

Putting Life to Smart City Project Portfolios (The Role of Innovation in Smart Cities)

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1 ABSTRACT

What if you'd find most of fascinating resources for your smart me up project in a way you never would have had access to by regular means?

What if you'd be found by smart me up projects you never would have thought of in terms of your skills and other resources being needed there urgently?

Being found by and recommended to projects rather than searching incomplete databases for hours and longer is the future habit for resource owners!

Being proposed to suitable resource owners rather than communicating via all channels with high costs and weak results is the upcoming scenario for project sponsors and managers!

And resources will contribute to each initiative by taking money or even in-kind because it's cool and good for the image and/or great to contribute something important to the society in a useful manner and being recognized for by many stakeholders.

So therefore the paper will introduce www.makerSQR.com as a means to match projects and resources via context-sensitive, self-learning and multi-language matching in order to fulfill the above promise.

It will also highlight www.helloSQR.com as brand new mobile app, allowing community building based on shared and skill based interests of people.

2 SMART CITY INITIATIVES ON THE GLOBE

2.1 Some basic observations

During several Web research nights it was easy and astonishing as well to find more than 900 Smart City projects around the globe and proud to say, that many of them are to be found within Europe. Of course the Asian and Indian room puts much emphasis on such engagements and US honestly admits to be behind in this case and catches up like hell while claiming, that their number of metropolises is limited compared to the size of the continent, however the metropolises are not ;)

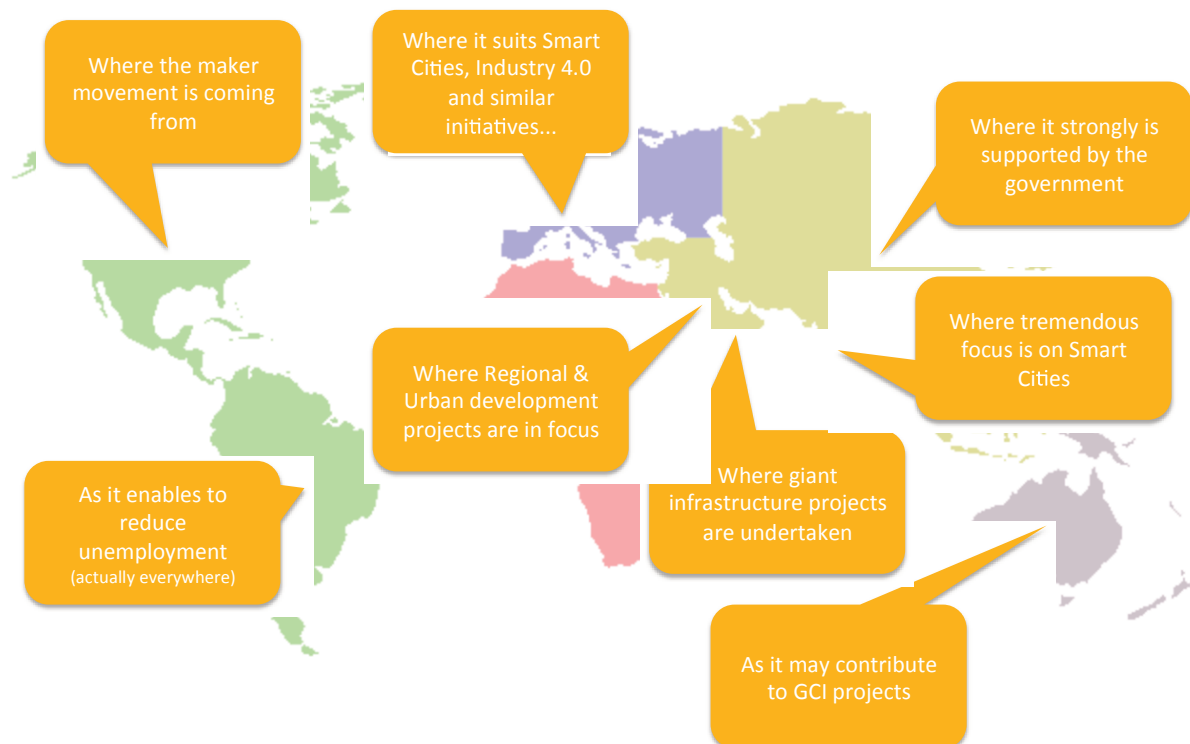


Fig. 1: Corner stones of Smart City initiatives per geographical region

2.2 Scope and Sponsors

Government as sponsor of Smart City initiatives intends to combine industry and citizens to making related projects happen.

Industry could join in as sponsor as well and some citizens are makers in difference disciplines.

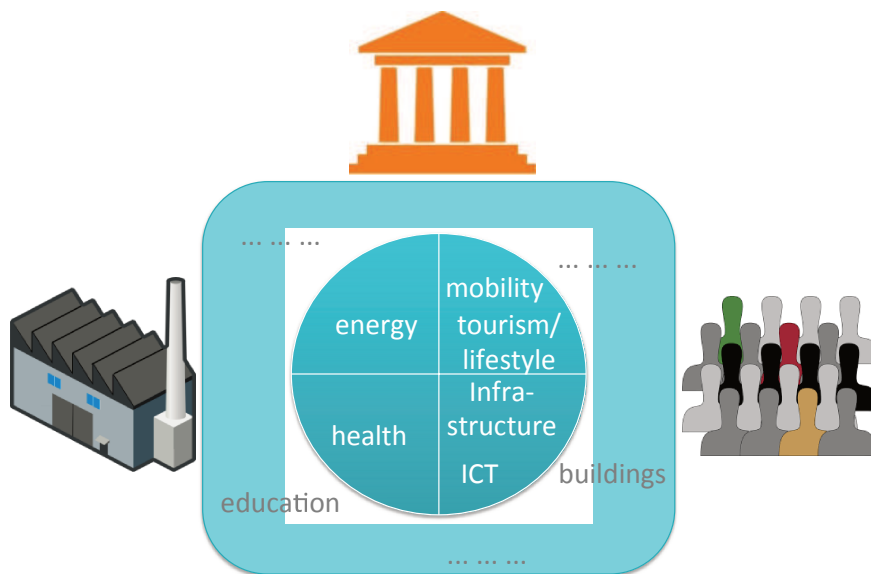


Fig. 2: Scope and sponsors of Smart City initiatives

2.2.1 Project Portfolio

Each Smart City undertaking defines its project portfolio according to the targets as set out to be achieved during the course. This bunch of projects deserves sponsoring from city government or industry or luckily from both sides.

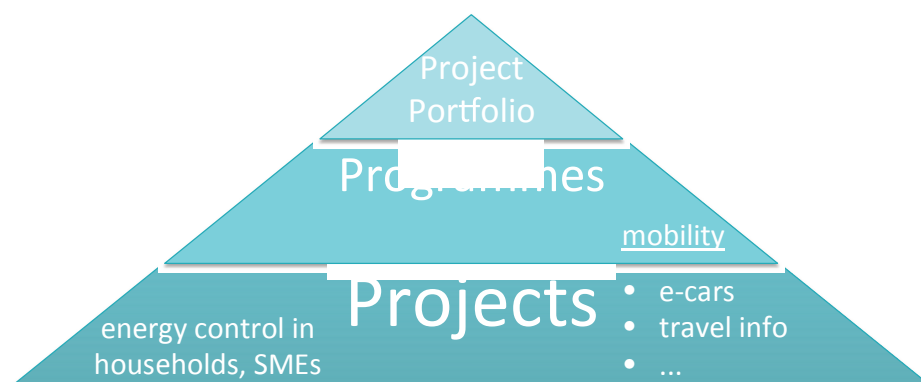


Fig. 3: Project pyramide

Each project looks for proper staffing. On one hand, institutional resources are identified in the starting phase and soon it's becoming clear, that there's more to come. Successful involvement of corporate and individual resources – called citizens ☺ - is the name of the game – also in order to ensure high acceptance of project objectives and outcomes.

Irrespective of the target areas, scope and focus of Smart City programmes, be it on energy, mobility, infrastructure, buildings, health, education, tourism/lifestyle, ICT and many other domains of daily living, the question is always on looking for candidate resources to make the dreams come true.

Proper resources, both non-human and especially skilled human ones are definitely hard to find in order to guarantee success per project.

2.2.2 europeansmartcities

University of Technology Vienna updates on a yearly basis their benchmarking base of finally 90 cities between 300.000 and 1 million inhabitants from 21 countries. The following illustration shows an excerpt of three cities compared amongst each other and versus average pattern in the spider web.

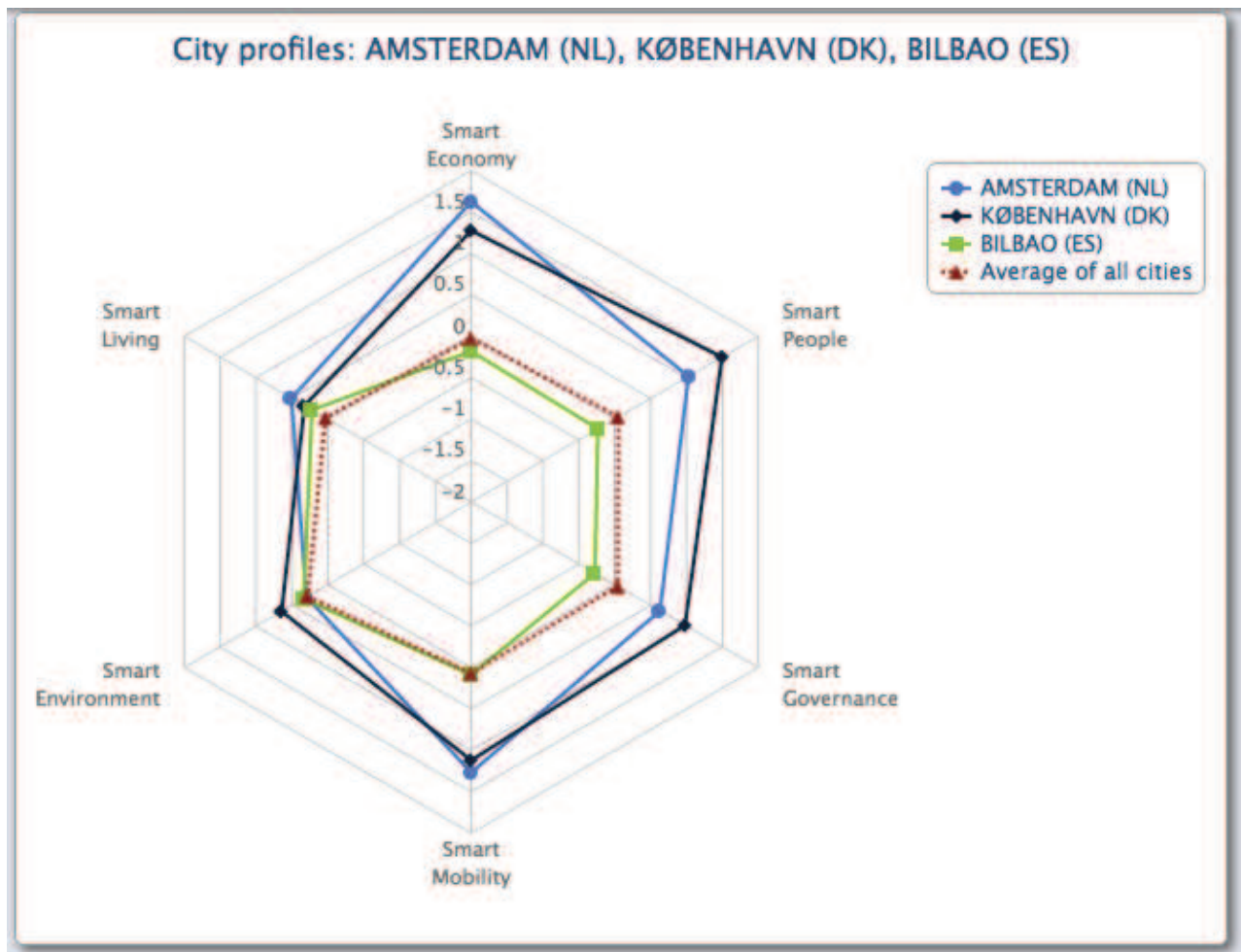


Fig. 4: Benchmarking European Smart City initiatives

3 THE MAKER SCENE AND MAKERSQR

3.1 The maker scene

Maker Movement Numbers:

- 135m US adults are ‘makers’ doing craft activities
- by 2017 50% of IoT solutions will be provided by startups no older than 3 years (gartner)
- maker fueled businesses pump \$29bn into economy per year
- by 2017 3D printing market will hit \$5.7bn (forbes)
- crowd funding: >\$5bn total ever, \$93bn by 2025 (world bank)
- Maker Faire: 131 events worldwide (2014), x10 visitors since 2009
- 550+ Fab Labs in 40 countries // Techshop expanding to Europe
- President Obama hosts Maker Faire White House (2014) & ‘Week of Making’ (2015)
- More Facts:

THE MAKER MOVEMENT

is shaping the future of our economy.

THE NUMBERS ARE RISING...

“
This **Maker Movement** puts power in the hands of the people to *fund, design, prototype, produce, manufacture, distribute, market and sell* their own goods.
”


-Jeremiah Ouyang
Web strategist and industry analyst

57%
of U.S. adults are *Makers*.
(135 Million Americans)


Maker Faire
There's been a 62% rise in attendees at the *National Maker Faire* from 2009-2013.

THE WHITE HOUSE
held its first *Maker Faire* in June, 2014.


...BECAUSE MAKERS HAVE ACCESS TO MORE RESOURCES.




3D Printers



Laser Cutters



Computer-Aided Design Programs



Open-Source Hardware

By 2025, the *crowdfunding investment market* is projected to hit
\$93 BILLION.

By 2025, the *3D printing industry* is poised to grow to
\$4 BILLION.

3 million people pledged over
\$480 MILLION to crowdfunding projects in 2013.

200+ HACKER SPACES exist across the U.S.

THE MAKER MOVEMENT IS GROWING LOCAL ECONOMIES.

For every \$100 spent in independent stores, **\$68 RETURNS** to the community.
(If you spend that in a national chain, only \$43 stays local.)

If 1/2 the employed U.S. spent *\$50 locally each month*, **\$42.6 BILLION** would be generated in revenue for local businesses.

48% of large manufacturers plan to *return production to the U.S.* from offshore sources.

THE MAKER MOVEMENT ISN'T JUST A HOBBY.
It's creating real businesses.

It contributes to *28M small businesses* in the U.S. that create
2 OUT OF EVERY 3 NEW JOBS.

In 2013, VC's pumped **\$848 MILLION** into *hardware startups*—nearly twice the prior record of \$442 million set in 2012.

8 MILLION NEW JOBS were created by small businesses since 1990. In the same time, big businesses eliminated 4 million jobs.

Sources: [dupress.com](#) [kickstarter.com](#) [nytimes.com](#) [online.wj.com](#) [pbcdesign007.com](#) [pls.org](#) [sba.gov](#) [the350project.net](#) [usatoday.com](#) [whitehouse.gov](#)

3.2 makerSQR

3.2.1 mission & objectives

People: Enable every curious human to collaborate on innovation and creation of knowledge.

Innovation: Appoint 'impact by innovation' as new status symbol.

3.2.2 Fields of makerSQR application in general

The service is offered / will be offered by aiming at three areas of application and smart me up initiatives are one of them.

A: Prosumer - collaboration with the hidden gems

Market:

- maker, do-it-yourself, open research communities
- private enthusiasts, tinkerers, inventors, hobbyists
- students // recovering academics

- unemployed people
- retired people, increasingly ageless and connected
- mooc customers // gain advantage from new skills
- non-mainstream sciences

Product:

- freemium pricing model: Content is public (free) or private (paid)
- no geographical limits with matching and visibility.

B: Enterprise - adopt the spirit of the maker movement to the corporation

Market:

- corporate innovation process optimization (tools & methods for ideation mostly don't care about succeeding processes like sourcing)
- enterprises seeking easy 'soft start' into open innovation
- enterprises seeking new way of sourcing beyond limits of vertical organizations and employee skill sets
- (open) science & research labs
- \$1.6 trillion (2014) global r&d market

Product:

- saas or on premise
- classify specific content as public or private, enables open innovation sourcing in any grade from internal use only to fully public
- matching service includes classified content
- on premise data security: no sensitive data outside company infrastructure.

C: Regional - make cities and regions even smarter

Market:

- smart city / region initiatives & councils for local economy boost
- local communities
- governments // disaster recovery (fema) // cdc
- universities // schools
- all makerSQR prosumer audiences with significant local focus and desire for individual gui design

Product:

- global scope, local focus
- optional limit for geographical availability
- individual gui design // selectable subdomain
- matching service includes content outside region.

,Talent is not universal but it is widely spread. Give enough people the capacity to create, and inevitably gems will emerge.' – Chris Anderson

3.2.3 Market Place – the SQaRe for makers

Several stakeholders benefit from being part of the makerSQR content base; Smart Cities are in focus of the makerSQR service offering.

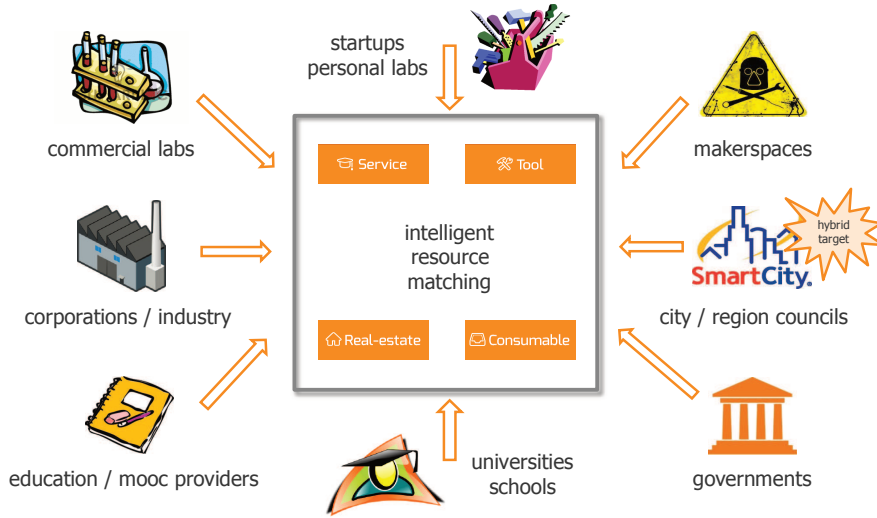


Fig. 6: The makerSQaRe (market place and mathematic meaning)

3.2.4 Business Process

Matched projects and resources directly start their negotiations; haven worked together, produced outcomes may become part of the lab which leads to content registrations of such results as resources for further projects.

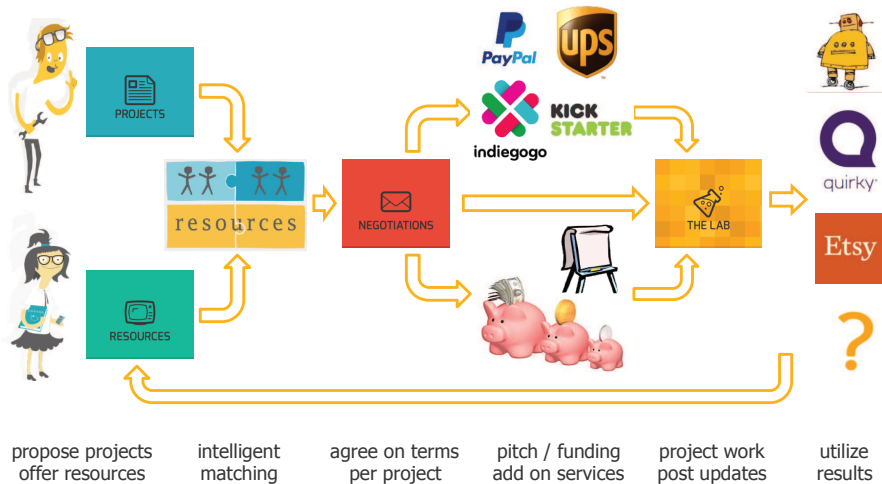


Fig. 7: The makerSQR business process

3.2.5 Project Cycle Scope

The makerSQR functionality covers planning and financing of projects being published on the portal for finding resources via the matching algorithm and money via campaigns to be formed.



Fig. 8: The makerSQR project cycle scope

3.2.6 Corporations meet Makers

Famous brands meanwhile showing up at maker faires due to increased professionalism of the crowd as demonstrated by their exhibition objects.



Fig. 9: Impressions from maker faire bay area and NYC

4 SMART CITY INITIATIVES SUPPORTED BY MAKERSQR

4.1 Focus Areas in Smart Me Up Initiatives

The table lists some topics of municipality responsibilities to be in focus of a Smart City initiative.

Candidate focus areas	Description of focus areas in a city (addressable by SC init.)
General Administration	Main office/agency, personnel, statistics, controlling, press, ...
Finance	Treasury, tax, real estate, defense, ...
Public Safety	Legislation/justice, insurance, fire brigade, police, ...
Education	Schools, universities, life-long-learning / adult education
Health Care	Organizations/institutions/persons, facilities, rules and processes to improve and maintain health of population
Social Affairs	Service (documents, IDs, information etc.), labor affairs, immigration / integration, leisure time / culture
Colonization	Area development (regional/spatial planning for structured usage in terms of environmental, economical and social opportunities), housing, building supervision and maintenance, garden & parks
Technical Infrastructure	Innovation and asset management for demand oriented supply, buildings and BIM, parks, places, ...
Energy and Water Management	Energy supply, alternative energy, quality of water, water supply, sewage
Traffic & Transportation	Individual traffic, public transport, data traffic
Environment Protection	Waste management, climate protection, sustainability, disaster management
Tourism	Development plan, investments, marketing
Internationalization	Support – outgoing, support – incoming, public relations, legislation
Business Development	Municipality strategy oriented actions to enable/support further improvement and innovation in related areas

Fig. 10: Focus areas of municipalities

4.2 Smart Programmes and potential contribution by makerSQR

4.2.1 ... in Smart Cities

makerSQR supporting Smart Cities (SC)

- companies/academia with their SC related projects and resources in one place
- more intensive matching of initiatives
- amongst companies by also focusing on SME
- and with skilled students, employees, unemployed and retired persons
- plus non-human resources as offered by organizations and citizens
- people growing to smart citizens

4.2.2 ... as well as in Smart Regions / Districts

makerSQR supporting Smart Regions (SR)

- Regional development programs by maintaining core competencies of the respective region or helping to let evolve a new regional identity by
 - supporting clusters
 - backing concepts on improving mobility within the region
- Re-animation of industry zones by
 - enabling zone management to become even more attractive as place to be
 - linking companies within the industry zone with further candidate partners.

4.2.3 Hooking up with suitable, complementary services – i.e. housing

“iwondo” is the first smart online platform in Austria enabling people looking for new space to rent, search the internet for available postings, investing a great deal of time and energy - often with less than satisfying results. As affordable rentable space is becoming increasingly scarce in metropolitan areas all over the globe, tenants are frustrated due to the intense competition for a single apartment, while landlords have a hard time picking out candidates that meet their expectations. It is getting more and more usual for potential tenants to submit applications including not only “hard facts” concerning the real estate but also personal information in the hope of appearing in a favorable light. This has created a real estate market that brings about a lot of unnecessary trouble for both sides – tenants who are forced to write one application after another and landlords who are flooded by a countless number of submissions.

“iwondo” has been developed to revolutionize the system in place by giving searchers a one-time opportunity to present themselves in their own words and to choose which information they wish to display. A specially designed smart algorithm matches the searchers’ profiles with the best-fitting objects. The apartments cannot be viewed by just anyone who happens to stumble across the platform; rather, future tenants are selected by the smart “iwondo” algorithm and presented with the ideal choice for their purposes. Especially in growing cities and congested urban area, the “iwondo” principle will be path-breaking in saving both tenants’ and landlords’ time as well as money. In the context of Smart City solutions “iwondo” increases the overall efficiency of the real estate brokerage.

“iwondo” is currently a fully accessible online service with a growing user base. Setting up a profile is free of charge for the tenants. Landlords will be paying a monthly fee for unlimited access to the platform’s database and a commission for every matched object rented or sold via “iwondo” real estate platform.

Although currently designed to meet the requirements of the Austrian market, the potential of “iwondo” has been recognized by real estate professionals from other European countries, who have voiced their interest in this revolutionary Smart City product solution.

4.3 Intelligent project : resource matching

The key elements are:

- no categories
- learning
- suggestions
- ratings

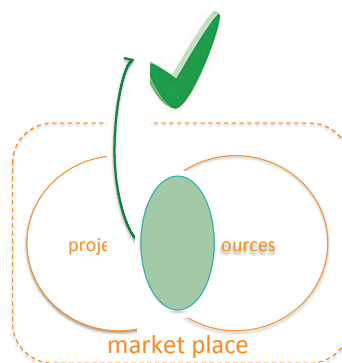


Fig. 11: intelligent matching algorithm

The makerSQR matching algorithm

- requires no categories // has no focus on traditional mainstream
- delivers context sensitive matching results
- continuously learns about user's topics of interest
- considers ratings in various criteria
- still allows personal touch & recommendations
- is adjustable with personal preferences
- collects metadata on topics, demands, locations,
- is accessible via api for partner & white label services
- is designed to achieve cross language matching in future.

5 CURRENT STAGE OF MARKET ENTRY

5.1 Geographical dissemination

- US: helloSQR was at Launch Festival San Francisco March 2016, makerSQR with US investors, UC of Berkeley, Singularity Univ., major automotive producers, initial Smart City projects may support Palo Alto, San Jose, Fremont
- EU: helloSQR to be introduced and used during major events like Pioneers Festival and European MakerWeek, makerSQR in cooperation with makerspace of BMW Group Munich / UnternehmerTUM, with organizations in transportation sector; Smart Region projects addressed via applications for public funding as consortium member in cooperation with universities and R&D organizations; Smart City projects may concern Hamburg ;) as first European metropole going with makerSQR and having started with Cisco at Smart Port
- Further geographical regions to be approached according to investments into makerSQR Inc. and/or based on opportunities as given via multipliers and international organizations as strategic partners – i.e. incubators, accelerator programmes, transportation sector, etc.

5.2 Content

Smart programs ask for content generation and in this case overcoming the classical chicken-egg syndrome regarding content on b2c respectively b2b side first vice versa.

5.2.1 helloSQR

Apart of having Smart City projects in focus of makerSQR due to government, corporates, NPOs, education sector, related projects and inhabitants in one place, we enable individuals to form communities of inspiring and interesting people via an Intelligent Networking Companion called helloSQR. It finds relevant people based on professional and personal interests who are currently around and suggests who to say “hello” to.

Decision makers of smart city initiatives may recommend this service as an initial/additional step prior to applying makerSQR as the content base for intelligent matchings between members of such communities and projects of the smart city project portfolio to support staffings and even foster innovation leading to

5.3 Incentive Model for Smart Regions/Cities/Districts

First movers will be incentivised via benefits accrued during the growth phase as per our go-to-market process. Such benefits could origin from discounted usage of future payable services, portions out of revenues/ebit gained on total international business.

Because of strongly networked matching transactions within and between regions, enterprises, organizations, further entities and resources, we assume it makes sense to having initial partners participating on the overall business success rather than trying to relate to separated segments - more to come!

6 CONCLUSION

‘The reality is that most of the world’s smartest people don’t have the right credentials. They don’t speak the right language. They didn’t grow up in the right country. They didn’t go to the right university. They don’t know about you and you don’t know about them. They’re not available, and they already have a job.’

Chris Anderson, Author of ‘Makers – The New Industrial Revolution’

‘If at first, the idea is not absurd, then there is no hope for it.’

Albert Einstein

7 REFERENCES

TU Wien, europeansmartcities. <http://www.smart-cities.eu/?cid=5&city=47&ver=4> Vienna, 2015.

The Grommet, the maker movement is shaping the future of our economy, <https://www.pinterest.com/pin/69031806763717888/>
Süddeutsche, <http://www.sueddeutsche.de/digital/vernetztes-hamburg-die-hansestadt-die-alles-weiss-1.1961465> Hamburg, 2014