

Figure 5: Partial view of the technology roadmap used in the application.

**Product Line:** washing machine  
**Goal:** planning the new generation of washing machines

Monitoring the external environment of the company			Attributes proposed	2012	2015
				Opportunities for future business	
MARKET Evolution of the company competitive environment	Evolution of market demand		- Customer needs, changes and market trends - Market potential (market growth expectation)	Performance, Economy (ECO) Confort, Agility, Exterior Design (PREMIUM)	Saving Money and Resources Smaller places ↓ Machine size
	Other trends and events	Social Political Economical	- Social and environmental trends - Social trends	Reducing expenses with water, electricity and soap Choose product for it relationship cost/price	Exemption of unnecessary costs ↑ Water price Possession paradigm
		Legislation	- Changes in laws and regulations on national and interantional trade	Controlling the discharge of liquid waste	Incentive for water reuse
	Evolution of technology offer		- Obsolescence of current technology - New products with new technologies - Emerging technologies	Adjustment of temperature, water quantity and washing time	Redution of water consumption Water reuse systems

### Results of Idea Generation Phase

The idea generation phase is performed through brainstorming sessions in three stages of stimulation: semantics and symbolism, Gestalt principles and usability.

After the idea generation in each brainstorming session, the resulting ideas are evaluated through a multi criteria matrix. The criteria are based on each subject of attractiveness, as:

- Semantics and symbolism: apparent operation, identification with the consumer and lifestyle incorporation
- Gestalt principles: symmetry, similarity, proximity and continuity
- Usability: appropriate functions, easy access to the buttons and clear display

The main ideas that were developed in this phase are presented in appendix A.

### Results of Idea Evaluation Phase

The final evaluation of the generated ideas is evaluated in relation to the market segment. Thus, a multi criteria decision make method is used, having as criteria those used to describe the segments in first phase. This way, notes are assigned to the ideas with respect to each criteria and, after calculating the total value of each idea, are selected for each target segment those which suit better the segment, comparing the results obtained.

For the ECO segment, the criteria were performance and economy, and for PREMIUM segment were comfort, agility and exterior design.

From the analysis of the ideas under these criteria, models 1 and 2 were selected for the ECO market, and model 3 for PREMIUM market as presented in Figure 6.

Figure 6: Graphical representation of the ideas.

