



e-Madina for Casablanca Smart City vision and new concepts

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“Casablanca, métropole intelligente ... et durable”

Mr Khalid Safir, Wali of Grand-Casablanca Morocco

Avec plus de 3,5 millions d’habitants, Casablanca est la plus grande ville du Maroc et le centre économique et financier de premier rang, du Royaume.

Cette métropole qui ambitionne à devenir un pôle financier international est exposée aux contraintes typiques des grandes métropoles internationales à savoir une croissance démographique exponentielle, l’extension de l’aire bâtie, l’insuffisance des infrastructures, Casablanca est aussi une ville des paradoxes. Une ville qui se développe à 2 vitesses, une ville de grattes ciels et de bidonvilles, une ville moderne et cosmopolite mais aussi une ville incarnant toutes les formes de disparités (économiques, sociales et culturelles...)

Le 13 octobre 2013, et à l’occasion de l’ouverture de la première session de la troisième année législative de la 9^{ème} législature du 11 octobre 2013, Sa Majesté le Roi Mohammed VI que Dieu le glorifie, a d’ailleurs consacré une partie de son discours à Casablanca qui en dépit de ces ressources financières et humaines, demeure à la traine par rapport à d’autres ville marocaines en termes de développement inclusif et durable.

Depuis ce discours Royal historique, la réflexion autour d’une mutation métropolitaine réussie a été déclenchée. Cette réflexion s’est inscrite, dans une démarche participative et mobilisatrice de l’ensemble des forces vives de la métropole. Elle s’est construite également et dès le départ autour des fondements de base des villes intelligentes et durables.

Le résultat : un plan de développement stratégique, intégré et équilibré visant :

1. à réconcilier la ville avec ses habitants,
2. à optimiser la mobilité aussi bien en termes de temps que de coûts,
3. à développer une offre d’animation différenciatrice, tout en capitalisant sur son histoire et son patrimoine
4. et à incarner l’excellence économique en consolidant son positionnement à l’échelle nationale et régionale pour en faire un véritable hub financier connecté et inclusif

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A horizon 2020, Casablanca a pour ambition de renforcer l'inter-modalité pour les déplacements des casablancais à travers l'extension du réseau des lignes de tramways, d'accroître le recours aux énergies renouvelables, de parvenir à la moyenne d'espace vert par habitant, d'atteindre l'objectif zéro papier dans les administrations publics locales....

Cette dynamique positive enclenchée depuis plus d'une année doit s'accompagner d'une prise de conscience collective.

Une ville intelligente suppose des citoyens civiques et qui adhèrent aux valeurs de leur ville.

Le plan de développement du Grand Casablanca 2015-2020, qui a mis le citoyen et l'entreprise au cœur de sa démarche, est l'illustration parfaite de l'esprit de la « Casa Smart City ».

C'est une invitation que j'adresse aujourd'hui à l'ensemble des parties prenantes de la métropole (élus, autorités, universités, opérateurs privés, société civile..), pour construire ensemble cette ville intelligente qui accompagnera et renforcera notre ambition collective de faire de Casablanca un Centre Financier International et une grande métropole d'avant-garde.

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“An introduction to e-Madina”

Mohamed Lakhlifi, President at e-Madina

Co-founder and President at e-Madina

Pour les citoyens, les entreprises et les visiteurs, la ville n’est rien de moins qu’un organisme vivant dans lequel ils évoluent. Sciemment ou par inadvertance, chacun de ces usagers contribue à la construction d’un projet urbain et en bénéficie. Bien pensé, ce projet devient un levier de progrès économique, social et environnemental qui prendra en compte les éléments de transformation intelligente vers une ville et d’une vie collective meilleure.

Faisons fi ensemble, le temps d’un instant, des entraves circonstancielles ou des moyens nécessaires pour un tel projet et projetons-nous vers cette destination urbaine souhaitée par tous.

Notre ville écoute et propose. Elle capte et prend en compte les réalités existantes et les mesure à travers les contributions agrégées de ses usagers que l’on appelle l’intelligence citoyenne. Cette analyse est enrichie par la collecte d’informations que permet l’Internet des Objets. La ville analyse grâce à des solutions BigData et anticipe les évolutions et les tendances économiques, démographiques, sociales et environnementales puis adapte sa réponse avec fluidité dans le cadre d’applications d’administration électronique. Les ressources sont évaluées, gérées et utilisées de manière optimale et « intelligente ». L’administration est accessible et grâce à un contenu numérique multilingue, répondant de manière efficace aux besoins multiples des usagers. Quelques prérequis sont indispensable et comptent notamment la numérisation, l’archivage et l’ouverture des données publiques (OpenData). La ville adapte son langage à ses cibles et propose une diversité de services distants et simplifiés. L’environnement des affaires est favorable aux entreprises et aux entrepreneurs où les opportunités d’emplois sont multiples et disponibles en ligne.

Notre ville communique et inspire. L’information sur la ville et ses services est à la disposition de tous et réduit la fracture numérique en sensibilisant les citoyens et l’administration aux usages et opportunités offertes par les technologies de l’information. Chacun se sentant concerné peut suggérer, proposer et s’impliquer dans l’amélioration de sa ville à travers des plateformes collaboratives et des réseaux sociaux spécialisés. Respectueuse de son patrimoine et de son identité, notre ville fait aussi la promotion de la différence et propose des espaces riches de recherche et de culture notamment dans le cadre de projets « Ville Lab » et de plateformes e-

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learning. Notre ville attire les talents et les investisseurs du Maroc et de la région et devient un pôle d'éducation, de recherche et de culture très prisé et attractif.

Notre ville respire. Nos espaces de vie, de travail et de détente sont harmonieusement organisés. Tout en développant de nouvelles zones parfaitement intégrées à la ville, l'intérêt est porté sur des quartiers connectés ; une virtualité qui épouse le paysage urbanistique en prenant en compte les éléments de démographie et d'urbanisation croissante. La capillarité des télécoms donne accès à tous à l'Internet haut débit et à l'ouverture vers le monde. Les transports en communs soutenus par des solutions d'optimisation connectent efficacement les différentes zones urbaines et allègent le trafic. La pollution est contrôlée et l'environnement respecté grâce au tri sélectif et à des solutions de gestion et traitement de déchets solides et liquides. La ville prend le soin de connaître et d'améliorer son impact sur la qualité de vie des citoyens et des entreprises.

Loin d'être exhaustive, cette perspective semble déjà être pour certains un projet surréaliste au Maroc. Elle est pourtant réalisable dans le temps avec la contribution des technologies numériques. Ce qui nous en sépare aussi n'est souvent autre que le partenariat de confiance entre les parties prenantes et la conscience que les moyens existants, utilisés efficacement, peuvent suffire pour développer de nouveaux projets dit « Smart ». C'est cette réflexion qui anime depuis deux années déjà notre groupe de travail e-Madina pour les villes intelligentes.

Nous avons opté pour une approche de partenariat tripartite avec un équilibre entre les composantes : Public, Privé et Citoyen. Des projets de e-participation, tel que e-Madinati, permettront demain de recueillir en mode connecté les avis et suggestions des habitants et entreprises sur des thématiques spécifiques ou générale pour les analyser et agir en conséquence.

Ainsi, nous nous engageons pour mettre en œuvre des projets concrets aux bénéfices mesurables en s'appuyant sur chacune des composantes de la ville.

L'ambition du cluster e-Madina est de contribuer à transformer Casablanca en ville « plus intelligente » à travers une démarche pragmatique et réaliste. Pour perdurer, cette ambition s'est construite aussi autour de valeurs partagées qui sont : Partenariat et collaboration entre les membres du cluster; Respect de l'identité des villes marocaines; Engagement citoyen pour une ville meilleure; Entreprenariat et Innovation pour le développement d'un savoir-faire et de compétences marocains et enfin Culture du résultat. Ceci est notre engagement pour Casablanca et nous vous y invitons.

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“The IEEE Smart Cities Initiative, from smart cities to smart citizens”

Gilles Betis, chair of the IEEE Smart Cities Initiative

Welcome to the 21st century cities, welcome to the IEEE Smart Cities Initiative!

One year ago, the October 29th and 30th 2013, IEEE kicked-off in Guadalajara its Urbanization Challenge, called now the IEEE Smart Cities Initiative.

This two-day meeting in the Mexican city was the result of the idea launched by the Future Direction Committee, convinced that all technologies, skills, existing and active experiences, would be of a great importance if applied to the multitude of cities all over the world, which are day-by-day working to offer to their residents a better environment, more efficient, more resilient, more inclusive, safer, cleaner, and leading to a new era of societal and economic progress. An important question is whether technology by itself is sufficient to fulfil all these societal goals.

It is well known and admitted now that the trend toward bigger and bigger cities is acted and irreversible. In 2013, half of the world population was living in cities. In 2020 half of Asia population will live in cities and in 2035 half of Africa’s population will also live in cities. Combined with predictable demographic growth, in 2050 it is expected that over 75% of people will live in cities, reaching an unprecedented amount of people of 6.3 billion people (source: United Nations). Almost 180,000 people are added to the urban population each day (source: the World Bank)

However, not all those cities will look the same. Most of the time, speaking about smart cities, we have in mind megacities, with ten or more million inhabitants, or new cities that are emerging from greenfield (or from the desert), flagship of technological development, including hundreds of thousands of sensors, integrating centralized monitoring, regulation and surveillance systems, and implementing state of the art technologies to guarantee sustainability and low environmental footprint. The reality is quite different, most of the cities today and in the coming year will have to deal with a strong legacy, and most of the cities are not megacities.

Legacy in the cities must not be considered as a handicap in the process of going smarter. Most of the time, in various aspects, legacy handle some capabilities developed to solve previous problems or to enable new services to citizens or to the economic environment of the city. Information and communication technologies may be seen in that case not as part of a superseding strategy, but as a way to develop and massify existing good practices, especially

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when population adoption of these good practices is already acquired. Whenever possible, avoiding difficulties in social adoption will pave the way to an efficient, rapid and low-cost evolution of city services.

Megacities are far from being the rule. Cities with more than 10 million inhabitants represent roughly 10% of urbanized people, with an expected increase to about 15% in 2025. This growth is important but must not hide the fact that on the other side, over 50% of people lives in cities hosting less than five hundred thousand people. On one hand megacities are convenient for technological development because they provide at once a critical mass of users, and ease the emergence of economic actors, service providers with a sustainable business models for innovation. On the other hand, thanks to cloud and platform technologies, this critical mass of users can be found today with the deployment of the same service on multiple cities, leading to the same economic results.

Another cleavage is somehow perceived between panoptic city and collaborative city. The panoptic city aims at a centralized supervision and management of the city, whether it is related to utilities management, transports, security or municipal services. These services are usually associated to a rigorous and efficient way to guarantee quality of municipal sovereign missions.

Beside of that, the collaborative city opens way for people to set-up collaborative behaviors, sometimes can be new, sometimes coming from old and well-established usages. Those behaviors are supposed to strengthen the social link between citizens, hold values of solidarity, sharing and care, and led to a huge variety of entrepreneurs innovating with technology or in the field of the social economy. Moreover, it has been noticed that citizen collaboration, when applied to crucial issues such as mobility, will open some fields of new modalities that can be valuable alternatives to heavy public authorities' investments.

Rather than to oppose the two approaches, it must be interesting to combine them in a scheme where people benefit from efficient central services, and thanks to their empowerment by collaborative behaviors, will be able to contribute in a useful and cost efficient way to centralized services. Crowdsourced data in the area of mobility, information on Point-of-Interest, ranking of services, etc. is a good way to combine and improve existing centralized services. We can even imagine collaborative and crowdsourced services in the field of urban safety and security.

Above the classical and important challenges about housing, energy, transport, pollution, health or security, is emerging the idea that a city is also the place where people are expecting to express

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their wishes, their opinions and their proposals. Classical democratic ways like vote or referendum, usually reserved to registered citizen, fail to take into account other residents, and sometimes fail to address issues in a way that people see the interest to go voting. Therefore there is a risk that legal or illegal democratic expressions leads to uncontrolled actions, such as spontaneous riots or violent demonstrations, generating social blocking and even more frustration. Smart cities are expected to be also a place where a quiet, pacific and constructive public expression is possible.

The initial question becomes now: “Shall we build Smart Cities or shall we empower Smart Citizens?”

The question of the value creation in Smart Cities is also of a paramount interest. From a physical point of view, by transposing allometry to Smart City modelling, cities create mechanically wealth thanks to its size and the quality of their infrastructures. See the excellent post from Roberto Saracco developing this concept (<https://www.eitictlabs.eu/news-events/blog/article/allometry-does-it-apply-to-smart-cities/>). The question is to know how this value is created and how it is distributed inside the urban ecosystem.

From a basic actor’s model including (1) citizen, residents (2) governance bodies and agencies (3) urban service providers (4) the rest of the economic actors that are doing their business in the urban ecosystem, we can see that there are natural value exchanges between all the classes of actors. A smart city approach that would create value for one particular class of actor, would take the risk to result in just the transfer of value from the pocket of one actor to the other one.

If we consider the city as a close ecosystem, then value creation must result from internalization of external value. This can come either with additional value coming from the attractiveness of the city or from the efficiency resulting of a better social inclusion of people, from a better education leading to innovative enterprises, or will result from money saved in cost reduction in unproductive expenses (e.g. costs of fuels in mobility) or in budgetary optimizations following a more accurate urban planning.

A careful evaluation has to be done of expected return on investment, for different financial and societal metrics. Then targeting investment where the ratios are the best, associated with an ingenious integration of legacy heritage, inclusion of local skills and local entrepreneurial forces, are some of the basic principles of what we can call the “Frugal Smart Cities Development”. This paradigm has a great interest for developing countries, but can find also a lot of pertinence in other countries where investment budget are limited due to the impact of the economic crisis.

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“Smartification”, because it basically involves transition in human and societal behavior, is complex and cannot be reduced to a single recipe that would be sufficient to solve any encountered problems. The time horizon to become smart is a question of many years, since smartification is not really a matter of implementation of a particular solution in a given time, but is rather a multi-generation agile process.

Year-by-year, objective-by-objective, evaluations after evaluations, each city, building on its own legacy environment and with its own resources and talents, will improve the daily life of all its stakeholders.

That’s why the IEEE Smart Cities Initiative is based on two main pillars.

Education first. At universities we are learning technologies, human sciences, architecture, geography, etc., but it is less common that these different knowledge fields are gathered in a multi-disciplinary approach to serve urban development. Moreover, for students of today to become the experts and the decision-makers of tomorrow, it is crucial that at Master and PhD levels we can support research and teaching encountering the holistic approach needed in this area.

Then networking. Local networking at the level of a municipality, where a project team must be created associating IEEE volunteers, local government representatives, university professors and students, and of course the local industrial and economic fabric, all of them benefiting from the work done. At a global scale, creating a network of cities that will raise their awareness and maturity in the smartification process, sharing experiences, problems, issues, identifying how to leverage on success, to learn from failures, to scale up from one place to another place.

Dedicated places are then needed to share these knowledge and experience. They can be either virtual places on the net, or real places for face-to-face exchanges, during workshops and conferences.

We will select ten cities in the first age of this initiative. One already started last year as a pilot, Guadalajara, two other will start at the end of this year or early next year, Trento in Italy and Wuxi in China. Seven other cities will be selected within the two coming years. These ten cities will have a special role in pedagogic material production (papers, courses and MOOCs) and conference organization.

Since the world of smart cities is obviously not limited to those ten cities, and that the variety of cases and experiences is so wide, we are also creating a network of affiliated cities, that are

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sharing the same empowerment from their governance bodies, IEEE local sections and chapters, universities and economical actors, paving the way toward a better future for the humanity. The affiliated cities will be able to collaborate, sharing on their own projects, will have privileged access to speak during conferences and will use IEEE SCI web media channels to present their findings and their outcomes.

Last but not least, thanks to the impressive number of IEEE volunteers that have huge skills and a recognized experience and are internationally recognized for their expertise, we create an expert network dedicated to the whole range of knowledge that is applied to the development of Smart Cities. Technical experts of course, but we will also welcome experts in social sciences, urbanism, architecture, and the list is not intended to be exhaustive. They will provide invaluable insights, reviews and advices to the city teams.

At the end of the foundation period of the initiative, there will be a vibrant network of ten IEEE Core Smart Cities, five hundred or more IEEE Affiliated Smart Cities on five continents, and a network of hundreds of IEEE Smart Cities Experts. 40 MOOCs will be produced to serve education needs of students and professionals in the field of managing the technical and societal transition to smart cities, hundreds of white papers, articles, scientific papers, master and PhD's thesis, 5 international IEEE Smart Cities' conferences per year. IEEE will be a trusted partner to explore the ways of city smartification, and the reference partner for municipalities and regional governance bodies in the process they follow to offer a better future and a better urban environment to their citizens.

Gilles Betis

IEEE Smart Cities Initiative Chair

<http://smartcities.ieee.org/>

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“Services et réseaux mobiquitaires comme levier de développement d’un nouveau concept de Ville Intelligente Sociale et Frugale“

Pr. Aawatif HAYAR

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Professeure associée à l’université Mundiapolis Casablanca

Co-fondatrice et Vice-présidente du Cluster Smart City e-Madina

1. Introduction

"Smart City" est un nouveau concept basé sur une approche globale qui s’appuie sur l’intégration des différents systèmes d’information des systèmes complexes de la ville comme le transport, la santé, l’énergie, la gouvernance etc...pour construire un écosystème d’innovation exploitant d’une façon intelligente la richesse informationnelle des données générées et collectées pour proposer des solutions aux problématiques nouvelles des grandes villes modernes comme la sécurité, le chômage, l’éducation, la qualité de vie etc.... Il fournit un ensemble d’outils et de paradigmes pour l’optimisation des ressources naturelles et financières et permet de favoriser la durabilité d’un développement socio-économique respectueux de l’environnement et répondant aux besoins des citoyens. Il vise également à améliorer la vie quotidienne des citoyens et de faciliter leur accès mobiquitaire (Any Time, Any Where, Any Device) aux services de la ville tout en leur donnant la possibilité d’être des acteurs clés dans le développement de leur ville.

Dans les pays émergents, Le concept de ville intelligente est encore plus pertinent que dans les pays développés. En effet, le taux de croissance démographique élevé combiné à des ressources limitées génèrent des défis sociétaux importants. Une approche de ville intelligente Low Cost ou frugale, que nous proposons ici, consiste à s’appuyer les technologies de l’Information et de la Communication (TIC) pour utiliser d’une manière efficace les ressources limitées de la ville et du pays et peut représenter une autre alternative pour permettre à ces villes ou à ces pays émergents de bénéficier des solutions proposées par le concept smart city et de sa dynamique inhérente pour la création des richesses et l’optimisation des ressources sans attendre de disposer de gros budgets. Ceci permettra de créer ainsi un cercle vertueux partant des besoins et optimisant les moyens pour mieux répondre aux attentes des citoyens, ouvrir de nouvelles perspectives et créer de proche en proche des richesses génératrices d’autres richesses. Ce nouveau modèle de smart

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city est essentiellement centré sur le citoyen comme acteur principal d'un développement durable et équitable. Il s'appuie sur des outils TIC mobiquitaires (mobiles et omniprésents) pour offrir des services utiles pour les citoyens et collecter des données qui seront ensuite traitées et analysées pour offrir d'autres services plus appropriés dans le but d'une prospérité sociale globale durable et équitable.

2. Les défis des villes intelligentes dans les pays émergents

Encore plus que dans les pays développés, les pays émergents et à cause du problème du chômage, rencontrent plus de défis sociétaux comme :

- La sécurité
- Le logement
- Le transport
- L'environnement
- L'éducation
- La santé
-

Ces problèmes vont en s'aggravant quand on sait que la tendance dans des pays comme en Afrique prédit d'ici 2030 un basculement de localisation démographique en faveur des villes [1][2].

Ce constat peut être alarmant à premier abord mais quand on sait que les richesses dans le future vont être générées par les villes et dans les villes, on peut alors exploiter cette nouvelles donnée d'une façon intelligente et faire de ces villes des locomotives économiques pour leur pays.

A la lumière de cette analyse, le concept des smart cities s'avère pertinent et mérite d'être expérimenté en prenant en considération les retours d'expériences des exemples des pays développés pour ne pas commettre les mêmes erreurs d'approche.

Ce concept, je dirai même, qu'il s'impose notamment en prenant en considération, en plus des défis sociétaux, les défis environnementaux. En effet, plusieurs rapports signalent que la majorité des pays en voie de développement et à développement très accéléré ont un impact négatif important en terme de coût de dégradation environnementale [3].

Notre recommandation de l'approche smart cities pour les pays émergents, que nous avons introduite dans la discussion de la table ronde Smart Cities au congrès Digiworld Summit à Montpellier en France en 2012 (<http://www.digiworldsummit.com/intervenant/aawatif-hayar/>) et exposée dans plus de détails au workshop international Next Generation Green Wireless Networks (Next-Gwin2014) à Rennes en France en 2014 (<http://www.next->

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gwin.org/index.php/programme/invited-talks), prend en considération, en plus des défis signalés ci-dessus, la disponibilité et la qualité des moyens technologiques et notamment numériques existants pour permettre de valider une telle approche.

L'analyse de cette problématique montre qu'en plus des défis sociétaux et environnementaux, la majorité des pays africains souffrent de moyens numériques limités notamment en termes d'infrastructure et services numériques [4].

La situation au Maroc

Le Maroc a su prendre, à temps, la mesure de l'importance des technologies numériques comme vecteur de développement socio-économique notamment avec le plan Maroc Numeric 2013 et actuellement la stratégie 2020.

En octobre 2013, le discours visionnaire de sa majesté le Roi Mohammed VI au Parlement a mis en avant le potentiel de la ville de Casablanca et son ambition de la positionner comme pôle financier international. La suite de ce discours royal s'est traduite par le projet "Casablanca Smart City 2030" mené par le Wali du Grand Casablanca en collaboration avec le Conseil de la ville et toutes ses forces vives dans une démarche participative, si innovante, qu'elle mérite d'être citée et saluée.

Suite à cette stratégie, un think-tank au niveau de la ville a été mis en place par le Wali et a permis de dégager un ensemble de recommandations qui ont été prises en considération dans l'élaboration du plan de développement de Casablanca 2015-2020.

Dans le cadre des travaux du groupe Casablanca Ville d'Avant-Garde de ce think-tank, nous avons fortement recommandé d'adopter le concept smart city pour accélérer le développement de la ville de Casablanca et nous avons, au sein du groupe, proposé une série de solutions et concepts pour ville intelligente visant à construire, avec les habitants et pour les habitants, le Casablanca Smart City du future tout en préservant sa touche Avant-gardiste et en lui cultivant une nouvelle dimension de Ville Sociale et Verte. Ces recommandations sont disponibles en ligne dans le rapport global du think-tank sur le site (www.casainvest.ma).

3. Notre proposition : Un nouveau modèle pour une Ville Intelligente Sociale et Frugale

Inspirée des retours d'expériences des villes intelligentes dans des pays développés et tenant compte des moyens et infrastructures limités des pays émergents, nous proposons de limiter les risques d'investissement en adoptant une approche « bottom-up » basée sur l'utilisation des

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infrastructures existantes notamment mobiquitaires comme les smartphones et autres terminaux mobiles pour développer des applications, services et sites pilotes et poser ainsi les briques d'une smart city qui seront renforcés par d'autres réalisations jusqu'à créer un environnement smart city interconnecté. La nécessité d'une connectivité garantissant une bonne expérience numérique pour le citoyen est indispensable pour permettre d'impliquer les citoyens et leur permettre de s'approprier les données et services disponibles pour développer d'autres innovations et d'autres services à valeur ajoutée pour l'économie et la société.

Ce modèle que nous avons baptisé **Ville Intelligente Sociale et Frugale** a comme caractéristiques de :

- Adopter une e-gouvernance participative et équitable évaluée en continue selon des indicateurs de performance définis par une stratégie et vision globale d'une ville intelligente
- Encourager l'innovation sociale pour mieux répondre aux besoins des citoyens
- Encourager tous acteurs de la société (citoyens, chercheurs, PME, TPE, Start-ups etc..) à développer des services et expériences pilotes pour les smart cities
- Améliorer le bien-être des citoyens et leur implication dans le développement de leur ville
- Minimiser les coûts de déploiement et de maintenance d'une smart city en adoptant des mécanismes et modèles économiques innovants pour sa durabilité
- Développer des approches durables pour l'exploitation des ressources naturelles
- Encourager l'innovation par le modèle 'Données ouvertes pour un développement économique' (open-data driven economy growth)
- Transformer la ville en laboratoire (Living lab) permettant de former des compétences locales et d'enrichir la R&D et l'innovation avec des données et expérience du terrain
- Adopter une transformation numérique évolutive de la société et de l'économie
- Exploiter les réseaux et objets mobiquitaires (omniprésents et mobiles) pour développer des services smart city
- Adopter des modèles économiques incitatifs encourageant le crowdsourcing (production participative) et crowdfunding (financement participatif)

Le concept TIC du modèle proposé : Plateforme living-lab open source de développement d'applications mobiles basée sur un accès numérique à faible coût et de qualité, des terminaux mobiquitaires, crowdsourcing, open data, cloud, Innovation sociale et R&D

Le modèle que nous proposons, que nous avons recommandé dans le cadre de nos travaux au sein du think-tank Casablanca Ville d'Avant-garde en Avril 2014, et que nous avons présenté au workshop Next-GWIN en 2014, est basé, comme le montre la figure 1, sur l'approche d'innovation sociale comme vecteur de développement économique exploitant l'intelligence informationnelle des données générées par et dans le système d'information de la smart city pour développer et

offrir des services qui répondent aux besoins des citoyens et créent des richesses qui permettent la durabilité de la ville intelligente. Cette approche est encouragée par une gouvernance participative et équitable. Nous considérons aussi dans ce concept, que sa clé du succès, au-delà des aspects coût et opération, réside dans le degré d'appropriation et exploitation par les citoyens des données générées par eux-mêmes, comme moteur de développement de la ville et de sa durabilité.

Le concept de **Ville intelligente Sociale et Frugale** est aussi au centre de l'approche adoptée par l'initiative e-Madina que nous avons lancée en 2013, au nom du centre de recherche GreenTIC de l'université Hassan II Casablanca, en collaboration avec Mr Mohamed Lakhlifi et Mr Khalil Laaboudi de l'APEBI pour développer un écosystème de R&D et innovation sur la thématique des villes intelligentes au Maroc.

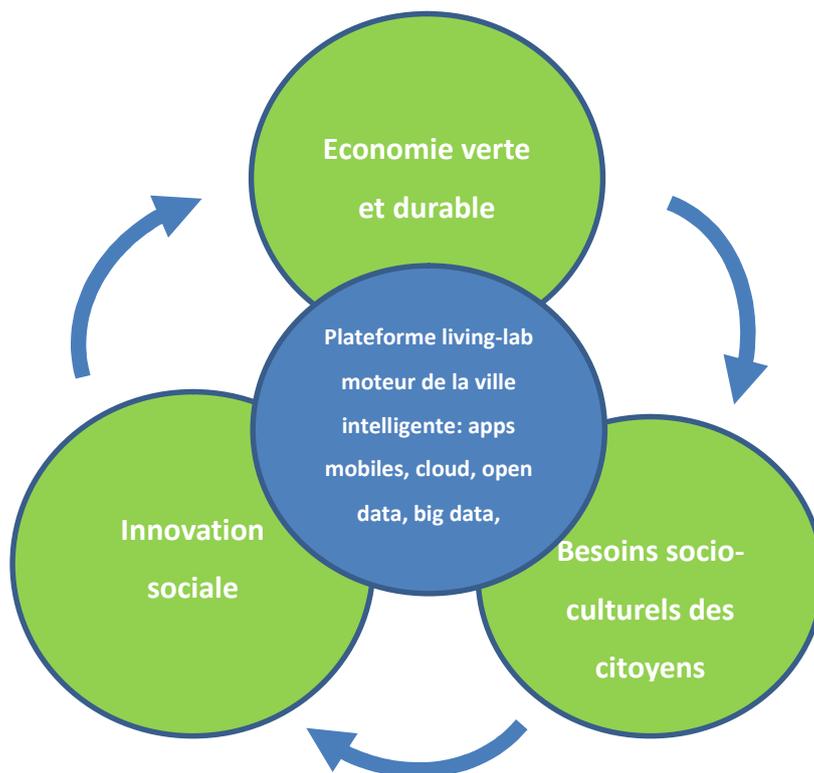


Figure 1 : [source Pr. Aawatif HAYAR]

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Illustration du concept ‘Social Sustainable Frugal Smart City’

Comme illustration du concept que nous proposons, nous citons deux projets :

- 1) le projet ‘**Social Sustainable Solar Smart City**’ que nous développons avec le soutien de la coopération allemande GIZ, la Fondation Heinrich Böll Stiftung, le Cluster Smart City e-Madina et des architectes et experts, marocains et allemands, en construction écologiques et énergies renouvelables et des acteurs du domaine de l’habitat social pour offrir à tous les marocains, et y compris les plus modestes, un habitat durable et intelligent.

Ce projet vise à développer un site pilote ‘living lab’ ou ‘ville laboratoire’ pour démontrer la faisabilité d’un habitat social durable intelligent accessible à tous et sera en même temps un site de formation de compétences marocaines dans le domaine de l’habitat à efficacité énergétique et d’expérimentation de plusieurs solutions innovantes utilisant les énergies renouvelables et les TIC autour de l’idée de l’implication des citoyens pour mieux répondre à leurs besoins [5]. Parmi les solutions innovantes proposées dans le cadre de ce projet, nous citons le concept Maslow d’habitat intelligent low cost que nous développons à GreenTIC en collaboration avec le Professeur Serge Miranda de l’université de Nice Sophia-Antipolis en France. Le concept Maslow consiste à utiliser des solutions informatiques open source et terminaux télécoms omniprésents comme les smartphone combinés à des sources d’énergie renouvelables pour offrir, à faible coût, un environnement d’habitat avec une meilleure efficacité énergétique, un accès sécurisé et surveillance du logement à distance en plus de déployer rapidement des services à valeur ajoutée, pour décroiser des populations à revenus modestes ou géographiquement isolées, en développant des applications mobiles pour e-learning, e-health, e-gouvernance...

- 2) Le projet **Plateforme Living Lab Open Source Mobiquitaire Musée Virtuel de Casablanca** que nous développons à l’université Hassan II Casablanca pour la Ville de Casablanca en collaboration avec la Société de Développement Locale Casablanca Patrimoine, le Cluster Smart City e-Madina et l’APEBI.

Le projet vise à mettre en place une plateforme Living Lab Musée Virtuel de Casablanca pour promouvoir le patrimoine culturel matériel et immatériel auprès des casablançais et des visiteurs et les encourager à développer du contenu culturel et enrichir les ressources de la plateforme.

Cette plateforme sera basée sur des outils TIC (Technologie de l’Information et de la Communication) open source, mobiquitaires (mobiles et omniprésents) pour permettre aussi à d’autres acteurs citoyens ou professionnels de développer dessus d’autres services utiles. Elle adoptera aussi une approche académique pour la validation du contenu en s’appuyant sur les compétences de l’université et des experts reconnus dans les domaines des sciences sociales et humaines.

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Références :

- [1] Rapport 2011 des Nations unies sur les perspectives d'urbanisation du monde
- [2] Country environmental analyses World Bank
- [3] Smart cities in emerging countries, World Bank 2012
- [4] Le rapport e-learning Africa 2013
- [5] “New ICT-Based Architecture for Energy Management and Energy as a Service Concept in Smart Grids” by B. Sendama, A. Hayar and S. Bouferda, ICEER2013

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“Technology for participatory democracy”

Khalil Laaboudi, e-Madina

Former General Manager at APEBI – The Moroccan ICT federation

Co-founder and Vice-president at e-Madina

Introduction

The Smart City transformation is a citizen-centered process. The input of citizens through innovative ideas, practical participation and their contribution in governing the cities, play an important role in this process. Therefore, Smart City initiatives will and should also address the governing bodies of the cities to allow Citizen / Administration effective interaction.

The city’s elected officials and governors should be able to receive comments, questions and feedbacks from their electorate in a way suited for the 21st century.

This means that the communication between the officials and the citizens should not take time and effort anymore, from both sides. To help establish this modern relationship between government and citizen, e-participation and its related tools will be very useful.

According to most academic literature on the topic, e-participation is *‘ICT-supported participation in processes involved in government and governance’*¹. Following this line of thought, e-participation can therefore consist of all ICT-tools helping both elected officials in government and governance tasks and citizens trying to communicate (*as for the ‘C’ in ICT*) about related matters.

The role of ICT in local government improvement and especially in increasing democracy within the local governmental structures is significant. One aspect of this is that ICT innovations contribute to the accessibility to local archives and to elected officials by the citizens. When citizens have an easy access to their local government, the feeling of democracy grows and will increase their belief and support for the system. Secondly, ICT is able to increase the transparency of the

¹ See for example: O. Saebo, J. Rose and L. Skiftenes Flak: ‘The shape of eParticipation: Characterizing an emerging research area’, in: *Government Information Quarterly*, Vol. 25, No. 3, 2008, pp. 400-428.

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local authorities. By providing an insight in their activities, agendas and other related issues on websites or forums accessible for the public, the transparency of the institution increases as well. Thirdly, one of the most important aspects of democracy, especially on a local level, where the elected officials stand so close to their electorate, is trust. By using ICT to allow the communication between the authorities and citizens to improve, the public will have a higher level of trust in their elected officials. These three aspects are crucial parts of successful local democracy and are especially suited for ICT solutions, as will be discussed in this paper.

The tools for successful e-participation are usually collected on the local authority's website. These tools can include for example forums where citizens can discuss government related matters, a chat room where direct interaction between (representatives of) the elected officials and citizens is possible, question and suggestion forms on the website and of course the access to OpenData for all citizens related to their city or municipality.

One of the most innovative tools of e-Participation however, is a concept called e-Petitioning. Just like the regular paper variety, the petition, this is a tool used to enhance democracy within the governmental structures. It gives citizens the opportunity to put an issue that concerns them on the government's agenda by collecting support of other citizens by having them sign their petition.

Why e-petitioning is a smart idea for smart cities in Morocco?

The concept of supporting citizens' initiatives by means of petitioning has been recently added to the Moroccan constitution. Article 139 of the 2011 version of the constitution states it as follows: *" Des mécanismes participatifs de dialogue et de concertation sont mis en place par les Conseils des régions et les Conseils des autres collectivités territoriales pour favoriser l'implication des citoyennes et des citoyens, et des associations dans l'élaboration et le suivi des programmes de développement.*

Les citoyennes et les citoyens et les associations peuvent exercer le droit de pétition en vue de demander l'inscription à l'ordre du jour du Conseil, d'une question relevant de sa compétence²."

For the right to petition is now officially included in the Moroccan constitution, it is important to take this as a momentum to evolve this right into a successful tool for citizens and elected officials to improve their communication and cooperation.

² Moroccan Constitution 2011, article 139.

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Since the e-Petitioning movement is still new to Morocco, the following section of this paper will benchmark two European countries who have been working on e-Petitioning for some time now, with success. The two countries to be discussed are the United Kingdom and The Netherlands. Both countries have been using e-Petitioning initiatives with success for several years now. However, the distinct differences between the approaches of the two countries, shows the different options when implementing e-Petitioning in Morocco. After the benchmarking of these two initiatives, a Moroccan initiative will also be discussed as a possible starting point for implementing e-Petitioning in Morocco.

In the United Kingdom, the national government operates the website used for the e-Petitions. On this website, <http://epetitions.direct.gov.uk/>, all British citizens or residents of the United Kingdom can start a petition. The petition has to meet three basic criteria:

- Call on the government for a specific action
- Have to be a matter that is the responsibility of the government
- Do not substantially duplicate an existing open e-Petition

To start a petition, one can just enter the website mentioned above, provide their name, home address and email address, and direct the petition to the department of government the petition concerns. As soon as the petition is sent to the website, it will be checked by a government department, to see if it meets all the terms and conditions. If the petition is approved, it will be officially placed on the website and open to sign by all British citizens and/or United Kingdom residents for a complete year. If the petition reaches 100.000 signatures, the issue raised in the petition can be discussed in the House of Commons. The notification of the 100.000 signatures goes directly to the Backbench Business Committee, who deals with citizen's initiatives in the House of Commons. They can raise awareness of the idea in the House of Commons, but because of the political structures of the United Kingdom, there is still the need for a member of the parliament (MP) to make a case for the issue. ³

In the Netherlands, the e-Petitions are collected through a website created by public-private cooperation. The website www.petities.nl is managed by the foundation under the same name. Its

³ Retrieved from the United Kingdom's e-petitioning website: <http://epetitions.direct.gov.uk/how-it-works> 15/08/2014.

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founders are people who work in ICT in the Netherlands or work for a committee within the Ministry of Home Affairs dealing with civilian initiatives. The e-Petitions are divided between the responsible governmental bodies in the Netherlands, which are, due to the high level of decentralization in the country, very often local government authorities.

Creating an e-Petition in the Netherlands works similar to the United Kingdom's system in terms of having to register your contact details before opening a petition and the three general criteria it has to meet. However, on the Dutch website the verification of the petition is not done by the government, but by the webmaster of the site. This is a big difference, since in the Dutch e-Petitions, it is a (group of) private persons deciding on the validation of the petition where in the United Kingdom, the government decides itself if the e-Petition matches criteria. The threshold number of signatures that are needed to put the e-petition on the agenda of the Dutch parliament is 40.000. On a local level, the local authorities receive an email when one of the petitions is of their concern, but there is no official threshold linked to it and can be therefore influenced by the efficiency and interests of the local politicians. A reply from the local authority to a correct petition is however always mandatory.

In Morocco, the right to petition is fairly new, so initiatives such as the UK and Dutch examples are not yet in place. However, there are several interesting initiatives to be found that have activities related to e-Petitioning. An example of an existing format like that is Fikra.egov.ma. This website, which is part of the e-government strategy of the Moroccan government, has created an opportunity for citizens to post their ideas for Morocco on the website in order to get in touch with the government about this particular suggestion. One can register on the website, post an idea and get feedback from both the general public as well as the webmasters of the initiative.

There is another initiative in Morocco that is also called Fikra. This initiative however is owned by a private company and is more focused on the sharing of ideas with the general public. They focus more on improving and innovating Morocco as a whole instead of only influencing the administration.

What we suggest for Morocco is to start exploring e-petitioning on a local or city level.

By choosing this small focus, the citizens will start petitions on topics that are closest to their daily reality. It is far more likely that people are willing to sign an online petition on something that they witness happening on the streets in their neighborhood everyday, then on an issue that stands too far away from them.

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An interesting discussion in the field on e-petitioning is deciding on the threshold number of signatures needed to undertake action concerning the issue raised in the petition. We believe that there could be a system that progresses step by step simultaneously with the rise of the number of signatures. For example, a petition that gets a thousand signatures will trigger an automatic Tweet on the linked Twitter-account of the e-petition's website. This Tweet triggers more people to take a look at the issue raised in the e-petition. After for example 5000 votes, a press release on the topic is issued, generating even more awareness. The third step in this model could be that when an e-petition reaches 10.000 votes, an automatic e-mail is send to the Wali with the message that the concern raised in the e-petition, deserves direct attention.

In order to avoid people to sign the same petition over and over again, the same system is followed by both the UK's and the Dutch' initiative. They oblige the signer to provide their full name, home address and email address to the system to prevent double signing. One could also think of using social security numbers to secure the system.

Recent legal update:

Conclusion

The importance of social media in this context cannot be stressed enough. In an era where communication through social media can trigger all sorts of reactions and reaches out to millions of people, it can potentially be one of the most effective tools in enhancing public participation in (local) democracy.

From a Smart City's perspective, e-petitioning could become a way of easily creating an overview on the problems that have to be addressed in a particular city. To make this overview even easier, the use of an interactive map should be given some thought. When the city is selected on the map, you can also select topics that concern you to see if there are any existing e-petitions already on that particular topic. If so, you can go and sign it directly. If not, it gives you the opportunity to start the e-petition to raise awareness.

In order to organize the e-petitions in a structured and easy-to-find way, one portal that hosts all the incoming e-petitions is advised. This should preferably be a non-governmental body, since that enhances the thought of a citizen's initiative over a government implied idea. e-Madina and its already well functioning website could be the place where all the initiatives could be collected and

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evaluated at the same time. This makes sure that all Smart City initiatives in Morocco, whether it is e-Transport or e-Governance, go through one and the same channel, enhancing the accessibility for citizens. This is important because as was mentioned before in this paper, Smart City initiatives have to be citizen-centered in the first place.

Khalil Laaboudi

Co-founder and Vice-president at e-Madina

“Zones Intelligentes”

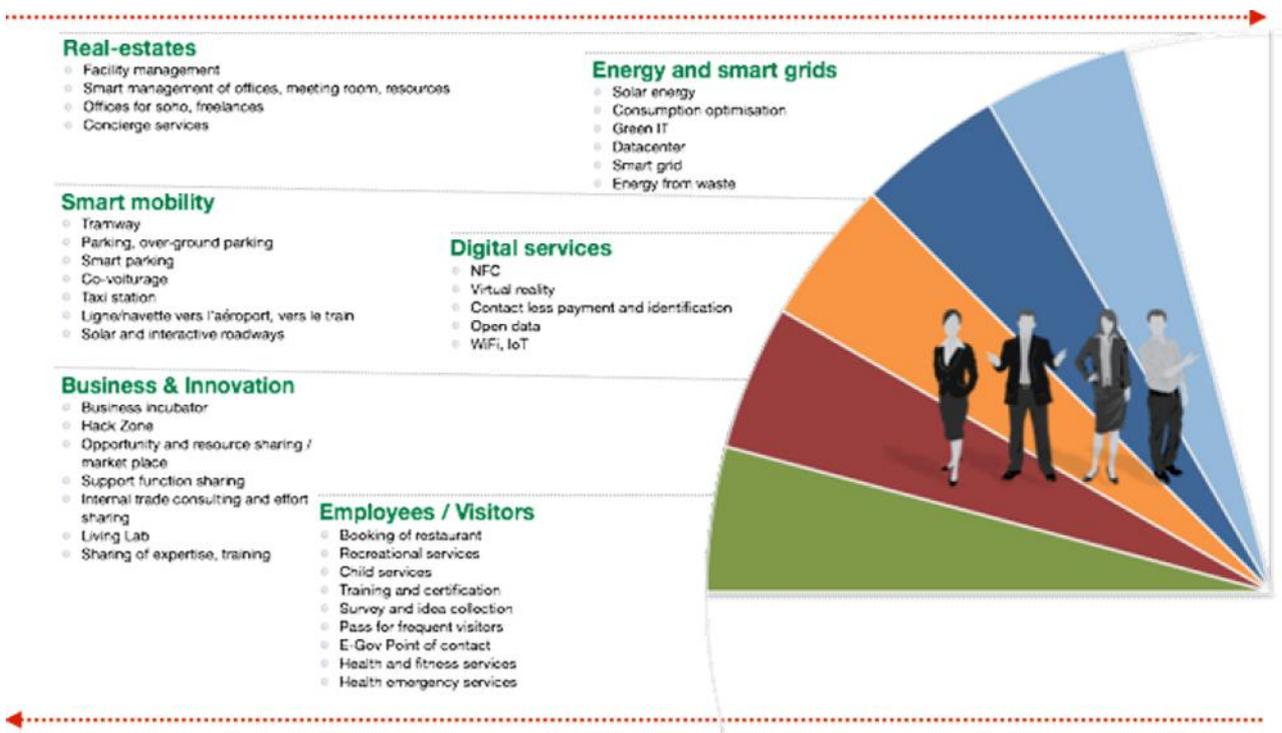
Mr Eric Pradel-Lepage Exxing, e-Madina Morocco

Economic Areas want to achieve breakthroughs through being more innovative and bringing more values to start-ups, businesses, employees and visitors while differentiating at local and international levels.

In the last 5 years, they became fully digitalized areas with very high bandwidth services and also have defined and communicated a clear positioning (offshore, agribusiness...) in order to address specific business segments.

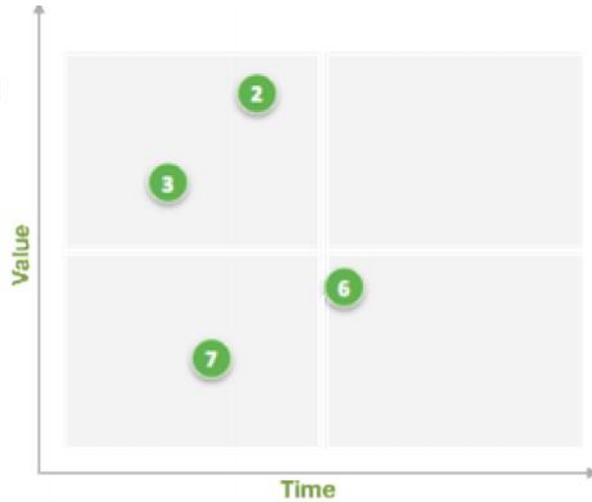
Nowadays, after resolving lacking key infrastructures and services (public transport, parking...), they are going smart through adding advanced services with a smart city approach: for instance smart mobility, pooling of support business processes, sharing of innovation...

They are developing smart services such as bellow:

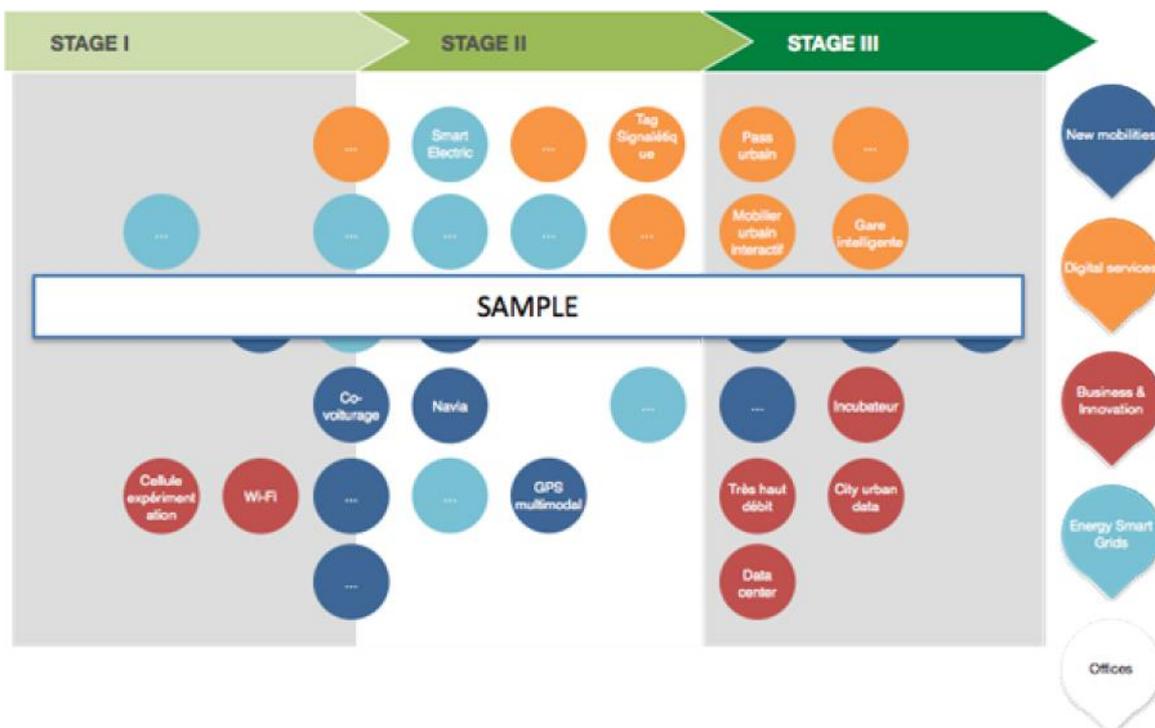


Each area context and positioning being different, this list should be completed and prioritized through:

- Brainstorming with local authorities, area managers, and area users
- Benchmarking of leading areas as well as closed context areas (same country development level, same area vocation...)
- Identification of solutions as well as start-up acting in the smart city filed
- Opportunity studies
- Ranking of opportunities against area strategic goals and value level for users

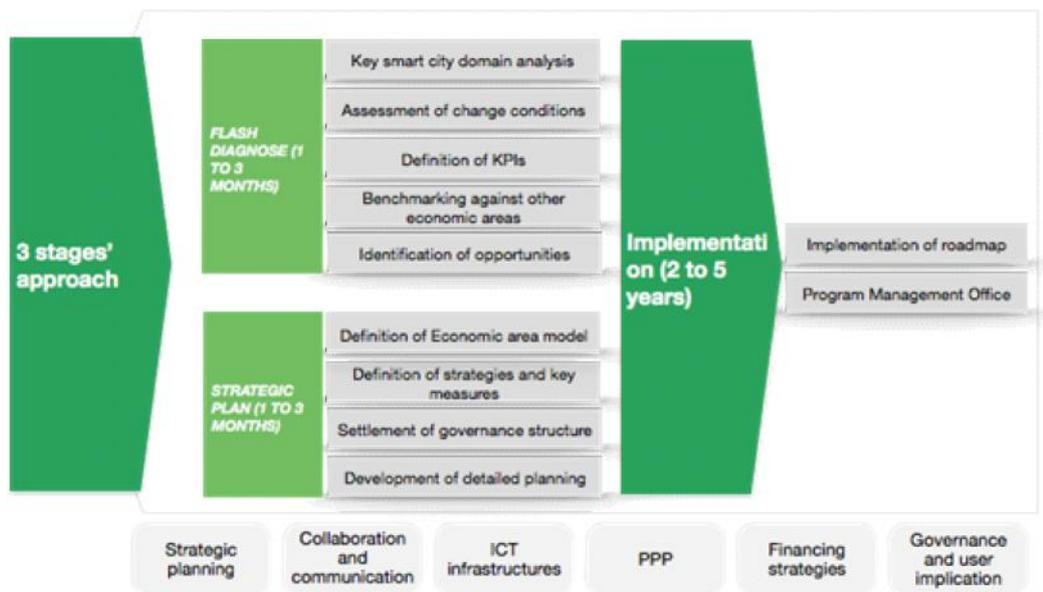


As result, area authorities should developed a comprehensive roadmap of infrastructures and services to be implemented, a governance model, a business case, and a detailed program planning.



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The smart Economic Area approach is composed of 3 stages: diagnostic, strategy, and implementation.



The invariants of Smart Economic areas program are:

- Experimental approach
- Very high bandwidth
- Open data
- Competition and cluster areas
- Innovation encouragement
- Dedicated and co-working office

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**“Citizen labs: Combining digital and social innovation. The case of Citilab in Barcelona”
Artur Serra and Javier Gonzalez Citililab Barcelona Spain**

Summary.

Internet has connected the world. Now the challenge can be to change it. “Smart City” appears as an strategy to do it. But how to combine this top down strategy with citizen engagement and participation? Citizen laboratories are new social structures that allow every citizen to develop their own innovation skills. In that sense, they can be instrumental in solving such problem: how to engage citizens in the definition and development of an smart city strategy. The paper will describe Citilab, a first citizen laboratory in Europe, considered a best practice by the European Commission (2013) and the World Bank (2014) in the area of civic innovation. This pioneer experiment is showing that it is possible to generate new social structures that can open the innovation system to large segments of population and engage them in an smart city strategy.

1. Cities and Smart City strategies in emerging countries.

Cities across the globe are facing a complex set of interconnected problems that, despite the increasing sophistication of the tools that are offered to resolve them, appear to only get worse over time. In the face of increasing needs and diminishing resources coupled with global financial instability, it is becoming difficult for City administrations to provide even the most basic services to a good share of their populations. With the world’s urban population overtaking the number of rural inhabitants in 2009 and continuing to grow, these challenges are becoming paramount, especially in emerging countries.

The Smart City model appears now as a solution for much of these problems. This concept is based on a city-wide deployment of sophisticated technology infrastructures capable of sensing what is happening in a city in fine detail – where cars are parked, which hospital beds are empty, what the

water quality in the river is, etc. ICT networks bring all that information together into an integrated overview of city processes and critical issues, while interactive control systems allow to intervene directly (re-scheduling stop lights, re-directing ambulances, etc.) to fine-tune this city-as-machine,

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adapting it to specific needs and circumstances.

This Smart City vision is a very technology-driven approach to understanding the way a city works. It can be a useful model, especially in old industrialized countries, for two main reasons: a) many of the underlying technology systems are technically mature and can potentially bring real advantages to the management of city services, and b) the integrated vision at the base of the Smart City model, where the key is not so much the single networks but the systemic impact of interconnecting them, draws our attention to the need for a fully cross-sector perspective.

Although after years of deployment of Smart Cities strategies, there are two particular aspects unsolved, aspects that can be extremely important for emerging countries:

- a) How to engage citizens in the definition and development of such new smart cities.
- b) How to create new jobs and opportunities especially for the young generation in the building of such cities of the future.

These issues are of paramount importance in emerging countries with maybe lower technology but with a superabundance of young human power increasingly trained.

We need a new vision of the cities of the future including not only technology but also people in the formula and both interacting in an open system. Most of cities still work like the old computer systems or telecom networks: they seem machines based in a centralized architecture designed and controlled by a reduced group of experts dressed in white coat. But in the Internet era, things are changing. End-to-end open architectures like Internet allow a design of the smart cities putting the intelligence of such cities in the “end” of the networks, it means in the citizen. This new approach needs changes, even radical changes in the political, social and economic structures of the cities. Smart cities can become laboratories, citizen laboratories, especially in emerging countries with an abundance of young people increasingly connected to the Internet.

2. Citilab of Cornellà de Llobregat (Barcelona): a first citizen lab.

Citilab⁴ is a center for social and digital innovation in Cornellà de Llobregat, an industrial city of

4. www.citilab.eu

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87.000 inhabitants in the periphery of metropolitan Barcelona. It is a citizen laboratory, a new kind of institution that offer the for the first time the possibility to every citizen in the community to start their own innovation project. The way Citilab proceeds is through a new approach called “learning to innovate”, connecting the world of education and the world of research and innovation putting citizens in the center of the process. The Internet has already connected and put almost every people and now every thing online. What we want to do with it seems the next step. We have already in place a new infrastructure connecting old economic, political and social structures. Maybe it is time to innovate the rest of the layers of our social fabric, as a learning process.

The Citilab vision started with the community networks of the 1990s, including Cornellanet and BCNet in Barcelona as well as similar efforts in Cleveland, Ottawa, and Amsterdam. At that time, the main goals were universal access and digital literacy. After a Global Conference on Community Network celebrate in Barcelona in november 2000, a new idea emerged. Imagine that everyone is already connected to Internet, now what would be the next step?. A small group of community networkers started to figured out that after universal access and digital literacy the goals would be innovation literacy for every citizen.

The first step for creating Citilab was to find a place, which the City identified in a restored textile factory. This was ideal for its symbolic value: if in the 19th century the factory was the center of civic life, in 21st century it will be the laboratory: in fact, people identify now Citilab with the building.

With the physical and digital infrastructures in place, the organization of activities started in November 2007, launching projects with two social groups: SeniorLab (helping the elderly to develop their own innovations using IT) and Edutec (helping kids open up to computational thinking: Scratch, Arduino, etc.). Over time, the model has been extended to other social groups, such as the Social Media Lab: Musiclub with local musicians, Sportic, with young football teams and GameAcademy with dropouts (“turning your hobby into your profession”) or the LaborLab, a laboratory for inventing new forms of work using ICT: “Don’t look for a job, invent your own project.”

The governance model was based on the public-private collaboration that was common in the Internet culture. The legat form is now a non-profit foundation. For the first time in Spain a municipality set up a foundation for civic innovation. Innovation foundation. The President is the Mayor of Cornellá, while Board Members include representatives from local companies as well as

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multinationals, the Catalunya Region, the University, and local civic leaders.

The main challenge of Citilab has been to introduce an innovation culture in the normal life of citizens, in the daily life of the city. The basic approach of Citilab is expressed through this question: “What do you want to do?”. The is the challenge this citizen lab offer to every newcomer: how to develop a personal and team-driven project through a dynamic work-in-progress learning path. The Citilab professionals play a role as “civic innovation agents”. They are trained with ethnographic techniques, high technologies skills, and project-based learning methodologies in order to help every “citilaber” to develop their own innovation path. Citilab is not an ICT school, not an academia. It is a citizen lab based in two hypotheses: everyone can innovate and everyone can learn to innovate. It doesn’t matter if the innovation is for starting a company or developing a public service, or just for fun. More than a center for entrepreneurs, Citilab is primarily a center for innovators. Public authorities and companies provide resources but also ask questions: they are equally invited to participate in discovering their own needs and setting up their own projects in their own organizations.

Step by step Citilab is introducing innovation to City Hall and also to local companies. Citilab currently has 7,000 registered users (they are issued a card like public libraries), which is almost the 10% of the population of Cornellá. The Citilab foundation works with an annual budget of 1.2 Million Euros (60% local government and 40% projects and services) and employs 25 professionals.

3. Citilab and the Smart City strategy of Barcelona.

But how does a citizen lab can help to develop an smart city strategy? Cornella de Llobregat is a city that belongs to the metropolitan Barcelona, a city that has been pioneer in Europea in the deployment of an smart city strategy.

Nevertheless, great cities like Barcelona still faces an unsolved problem: how to engage citizens in the strategy of design and building their own future as smart cities. In 2011, Citilab was invited by the IMI, Institut Municipal de Informatica of Barcelona to participate in a European project called i-City. <http://www.icityproject.eu/> The role: to develop a methodology for citizen engagement. This has been just the role of Citilab during the last three years. The methodology developped by Laia Sanchez, head of Social Media Lab at Citilab, is called 3H. It is based in a iterative process of

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understanding the context (HEAD), creating community involvement (HEART) and finally developing new applications and services (HANDS ON) in a fourth model approach (academica, government, companies and users). It has been already exported to Porto Alegre in Brazil. Emerging cities are facing the same problem: how to take profit of the wave of democratization of the public life for engaging a young generation of professionals and citizens in the building of the cities of 21st century. Citizen labs can be a possible solution.

Finally Citilab as center for social and digital innovation is concluding the iCity project developing a new digital platform for allowing every citizen to develop new services for the smart city. It is called SNAPPY City, a bridge between the SNAPP language and the iCity API system. Edutec is the Citilab' research group basically focused in studying how to teach computer science and technology, especially to children. At Edutec, they work with graphic programming languages – such as [Berkeley Snap](#)- to help kids and teenagers learn programming avoiding entry barriers such as syntax errors, keyword memorization, etc., that textual programming languages have. One of the cool things Edutec has recently been working on is SnappyCity, a bridge between the Berkeley Snap and the [iCity](#). The iCity is a platform that unifies a few sensor APIs from Barcelona and other cities.

<https://docs.apitools.com/blog/2014/10/06/snappycity-a-bridge-between-berkeley-snap-and-icity-by-edutec.html>

In summary, the role of citizen labs in helping to deploy smart cities strategies is still a work-in-progress. What is seems quite evident is that cities of the future will increase the role of citizens in defining their strategies and services if the want to be a more sustainables and resilient.

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“Legal Issues, Security in Cloud and open data in smart Cities”

Peter Van Schelven IT legal The Netherlands

1. Smart Cities, cooperation and trust

The development and maintenance of Smart Cities is a form of social innovation that requires the efforts of many people. Initiating, organizing and executing major and minor projects that substance to the sustainable design and development of cities require vision and commitment of managers in both the public sector, companies and financial institutes, academics, civil society and - last but not least – of the citizens of the city. e-Madina, which is the beautiful result of a broad-based cooperation in the city of Casablanca, makes clear that both cooperation and inspiring leadership are a pre-requisite for such a fruitful initiative. Social innovation in the city by means of modern enabling information and communication technology, will only be possible if the persons and institutions involved work closely together on the basis of confidence and trust. I express my sincere appreciation for the fact that e-Madina in Casablanca is characterized by such a confidence, with several inspiring key-persons performing as visionary pioneers and also executing lots of practical work. In particular Professor Aawatif Hayar, Mohamed Lakhlifi and Khalil Laaboudi should be mentioned in this context. In addition, the ambitious plans of the Governor, made public during the Workshop e-Medina on the 15th of December 2014, certainly will bring many good things to the citizens, companies, institutions and welfare and well-being of Casablanca. Undoubtedly one can say to Casablanca: "The best is yet to come ...!"

Trust is not only something with a strong personal and relational origin, of course it is also a social phenomenon. The lack of social trust can be seen as an obstacle in the development of a smart society. Therefor social trust should be organized, for example by means of a fair, effective, implementable and enforceable legal system and with people with integrity, skills, knowledge and a social heart. I am convinced that an adequate system of law can contribute to the establishment and growth of Smart Cities. It seems to me that an appropriate legal system is a necessary precondition. In the sphere of the development of Smart Cities the legal system should try to support and facilitate the assimilation of IT in many sectors (e.g. health, transport, education, culture, environment, energy, etc.). At least the development of the legal system should be kept in line with the relevant social and technological developments; law certainly should not prohibit,

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delay or frustrate social innovation and the assimilation of IT. Law should be used as an instrument in contributing the widespread use of IT solutions and IT innovations (e.g. Cloud Computing, creative apps, digital warning systems, Internet of Things, mobile health solutions etc.) in numerous areas in the city. Citizens, politicians and administrators should not boat on the compass of anxiety or fear of IT; legal solutions can address most risks and uncertainties in an appropriate and effective way. Anxiety, risk-avoiding policy- and decision-makers and the fear of making mistakes are indeed obstacles to social innovation, and so also on the development of Smart Cities. Bear in mind: “Nothing ventured, nothing gained...”

2. IT Law: some examples

Obstacles will appear when citizens fear that their personal data will be collected on a large scale or will be abused, e.g. by companies or government agencies. Infringements on the private life of people by misusing personal data frustrate confidence in IT and obstruct its assimilation. That is precisely why it is understandable that for instance the European Union is working hard nowadays in drafting a contemporary European Data Protection Regulation, which - compared to currently European data protection law - will increase the confidence of citizens and society in IT. Especially in the field of information security new obligations in the coming European legislation are under construction. The forthcoming legislation will for instance oblige companies and (public and private) organizations to perform PIA's (Privacy Impact Assessments) before new IT-systems will be deployed. Also, a new legal obligation will be introduced to enhance privacy safe technology in the “blueprints” of software and IT-systems (Privacy by Design). And there will be an obligation to notify data-breaches to the privacy authorities and the relevant citizens, e.g. in case of severe hacking, Ddos-attacks, cyber fraud etcetera. These new obligations are instruments to manage risks in IT, besides all the instruments that already exist nowadays (e.g. applying ISO-standard 27.001, Security as a Service in Cloud Computing, security provisions in hosting agreements, Cloud Secure services etc.).

Necessary for the development of Smart Cities is also that suppliers of IT, internet-services, telecommunication-services and data services – mostly companies - should not be confronted with outdated or oppressive legislation. Such legislation leads to frustration, unnecessary costs,

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avoidance or even fraud and lack of integrity. Law should be business friendly. Suppliers and service-providers need an adequate legal system. My experiences in the Netherlands learn that certain parts of law sometimes gets in the way of necessary innovation, due to too much legal obligations, law that does not meet the specific aspects of information technology or unnecessary bureaucracy.

In order to develop Smart Cities for the public sector it will be a great challenge to establish a legal infrastructure for new concepts, such as the concept of open data and open standards. Many PSI (Public Sector Information) in Casablanca is, as I was told, still recorded on paper and is only to a limited amount available in digital format. That requires a substantial digitization of PSI, which is costly although the technology for conversion to a digital format is available. Actually only PSI can be made available to the public on a large scale if the relevant data, documents etcetera are in a digital format. As a part of the strategy for Smart Cities the road to develop digital PSI should certainly be encouraged actively, just like it is done nowadays in the USA and Europe. In a policy about open data, the following principles can be applied. PSI involves:

- (I) making entire databases available
- (ii) to any applicant without any screening process
- (iii) in a standardized, broadly used open electronic format
- (iv) free of charge or with only a limited non-prohibitive fee
- (v) for any commercial or non-commercial purpose
- (vi) without conditions or on the basis of licenses with only FRAND-conditions.⁵

Not all PSI can be made open. In order to find a fair balance between the level of openness of PSI and other legitimate interests one should also consider relevant issues like the protection of personal data, the protection of Intellectual Property Rights (IPR) of third parties (e.g. copyrights on databases), the protection of trade secrets of third parties, contractual provisions about non-transferable data, the financial interests of the public entity or secret state affairs (intelligence).

⁵ FRAND = Free, Reasonable and Non-Discriminatory

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Searching for this balance the interests in developing Smart Cities should be taken into account.

For the public sector in Morocco another legal instrument is available: public procurement law. The Morocco Decree 2007 on public procurement can be used as an instrument to oblige companies to provide goods, services and works (e.g. public buildings) to the public sector that contribute to a sustainable society and social inclusion. In Europe public procurement is one of the most important and effective legal instruments in developing smart cities.

3. Assimilation of IT and Law: levels of development

With regard to the reaction of society in general and politicians and legislators in particular to new technologies or to the new application of already existing technologies one can identify four different stages. Each stage has its own "level" of legislation, from very poor and restrictive (i.e.: prohibitive) on the one hand to very mature (i.e.: assimilation supportive) on the other hand. The development from the stage of fear (the left column in the model hereunder) to the full assimilation and integration of IT (the right column in the model) goes along the lines of the following social and legal model:

	FEAR	ACCEPTANCE	RECOGNITION	ASSIMILATION
CITIZENS	Reject	Tolerate	Use	Integrate
COMPANIES	Resistance		Facilitate	
SOCIETY	Neglectance			
STATES	Forbidden	Control	Stimulate	Transformation
POLITICIANS	Prohibit			
LAW				

This "high-level" model shows that a free and unrestricted use of new technology or new



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technological applications is not obvious. Sometimes law stands between dreams, visions, aspirations and plans on the one hand and the execution of them on the other hand. That should always be kept in mind while trying to develop Smart Cities. For that reason it is necessary that wherever dedicated people (like I met in Casablanca) will work on the transformation of cities into Smart Cities the legal system, including in particular law that affects IT and social innovation, should always be subjected to special attention.

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Short biography of the authors



Mr Khalid Safir, Wali du Grand Casablanca

M. Khalid Safir has more than 22 years of experience in managing government projects in Morocco in different fields; including but not restricted to Finance, Economy, ICT for improving government departments... He has joined the ministry of interior as Governor in 2009 and the Ministry of Economy and Finance in 2011 as Secretary General before becoming The Wali of the Greater Casablanca in October 2013.

M. Safir is born in 1968 and has four children. He graduated as engineer from Polytechnique Paris in 1991 then from ENSAE Paris in 1993. He also has a certificate in Management Strategies for an Effective and More Accountable Government from Royal Institute of Public Administration in London.



Mr Mohamed Lakhlifi Senior Vice-president at CGI (Canadian IT services company); Co-founder and President at e-Madina

M. Mohamed Lakhlifi has 25 years + of information systems, consulting and ICT experience in Europe, North Africa and North America. He conducted several digital transformation projects for multinational clients across industries and managed highly skilled teams in complex outsourcing projects.

Nowadays, he is heading a 700 people team at CGI Morocco in Information Technology Outsourcing and Business Process Outsourcing activities. He is also committed to professional associations, including the Moroccan Information Technologies, Telecom and Offshoring Federation (APEBI) where he sits as a board member after being elected president for the mandate 2012-2013.

He is co-founder and President at e-Madina Cluster, Casablanca's Smart City Public-Private-Citizen Partnership. He also sits at different boards of ICT associations and clusters.

M. Lakhlifi is born in 1961. He is married with two children. He graduated as engineer from ESIAL in 1987 and MBA from ESCP Paris in 1996.

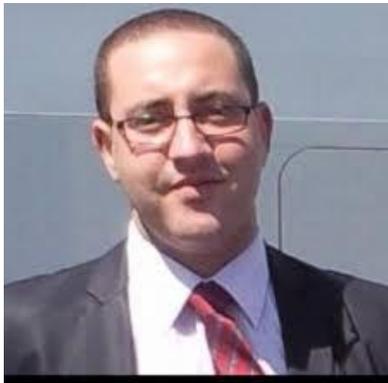
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Prof. Aawatif HAYAR, Professeure à l’université Hassan II Casablanca, Centre de recherche GREENTIC, Vice-présidente à e-Madina

Prof. Aawatif HAYAR received, with honors, the “Agrégation Génie Electrique” from Ecole Normale Supérieure de Cachan in 1992. She received the “Diplôme d’Etudes Approfondies” in Signal processing Image and Communications and the degree of Engineer in Telecommunications Systems and Networks from ENSEEIHT in Toulouse in 1997. She received with honors the Ph.D. degree in Signal Processing and Telecommunications from Institut National Polytechnique in Toulouse in 2001. She was research and teaching associate at EURECOM’s Mobile Communication Department from 2001 to 2010 in Sophia Antipolis-France. Aawatif Hayar has created in 2010 with the support of University Hassan II Casablanca the Research Centre GreenTIC. She is currently with this R&D Organization (Morocco) as General Secretary and expert in cognitive green ICT field and Smart Cities. She has also joined in 2011 the engineering school ENSEM at the University Hassan II Casablanca in Morocco. Aawatif Hayar is also member of Casablanca “Avant-garde” City think-tank and co-founder of e-Madina smart city initiative which aims at developing and promoting new Sustainable Social Smart city model for Morocco. Her research interests includes fields such as cognitive green communications systems, UWB systems, **smart grids, smart cities, ICT for social eco-friendly smart socio-economic development**. Aawatif Hayar is currently leading or involved in a R&D projects with CNRST, Lydec, GIZ and Heinrich Böll Stiftung Foundation on Social Smart grids and Social Smart Home Living Labs. Aawatif HAYAR was also environment activist with the association “Il était une fois la terre” in France dedicated to eco-citizenship education and sensitization from 2004 till 2009.

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Mr Khalil Laaboudi Co-founder and Vice-president at e-Madina

M. Khalil Laaboudi has more than 10 years experience in consulting, diplomacy, management of public-private projects and professional associations. He is co-founder of e-Madina - Casablanca Smart City Cluster and former General Manager at APEBI – Morocco’s Information Technology, Telecommunication and Offshoring Federation (2013-2015). During this last period, he had an important role in developing APEBI’s ICT export strategy for 2020. He successfully coordinated several public-private discussions on the ICT vision for 2020 in Morocco. He led internal reorganization projects and optimization of work flows and processes at the federation. He also developed the federation’s ties with international organizations and networks.

He is a problem solver, distinguished negotiator and mediator and practiced in building trust between different stakeholders. In a previous experience, M. Laaboudi worked on developing bilateral B2B and G2G relations between the Netherlands and Morocco through communication, business support and lobbying.

M. Laaboudi is born in 1982. He holds a Bachelor degree in Marketing from ENCG Settat - Morocco, a Masters degree in Project Management from EHTP - Morocco (Ecole Hassania des Travaux Publics), a Masters degree in Geopolitics from King’s College London – as a Chevening Scholar in the United Kingdom, and several certificates: Applied Pyschology (Harvard University); International Relations (Oxford University); International Negotiation (Clingendael Institute for Diplomatic Studies – The Hague).

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Mr Eric Pradel-Lepage Director Exxing Maroc, Co-founder e-Madina

M. Eric Pradel-Lepage has co-founded the Smart City cluster e-madina in Morocco (e-madina.org). He is also founding partner of Exxing Strategy Consultants (exxing.consulting), a strategy advisory firm specialized in strategy, investment, M&A, innovation, and program management in TMT (Telecom, Media, Technology). Since the beginning of the nineties, Eric has been involved in the business strategy definition, launch, and transformation of several fix and mobile telcos as well as digital communication infrastructure for local authorities, and digital service industry (data center, call center, banking...). Eric has an extensive consulting experience in TMT, government, and industry in North Africa, Europe, and Middle East. His aim has always been to link up economic and social development to innovative technological solutions. Eric Pradel-Lepage is an Engineer graduated from Ecole Nationale Supérieure des Télécommunications (France), Kedge Business School in Corporate Finance (France), and executive education at Insead in Corporate finance (France).

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Mr Gilles Betis, IEEE Smart Cities Initiative Chair

M. Gilles Betis leads the Urban Life and Mobility action line of EIT ICT Labs (www.eitictlabs.eu). He is also chair of the IEEE Smart Cities Initiative (smartcities.ieee.org). Since the end of the eighties, Gilles has been involved in Thales in the design of complex systems. He has an extensive industrial experience in IT transportation systems, anytime in an international and multi-industrial environment. At the time he joined EIT ICT Labs, he was Smart City and Mobility Solution Leader in Thales Communication and Security. Holding positions of product line manager, marketing manager and solution leader, he has been constantly involved with prospective, innovation and product design matters. Through a holistic systemic approach, his goal has always been to link up emerging behaviours and societal needs to innovative technological solutions, allowing a smooth adoption by final users. Gilles Betis is an Engineer graduated in 1987 from Ecole Supérieure d'Electricité in France.

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Dr Artur Serra is the Director of Research and Innovation at Citilab

Dr Artur Serra has a PhD in cultural anthropology from the Universitat de Barcelona (UB) and for the past 15 years, he worked at technological research institutes such as the Universitat Politècnica de Catalunya (UPC), the Centro de Aplicaciones de Internet (Centre for Internet Applications) and the Fundación i2cat. For my PhD thesis, he analysed “a tribe” of computer programmers and their research projects at the School of Computer Science at Carnegie Mellon University in the United States, where he conducted my field research from 1990 to 1993. Upon my return, he started working at the UPC where he was hired as a researcher as part of COMIC, a European project focused on systems design for Computer Supported Cooperative Work that was looking for an anthropologist. At the same time, he started several citizen networks within the city of Barcelona as part of the European project Eptelio. Vicenç Badenes, who was working for the Cornellà City Council at the time, contacted me, and we started the network CornellàNet. Thus far, he has tried to combine these two lines of research and innovation – a more technological one in conjunction with the UPC and the Fundación i2cat, aimed at developing new kinds of architecture, applications and services for the new Internet, and one more social in orientation, aimed at fostering an innovative knowledge society for all citizens, which has resulted in the Citilab project. Technology and culture can be the building blocks of this era, much like science and economics still are, and religion and war were in earlier societies.

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Mr Javier González Abad, is the Managing Director of the Citilab.

M. Javier González Abad has joined to daily activity this week, substitutes Vicenç Badenes, founder and managing director of Citilab from the centre's opening in 2007 to his sudden death at the end of July.

Javier González Abad has an university degree in Telecommunications and he is Master in Bussiness Administration from the Universitat Politècnica de Catalunya (UPC). He accumulates 15 years of professional experience mainly developed in bussiness managing of technological services companies. He knows the bussiness world as the founder of a company related to electronic communications and relationships managing oriented to satisfaction and service quality. The Citilab in Cornellà was conceived in 1997 thanks to an initiative of a group of people headed by Vicenç Badenes, back then Alderman of Culture and Education of the city council of Cornellà. In those days, Badenes was one of the driving forces of Knowledge Society. The project was born from the idea that digital technologies, and specifically, the Internet, can be considered as an innovation system much more focused on citizens. The centre opened its doors on November 2007 and it is an initiative promoted by the Fundació Privada pel Foment de la Societat del Coneixement.

Citilab is a civic laboratory that aims to initiate lines of research and innovation that are of civic interest in two ways: based on direct citizen initiatives or by participating in projects initiated by universities, companies, administrations or institutions. My work consists of trying to make these two directions truly innovative and participatory, ensuring that they include both a social and digital component and generate personalised learning systems for innovation that are radically different from current educational systems. Finally, I try to make Citilab a place for research and innovation into these new and more open, digital and participatory systems of research and innovation, the systems of what is known as the knowledge society.

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Mr. Peter van Schelven is a self-employed Legal Counsel from the Netherlands

M. Peter van Schelven is working in the field of IT, Internet and Law since 1984. As such he is working as legal consultant for several companies, mainly on subjects like IT- and E-commerce contracts, software-development, Cloud Law, data-protection, intellectual property rights, public procurement and IT-disputes. During 1999 - March 2014 he was the manager of the legal department of ICT~Office, the Trade Association of the Dutch IT-industry, mainly involved in consulting and (legal) public affairs. He was also managing director a.i. of ICT~Office.

During 30 years he is (guest-) lecturer on several subjects of IT-law at the Erasmus University Rotterdam and at some other commercial and post graduate institutes. Amongst his several secondary jobs Van Schelven is a member of the non-executive Supervisory board of SIDN, a foundation that is responsible for the Dutch domainname.nl.

Peter van Schelven is an IT-arbiter and a member of the Executive board of the Dutch foundation for the Settlement of IT-disputes.

He wrote several books and articles, e.g. on software-law, IT-disputes and IT-Mediation.