

Area of interest Washing machine reconditioning.

About the company Astelav – a portmanteau of the words Assistenza Tecnica Lavatrici (technical assistance washing machines) – is one of the leading European distributors of spare parts and accessories for household appliances. The company’s success is based on technological innovation, cutting-edge logistics, marketing and communications and, above all, the quality of the spare parts and services it offers. In 2017 Astelav launched the “Ri-generation” project, which aims to recondition white goods such as washing machines, dishwashers and refrigerators, which are not seriously damaged or obsolete, returning them to the market as fully functioning appliances.

Relevant business model

Sustainable inputs	End of life	Life extension	Sharing platforms	Product as service
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Business requirement and proposed solution The Ri-generation project is part of a precise business strategy aimed at promoting the market for the re-use of home appliances. The project began with the creation of an initial reconditioning workshop in Vinovo (Turin), but the goal is now to build new workshops in other cities such as Milan and Rome. These workshops will be necessary to meet the growing demand to open further Ri-generation stores that will be supplied by the workshops, thus creating new employment and commercial opportunities. The regeneration of products is one of the main cornerstones of the circular economy and Astelav intends to pursue new business models based on extending the life cycle of home appliances.

Selected solution and details It is not always worth reconditioning home appliances. Firstly, each appliance must be assessed in order to verify the type of damage or wear and tear that has resulted from its use. Some components can be replaced easily and cheaply, while in other cases substituting damaged parts requires time and money. For washing machines, which are the most used appliances in Italy together with refrigerators, reconditioning mostly involves the replacement of the circuit board and the rubber door seal. In order to achieve an initial quantification of the resources saved in a year by the Ri-generation project,

a quantitative analysis was carried out that took into consideration an average washing machine model and established inventories of all the existing material components. Then the amount of resources required for the replacement of the circuit board and the door seal was subtracted. The estimated remaining material resources were then multiplied by 1,100 – the number of washing machines that Astelav plans to recondition during the first year of activity. The resulting figure is an estimate of the amount of resources saved thanks to the return of the reconditioned washing machines onto the market, avoiding the need to purchase a new product.

Main benefits

Overall, the reconditioning of 1,100 washing machines allows for a saving of 73.5 tonnes of material resources. In particular:

- 23 tonnes of cement,
- 23 tonnes of steel,
- 8 tonnes of electrical components (cables, electrical components, wiring),
- 11 tonnes various plastics,
- 2 tonnes of glass,
- 3 tonnes of aluminium,
- 1 tonne of rubber,
- 3 tonnes of other materials.

In order to ascertain the circularity of the product, an assessment was performed on the energy consumption during the product's operation. It assumed that the washing machine reconditioned by Astelav was a Class A + with a load capacity of 9kg, and that the user, as an alternative to the purchase of a "used" appliance, would have bought a new Class A +++ with the same load capacity. The annual energy consumption (as indicated by the energy label) of the class A + washing machine is about 275 kWh, while that of the class A +++ is about 217 kWh per year, with a saving of around 21%. By converting energy consumption into resources and multiplying them by the five years of useful life of the reconditioned product, there is a difference in resources consumed by class A and Class A +++ of about 37 kg of fuel, equal to 0.05% of the resources saved, in terms of the materials used for producing the washing machine.

This means that, considering the average lifetime of a washing machine of about 10 years, and regenerating the life of the product, we are actually extending the life of the product for a total of 15 years.

Potential for roll out and development

The Ri-generation project will be extended to various Italian cities with the aim of promoting and cultivating a market for reconditioned home appliances. Current lifestyle trends and the fact that many people must relocate frequently for short periods due to work and study, could represent a market segment to focus on in the early stages of the project, before extending the model of the reconditioned washing machine to the entire market. The warranty provided by Astelav for reconditioned washing machines is a key element of product quality.

Information on the Circularity Index.

We have developed a calculation model, called **CirculAbility Model** ©, which returns a synthetic index, a value indicating the degree of circularity of a certain product/service, called circularity index or Circular Index (CI).

In this case, and in particular for the Ri-generation project, the circularity of the entire life cycle of a washing machine was assessed. Data provided by the company regarding material input and the possibility of recycling at the end of its life were used. During the useful life, an average use of 4 weekly washes in class A + was considered for a product life of 10 years.

Astelav acts in the life phase of the product by extending its duration by 5 years against the use of resources/generation of waste regarding various components such as electronic card and porthole gasket that are most frequently replaced; other components are evaluated and replaced depending on the state in which the product is located. With these data, the circularity index of a washing machine regenerated by Astelav and placed on the second-hand market (extending its useful life) is around 30%.

Actions that are perfectly consistent with the circularity principles, such as those implemented by Astelav, contribute by increasing the CI by a few percentage points compared to the calculable index for a product considered in the "business as usual". In fact, what weighs most is whether the product makes use of a lot of virgin material and whether at least 50% of its parts become waste at the end of their life cycle.

[**Scopri di più sul CirculAbility Model** ©](#)