

## **ROBOT WAR IN HOUSEHOLD KITCHENS**



### **1. The value proposition**

Anyone who spends a lot of time in the kitchen knows that there's at least one gadget out there for every single step in the cooking process. Even if older kitchen robot technologies claim so, there has never been an appliance that could handle them all. Until now, that is.

Later this year, London-based robotics company Moley will begin selling the first robot chef. The company claims the ceiling-mounted device, called the Moley Robotics Kitchen (MRK), will be able to cook over 5,000 recipes and even clean up after itself when it's done.

The Kitchen, which took six years to develop, centers around two robotic arms that glide along a track installed in the ceiling of your kitchen. The arms are fitted with two articulating hands that can recreate the actions and movements of professional chefs, which have been uploaded into its memory. The first prototype of the robot chef could only make one dish: crab bisque. Now, however, it will come pre-programmed with thousands of recipes. You simply select what you want to eat on a touchscreen and let it get to work.

Of course, there are still skills the robotic kitchen hasn't mastered yet. While it can crack an egg, it isn't yet capable of peeling a potato or dicing carrots. Because of this, you'll need to handle some of the prep work yourself and then lay out the pre-weighed ingredients on the counter or in its smart fridge. "What you are looking at here is the world's first consumer robotic kitchen," Moley founder Mark Oleynik told The Guardian last month. "Like all breakthrough technologies—cars, televisions and computers—it will appeal to enthusiasts, professionals and early adopters, and is priced accordingly."

That price is all but guaranteed to make sure that the Moley Kitchen doesn't go mainstream any time soon. The machine, which can be fully customized to blend right into your kitchen, starts at £248,000 (about \$335,000). But Moley hopes to introduce slightly more accessible models in the future. Until then, one can dream.

### **2. The Technology**

These robots employ a combination of hardware and software to replicate human actions in a kitchen environment. The hardware components usually include one or more articulated arms. These robots are used for their enhanced dexterity – a critical skillset for cooking.

Other components include sensors and sometimes even AI-enabled cameras. The mechanical arms are responsible for physical actions such as chopping, stirring, and moving utensils or ingredients. The sensors and cameras gather data about the food being cooked, such as temperature or color, to determine the optimal cooking time or to adjust the cooking process. Software plays a vital role in the functioning of a cooking robot. Sometimes equipped with machine learning features, these robots can be programmed to follow specific recipes, or they can learn from experience and user feedback to improve over time.

Some advanced models are capable of learning new recipes from the internet or adjusting recipes based on dietary preferences or restrictions. Other models can connect to IoT devices, such as smart fridges, for a fully integrated kitchen system. Cooking robots can be standalone units designed for specific tasks, such as robotic chefs that can cook a variety of dishes, or they can be integrated into existing kitchen appliances. For instance, some smart ovens now incorporate cooking robot technology to automate the cooking process. In essence, a cooking robot embodies the intersection of culinary art and technological advancement, aiming to enhance efficiency, precision, and convenience in the kitchen.

### **3. The existing competition**

Current kitchen robots are equipment that has the autonomy and ability to prepare several pre-programmed meals, according to the information that the user provides, it only being necessary to put the ingredients inside the equipment. The current competition Current robots are a particular home appliance, namely multifunctional kitchen robots, which allow weighing, baking, grinding and even kneading.

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Fig. 1. Main Players in the Kitchen Robot industry: Vorwerk (left) & Moulinex (right)



The most known robot in the world is Thermomix (Fig. 1 – left), created by Vorwerk. The pioneer, Vorwerk, came to market in 1971, and Vorwerk has been investing and developing new models over the years, always aiming to improve the performance of its robots while working also to increase the number of functionalities available. Like other technological inventions, Thermomix is not the only kitchen robot in the market. Several companies around the world have tried to conquer the market with a “copying” strategy, emulating existing machines, creating these few examples of multifunctional devices: Yämmi, Moulinex (Fig1 -Right), Ladymaxx, Philips, KitchenAid, Evolution Mix, Kenwood, MyCook, Bosch, Cooksy, Thermocheff Natura, Mamy Gourmet, Monsieur Cuisine and Chef Express. These robots appear on the market at a price considerably lower than that of Thermomix, which still remains the most expensive “old fashion” robot in the market (at around 1,000€). Thermomix is also the only robot adapted to the latest technological evolution, namely allowing for an Internet connection to thus make possible access to recipes. It is argued that robots or equipment that have been developed over time, are vital in the execution of domestic tasks, especially for middle-class workers, who have their jobs throughout the day, and who are always confronted with traditional household chores and also considers that the kitchen space is increasingly limited, due to the reduction in average size of houses/apartments in the middle-class households, replacing numerous tools that would be necessary to produce each type of meal. Another great advantage attributed to this type of multifunctional kitchen robot is that they can be easily used by all people, even without relevant cooking expertise.

1. AS A PRODUCT MANAGER OF THE MRK PLEASE DESCRIBE THE PRODUCT STRATEGY YOU WOULD FOLLOW (COST, RESPONSE OR DIFFERENTIATION) AND HOW WOULD YOU MAKE IT SUSTAINABLE OVER THE LONG TERM, TAKING INTO ACCOUNT THE CURRENT COMPETITION

NAME:

HOME UNIVERSITY:

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2. PLEASE COMPLETE THE BUSINESS MODEL CANVAS FOR THE PRODUCT, TAKING INTO ACCOUNT ITS CURRENT MARKET POSITION AND PRICE STRATEGY

<b>Key Partners</b> <small>Who are our Key Partners?          Who are our key suppliers?          Which Key Resources are we acquiring from partners?          Which Key Activities do partners perform?</small>	<b>Key Activities</b> <small>What Key Activities do our Value Propositions require?          Our Distribution Channels?          Customer Relationships?          Revenue streams?</small>	<b>Value Propositions</b> <small>What value do we deliver to the customer?          Which one of our customer's problems are we helping to solve?          What bundles of products and services are we offering to each Customer Segment?          Which customer needs are we satisfying?</small>	<b>Customer Relationships</b> <small>What type of relationship does each of our Customer Segments expect us to establish and maintain with them?          Which ones have we established?          How are they integrated with the rest of our business model?          How costly are they?</small>	<b>Customer Segments</b> <small>For whom are we creating value?          Who are our most important customers?</small>
	<b>Key Resources</b> <small>What Key Resources do our Value Propositions require?          Our Distribution Channels?          Customer Relationships?          Revenue Streams?</small>		<b>Channels</b> <small>Through which Channels do our Customer Segments want to be reached?          How are we reaching them now?          How are our Channels integrated?          Which ones work best?          Which ones are most cost-efficient?          How are we integrating them with customer routines?</small>	
<b>Cost Structure</b> <small>What are the most important costs inherent in our business model?          Which Key Resources are most expensive?          Which Key Activities are most expensive?</small>		<b>Revenue Streams</b> <small>For what value are our customers really willing to pay?          For what do they currently pay?          How are they currently paying?          How would they prefer to pay?          How much does each Revenue Stream contribute to overall revenues?</small>		

3. WITH A USD 1,000,000 budget for the next year. Please, taking into account its current stage in the product life cycle complete the following table allocating a percentage of your budget to each of the following categories.

R&D	BUDGET BREAKDOWN
Branding	%
Technical Product Design (Reverse Engineering, ...)	%
Market Research	%
Production Process Design	%
Marketing Campaigns (i.e. SEO, SEM, TV advertising,...)	%
Sales Forecasts	%
TOTAL	100%

Please briefly explain your answer:

PRODUCT MANAGEMENT. 2024-2025. UNIVERSITY COMPLUTENSE OF MADRID  
NAME:  
HOME UNIVERSITY:

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4. PLEASE DESCRIBE YOUR PRODUCT (MRK) IN TERMS OF DISRUPTIVE/SUSTAINING AND RADICAL/INCREMENTAL, EXPLAIN YOUR ANSWER ALSO COMPARING TO THE EXISTING COMPETITION. PLEASE ALSO DESCRIBE THIS ANSWER HAS HAD AN IMPACT ON YOUR BUDGET DISTRIBUTION IN QUESTION 3.