



BLUE ECONOMY AND SMART CITIES

Reshaping the future of Marinas with Smart Technologies

With the contribution of



SaMMY

FIWARE - OPEN APIs FOR OPEN MINDS

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Challenge & Context

Today more than 85% of the **marinas and tourist ports** around the globe are characterized by a low level of technology and a poor or limited range/quality of digital services to their customers. According to the [ICOMIA](#) statistics book, **6 million boats** (length > 8m.) are kept in European waters (more than 25 million boats globally), while **4.500 marinas** manage 1.75 million berths both inland and in coastal areas in Europe (more than 25.000 marinas, 440.000 open mooring areas and more than 10 million berths globally).

Although the sector is growing and newly built marinas emerge, **several challenges** continue to persist, including:

- absence of integrated management systems;
- lack of real-time monitoring and communication mechanisms;
- offline and unsecure transactions;
- absence guidance and notification tools ;
- overbooked or inappropriate mooring;
- lack of business intelligence and data-driven decision making;
- pollution and environmental impact;
- remote operations.

At the same time, the **Millennials** and **Gen Z** are an increasing population within the boating community with higher demands and expectations for digital services, a fact that is acting as a catalyst for the acceleration of the adoption of new technological services and tools in the yachting and marinas market.

The worldwide **COVID-19 pandemic** revealed another hidden need for offering remote management and contactless services to the boaters at the time they check-in, stay or check-out in a marina or a tourist port.

In order to respond to the aforementioned challenges, it is critical to offer an integrated technical solution for assisting the marinas or tourist ports to **manage their amenities and their human capital in an optimal way, to attract more**

yachts and optimize the revenue streams, to advance their daily management, to create sustainable jobs and to protect the environment and the underwater habitat.

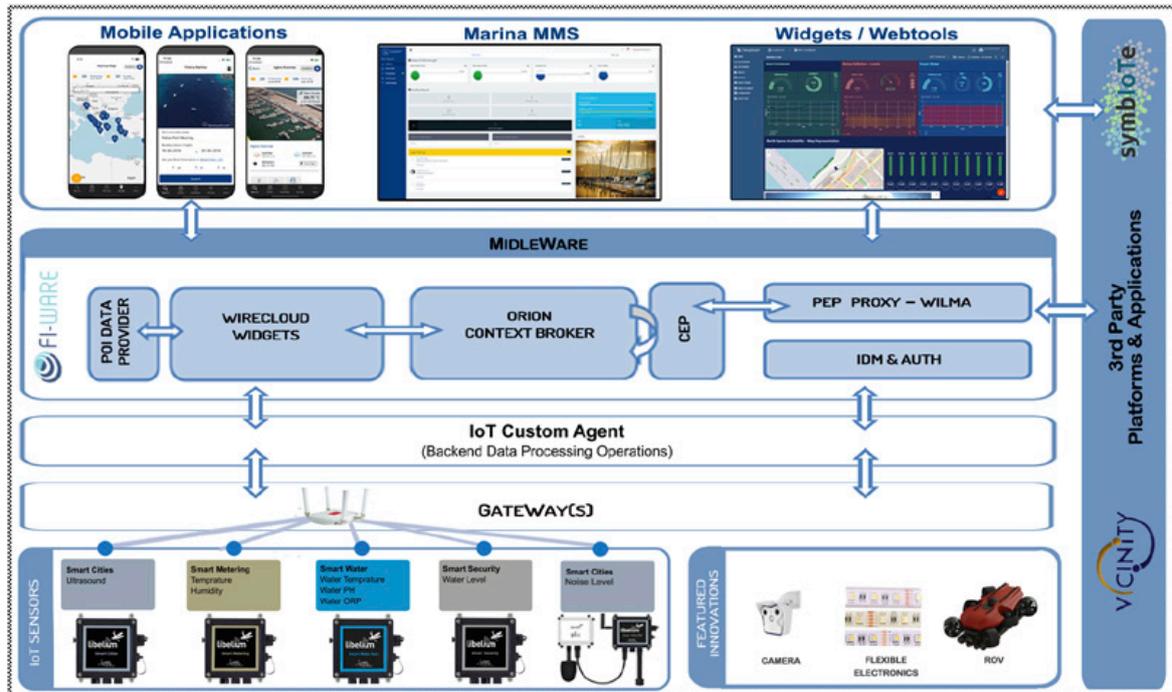
The main innovation target is to provide solutions with **extended use of smart connected devices and enhance their operation through newly designed systems**, this way, creating new business opportunities (e.g. provision of advanced trip scheduling services, production of marina-related data sets, aggregation of data from different systems and data resources) in the growing yachting industry market.

Solution

SaMMY, a successful company based in Greece, has been designing systems to fulfil yachting and marina needs and combining different technologies, devices, algorithms and communication protocols towards this scope.

In 2015, SaMMY launched a cloud-based platform (www.sammyacht.com) that connects the world of yachters and sea travelers with the marinas' and tourist ports' ecosystem that simplifies the marinas' operational processes and offer mobile assistance to the yachters and crew members.

Based on cutting-edge technologies, SaMMY has been developed together with advanced services that include new wave technologies like Big Data Analytics, IoT, Artificial Intelligence and specific FIWARE components. The result is a fully sensing and automation infrastructure for marinas and tourist ports is **the technological breakthrough and business disruption** that SaMMY offers to the market. It provides a wide set of functionalities to monitor and guide the yachts to the marinas and at the same time controls the conditions inside a marine environment.



The SAMMY Architecture

When arriving at the marina, the SAMMY services are used to guide the captain to the booked space, using GPS-enabled technologies and ultrasonic sensors to assist him/her to avoid unnecessary maneuvers and cause traffic congestion or collisions. In addition, SaMMY equips the marina admins with a monitoring mechanism for important activities of the yachts (e.g. arriving/departing from marina, littering or waste dumping, motor noise).

When yachts are anchored, the SaMMY platform can collect data from meteorological sensors, water quality and sea-level measurement sensors with which they can monitor in real-time the conditions within the marina environment. The conditions inside the marina, along with the berth spaces status are visualized in a map providing useful information for the efficient management of the marinas' resources and facilities.

SaMMY has been well known for its past and ongoing innovation projects and experiments that aim at the validation of different technologies shaping the marinas and tourist ports of the future:

- **RIS3 – SaMMY+**: Intelligent Vision Systems and Machine Learning algorithms are used for optimized boat tracking and object recognition in marine environments;
- **H2020 SMARTEES–Fetching**: Novel lighting, OLED screens and flexible photovoltaics are used for the digital signage of the marinas and tourist ports, for changing the picture of the docking spots during the day or night and for delivering fully-automated floating moorings;
- **EASME EMFF– Blue Roses**: Robotics and remote-controlled vehicles are used for seabed mapping, detection of anchoring problems and hull incidents or littering alerts;
- **H2020 – VICINITY**: Data Sharing with 3rd party cross domain applications or other members of the Vicinity ecosystem;

H2020 – SymbIoTe: L1 compliance with the SymbIoTe IoT collaborative platform. Interoperability and data sharing of IoT data with SymbIoTe ecosystem.

The origins of SaMMY's solutions date back to a financing programme launched by the European Commission together with FIWARE Accelerator Programme frontierCities and "[frontierCities2](#)"¹. That time, SaMMY targeted to become the ultimate fellow traveler yachters, skipper and marina administrators and support with its solutions services like e-booking, navigational and parking assistance and mobile guidance to the nearby coastal areas.

¹ The [frontierCities2](#) is another level of Impact Accelerator (fC2) that builds on the powerful basis of the first edition of the frontierCities Accelerator (2014-2016), which created an exceptional geographical reach including 28 SMEs and start-ups developing and trialling 28 smart mobility solutions in 45+ city environments across Europe. frontierCities2 represented a quantum leap in the scope, ambition and service of the Acceleration & Incubation process of FIWARE SMEs and Start-ups. It provided **EUR 1.6 million in grant funding across two Open Call strands** (Market Acceleration Grants, Development & Acceleration Grants), further developing the range of available FIWARE-enabled smart mobility solutions, while broadening into other Smart Cities areas.

Throughout the years, SaMMY have accomplished various achievements in global events and competitions:

- The FIWARE Accelerate programme has distinguished SaMMY as a **High Potential Impact (HPI) project** among more than 1,000 FIWARE solutions from inside and outside Europe;
- **Libelium²**, a leading IoT company, selected SaMMY and its IoT extensions as a **Case Study for Smart Marinas**;
- Startup Grind³ (supported by Google) selected SaMMY as one of the 70 companies (out of 1600 applicants) at **Startup Grind Europe 2017**, London (UK);
- Union for Mediterranean Intergovernmental Institution hosted SaMMY at its annual **Blue Economy Conference 2017** to present the ‘Next Generation Marinas concept’
- Accenture nominated SAMMY as one of the Global Innovators at **Blue Tulips Awards competition 2018**;
- ICOMIA (World Marinas Association) invited SaMMY to analyze the topic “Intelligent Systems for the Next Generation Marinas” at the **World Marinas Conference 2018**;
- European Commission Selected SAMMY as one of the **TOP 20 EU innovators in the Annual Blue Invest 2020** event.

² Analysts reports have placed Libelium as one of the most influential companies in the IoT market worldwide. The Market Research Reports 2018 release shows a global analysis for the IoT sensor market, its situation, future trends and forecast from 2015 to 2023 placing Libelium as one of the most influential companies in the IoT market worldwide.

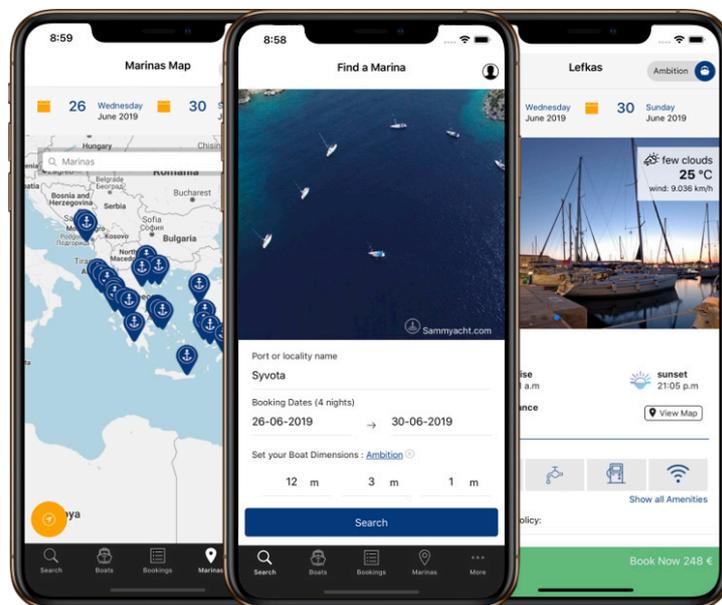
³ Startup Grind, a community for entrepreneur meetups, has partnered 2013 with Google For Entrepreneurs to provide global resources and technology. today, Startup Grind is the world’s largest community of startups, founders, innovators, and creators bringing like-minded yet diverse individuals together to connect, learn, teach, help, build, and belong.

How it works

SaMMY combines different technologies and tools into one integrated system, especially designed for the adverse conditions of the maritime environment and addressing the efficiency of marinas and yachters.

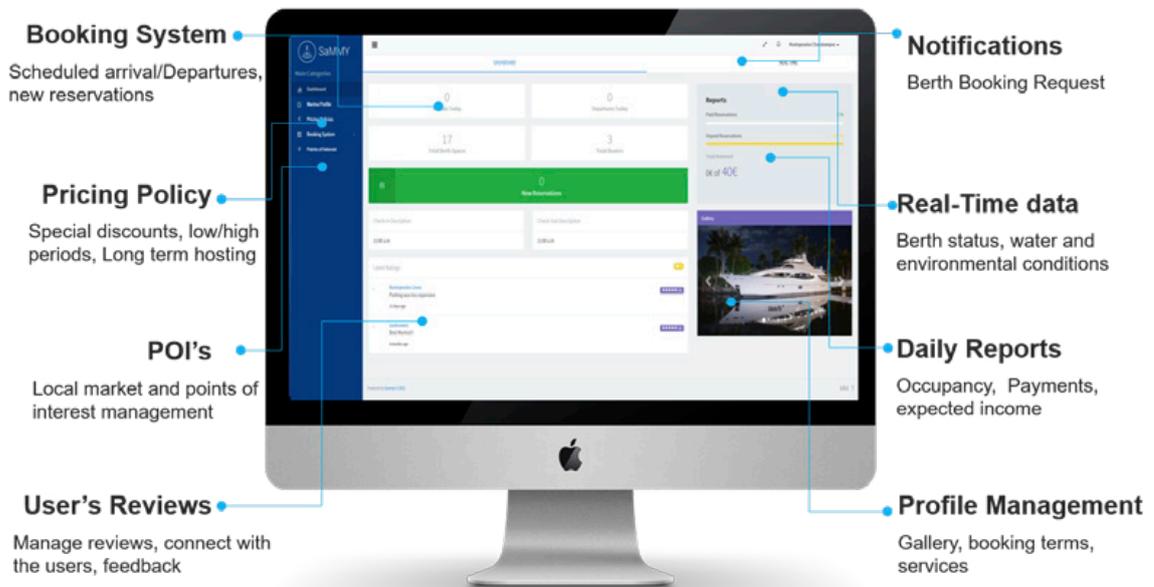
It is an application for mobile devices (smartphones, tablets, integrated yachting devices etc.) to serve yachters, skippers and crew members providing a simple environment for on-line berth booking and payment, navigational and mooring assistance services and instant communication with the preferred marinas. SaMMY App offers a variety of high-level services:

- Real-time information about the weather and sea conditions;
- Notifications of extreme weather events or maritime incidents;
- Full guidance to the nearby marina areas and points of interest.



Connecting Marina Management System (MMS) to SaMMY App

The marina administrators can easily use SaMMY for the daily management of bookings, for handling weather alerts and for providing guidance and personalized notifications to the yachters through an interactive map-based interface. SaMMY also provides information about marina regulations and the pricing and cancelling policies. In turn, it connects the yachters with the local economies. The MMS infrastructure is hosted on the “Cloud” and there is no extra need for investments in hardware or software for the marinas.



SaMMY's advanced technologies transform a regular Marina into a 'Smart' one

A multi-purpose sensor grid consisting of waterproof wireless sensors is enrolled in order to feed a central system and provide booking, meteorological and environmental information. These services are facilitated through the installation of different types

of sensors (ultrasound, meteorological, water quality, wave measurement etc.) which collect data and monitor the conditions within the marina in real-time.



Within the Cloud Storage infrastructure, a FIWARE Context Broker (Orion) is configured so as to manage Context Information for the mobile (Yachter's Mobile App) and the Marina Management System (Web App) services. The overall development is based on open web, mobile app technologies and scripting languages. The mobile app interacts with the Context Broker through AJAX requests in order to publish the IoT sensor datasets. Additionally, a Complex Event FIWARE GE is also configured for handling specific complex events (e.g. berth space availability).

The Marina Management System consists of the Wire-Cloud GE widgets (Widget Dashboard) and two external web application modules (Berth Space Management Module and POI Management Module). These modules provide the working space for the marina officers and the system administrators, integrating the data, applying business logic and creating the necessary UI components.

Benefits & Impact

- **Number of Users:** 6,200+;
- **Number of Marinas & Tourist Ports:** 36 in Greece and Cyprus;
- **R&D Investments:** € 750k+;
- **Expected Users and Businesses (next 3 years):** 100,000+ users, 300+ Marinas and Tourist Ports in Mediterranean and Middle East.

SaMMY is a high impact solution since it tackles problems that can be found in every marina and tourist port. With over more than 27,000 km of inland waterways and more than 70,000 km of coastline, Europe offers the perfect environment for the 48 million people who regularly participate in recreational marine activities (36 million boaters), as well as countless numbers of tourists [source: [European Boating Industry 2019](#)].

The yachting and marina sector is one of the three pillars of the development of coastal and maritime tourism in Europe and worldwide [source: [Coastal and Maritime Tourism report, 2014](#)]. According to the EC [the size of the marina and tourist port sector is estimated at 15 billion euros on an annual basis in the EU and exceeds 45 billion euros globally. All in all, the yachting and marina market with an average annual growth rate of 6% (pre-covid estimation), along with the clear advantages that technology brings both to the yachters and the marine ecosystem, indicate a great potential of acceptance of SaMMY's mainly due to the system's multi-dimensional market demand coverage.

Recent in-depth marketing research identified that in the age of digital on-demand economy, the users (marina managers and yachters) need to:

- Adopt and use modern technological tools and systems;
- Be informed about the availability of berth spaces in real-time;
- Follow a simpler and quicker booking process;
- Be connected at all times.

There is a vast range of benefits also for the marinas and tourist ports, these include smart pricing of berths using demand-supply equilibrium, smart transaction, more

efficient better inventory management, and better monitoring of the environment, which could add up to an increase in revenue streams. Consequently, the marina industry is reinforced with a modern system that simplifies marinas' operational capacity, reduces costs and raises productivity.

Added Value through FIWARE

The use of FIWARE technologies has a multidimensional impact on SaMMY, **since FIWARE is not only providing a technological framework, but also a community of corporates, startups and experts that work together delivering cutting-edge technological solutions to the global markets. The open architecture and the technical components of FIWARE, offer a stable development framework, ensuring the high quality and sustainability of SaMMY's digital services.**

Thanks to the vertical accelerators of FIWARE like the frontierCities and FronerCities2-MAG, that supported SaMMY's activities through intensive coaching and targeted mentoring services, along with the funding of the programme from the EC, SaMMY realized their vision to become one of the key market players in their target industry.

Being a member of the FIWARE ecosystem has given them the opportunity to raise their platform's visibility and achieve high credibility, at the same time becoming a part of a global force of innovative key-players that aim to create the top-level solutions of tomorrow.

Next Steps

SaMMY is one of the leading innovators shaping the future of the marinas and tourist ports by exploiting the state of the art of technologies and by delivering smart systems and services. Since the yachting industry is a highly competitive and demanding sector, the digital transformation is a key element for each marina or tourist port in order to be able to create sustainable profits and provide modern services, and this is exactly the area where SaMMY can offer substantial offerings, support and partnerships.

As it has already been recognised as one of the top innovative and complete solutions in the market, SaMMY plans to internationalize its presence in the near future, provide services to the Mediterranean, EU and Middle Eastern markets in more than 300 marinas and tourist ports and become the top technology provider for Smart Marinas in one of the most challenging and wealthy areas of the world.

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