



Sewer **i**nspection **a**utonomous **r**obot

D28.11 - SIAR Marketing

SIAR Consortium

IDMind (IDM), PT

Universidad de Sevilla (USE), ES

Universidad Pablo de Olavide (UPO), ES



Table of Contents

1. Introduction	2
2. Marketing Mix	4
2.1. Product	4
2.1.1. SIAR logo	6
2.1.1. Competition	6
2.2. Price	7
2.3. Place	7
2.4. Promotion	8
3. SWOT Analysis	11
4. Conclusion and Future Activities	13

1. Introduction

The interest in autonomous robotic solutions for inspection and maintenance is growing rapidly throughout different industries. As indicated in the Multi Annual Roadmap of EU Robotics¹:

“The application of robotics technology to the Civil domain is still at an early stage and it is therefore difficult to estimate eventual market size. Key Market drivers are:

- *Growing interest in UAS not only by US and European countries but also by emerging countries.*
- *Potential for improved coverage of large areas for environmental monitoring.*
- *Increase in quality of monitoring data and regularity of monitoring due to lower cost per task.*
- *Reduction of total operational costs with respect to existing manned systems.*
- *Increasing acceptance of robotics technology.”*

Inspection robots, over the years, have emerged as an important tool for inspecting locations that are difficult or dangerous to access. Moreover, the implementation of inspection robots greatly improves the operational efficiency and at the same time reduces labor costs. This factor enables business to generate positive cash flow by attaining a better return on investment.

Recent trends have shown that there has been a growing focus towards making sewer and other underground galleries inspection inherently safer. Sewer inspection robots in this context, are a perfect solution to ensure workers safety and at the same time ensuring that the inspection service gets done. The advantages of these robots can be understood from the fact that they are capable of performing the most tedious and dangerous tasks, while restricting the human efforts to only apply the fix once the problem is diagnosed.

The market of robotic inspection is broadly characterised by Business to Government (B2G) business models. Typical purchasers/operators of civil robots are likely to include: civil authorities running or contracting services that can be augmented by robotics technology; private companies operating under contract within the Civil domain.

According to IFR² a number of 1,240 new robots for inspection and maintenance will be needed in the period between 2018 and 2020 (see Figure 1.1).

Most of the focus of the SIAR project has been on the technological development of the robotic solution. However, there has been a constant concern in view of the market potential of the project, so that the solution developed results in a close to market prototype. The launch of this product is predicted to happen 18 months after the project completion. These 18 months will be

¹ Robotics 2020 Multi-Annual Roadmap - MAR 2016 (ICT-25 & ICT-26)

² World Robotics 2017 Service Robots

used to start some pilot experiments with selected end-users, while preparing the developed prototype for the market as an off-the-shelf product, composed of a hardware robot platform, sensing payload and software packages.

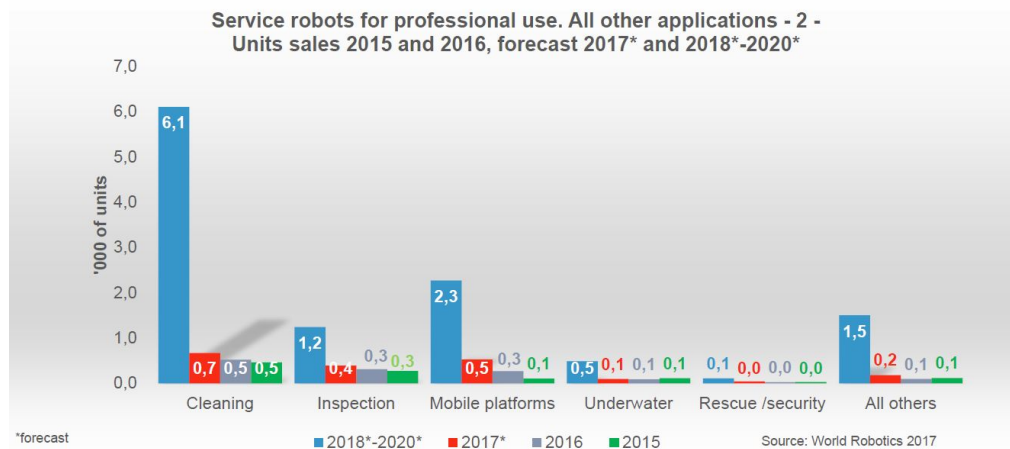


Figure 1.1. Sales and forecast of professional service robots. *Source: World Robotics 2017.*

There is still a lot of work to be done regarding the marketing of the product, through market research, analysis, and a solid understanding of SIAR clients' wants and needs. In this short report we present a preliminary approach to the product marketing based on well known 4 Ps of marketing: product, price, place and promotion.

2. Marketing Mix

In this report we present a preliminary approach to the SIAR marketing based on well known 4 Ps of marketing: product, price, place and promotion.



Figure 2.1. The 4Ps of marketing.

2.1. Product



Figure 2.2. SIAR: the **S**ewer **I**nspection **A**utonomous **R**obot

SIAR is the acronym for “Sewer Inspection Autonomous Robot” and in principle this acronym will be kept for the product name. Although the name provenance from the sewage inspection scenario, when its field of application (and promotion) extends to other operating scenarios, we find the name catchy and it may be counterproductive the introduction of a new name in this early stage of development.

The robot has a distinctive appearance from the existing robots on the market. Its shape, which leaves a slight sensation of an insect like shape, immediately conveys to the observer its use in high demanding inspection scenarios.

The product has a high-tech appearance, the predominant colour is grey, and has some coloured elements, not structural, which were introduced for aesthetics purposes and also to improve its visibility in some darker environments. In the future, these coloured elements can also be used to distinguish different versions, with different payload sensors, to be used in different inspection scenarios (see Figure 2.3).



Figure 2.3. Different coloured versions for different inspection scenarios.

SIAR is not only a robot for the inspection of sewers, it is also a robot with potential for use in a large number of underground galleries and other scenarios where its specifications will be a differentiating factor.

The product will be positioned as follows: high dependability, usefulness and affordability. It is intended for clients who are looking for a reliable solution, that can be easily used by current work forces of sewer or other underground inspection services and, last but not the least, will contribute for an effective reduction of costs related with the sewer network inspection and maintenance.

The marketing strategy will be based mainly on the technological and reliable nature of the product. In contact with potential customers this will be the differentiating factor transmitted. It is very important that the customer feels that the acquisition of the equipment will improve its service quality.

The marketing will have to convey a sense of quality and high tech character in each image, each campaign and each publication associated with the product. Marketing campaigns will be strengthened by demonstrations which will be recorded and disseminated through the internet social channels.

2.1.1. SIAR logo

The SIAR logo is intrinsically associated with its application scenario. It may be refined in the future but the idea is to immediately convey in the logo the main scenario of SIAR's use: underground sewers and galleries.

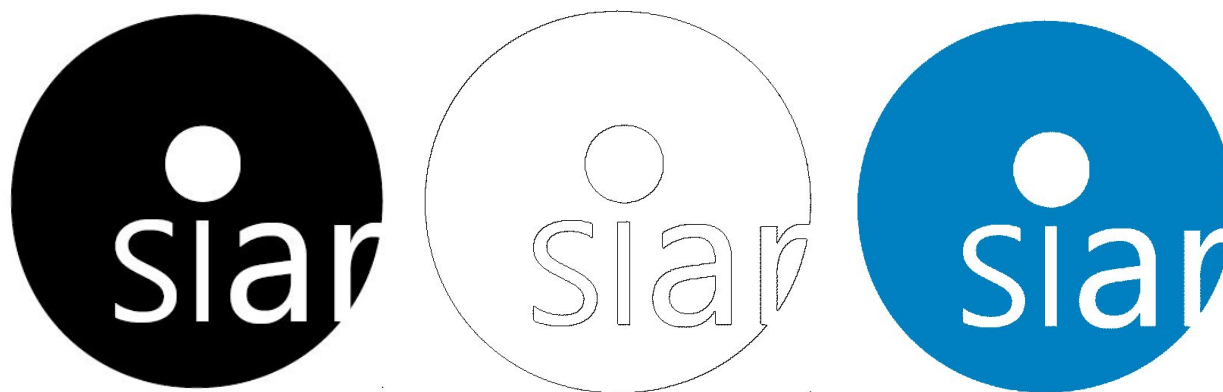


Figure 2.4. SIAR logo and alternative versions.

2.1.1. Competition

Current sewer inspection scene can be divided in two fields: pipe inspection performed by small robots which can fit inside pipes; and sewer inspection performed by medium to big sized robots which move inside galleries. Pipe inspection can be purely remote controlled, e.g., Alligator, Minigator, Multigator and Flexigator wheeled robots from IBAK³ or Geolyn's⁴ tracked robots, but it can be also autonomous, e.g., Solo tracked robots from REDZone⁵ or Makro's⁶ wheeled worm type robot. In sewer inspection is also possible to find teleoperated solutions, e.g., PureRobotics' Pipeline Inspection tracked robot⁷, and autonomous solutions, e.g., ServiceRoboter wheeled solution from Fraunhofer IFF⁸. The proposed solution aims the sewer gallery inspection, with the use of a kinematic system that can be adapted to the sewer gallery characteristics.

The SIAR system will go beyond existing solutions through the inclusion of some innovative features: robust configurable locomotion system; reliable autonomous navigation system; modular inspection system with inclusion of devices for air/waste sampling which is currently not available in the commercial inspection robots.

³ http://www.ibak.de/en/produkte/ibak_show/frontendshow/category/sanierung/

⁴ <http://www.geolyn.ca/>

⁵ <http://www.redzone.com/products/solo-robots/>

⁶ http://www.inspector-systems.com/makro_plus.html

⁷ <http://www.puretechltd.com/services/robotics/>

⁸ <http://www.iff.fraunhofer.de/de/geschaeftsbereiche/robotersysteme/forschung/serviceroboter-inspektion-reinigung-wartung.html>

2.2. Price

The added value supported by technological product differentiation allows us to offer the customer the state of the art of sewer inspection. The client will value the innovative features of the product and its effectiveness compared to competing offers. This will allow to define the price of the product based on existing top solutions. Price strategy will be to offer more for the same price range of top ranked competitors.

Based on the experience gained from the development of prototypes for phases 1 and 2, the cost of the SIAR solution, when considering the costs of included raw materials, mechanical parts, electronics and payload equipment, should be less than 16k€ (see D28.8, section 4.2.2). IDM estimates a **target price of about 50,000.00€** for the complete SIAR solution at the beginning of its commercialization. This price is based on the above costs (30% of the commercial price), combined with the costs related with the production and commercialization of the solution (presented in D28.8, section 4.3), and considering a profit of 30% for each sold unit.

The expected improvements in cost/benefit for the sewer inspection in the city of Barcelona were discussed in D28.4, section 3. Assuming a lifespan of 5 years for the product, with an annual maintenance cost of 15% of the initial value, the Consortium estimated a reachable goal of a unitary cost of 0,20 €/m for the SIAR inspection solution in comparison with the current 0,75 €/m, i.e., a reduction of 73% in the inspection costs. However, these values still have to be confirmed based on real-use scenarios.

One point that should be taken into account is that IDM is new to this market. When a company is new to the market and has not made a name for themselves yet, it is unlikely that its target market will be willing to pay a high price for a product. Although they may be willing in the future to hand over large sums of money, it is inevitably harder to get them to do so during the birth of a business. On the other hand, pricing always help shape the perception of the product in consumers eyes. A low price usually means an inferior good in the consumers eyes as they will compare the good to a competitor. Consequently, prices too high will make the costs outweigh the benefits in customers eyes, and they will therefore value their money over the product. We will have for sure to examine competitors pricing and price accordingly.

Leasing solutions, financially supported by a banking partner, can be a way to facilitate the penetration of the product.

2.3. Place

In order to maximize the profit, the distribution chain should be reduced to a minimum. Given that the product aims to reach international markets, partnerships will be established with local companies to facilitate the entry in these markets and to provide local support.

IDM will privilege a business to business (B2B) model, where the target clients will be organizations (private or public) providing sewer inspection services. IDM will be providing the technological solution while these organizations will provide locally the service. IDM will provide technical support and maintenance (advanced) of the robots. IDM will provide also expertise for the customization of the solution for specific inspection scenarios.

2.4. Promotion

Promotion is a very important component of marketing as it can boost brand recognition and sales. SIAR will be promoted not only as a robot for sewer inspection but also for other demanding inspection scenarios where its specifications will be a differentiating factor. The two key promotion slogans will be:

→ *Improving Efficiency*

→ *Reducing Risks*

Figure 2.5 depicts a leaflet that was produced for the Automatica 2018 fair, held in Munich, where SIAR has been recently exhibited.



The leaflet is divided into two main sections. The left section features a large image of the SIAR robot in a sewer tunnel, with the SIAR logo at the top. Below the image, it reads 'Sewer Inspection Autonomous Robot' and 'Improving efficiency. Reducing risks.' The bottom of this section contains the consortium logos (Universidade de Santiago de Compostela, IDMIND, and Universidad Pablo de Olavide), contact information (+351 217 102 575, siar@idmind.pt, siar.idmind.pt), and logos for ECHORD++ and the European Union. The right section has a red header with the text 'Improving Efficiency' and 'Reducing Risks' over an image of the robot. Below this, it describes SIAR as an autonomous ground robot and lists its highlights: robust robot frame, increased power autonomy, robust communication capabilities, onboard autonomous navigation, usability and cost effectiveness, and adaptability to other inspection scenarios. The bottom of the right section features the website 'siar.idmind.pt'.

Figure 2.5. Leaflet produced for SIAR exhibition at Automatica 2018.

An important vehicle for the promotion will be the publication of the offer in speciality magazines whose target audience are professionals linked to civil infrastructures, urban organization, engineering, etc. In order to better reach these professionals catalogues will be sent to engineering firms and entities with intervention in the public space (city councils, foundations, etc.).

Another important form of promotion will be the participation in events and fairs related with urban innovation and quality of life. An example of these, is the SmartCity Expo World Congress, held in Barcelona, in which the SIAR project was present in the last two editions (see Figure 2.6). More than 60% of the attendees of the SmartCity are key decision makers.



Figure 2.6. SIAR at the SmartCity World Congress

One good example, of the effectiveness of these exhibitions is the contact made in the Smart City World Congress 2017 fair, with a major Spanish company operating in the energy distribution sector, and that later resulted in a exploratory pilot experiment in a real scenario to demonstrate the potential of use of the SIAR solution. Figure 2.7 depicts the SIAR robot in a inspection mission in a underground energy distribution gallery.



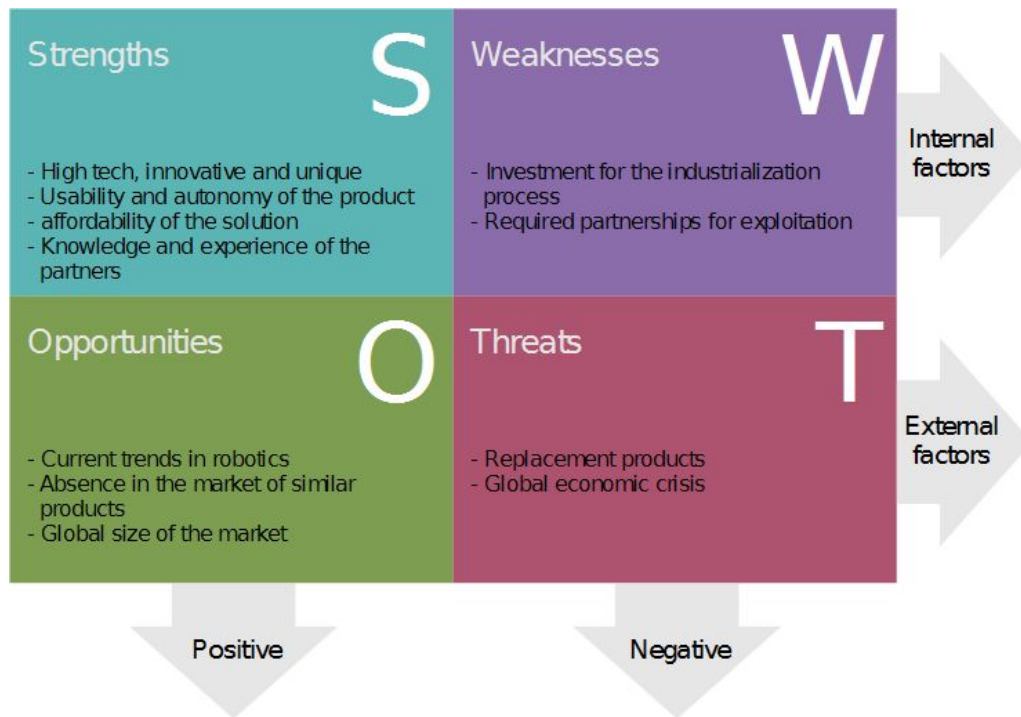
Figure 2.7. SIAR in an inspection mission in an underground energy distribution gallery.

Finally, an important vehicle to promote a global scale is WEB2.0. Apart from maintaining a website with videos depicting the products, social networks and mailing lists will be used in an effective way.

SIAR is a product for a specific niche of sectors and companies. To promote SIAR within these professionals, we will organize workshops accompanied with demonstrations of the robot, to highlight the robot capabilities and increase the confidence of the potential buyers and users.

3. SWOT Analysis

The SWOT analysis (previously included in D28.8) summarizes SIAR's competitive position by identifying its strengths, weaknesses, opportunities and threats.



Strengths

- The availability of a **high tech product, innovative and unique** will have a great impact on the market.
- The product marketing will focus its **usability and autonomy**.
- One of the major concerns of the Consortium is the development of an **affordable solution** through the minimization of the onboard technology costs.
- The curriculum of the partners certifies their **knowledge and experience** in the various aspects of the project.

Weaknesses

- The **investment** inherent to the **industrialization process** will be supported through the establishment of partnerships with external entities, both in terms of production or in the capital raising shed.

- The need to establish **partnerships for the exploitation** process (e.g. service providers) can increase the business risks. There has to be a good control of established partnerships.

Opportunities

- **Current trends in robotics** and the increasing interest in robotic solutions is a key enabler for the entry of new products.
- Despite the existence of a varied range of sewer inspection solutions in the market, the **absence of products with the same capabilities** is an important factor for the success of the project.
- **Global market** for product placement.

Threats

- With time and by the success of the project, it is expected the emergence of **similar products**. A focus on quality of products and a continuous drive to create new differentiating features will be decisive against possible competitors. The community will have SIAR as the reference.
- The **global economic crisis** effect in robot development/commercialization is twofold. While it negatively impacts the investments that are made in the development of new (more risky) technology, it positively impacts the request for solutions to optimize the costs associated with the execution of specific tasks/services.

4. Conclusion and Future Activities

Product Marketing is the function accountable for the success and growth of a product by connecting customer needs to product capabilities. The value of Product Marketing comes from its deep understanding of markets, customers and their needs.

This document presents a preliminary view of the project output from the marketing perspective. The Consortium, and more specifically IDMind as a SME, is very aware that SIAR's marketing will certainly go far beyond these preliminary ideas and that will require more in-depth, professional, analysis after the project conclusion. However, this document serves as a start point for the marketing of the SIAR product.

An important point in SIAR's development is that it has been made in close proximity to the end user, and where their feedback has been central. This is one of the critical points to market a new product successfully and that is the suitability of the product to the needs of the client.