Case study

Smartand Sustainable Cityexperience on smart campus: Hassan Ist University as a case study

ABSTRACT

The desire to meet the demands of regional competition requires cities to adopt new patterns of urban management. In this sense, the trend at the global level is to use smart city standards by investing in the digital transformation of various public services in cities. In recent years, many efforts have been made in many Moroccan cities to improve their attractiveness by being part of the process of upgrading and enhancing their territories through the implementation of major infrastructure projects and the digitalization of urban administration.
This study was conducted to examine the feasibility of a smart campus as a discounted smart city, and it relies on the dissemination of a quantitative survey, via a questionnaire (live and online), supplemented by a qualitative survey based on focus group methodology.The goal is to gain a broader perspective that allows us to improve our understanding of how things really are.
This article is part of a study proposing a strategy for developing the campus of Hassan I University of Settat to be a smart one.

Keywords: smart city, smart campus; citizen participation smart living, living Lab.

1. INTRODUCTION

In recent years, many efforts have been made in many Moroccan cities to improve their attractiveness by being part of the process of upgrading and enhancing their territories through the implementation of major infrastructure projects and the digitalization of urban administration. Morocco has bet on transforming six cities into smart cities by 2026 (Ministry of Industry, 2013). The project was previously launched in Casablanca in 2016, awaiting the cities of Marrakesh, Rabat, Tangier, Ifrane, and Fez. (Switzerland). The city of Rabat was mentioned, however, its ranking has declined since 2019. It is ranked 126th globally out of a total of 141 cities, while it was ranked 109th in 2020. Unfortunately, the city of Casablanca does not appear in the global rankings of smart cities according to the Smart Cities Index 2023 report issued by the International Institute for Management Development (IMD) in Lausanne [1]. It was a great disappointment to those responsible for the economic capital, which was the first African city to be included in the network of 25 smart cities around the world. Despite the efforts made by officials to make the city of Casablanca a smart city par excellence, the latter was not included in the global ranking of smart cities in the 2023 report, and perhaps, from our point of view, one of the reasons is the involvement of the Moroccan citizen in this trend, because it is not yet ready to accompany the digital transformation of the city. The smart citizen is the basic building block of the smart city system;

Smart cities can transform the lives of their citizens. However, these smart cities have a dark side that may go unnoticed. Governments are spending billions of dollars on smart city projects to deploy complex infrastructure, create effective implementation strategies, and aim to transform their cities using modern technologies. But all these efforts and funds are wasted when citizens themselves are not aware of these changes.

For the development of any smart city, citizen awareness and participation are necessary the lack of awareness of political changes and their impact on the lives of citizens can prove to be a major obstacle. “Even in developed countries, citizen awareness of smart cities is remarkably low”[2]. The situation is comparatively worse in developing countries where illiteracy is already a major problem. In these countries, a significant percentage of the population is not tech savvy. Citizens are therefore not ready to fully adopt modern technologies and new smart city development policies.

However, a comprehensive understanding of citizen dissatisfaction with the smart city is lacking. Based on a set of articles, citizens are dissatisfied with the technology, democratic process, and societal impact of the smart city and display different types of behaviour to express their dissatisfaction in the absence of channels for the do, as well as the lack of awareness and skills of citizens [15].

Moreover, “the success of smart cities depends on the participation of academia, the public and private sectors, as well as society itself.”[4]. The citizen represents an actor who can at the same time contribute to the development of smart cities, as well as be affected by the changes that occur in the city [4]. Therefore, including citizens as a central actor in smart city development plans enhances their meaningful and comprehensive participation [4], citizens participation is also the main issue in developing the smart city project, as the main goal of the smart city is to improve the quality of life of citizens [5], and plays a crucial role in smart cities regarding their participation in governance [14]

While urban planning used to be the exclusive domain of planners and local governments, it has recently changed to reflect comprehensive perspectives through the participation of various stakeholders, including citizens. With the increasing interest and importance of citizen participation in the planning process, the conditions for his participation in the various stages of this process are also expanding through various tools [6], such as surveys, information disclosure, hearing from residents, and public hearings [7].

Some related studies highlighted the minimal impact on the actual planning process. One of the reasons identified is the inadequate and uncomfortable methodology, such as public hearings and written statements. There is also doubt about whether the information collected through citizen participation influences the planning outcomes. That is, such a traditional method for citizen participation usually may end with monotonous and passive participation. Recognizing the limitations of traditional tools for citizen participation, planners, and local governments have recently been trying to use citizen participation in the planning process, aiming to establish plans that can reflect the various demands of citizens, breaking away from the top-down method. They are also making an effort to develop the city as a laboratory to generate innovative solutions [8], an approach that aligns with the living lab concept.

There has been a noticeable shift from passive user feedback to a more active approach based on user participation [9]. The living laboratory feature has proven itself as an effective tool for achieving the goal of citizen participation in urban planning, participants are granted the same status as existing innovative entities, and the scope of cooperation between entities is expanded to enhance the continuity of citizen participation. This can enhance user involvement in activities occurring in living laboratories [11] and expand collaboration with existing entities to accelerate the development process. The living laboratory also serves as a means to embody and solve problems faced by residents by working on a bottom-up governance basis [12], unlike other citizen participation tools. In this way, living labs can effectively identify issues felt by citizens and develop field-oriented alternatives by gathering opinions from different stakeholders. The Living Lab feature allows citizens to learn about

outstanding issues in the area where citizens live, away from existing negative participation. Although the use of living laboratories has positive effects in encouraging meaningful citizen participation in the planning process, why are so few local governments adopting it? Furthermore, why are some local governments reluctant to use living laboratories for citizen engagement?

First, the difficulty of organizing participants to run laboratories is the representative reason. Indeed, empirical evidence suggests that relatively few citizens participate when given the opportunity [13]. Furthermore, as mentioned previously, the need for skeptics to discuss the conditions that justify the costs of civic engagement rather than simply blindly believing in its positive aspects [13] may hinder the adoption of living labs for citizen engagement. A study identified these issues and attempted to analyze the barriers to using living labs based on semi-structured interviews in South Korea, The study analyzed how citizen participation implemented in SCPs and identified the obstacles of living laboratories in SCPs. In South Korea, the Smart City Industry and Development Promotion Act stipulate that local governments must first establish an SCP (Smart City Plan) before starting a smart city project (Ministry of Land, of Infrastructure and Transport, 2021). In September 2022, out of a total of 229 cities, 45 cities, including most metropolitan areas, such as Seoul, Incheon and Gyeonggi, have adopted SCPs. According to the law, the content of SCPs must include the basic directions, objectives and strategies of smart city construction while taking into account the characteristics and current situation of the region. Among the issues raised during the study is that living lab participants lacked knowledge and awareness about smart cities and living labs and that the concept of smart cities is vague and difficult to understand. Moreover, the lack of knowledge about smart cities hinders the implementation of living labs and the detection of local problems or necessary policies. Citizens generally chose the services they wanted even if they had nothing to do with a smart city, focusing primarily on the policy "domain" like transportation, healthcare, and security.

It is difficult to recruit participants in living laboratories; moreover, the composition of participants is not sufficiently diverse. The number of citizens participating in living labs is limited, and results tend to be biased toward personal issues unrelated to the smart city, while the number of participants representing the region is important in determining the validity and reliability of using living lab results for planning and policy development. Furthermore, some citizens prioritize their interests over public goods. The living laboratory is only effective when people from different classes or backgrounds participate. Another problem is that due to time and space constraints, the composition of participants does not reflect the population of the region. Most living labs operate during the day on weekdays. Therefore, diversity and representation of living lab participants must be ensured to achieve high-quality living lab results. Finally, regarding the financial side, living laboratories can be confronted with cost problems mentioned by skeptics [13]. Even public officials have shared concerns that encouraging citizen participation based on living labs would be less effective in the SCP process. Although obstacles and limitations exist, there are also solutions.

It is important at this stage to highlight the important role of universities, through their mission, in training the skills that will accompany this transformation and developing local solutions that suit the needs of our society and economy, through their research and development activities. Moreover, "the presence of a university is never neutral to an urban area; A simple focus on students is enough to change the local demographics"[3]. Smart Campus is a miniature of the smart city that provides inspiration for the dimensions and concepts of smart city design [16]. Additionally, various initiatives have studied and developed the transformation of university campuses into smart living laboratories, through which different projects could potentially be scaled up to solve the pain points of a city [17-18].

In the face of all these findings, we are convinced that experimenting with the smart city on campus was the best option to the extent that the university could propose new approaches

to mobilize its “population”, in this case, its staff (professors or administrative) and its students.
Furthermore, this study was carried out to achieve three objectives which are measuring the understanding of the targeted population on the concepts of smart city and smart campus, identifying the elements of a smart campus using the concept of smart city, and finally obtaining a wider angle of view allowing us to improve our vision and understand the reality of things.
This article focuses on introducing smart city concepts to smart campuses through several smart elements such as Smart learning and living, smart people, smart energy, smart communication, smart security and safety, innovative systems for indoor environmental quality .

2. MATERIAL AND METHODS

2.1. Development logic and themes of the survey

Regarding the logic of developing the survey, we relied, among other things, on benchmarking by studying a certain number of interview and questionnaire models already applied in several leading cities in this field.
We published a quantitative questionnaire, requiring the administration of a classic questionnaire in Google Forms which we linked to another description, by crossing closed multiple choice and closed questions but supplementing them with open questions. The choice of semi-structured interviews was motivated by several factors. First of all, they are easier to manage process and understand by the interviewees. It makes it possible to avoid getting vague, off-topic, or off-topic answers as well as to better understand some unmentioned things from the interviewees. Open-ended questions were chosen to avoid the questionnaires being monotonous or cumbersome. However, we were aware that closed questions could lead to hasty or even ill-considered answers. , complemented by a qualitative survey based on focus group methodology.

2.2. Choice of axes

The survey is deployed in 26 questions with several possible response methods which focus on four main axes concerning the use of ICT by the local population by questioning both the understanding and the receptivity of this population to the “smart campus” project.
The four main axes are:

- Sociodemographic information of respondents

This axis covers respondents’ sociodemographic information, including their Age, professional status, and the number of years they have spent on campus. The goal is to be able to perform more detailed analyses of the data and information generated during our research.

- The degree of knowledge of respondents about digital solutions

The second axis questions the degree of knowledge of those interviewed about digital solutions. In detail, we understand how citizens perceive the use of ICT, whether they trust it, whether they use it more frequently, and in what modalities (cellular applications, mailing, video conferences, instant chats, websites, and sites), also on several smart elements such as smart parking systems in open areas, smart street lighting systems, smart bus management, smart waste management, smart security, and innovation systems for the quality of the indoor environment (IEQ) and smart campus living and learning.

- Citizen participation and its link to the smart city project

The third axis concerns citizen participation and its link with the smart campus project. The questions mainly concern the degree and forms of participation of citizens as well as their previous participation or not in the management of local affairs.

Furthermore, we questioned them on the usefulness and content (Development Plan, Campus Master Plan, Development and Urban Plan). We also invited them to express themselves on the forms that this participation should take and the limits to achieving it.

- The importance of the smart campus feature

The last axis relates to determining the degree of needs of respondents and the importance for smart campus based on the smart city concept. A smart city is an "instrumented, interconnected and intelligent city" [22]. The environment of a smart campus must have the same main characteristics. Just as the development of a smart city depends on the will of the government and society, the development of a smart campus depends on the will of the senior management and members of the university.

2.3. Sampling

It should be noted that the categorization of respondents is a question that involves multiple factors linked not only to the complexity of the themes addressed in this survey or to the diversity of the strains from which the respondents come but also to the existence of several interfering variables between them which may alter the execution of the survey or compromise the processing of data and the analysis of the results [20].

The question of sampling is crucial to the extent that we must ensure that the criteria are explicit and that it is duly representative of the entire base population, reflecting as accurately as possible the social nuances observed in terms of the level of education, attitudes, places of residence, behaviors and many other endogenous and exogenous parameters.

It is for this purpose, during the year 2023, a vast survey was carried out through a questionnaire among students, teacher-researchers and campus administrative staff, the questionnaire is sent to 5,000 recipients with an institutional email.

2.4. Demographics

Hassan Ist University of Settat is a Moroccan public educational establishment created in 1997, located in the city of Settat, well integrated into its region and open to the world. It has 49338 students including 774 foreigners, 446 university professors and 251 administrative and technical employees. It is made up of four faculties, three higher schools and two institutes distributed in the towns of Settat and Berrechid. These include schools of business and management, applied sciences, education and training. There are also faculties of economics and management, legal and political sciences, science and technology, languages, letters and human sciences, Institutes of health sciences and sports sciences.

2.5. Focus Groups :

The focus groups made it possible to develop a qualitative approach that complemented the data from the quantitative survey. 10 focus groups were organized: 3 at the **FST**, 3 at the **FSJP**, 2 at the **ENCG** 1 at the **ISSS**, 1 at the **ISS**, and 1 at **ENSA**Berrechid. They were made up of groups of people of comparable status: teacher-researchers, students, administrative and technical staff.

These exchanges provided a better understanding of the way these different groups live on campus and the expectations they might have in terms of developing new services.

The same questioning grid was used in all meetings. The discussions took place around the following general reflection: "How to live well on your Campus? To what extent and in what ways can digital help? Is it easy to have a sustainable lifestyle and practices on campus?

2.6. Encountered difficulties

From a data collection perspective, only one in five people responded to the online questionnaire. We therefore thought of doing an awareness campaign since, as mentioned previously, this study is a part of a study proposing a strategy for developing the campus of

Hassan I University of Settat to be a smart one, and we moved on to administering the questionnaire in the field.

2.7. Precautions taken

Let us make clear from the outset that our primary concern was to move away from reductive and reductive conceptions of respondents' responses. To do this, we used the strategy of triangulation with the aim, in particular, of diversifying the sources of data and information collection and cross-referencing the results. "The idea of triangulation is based on the principle of validating the results by combining different methods aimed at verifying the accuracy and stability of the observations" [21].

2.8. Locations of the investigation

We retained all the components of the campus to be able to carry out our interviews in complete peace of mind. We ensured that the questions were clear, precise, and understandable so that the individuals questioned found them less difficult to answer and could express themselves with complete confidence and serenity away from any possible disturbance. Likewise, we took the necessary time to explain the meaning and content of the questionnaire from the start.

Thus, we went to meet the respondents in various places, including departments and refreshments, within faculties and high schools. At the same time, we used mailing and instant messaging applications, including Facebook Messenger and WhatsApp for administering questionnaires; we also made contact with colleagues.

Note that of the 2583 respondents, 1500 responded directly without any help from us. This category of respondents is essentially made up of teachers, doctoral students, and scientific training students. It should be noted alongside this generic observation that the time allocated by this category of respondents was often between 20 and 40 minutes.

3. RESULTS AND DISCUSSION

3.1. Demographics

According to the 2583 responses, including 2143 from students, 180 from teachers, and 129 from administrative and technical staff; 56.3% (1454) are male and 43.7% (1129) are female. The next item is age listed in a few categories.

The data shows that the youngest respondent is 17 years old and 57 years old for the oldest. The age categories are divided into 4 groups with a gap of 10 years. People from various components of the campus responded to the questionnaire, the involvement of these various higher institutions is essential to have a smart campus network in the future.

According to age; the 17-37 year old age group dominates, followed by the 38-47 year old age group, and finally the 48-57 year old age group.

3.2. Habitat-Accommodation

Among the questions raised is the issue of habitat and habitation. Where do campus users live? What is their situation in their places of residence? Do they live on campus? How do they reach it?

Please note that Hassan I University has set up a certain number of accommodation structures to make life easier for students from other cities.

The university city of Settat: The Settat university campus was built at the start of studies in Settat, it has a capacity of 1700 beds, spread over 7 pavilions for girls and boys. All the comforts have been put in place to allow students to be in an atmosphere that promotes studies but also collective life. Amenities have been put in place so that resident students do not have to leave the city, such as showers, a dispensary managed by a doctor, several

study rooms, a library, refreshment bars, playing fields. Sports, gyms… Regularly cultural, sporting, educational, integration activities, etc. are organized for the benefit of students.
Dar Attaliba – Settat: With a capacity of 350 beds, Dar Ettaliba was created as part of the National Human Development Initiative (INDH), it opened its doors in September 2009.
The student house _ Settat : Private residence for students located at 300 meters from the University, and with a capacity of 2,724 beds, it consists of four buildings distributed as follows: – 528 individual studios – 948 double rooms – 82 triple studios The Student House offers a welcoming and comfortable environment where studies, leisure and social life are integrated to promote your well-being and academic success, Table 1 shows the of housing occupancy of University Hassan Ist students

Table 1. Type of housing occupancy

Type of habitat	University campus	Dar Attaliba	Student house	downtown
%	42%	7%	1%	50%

*Percentage % (number of respondents)

According to Table 1, the distribution of places of residence of the population is partly expected. This is explained, in part, by the length of journeys, particularly via bus, an important means of public transport, taxis, or their means of transport, and by the fact that the university campus is located 3 km from the downtown towards the road to Casablanca. Note that the reception capacity of the university campus and Dar Attaliba is limited, which also explains the fact that students are constantly forced to find accommodation elsewhere.
For teachers and administrative staff, it is normal for them to live in the city center. Furthermore, 1% of those questioned prefer private student residences given the more or less high housing prices.

3.3. Understanding of Smart Campus and Smart City

Based on Table 2, respondents have an indeterminate level of understanding of the concept of smart campus and smart city without any assistance (video, presentation..), as shown by the highest average of 60.3% respondents have heard about smart city and smart campus during classes, but do not have details on the topic. Therefore, a short video is provided to briefly inform respondents before answering the next question.

Table 2. Understanding of Smart Campus and Smart City with assistance

Statement	never heard of it	general idea	doing research	heard about in courses
understanding smart campus concept	6 (155)	25 (646)	9.17 (237)	59.83 (1545)
understanding smart city concept	5 (129)	24.2 (625)	10 (258)	60.8 (1570)
Average Percentage	5.5	24.61	9.59	60.3

*Percentage % (number of respondents)

After the assistance, the level of understanding of the respondents increased in one way or another, as shown in Figure 1; in the first statement (After assistance, I understand the smart campus and the smart city better) and the second (The smart campus or smart city is a new era of innovation that uses high technology more efficiently), in the average respectively 57,

8% and 32.4% of people somewhat and strongly agree. While 0.75% and 1.7% of respondents somewhat and strongly disagreed, respectively.

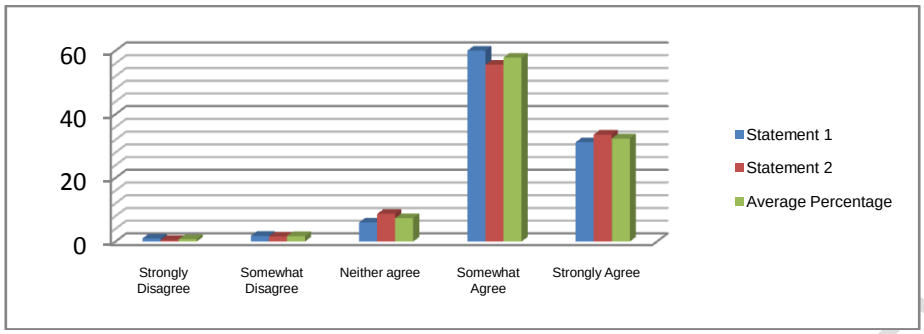

Fig. 1. Understanding of Smart Campus and Smart City without assistance

This shows that the concepts of smart city and smart campus are not difficult to understand and the assistance provided could also explain it well. This may also be due to the background knowledge they already had before answering the questionnaire.

3.4. Equipment and access to digital technologies

This section focuses on Internet usage in terms of connection and equipment. We focused the interest on the type of subscription, as well as the variety of home connection terminals and the main types of places where members of the university community connect; this by taking into account a wide geographical area, including green spaces outside campuses. This information provides insight into the quality of the connection, the degree of autonomy, and on the other hand, the “digital divide”. The “digital divide” will be assessed here through the lack of terminal connection equipment and the lack of subscription to an access operator. The percentage displayed in Figure 2, corresponds to the total number of respondents to this question.

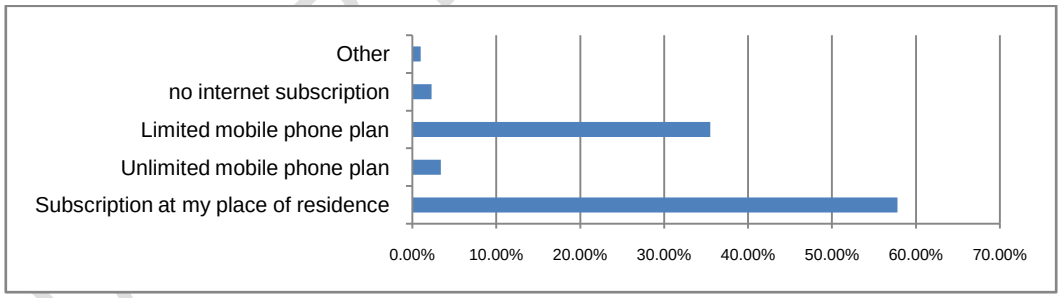

Fig. 2. Internet subscription type

We note that a significant proportion of respondents have a home subscription. The share of people with limited and unlimited telephone plans is almost equivalent. The unlimited plan is slightly higher, which means ease of use. In total, 85% of those surveyed use a mobile phone. On the other hand, 3% of those surveyed do not have any subscription, a significant percentage if we consider that these people constitute the population at the heart of the “digital divide”; this is why we will take particular interest in it.

3.5. Most common connection places

Infrastructure is an important aspect considered when developing a smart campus, it is the key to the Smart Campus project [23], because if it is well developed on campus, information will be accessible from anywhere and can be accessed from any gadget, Table 3 shows us the most common connection places for citizens on campus.

Table 3. Most common connection places

Place	Percentage
At the University, via Wifi	**10%**
Everywhere, thanks to my personal subscription	**68%**
At the University, via the wired network	**20%**
Other	**2%**

The WIFI connection comes as the first choice, while the wired connection comes as the second. This trend towards independent and flexible connection is confirmed by the selection of the answers “everywhere thanks to a personal subscription” and “at university, via WIFI” as the first and second options.

3.6. Knowledge of digital solutions

We questioned the specific knowledge of the local population about digital issues, to measure the convergence of opinions and information available to the population as well as understanding related to ICT. Figure 3 shows the Knowledge of digital solutions by respondents.

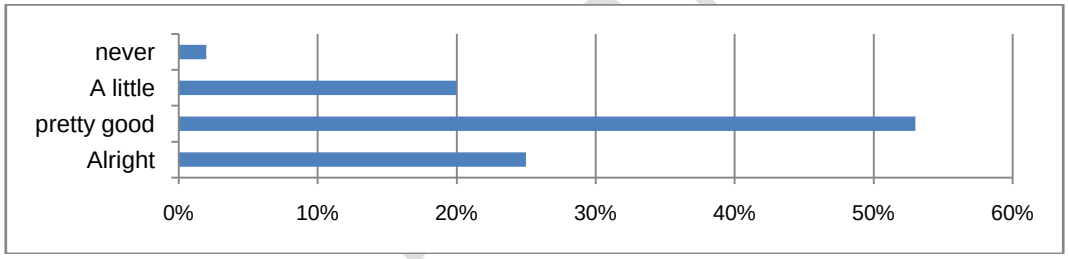

Fig.3. Knowledge of digital solutions by respondents.

According to the Figure 3, overall, respondents consider themselves fairly informed.

3.7. Nature of the digital solution and reasons for use

The objective is to systematize the real understanding and perception of digital solutions on the part of respondents. Figure 4 shows the use of digital solution of campus citizens.

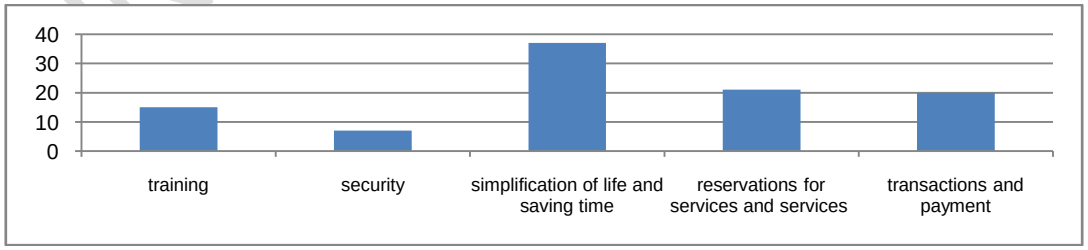

Fig.4. Reasons for use of the digital solution

Following Figure 4, the responses reveal that in addition to university applications (online registration, consultation of school grades, etc.), the most used digital tools include cellular

applications, messaging programs, and messaging instantaneous. On the other hand, we also see that the use of solutions improves the quality of life of campus citizens.
Paradoxically, citizen participation lies at the base of aspirations.It should be noted that respondents' computer knowledge affects their usage methods.
The main lesson that emerges is that digital practices are interested in particular aspects linked to the rationalization of life and saving time. The second use is for service reservations.

3.8. Eco-responsible gesture

To explore the field of sustainable development, but in a context limited to life on campus, we wanted to explore existing eco-responsible actions within the university community. “Eco-gesture”, “eco-responsible gesture”, or even “eco-citizen gesture”, is understood as behavior that strives to respect nature and the environment as much as possible in its activities. In the total sample, among the “gestures” that come first (within the proposed list), reducing water consumption clearly occupies first place, since it was selected by 45% of respondents, and they say they pay attention to their water consumption. Three “eco-gestures” then arrive with relatively similar response rates: attention paid to electricity consumption, waste reduction, and paper consumption. Then come gentle modes of travel, taking into account high fuel prices, and not for reducing carbon rates.

3.9. Citizen participation

More than half of respondents believe it is fake, while only a quarter of those surveyed find it useful. This paradoxical situation may be due to the persistent effects of the absence of a concrete engagement strategy on the part of decision-makers. Regarding the importance of topics related to citizen participation, we find that for most participants, two ways, namely access to information and participation in decision-making, constitute the main drivers for enhancing citizen participation.

3.10. The important features of the Smart Campus application

It is also necessary to emphasize the importance of applying the characteristics of the smart campus to the university. Eight questions were explained and analyzed in this section. Figure 5, shows the acceptance of the features of the Smart Campus application.

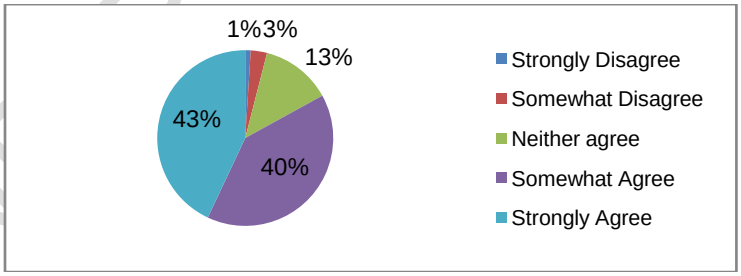

Fig.5.summary of the importance of applying the characteristics of the smart campus to the university

In summary, only a small percentage of respondents, 4% disagreed the statements. However, a high percentage of sample members who somewhat or strongly agreed with all statements was 83%. The majority of the sample therefore voted in favor of the installation of smart devices on the university campus.
The question was “Weight the following categories according to their importance to the “Smart Campus?”.The categories were: Smart education, Smart administration, Smart cards, Smart libraries, Smart Security, Smart Mobility, and Smart energy.

4. FINDINGS IDENTIFIED

From this study, it can be deduced that:

i.The target population's understanding of the concept of smart city and smart campus was measured. Overall, the level of understanding was at an indeterminate level. However, after presenting videos explaining the concepts of smart cities and smart campuses, the level has increased considerably, so it is necessary to invest in training and communication regarding "living smart", the survey reveals that the aspect arousing more interest from respondents is the improvement in the quality of life of the population. Regarding the use of digital solutions, it should be noted that the diversity of respondents' knowledge regarding the use of IT affects their methods of use. Respondents said, unsurprisingly, that the most frequently used digital tools are mobile apps, mailing, and instant messaging software. Regarding citizen participation, we note that more than half believes that it is just formal, which explains the abstention of respondents from participating in activities related to local management since almost two-thirds of respondents have never been involved or engaged in any social or administrative activity. For respondents who were already involved, the main motivations for strengthening this participation are access to information and participation in decision-making, in addition to the fear of the feeling of non-consideration or even ambiguity forms of participation hinder citizen participation.

ii. The elements in the smart campus by using the concept of a smart city were identified. Indeed, more than 75% of respondents affirm the need for a smart education, integrated as “a student-centered smart learning environment, enriched with digital learning resources to provide smart pedagogies that support learning experiences personalized smart learners anywhere, anytime using a smart device and connected to an education or training institution, the same degree of need was noted among the respondents for the adoption of a smart administration, because is closely linked to governance. The administration must use the latest technological solutions to accomplish the public tasks imposed on it, (i.e. Digitalization, Electronic, networking, electronic services, etc); Regarding the smart cards, almost all students agree with it, since this service will replace various university-related cards (student cards, building access cards, library cards, medical cards, access cards, etc.). In addition, the survey reveals that people in the 17-40 age group are in favor of having a smart library using advanced information and communication technologies to meet the information needs of citizens.

A smart campus provides innovative services to citizens to improve their quality of life. However, significant security challenges may arise, so smart security approaches for the smart campus using different methodologies; are mandatory to protect citizens and their data, especially since we noted that the level of confidence in digital solutions for more than half of the respondents was "not really".

On the subject of smart mobility, the survey revealed that almost 100% of the population surveyed want to have user-friendly and efficient means of transport, municipal authorities, mobility providers and the research community must contribute with approaches of solutions to achieve the objectives of the envisaged intelligent mobility.

And finally, Smart Energy is demoted to the bottom of the choices of those surveyed 5% of respondents ranked this concept in the top three choices; this is surely due to a lack of understanding of the world of energy which has become complex. The sector is vast and diversified since it includes fossil energies (oil, natural gas, coal), electricity, nuclear power, and renewable energies (wind, solar, biomass, hydraulics, etc.). Even within each category, there are numerous specializations.

From this work, we obtained a broader perspective which allowed us to improve our vision and understand the reality of things, future strategies will focus on developing a plan to promote Hassan Ist University to the ranks of smart universities; taking into account the priorities of campus citizens, as well as developing the skills of students and teachers, to prepare them for smart education.

5. CONCLUSION

All things considered, the digital and intelligent campus project as a mini digital smart city seems important because it carries risks and is handicapped by a blatant lack of understanding of the concepts of intelligence among those interviewed. Despite all these limitations, we must bridge the severity of the digital divide, adopt completely new standards and behaviors, and master the digital transition while taking into account the various challenges encountered, failing which the entire process and efforts made will be obsolete and therefore doomed to failure. Managing these issues requires creativity and seeking innovative solutions to make the campus competitive and pleasant to live in for its citizens. The transition to smart campuses in Morocco requires adaptations at the governance level to provide the tools and resources necessary for their management. We need to better design action plans in line with the priorities and expectations of citizens.

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ACRONYMS

FST: Faculty of Science and Technology
ENCG: National School of Commerce and Management
FSJP: Faculty of Legal and Political Sciences
ENSA: National School of Applied Sciences
ISSS: Higher Institute of Health Sciences
ISS: Higher Institute of Sports