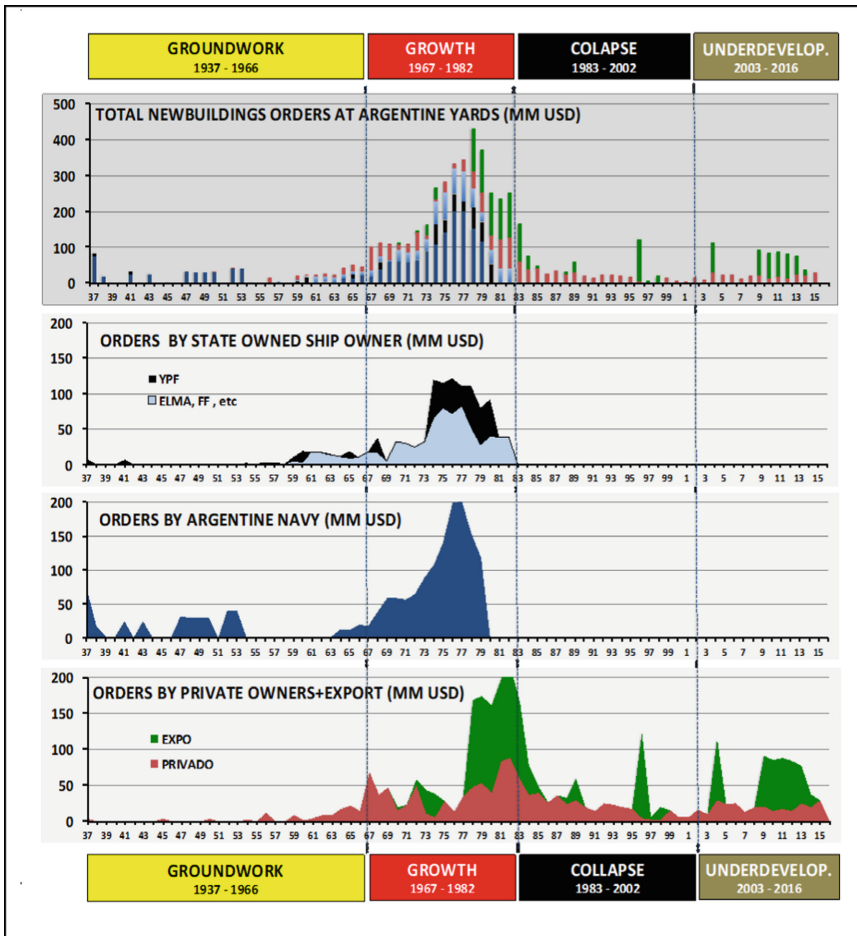


Fig. 1. Argentine newbuilding values at contract date

First graph shows Total Newbuilding orders and in the others are shown the components of Carrier State (ELMA, EFFEFA, YPF), Navy, and private and foreign shipowners. This helps to understand the classification into historical stages and the impact of the demise of the “Shipowning State”, which altogether amounted to 45% of the total industrial value. The maximum commissioned rate was reached in the late 1970s, totaling over 400 MM US dollars annually.

The **Groundwork** phase starts with the first significant military shipbuilding project, in 1937, commissioned by the Navy from national private and public shipyards. On the basis of the Navy’s attitude, momentum gathered, and infrastructure and institutions were created, laying the foundations for future development.

Only in 1966 did the then prevailing development minded intentions strengthen and result in suitable governmental policies for the times, which enabled a steady progress towards the second, **Growth** stage of the activity. Following a worldwide trend, promotion and protection schemes resulted in a great demand for ships from governmental and private shipowners, supported by ample public financing, similar to that in other countries, and with subsidies to match those received by foreign shipyards in their attempt to enter the Argentine market. It was a time of great development, which ended in the early 1980s.

Due to external reasons, internal crises and changes in policies, the government stopped buying ships in the country and suspended shipbuilding financing. Thus started the stage of the **Collapse** of this industry, during which the largest private shipyards died out. What’s worse, as of the 1990s, a most dubious policy promoted the tax-free import of second-hand ships, which became the rule – and the most lethal sectorial policy – in the early years of the new century.

This course means that even to this date, the sector remains deeply sunk in undeserved **Underdevelopment** – the name of the fourth phase – from which this paper attempts to provide escape routes.

## 4 Value and Employment

In a distinctive contribution, the authors have worked on statistical shipbuilding archaeology, to identify the building data on thirteen hundred ships throughout the country since 1937 – excluding smaller ( $L < 20$  m) and pleasure units. The work resulted in the industry’s first ship production database in Argentina [2].

Using technical parameters, assessment was made of the Value (in US dollars of today) and the Direct (Adjusted Standard) Construction Man Hours applicable to each unit, which in turn made it possible to classify information under two criteria (Value and Employment) as applied to shipyards and vessels so greatly different from one another.

From the analysis of the constructed value by shipyard type, the authors found that the state-owned Río Santiago shipyard (ARS, in Spanish) delivered 40% of the total value, although in the last decade it contributed only 15%.

The large private shipyards delivered 24% of the total during their short lifespan and middle-sized shipyards have grown the most in relative contribution to the total value percentage, from 36% of the total to 85% this last decade (Fig. 2).

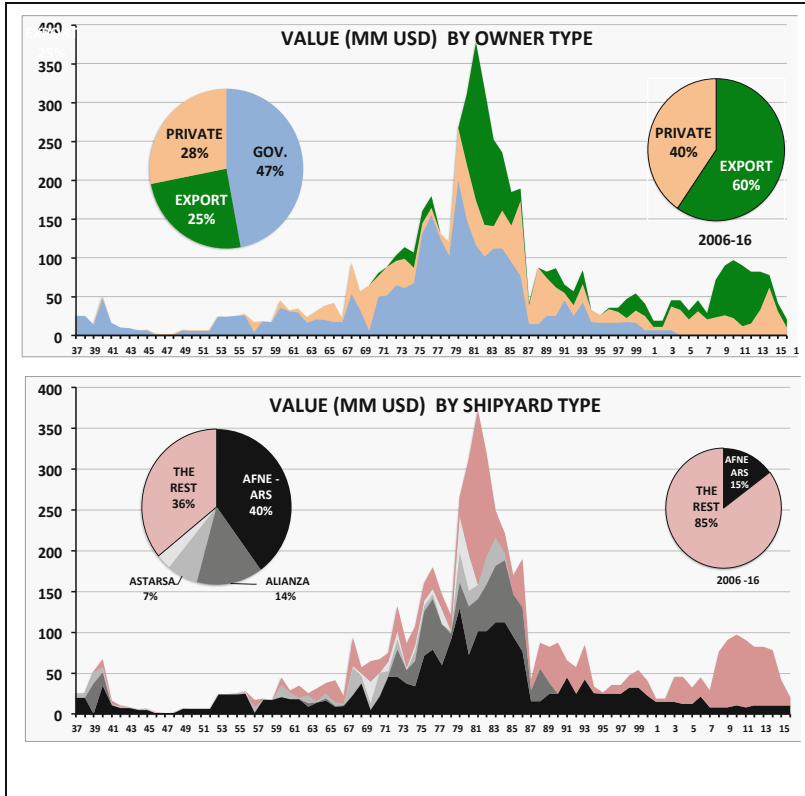


Fig. 2. Value of Argentine newbuildings

When combining this value contribution to the generation of employment, it is concluded that, at present, the shipbuilding industry increasingly depends on middle-sized private yards.

As regards the employment criterion, each ship was assigned the standard direct production hours adjusted by type of shipyard and construction period. This made it possible to reach an estimate of the necessary amount of productive staff needed for ships actually built at a given time, which is here defined as “Direct Newbuilding Employment”.

“Total Employment in Shipyards” was reached by combining sources [3] (National Economic census, Shipyards publications, etc.) and also includes production workers in excess of actual building demand (for instance, idle or working in shiprepair), and indirect personnel. Direct construction employment necessary to produce what was really built reached a peak of 9,000 workers in 1979 (Fig. 3).

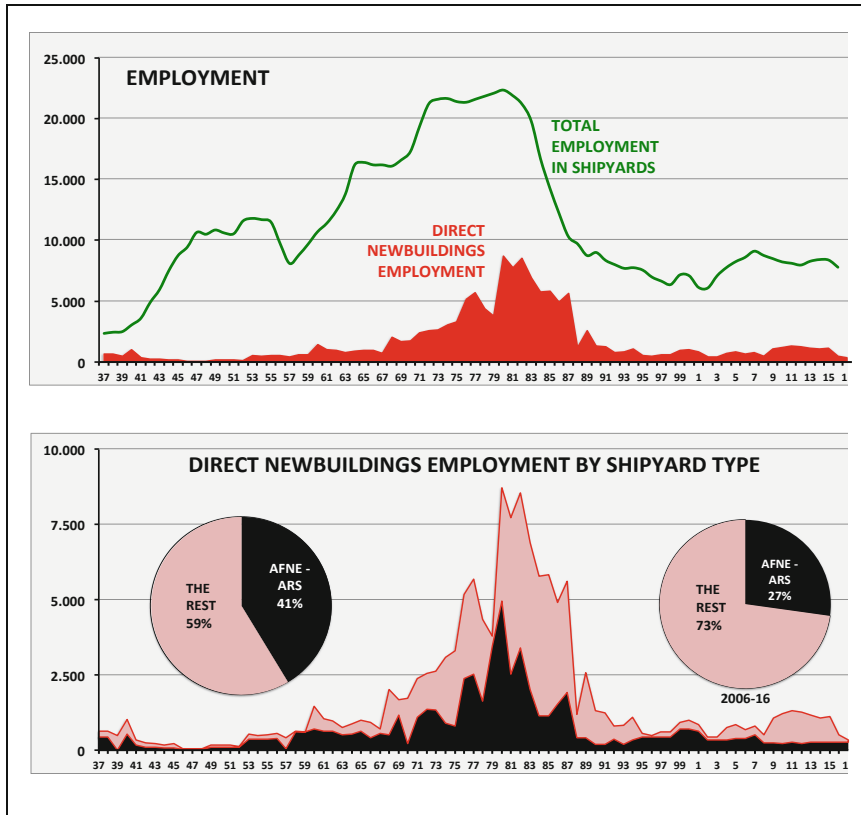


Fig. 3. Employment in Argentine shipyards

ARS provided 41% of the total productive workforce in the whole period, but only 27% in the last decade.

Total Employment in shipyards is much higher than Direct Construction Employment, for repair work has always been very sizable and requires large amounts of labor.

The ratio of Direct Jobs/MMusd produced is of certain use to compare productivity as it shows the amount of people “required” to produce a certain value of ship. This ratio is 23,2 for the whole period and 14,5 for the last decade.

It follows a statistical summary of Industry performance from 1937 to 2016 (Fig. 4).

<b>Quantity of Vessels</b>				<b>Value MMUSD</b>		<b>by Yard type</b>		
<b>1.295</b>				<b>5.855</b>		<b>Gov. yard</b>	<b>Private Yards</b>	
							<b>Large</b>	<b>Med.</b>
						<b>2.351</b>	<b>1.395</b>	<b>2.109</b>
		<b>Markets</b>						
7%	95	Sea transport		2.096	36%	44%	51%	5%
2%	29	Military		1.388	24%	97%	1%	1%
47%	611	Waterways		895	15%	4%	13%	84%
22%	286	Fishing		518	9%	0%	1%	99%
1%	12	Special (Offshore, Polar)		500	9%	0%	22%	77%
12%	155	Dredges / Towing		308	5%	9%	19%	71%
8%	107	Tourism / Passengers		150	3%	7%	7%	86%
		<b>Financing</b>						
17%	221	State Shipowner		2.718	46%	75%	20%	5%
27%	349	External Funds/ Export		1.537	26%	14%	27%	59%
42%	545	National Prive Funding		1.008	17%	6%	7%	87%
8%	110	National Merchant Marine Fund		517	9%	9%	71%	19%
5%	70	State Banks		75	1%			100%
		<b>Type of Owner</b>						
17%	221	Government		2.718	46%	75%	20%	5%
56%	725	National Private Owner		1.600	27%	7%	28%	66%
27%	349	External Owner		1.537	26%	14%	27%	59%
		<b>Owners</b>						
4%	46	NAVY		1.545	26%	88%	10%	1%
2%	30	ELMA		586	10%	70%	30%	0%
1%	19	YPF		375	6%	59%	31%	9%
1%	8	POLSKA ZM		249	4%		100%	0%
0%	2	READING & BATES (USA)		180	3%			100%
92%	1.190	Other 24 owners		2.920	50%	12%	24%	64%
		<b>Type of Shipyard</b>						
9%	114	State Owned (5)		2.351	40%			
11%	138	Large Private (3)		1.395	24%			
81%	1.043	Medium Private (54)		2.109	36%			
		<b>Shipyards</b>						
6%	73	AFNE- ARS		2.296	39%			
3%	45	ALIANZA		820	14%			
5%	68	CORRIENTES		465	8%			
3%	40	ASTARSA		390	7%			
18%	238	PUNTA ALVEAR		375	6%			
9%	115	SANYM		250	4%			
4%	53	PRINCIPE		185	3%			
51%	663	Other 55 shipyards		1.074	18%			

Fig. 4. Argentine shipbuilding statistics (1937–2016)

## 5 Argentine Shipyards

Most of the shipyards in Argentina are privately owned. Up to the 80’s there were three large private yards (Astarsa, Principe and Alianza) and nowadays there are 16 private medium size yards.

The state owned yards are Astillero Río Santiago (ARS), Storni and the shiprepairers Tandanor and ANPB (Base de Puerto Belgrano).

## 5.1 Astillero Río Santiago-ARS

The Río Santiago shipyard was founded in, by president Peron as part of the *State Shipyards and Naval Factories* (AFNE, in Spanish).

Its concept, design and management was undertaken by the Navy as part of the leadership exercised by the naval force regarding the shipbuilding industry in foundational and development times.

ARS was the industrial expression of a time marked by the Soviet model of over-staffed mega-factories, with maximum vertical integration (from rivets to large marine engines), which also fulfilled a strategic role in training naval architects, marine engineers, technicians, craftsmen and workers who would continue the industry over the years.

Originally, ARS played a military role, soon diversifying its focus in order to meet the needs of the state owned merchant marine fleet.

It built 73 significant vessels, standouts among them being the training tall ship *ARA Libertad*, virtually all the nationally built navy fleet, YPF's largest oil tankers, and merchant ships for ELMA. In the last years, construction was of bulk carriers and oil tankers, exclusively for export.

Traditionally, ARS was a major employer in the shipbuilding industry, representing 25% of total historical employment in shipyards, with a maximum record of eight thousand employees in 1970 and a minimum of eleven hundred in 1992. Remarkably, over the last decade it represented 47% of total shipyards employment, with some 3400 agents, despite its production being much reduced – providing only 15% of the period's total industrial value.

Fifty-nine percent of the shipbuilding value was made up by military vessels, followed by overseas merchant vessels for the state-owned ELMA and YPF.

Considering current shipbuilding operations, its exports amount to 9% value of its overall historical production, having also worked for private shipowners (4%).

From 1976 to 1983, it added value exceeding 100 MM dollars annually, understanding that in this analysis, value is split over the term of construction, as is employment.

The relationship between Total Employment and Value produced is a ratio (the lower, the better) that shows a shipyard's productive features. It is worth noting that from the mid-1950s through the early 1970s, for ARS, this index increased to high levels – 230 jobs per million dollars of value – on account of its high vertical integration, the training of apprentices, and the shipyard facilities construction by its own personnel. Then the ratio was reduced to a normal value under 50. But as of the “provincialization” process, in 1993, this index increased markedly, reaching the exorbitant level of 300 jobs per million dollars of value, thus pointing to a productivity ten times worse than the rest of the state-owned shipyards of the region. This resulted from the unfettered increase in personnel not related to production (the effect of the shipyard's politicization) and the reduction in real productive activity. This situation is deemed to cause a loss of 170 MM dollars annually, a situation that has lasted for over two decades, independently of the kind of government in charge of the shipyard (Fig. 5).

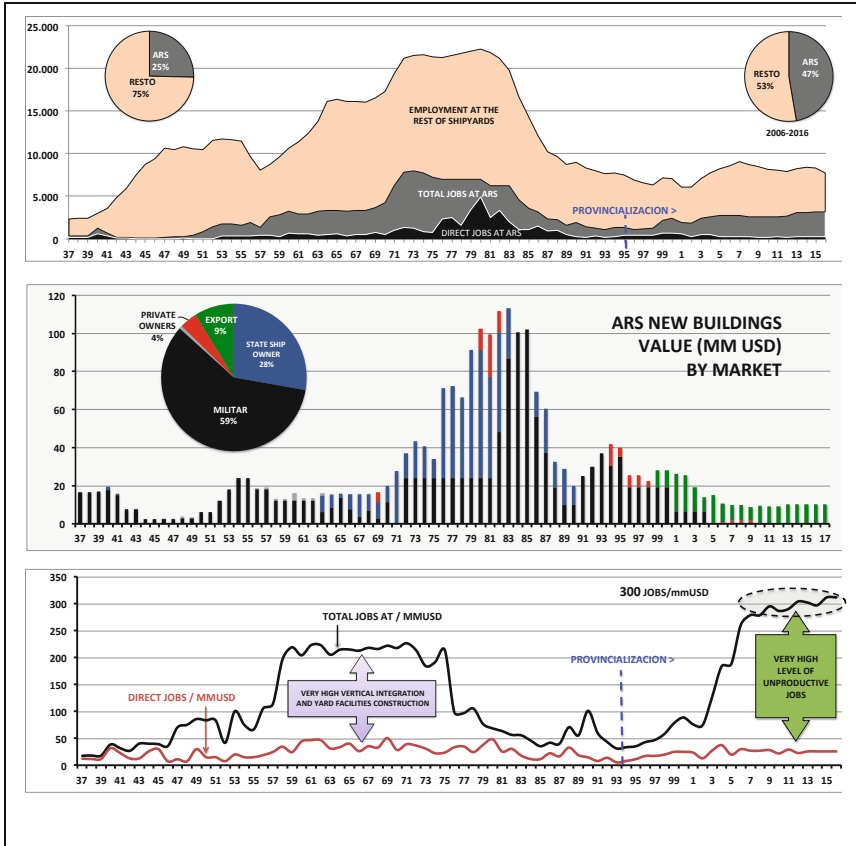


Fig. 5. Employment and value at Astillero Rio Santiago

5.2 Cinar: Tandanor + Storni

In 1972, many of the state-owned workshops and shiprepair docks were merged into one entity, named Tandanor. Six years later, it started work to install the largest ship lift system (Syncrolift), which enabled Tandanor to place large ships in dry dock and move them to workstations, thus providing the largest and very latest ship repair capacity in the region.

It was the center of one of the first and worst privatizations of the early 1990s, which ended up in a scandal, followed by bankruptcy and renationalization in 2007, with 10% of the shares held by employees.

Along with the construction of the Syncrolift, the Navy partnered in a mega-project, with a German shipyard which sold to Argentina a fleet of submarines and a highly modern shipyard that was supposed to build more of them, though this never actually happened.

This magnificent shipyard, under the authority of the Ministry of Defense was originally named Astillero Ministro Domecq García and then renamed Almirante



Storni. Of all shipbuilding facilities in the country, Storni is the best, with the highest potential, yet also the most wasted asset of all (Fig. 6).



**Fig. 6.** Tandanor + Storni (CINAR) aerial view

The aerial picture shows on the left (yellow line) the STORNI (ex Domecq García submarines yard) huge facilities.

The orange line marks the perimeter of TANDANOR, the largest repair facility in the region with a Syncrolift and ample wharfs.

The CINAR complex is located at a premium real estate area in downtown Buenos Aires city, only blocks away from the rich Puerto Madero zone and the Pink House (Government Headquarters).

### 5.3 Large Private Shipyards

Promising state policies of the mid 1960s fostered the modernization and enlargement of traditional shipyards from the district of Tigre and the Riachuelo in Buenos Aires province [1].

**Astarsa:** This was the first to appear, continuing the historical Hansen and Pucini (1927) in the district of Tigre, already a player in the modern shipbuilding industry since 1937. It built some 35 ships of considerable size, totaling 210,000 DWT. Apart from ships up to 30,000 DWT, it built locomotives and road equipment. Worth mentioning are the merchant ships of the *Río Limay* series, the bulk carriers of 11,500 DWT, the research vessel *Puerto Deseado*, as well as Ro-Ro and containerships.

**Principe, Menghui y Penco:** In the area of the Riachuelo – Avellaneda, partners Principe and Menghi associated with Penco to form the second large Argentine private shipyard in 1967, which built some ten large ships, mainly for the Navy, the polar ship *ARA Bahía Paraíso* standing out among them. It also built a series of lash type barges for an American shipowner, and several river vessels for the regional market.

**Alianza:** A few blocks from Principe, in the early 1970s, naval architect and marine engineer Héctor Rodríguez Zubieta established the region's most efficient and state-of-the-art shipyard, Alianza. This yard built over thirty large ships, 750,000 DWT on aggregate, and raised the Argentine shipbuilding industry to the highest productivity standards in history (Fig. 7).

Alianza's sales to Chile were the first exports of large ships for the national industry, and a series of bulkcarriers to Poland were the largest exports. Altogether, it exported over 300 MMUSD, representing 37% of its production.

It also delivered dredge *Capitán Nuñez*, reefers of the *Glaciar* series, *Freedom* ships and oil tankers.

Led by Alianza, the three large private shipyards taken together built 10% of the total of units, invoicing 24% of the value, and their clients procured 71% of the National Fund of the Merchant Marine (FNMM, in Spanish), conceived to finance and subsidize national shipbuilding.



**Fig. 7.** View of Alianza

#### 5.4 Middle Sized Shipyards

The authors studied [2] the performance of some 54 middle-sized private shipyards from 1937 to our days, which on aggregate delivered 81% (1,043) of the units, generating 36% (2,109 MM dollars) of total sales, at an average of four vessels per shipyard per year, mainly supplying markets of fishing, river transportation, tourism and port services, with vessels that had an average value of 2 MM dollars per unit.

Today, there are 17 mid size yards along the maritime and river coastline of the provinces of Corrientes (1), Santa Fe (2), Buenos Aires (12), Chubut (1) and Santa Cruz (1). They are all SMEs combining shipbuilding and repairs.

Fifty-nine percent of the value of ship exports was created by this private industrial sector, and it provided 66% of sales to national private shipowners. Its market share to supply government needs was minimal. Middle-sized private shipyards were mainly financed with private and export funds, using only 19% of those available in the public funding system of FNMM [1].

**Bibliographic References** of this Chapter are presented in Chapter 'Argentine Shipbuilding Industry 100 Years (1937–2036): Future'.