



2020  
CIVITAS  
Cleaner and better transport in cities

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## Measure Evaluation Result

### MAL6.4 - Smart parking management system for Valletta

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## Executive summary

The measure includes the installation of different types of sensors in a specific off-street parking area in the city of Valletta (Hastings Parking) to manage the demand and supply of parking in the city. Valletta Local Council (VLC) was responsible for the management and implementation of the measure, supported by TM and UoM.

Valletta is a walled city with limited parking infrastructure due to its historical importance and structure. Access to the city by car is also limited by road pricing. The Controlled Vehicular Access (CVA) system was introduced in 2007 to limit the traffic entering Valletta. This was coupled by extensive pedestrianisation in the central areas of the city, close to the major shopping area. Furthermore, a parking scheme to secure some parking for residents and others for shoppers and visitors have further impacted on the relatively few parking spaces in the city. Car drivers today access Valletta and cruise for a considerable amount of time to try and find a parking space. This causes congestion, pollution and excessive waste of resources and time. The measure includes the implementation of an overall solution with sensors, wireless technology, servers and software able to manage the parking in one of the open, public parking areas in the city, and informing car drivers of available parking spaces to reduce cruising.

Unfortunately, the measure implementation was significantly delayed throughout the course of the project. Following the first procurement process, an appeal was logged, followed by a court case which required the publication of a second call for tenders. Local Council elections and a change in Mayor further delayed the process and eventually the COVID-19 pandemic saw the process come to a halt due to restrictions, importation challenges and subsequently installation. Despite this, the infrastructure works preceding the installation of the technology were carried out in May 2021 with the subsequent installation of all the equipment by early June 2021. This has impacted negatively the evaluation of the system data as envisaged at the start of the project.

The experience gained from the implementation process will inform further extensions to the system in Valletta and beyond. Important lessons were learnt by the Valletta Local Council in terms of procurement, court action and subsequent challenges with carrying out infrastructure works in the historic and high protected status of a UNESCO World Heritage site such as Valletta. The technologies tested as part of this measure also informed the Valletta Local Council and Transport Malta on the effectiveness and efficiency of parking management technologies. These results which will be provided as part of the initial testing phases in June and July 2021 will provide useful evidence for policy makers in how to take forward this measure and address parking concerns in urban areas.

The potential to inform the driving public as well as reduce the impacts of transport through parking management around the island remains an important solution to the ever-growing problems related to car traffic.

# A Description

The measure includes the installation of different types of sensors in a specific off-street parking area in the city of Valletta (Hastings Parking) to manage the demand and supply of parking in the city. Data is collected remotely through sensors and cameras. A parking management plan for the pilot area was compiled including the software and infrastructure necessary to implement the smart parking management system.

The preparation of the pilot involved:

- Procurement of sensors and software to be used in pilot
- Installation of equipment
- System testing and verification

## A1 Objectives and outputs

### City policy level objectives

- Reduce congestion and cruising in the city of Valletta
- Reduce air pollution and carbon emissions from transport in the city of Valletta

### Measure specific objectives

- Deliver a smart parking management system
- Reduce cruising and journey times in the city
- Improve air quality

### Outputs

- Implemented and operational parking sensor technology
- Parking management strategy and software operational

### Supporting activities

- Parking issues, parking management and intelligent transport management systems were explicitly included as topics in the first stakeholder consultation meeting organised for the SUMP process under MAL2.1.

## A2 Inter-relationship with other measures

The experience from this pilot will be used to formulate a measure related to parking management, which will be included in the SUMP, developed under MAL 2.1.

## A3 Target groups and/or affected part of the city or region

**Target groups:** all citizens with private vehicles entering the city of Valletta

**Areas:** the city of Valletta

## A4 Stakeholders involvement

Stakeholder name	Activities description
Valletta 2018 Foundation	Stakeholder Forum, Stakeholder Consultation
Malta Hotels and Restaurants Association	Stakeholder Forum, Stakeholder Consultation
Ministry for Transport and Infrastructure	Stakeholder Forum, Stakeholder Consultation
CVA Operator	Review of technology integration with CVA system
Malta Tourism Authority	Stakeholder Forum, Stakeholder Consultation
Valletta Rehabilitation Committee	Stakeholder Consultation
Heritage Malta	Stakeholder Consultation
Planning Authority	Stakeholder Consultation

**Table 1:** Stakeholder's involvement

## B Measure implementation

### B1 Situation before CIVITAS

Valletta is a walled city built in the 1500s with limited parking infrastructure. It is also a UNESCO World Heritage Site. Access to the city by car is limited by a road pricing system (Controlled Vehicular Access System introduced in 2007)<sup>1</sup>, extensive pedestrianization of the central shopping areas and relatively few parking spaces. A parking scheme was also introduced in 2007 to provide for resident-only parking, further limiting the parking available for workers, shoppers and visitors. Car drivers today access the city and cruise for a long time to try and find a space. This causes congestion, pollution and excessive waste of resources and time.

### B2 Innovative aspects

Parking management through sensors is not implemented in any urban centre in the islands of Malta. This innovative parking management solution has the potential to inform the driving public as well as reduce the impacts of transport through efficient parking management.

### B3 Technology development

The measure includes the implementation of an overall solution with sensors, wireless technology, and servers and software able to handle the parking management of part of the city parking spaces (see Figure 1). The sensors and wireless technology handle the information about the availability of parking within the area and a mobile application provides real time information on parking availability to users.

<sup>1</sup> Attard, M., Ison, S.G. (2010) The Implementation of a Road User Charge – The Case of Valletta, Malta. Journal of Transport Geography. Vol. 18(1) pp 14-22.

## B4 Actual implementation of the measure

In December 2017, Valletta Local Council (VLC) published a tender for the design, development, supply, installation and testing of a parking management system including parking availability sensors for Valletta. The tender was evaluated and awarded accordingly. However, an appeal was lodged which set back the implementation of the measure. The appeal was won by VLC allowing the works to proceed with the winning tenderer. The process was halted once again with the start of court proceedings against the VLC by the bidder who was not selected in the first procurement outcome. This halted all the works related to the project award and measure implementation. In June 2019, the Court ruled against the VLC, which was required to issue another call for tenders.



**Figure 1.** The parking sensors in Valletta

The Local Council elections, happening at the same time, held back the tender re-writing process. After the election of a new Local Council, TM held meetings with the new Mayor to discuss the project and define a plan to take it forward.

In the months preceding the tender publication, meetings with stakeholders were held in order to refine the measure. Parking in Valletta was analysed with the aim of identifying the areas where the installation of sensors should be prioritised and thus included in the DESTINATIONS project considering the fact that the budget available did not allow for the system to be implemented throughout the whole of Valletta. The results from the on-site parking surveys were presented during these stakeholder meetings where, with the support of experts, the various parking management options for Valletta were presented. It was decided that the overall solution with sensors, wireless technology, and servers and software able to handle the parking management of part of the city parking spaces will be tested through a pilot in Hastings Parking (see Figure 2). The outputs from these meetings were invaluable in the preparation of the tender specifications.



**Figure 2.** Hastings Parking in Valletta

Subsequently, the tender for the parking management system at Hastings Parking was re-written and published.

In February 2020 the tender was issued and subsequently evaluated. A related tender for works to be carried out at Hastings Parking was also published around the same time in order to upgrade the area and prepare the ground for the technology installation. Meetings on site with architects, engineers, heritage experts and IT specialists were held to ensure all precautionary measures were taken to cause no damage to the City's historic features and installations on

site. This was a further challenge for the architects and technology providers to consider in the process, and would certainly not affect other urban areas with lower protection status. The tender submissions for the technology solution were evaluated and the implementation phase was set to go in June 2020. The tender for works was delayed because of planning and logistical reasons. The peak of the pandemic was particularly challenging with restrictions in place for the successful completion of the infrastructure works. The installation of the equipment was further delayed because of the delay in the finishing of the infrastructure works.

The works were subsequently completed in May 2021 and installation of the equipment proceeded and is targeted for completion in June 2021.

## C Impact evaluation

### C1 Evaluation approach

#### Expected impacts and indicators

Impact category	Impact indicator	Unit of measure
Economy	1 - Operating Costs	€
Economy	2 - Investment Cost	€
Transport System	3 - Use of space for parking	N <sup>o</sup>
Transport System	4 - Traffic levels in Valletta	vehicles/hr
Society	5 - Satisfaction with the parking system	%

**Table 2:** Expected impact and indicators

#### Method of measurement

Impact indicator	Method*	Frequency (Months)			Target Group	Domain (demonstration area or city)
		Bef.	Dur.	After		
1 - Operating Costs	E	-	37	48	-	city
2 - Investment Cost	DC	-	37	-	-	city
3 - Use of space for parking	DC	37	40	48	-	city
4 - Traffic levels in Valletta	E	37	40	48	-	city
5 - Satisfaction with the parking system	S	-	-	48	Citizens	city

\* Data collection (DC), Estimation (E), Survey (S)

**Table 3:** Method of measurement

#### Detailed description of the indicator methodologies:

**1- Operating costs and 2 - investment costs:** Data collected by UoM via TM from the operator that was the winning bidder in the tender process.

**3 - Use of space for parking:** Data on the use of the 92 parking spaces (how many times a parking space is used per day) in the pilot area of Hastings collected by the operator from the data generated by the system, passed on to UoM via TM.

**4 - Traffic levels in Valletta:** Data showing the number of vehicles entering and exiting Valletta from two locations currently monitored as part of the Controlled Vehicular Access system (road pricing scheme) in operation in Valletta. This data shows the traffic levels during the day in Valletta. Data collected by the CVA operator and passed on to UoM via TM.

**5- Satisfaction with the parking system:** Data collected by UoM via VLC through a short intercept survey with users of Hastings Parking. The intercept survey included questions as to the use of the parking system and the satisfaction levels (using a Likert scale) with the system. The survey collected was to be representative of the users which included both residents and tourists using the parking area.

## The Business-as-Usual scenario

Not applicable.

## C2 Measure result

Impact category	Impact indicator	Unit of measure	Baseline	Ex-Ante	Ex-post
Economy	1 - Operating Costs	€	0	129.000€	71.305€
Economy	2 - Investment Cost	€			
Transport	3 - Use of space for parking	Nº	NA	92	NA
Transport	4 - Traffic levels in Valletta	vehicles/hr	NA	5%	NA
Society	5 - Satisfaction with the parking system	%	N/A	20%	NA

**Table 4:** Measure results

### C2.1 Economy

#### 1, 2 – Operating and Investment Cost

The operating and investment costs for the implementation of the parking management are taken together, since the tenders for both parking management system and works include operations. The overall operating and investment costs are lower than the budget set for the system which was subsequently reduced in order to complete a pilot implementation.

### C2.2 Transport

#### 3 – Use of space for parking and 4 – Traffic levels in Valletta

These indicators (3,4) would have allowed for an appreciation of the potential use of the parking area both for measuring parking usage but also to capture the effects on traffic in the city. Due to the delays in implementation, the data for these two impact indicators was not available for evaluation.

## C2.3 Society

### 5 – Satisfaction with the parking system

This indicator (5) would have collected the satisfaction levels of the proposed technology for parking management, as implemented in the Hastings area in Valletta. Due to the delays in implementation, the data for this impact indicator was not available for evaluation.

## C3 Quantifiable targets

No	Target	Rating
1	*Investment and Operating costs up to 129.000€	**
2	*Use of space for parking to cater for 92 vehicles	NA
3	*Reduction of traffic levels in Valletta by 5%	NA
4	*20% of users satisfied with the parking system	NA
<b>NA = Not Assessed O = Not Achieved * = Substantially achieved (at least 50%)</b> <b>** = Achieved in full *** = Exceeded</b>		

\*New target, not in GA

**Table 5:** Assessment of quantifiable targets

There were no targets included for this measure in the GA. Due to the delay in the implementation of the measure no evaluation was carried out for three of the new targets set for this measure. The operating cost and investment cost are part of the procurement tender which VLC launched and awarded, and have been achieved in full with the implementation of the system which is set for completion in June 2021.

Despite the lack of data from the measure implementation and the inability to conduct a proper evaluation of the system and its performance, the local partners, particularly VLC and TM are confident that this system will achieve very positive results when implemented. This technology has recorded very positive impacts in other cities but has not been implemented in the islands. This measure is the first ever implementation and its effectiveness to provide information to users, as well as keep track of parking space availability will have an impact on the levels of cruising for parking, which are evident in the city today. This will surely result in better parking space utilization as well as reduce traffic. Users will have real-time information on parking availability and this will impact their travel behaviour. Being the first of such technology implementation, all the local partners (especially VLC, TM and UoM) have shown an interest in the impact of the measure once it is set up and running. The assessment of the technology will be invaluable for further implementation in Valletta but also in other areas, including the University of Malta Msida campus.

## C4 Up-scaling of results

Not applicable.

# D Process Evaluation Findings

## D1 Drivers

At the **organizational** level, although there were some challenges, there was a good level of collaboration between VLC, TM and UoM, through regular meetings and emails in order to assist VLC with the writing and evaluation of the tenders. At the end of 2018, VLC recruited a new staff member on EU Projects, which eased the communication and cooperation with the other project partners on this measure. However, the progress on this measure was hampered by the delays in the procurement and appeal procedures, and ultimately by the court procedures which require the VLC to re-issue the tender so many months after the original planned implementation. The Local Council Elections in 2019 saw the election of a new Mayor and this further hindered the progress on the project. TM met with the new Mayor to establish an efficient way forward for this measure. Following a second tender procedure, the measure will be operational in June 2021.

At a **communication** level, there was good stakeholder consultation and involvement in this measure. In the months preceding the second tender publication, meetings with stakeholders were held in order to present the results from on-site parking surveys and refine the various parking management options for Valletta, with the support of experts. The outputs from these meetings were invaluable in the preparation of the tender specifications.

## D2 Barriers

At the **institutional** level, there was a delay in the process of implementing this measure as a result of an appeal and a court case instituted during the first Call for Tenders, and subsequent Local Council elections that jeopardized the successful implementation of the measure within the timeframe of the project. Then there were further delays because of the COVID-19 partial lockdown which affected the delivery of equipment and the implementation of infrastructure works on the site identified for the pilot.

Another important aspect which might be unique to a few places across European cities is the high degree of heritage protection in Valletta, and the sensitivity of any infrastructural works which are undertaken in the City. These have to be reviewed by several stakeholders to ensure compatibility and least impact on the historical fortifications, flooring and buildings set in the pilot area. That review necessitated specific meetings on site and inclusion of details within the design to ensure least impact.

## D3 Lessons Learned

The lessons learnt during the implementation of this measure relate mostly to the process, since the measure evaluation of the targets set for the pilot could not be evaluated due to delays. It is evident that in similar projects a number of considerations must be taken during the planning stage to mitigate any risks to the successful implementation.

First is the timing allocated for the procurement process. The appeal process, although successful, was not enough to secure for VLC the possibility of implementing the project. The court proceedings against the VLC after the appeals decision were a major setback. The court

took over a year to decide the case. The court overruled the Appeals Board decision and the VLC had to issue a new Call for Tenders.

Second consideration is political cycles at local government level. When the court proceedings were finalised, the VLC was going through the elections for a new Mayor and Council. The new Mayor required some time to settle in and be briefed about the project, as well as the urgency of the measure implementation. The publication of the second tender, and subsequent works tender were delayed further because of this.

Third consideration is unknown risks and disruptions brought about by the COVID-19 pandemic. Restrictions and lockdowns affected the importation of equipment and the execution of works on site.

Fourth consideration is the sensitivity of implementation due to planning or heritage protection, which is specific to a place when compared to other locations. In the case of Valletta, a UNESCO World Heritage Site, any infrastructural works carried out in the city and any installation of fixtures to walls and the ground need permission from a number of stakeholders, particularly heritage institutions overseeing the protection status of Valletta.

In conclusion, a better understanding and appreciation of these processes will mean better preparedness by the VLC in the implementation of similar projects in the future.

## **E Evaluation conclusions**

The measure evaluation was not possible for most of the target indicators. The procurement, albeit late in terms of the project timeline, meant that the investment and operational costs achieved in full, however the more substantial target indicators for the performance of the measure were not carried out.

## **F Additional information**

### **F1 Appraisal of evaluation approach**

Since no evaluation was carried out following the implementation, set for June 2021, there is no additional information to include about the appraisal of the evaluation approach.

### **F2 Future activities relating to the measure**

The experience gained through this pilot in Valletta can be used to inform and encourage other Local Councils looking for a way to address parking challenges. The innovation of technologies for parking management solutions have the potential to inform the driving public as well as reduce the impacts of transport through parking management around the islands.