

SMART CITY VIRTUAL HACKATHON

**A „How-To“ Guide for the
Successful Organization
of a Hackathon in the
Smart City Space**

May 2020

A Digital Arabia Network Initiative



In cooperation with DAAS e.V.



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ABOUT DAN

Digitalisation has long since ceased to be an option. On the contrary, the world needs innovative solutions and strategies to keep on turning even in challenging times.

With this in mind, in 2017 we launched the “Digital Arabia Network” (DAN), the lab for the digital future of the Arab world, which extends from the MENA region to the European diaspora. As an online and offline platform, DAN connects all the creative and digital innovators who contribute to making our lives a little bit easier, fairer and better.

Our various event formats range from international conferences and interactive discussion panels to hackathons and online competitions. It is our declared goal to address interested citizens in addition to the digital actors and the promising young talents themselves, and thus to create an awareness of the fact that digitization is relevant for all of us.

Under the motto Connect. Transform. Create., we believe that DAN has an important role to play in shaping our future across all spheres: whether art & culture, business & the future of work, citizen participation, gender equality & inclusion or online media & journalism.

In all these areas, the skillful use of digital tools and technologies can make the wheel of the future work even better.

Because our future is digital.

More info <https://digitalarabia.network>

ABOUT DAAS

DAAS- Deutsch-Algerischer Akademiker und Studierender Verein e.V., is a German association that supports students, young graduates, researchers and professionals from an Algerian background in making a dent in Germany.

More info <http://daas-ev.org>

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1. Executive Summary

Innovation happens when ideas and people with different backgrounds collide. The rapidly changing environment we live in calls for accrued levels of innovation, thus accrued levels of mingling.

Hackathons, these time-bound innovation competitions, are the perfect environment to foster the sort of collaboration and encounters that breed innovation. Hackathons are typically 2-3 days events happening online or offline, bringing together software developers, entrepreneurs, designers and all sort of innovators to ideate and create new solutions to today's most pressing problems.

This is a great format to access new ideas, experiment with new technologies, meet with likeminded people and shed lights on some issues that need further attention. In particular, in the smart city space, a hackathon can drive much needed innovation and attention to a nascent area destined to change the way we live and where we live.

This paper introduces the concept of virtual hackathons and details a step by step guide to organising your own virtual hackathon in the smart city space.

It is written for community organisers, associations, companies or digital innovators who are eager to find new ways to explore and prototype future solutions addressing the challenges of smart cities.

After reading this report, you will be able to:

- **Build an effective team to organise the hackathon**
- **Define relevant challenges for your virtual smart city hackathon**
- **Choose prizes and awards that are true to the spirit of the event**
- **Find mentors, judges and partners that will enrich the experience**
- **Attract the right audience to your event**
- **Deliver an exceptional hackathon experience completely online from registration to award ceremony**
- **Gather ideas on how follow up with participants after the event**
- **Learn tips and tricks for a successful hackathon**

Inviting people together and creating an environment where new ideas emerge is a challenging task, so this booklet offers you pointers to make your journey smoother. You will still need your passion, determination and hard work to make it happen - the results can be truly impactful and can transform, for the better, the way we live in our cities tomorrow.

ENJOY THE RIDE!

2. What is / Why a Virtual Hackathon?

A hackathon is an informal gathering of developers, designers, entrepreneurs and creative people collaborating in a fixed and short time-frame to bring to life some innovative ideas addressing a theme or a particular set of challenges. Hackathons can result in new products, new start-up companies or employment opportunities.

They are usually offline, happening in a physical space over a weekend but can also be done online in the form of a virtual hackathons leveraging collaboration and video streaming technologies. This can result in advantages such as wider reach, lower budget (see chapter Sort out Finances) and inclusion of participants from all over the world (elimination of travel expenses, visa restrictions).

Regardless of the format, hackathons can be an excellent choice for accessing and prototyping innovative ideas in a short amount of time, learning new skills or technologies, encouraging collaboration, hiring opportunities and meeting like-minded people.

3. How does a Virtual Hackathon work?

Virtual hackathons are hackathons done completely online, teams form and participate from the comfort of their homes. Anyone with Internet access and a device can participate. Virtual rooms allow for simultaneous workshops, communication tools allow for interactive sessions where participants can communicate with each other and with the organisation team via chat.

These events can be competitive (with a winner at the end) or collaborative, they typically last 2 to 5 days and usually revolve around a specific theme that brings all stakeholders together (e.g. Smart Cities).

Below is a quick overview of a typical event:

Before the hackathon

- Participants submit their application on a dedicated website and get selected to join the hackathon

During hackathon

- Kick-off with an online session to introduce the agenda, challenges and welcome participants
- Participants have the opportunity to form teams and start working on their ideas
- Throughout the hackathon, expert mentors are available to support and challenge the teams on their ideas
- The teams have time to work on their ideas and transform them into working prototypes
- At the end of the hackathon, participants are asked to submit their project online

After the hackathon

- A panel of judges composed of senior executives shall evaluate the quality and feasibility of the submissions. The jury decides the winners of the hackathon
- An online award ceremony is arranged to announce the winners
- To close the event on a happy note, an online party will be organised to congratulate the participants and explain the next steps

4. How to organise a smart city virtual hackathon?

4.1 Planning

4.1.1 Find a team

There is no hackathon without an organising team. Choose your teammates wisely. You will need at least 5 roles:

Facilitator – The person who moderates the event and is responsible for program delivery.

Event Manager – This person is responsible for the management of the overall project

Mentor & Jury Liaison – A person responsible for communicating with the mentors and judges

Comms – A person responsible for all external communication and event promotion

Support – A person responsible for addressing the queries from the participants

The team uses the tools it has at hand to self-organise and arrange tasks including physical and online meetings.

4.1.2 Set date/time

Choosing the date of the event should be straight forward. Make sure the date of the event doesn't clash with another popular event (check on Devpost.com, Facebook, and other online event sites for related events). Pay attention to local holidays and university calendars when finding a date.

4.1.3 Define your audience

Who is the target audience of your event? There are few questions that need to be clarified at this stage.

- Is the event open to everyone without pre-screening?
- Is the event only open to a specific niche (e.g. students, engineers, etc.)
- If the event is only for a niche, define it (age

group, profession, location, etc.)

- Is the event open for companies?
- Is the event open for teams, individuals or both?
- Is the event only open for participants with a fully formed project?
- How many participants would you expect?

You almost need to draw a portrait of your ideal participants. That would inform your challenges, your communication strategy as well as the prizes you might provide.

4.1.4 Define challenges

A virtual hackathon should address 3-4 key challenges related to the theme of the hackathon. A challenge is a problem statement that opens possibilities and seeks innovative responses. It generally takes the shape of a "How Might We" question.

Participants (whether teams or individuals) will be required to address at least one of the defined challenges with their solutions. The challenges offered should be catchy, meaningful but not too focused. They should provoke inspiration and open directions for future exploration.

Taking the smart city example as our overall theme, herewith some example challenges:

Challenge – Example Description

Smart City – How might we make our cities more liveable?

Digital Arts & Culture – How might we make art accessible in our cities?

Digital Business – How might digitisation help to connect micro and small businesses to the global market economy?

Civic Participation – How might citizens better communicate with their municipalities?

Gender Equality and Inclusion – How might people in the LGBTQIA+ community living and working in smart cities network with each other?

Media & Journalism – How might we help fight the spread of misinformation and fake news in our communities?

Mobility – How might we fight traffic congestions in our cities?

Urban Planning – How can citizens find parking places easily?

4.1.5 Choose prizes

Prizes are an important component in attracting the right participants. There are four types:

No prizes – you can well decide that your event is not a competition, that everyone is a winner and that the overall prize is a shared sense of recognition, collaboration and social impact. (Ideal if no budget and your challenges have a strong social impact component)

Token prize – you can also provide token prizes (under 100 USD value) such as educational material or e-commerce voucher, a raspberry pi or new geeky gadget. (ideal if budget for prizes is limited)

Significant prize – Cash is king. Most hackathons that can afford it, opt for cash as a first prize, you can also think of some creative awards such as VR headsets or drones. (ideal if there is a budget and you want to attract a large audience)

Partner prizes – you can also ask your partners or sponsors to chip in some prizes such as free hosting or free usage of their services. (ideal if your partners are ready to contribute)

Depending on your prize type, you might need to put a limit on the participant team size. We recommend a maximum number of 6 to 7 people per team.

4.1.6 Sort out Finances

Virtual hackathons are typically volunteer-run events that are done for zero budget but having some money can take you a long way in providing a unique experience. The budget will depend on the format of the event. You would need to take into consideration the following costs:

- Prizes (if any)
- IT tools (DevPost is not free)
- Paid ads on social media
- Other fun activities you might want to add, for instance hiring a DJ to host a livestream party for your closing

To fund these expenses, hackathon organisers typically look for sponsors or for partners. We strongly recommend that you do make this event free to attend for participants.

Should you run a budget, make sure that you keep track of every expense and that you are transparent by sharing where the money came from and where you spend it. Transparency increases trusts in your organisation and comes handy if you want to do the event next year.

4.2 Logistics

4.2.1 Finding the right partners

It's good to partner with third-party organisations to run the hackathon, particularly if you aim to organise a big event. Depending on the event, partners can support with the following points:

- Help to promote the event
- Provide mentors
- Cover some of the costs of running the event
- Prizes (in-kind sponsorship or cash),
- Partners might expect to access new ideas and tests some of their assumptions in fast-paced and safe environment
- Scout candidates for hire
- Market their products to your audience
- Associate with a positive and impactful event

The right partners depend on what you want to achieve and what you can give in return. Figure out your budget first and your requirements and then start reaching out to potential partners.

4.2.2 Selecting Data & APIs

To enrich the final results, the organisers can think of curating a list of publicly available APIs, Partner APIs and open datasets that can help participants improve their prototypes.

Please see here a list of public and free APIs and datasets that you can leverage in a smart city hackathon.

OPEN DATA

API	Description	Link
Arab Development Portal	Comprehensive SDG-related datasets for the Arab world	Go!
World Bank	World Bank Open Data repository	Go!

ENVIRONMENT

API	Description	Link
AirVisual	Air quality and weather data	Go!
OpenAQ	Open air quality data	Go!
Teleport	Quality of Life Data	Go!
Flutrack	Influenza-like symptoms with geotracking	Go!
MetaWeather	Weather	Go!
USGS Earthquake Hazards Program	Earthquakes data real-time	Go!
USGS Water Services	Water quality and level info for rivers and lakes	Go!

MACHINE LEARNING

API	Description	Link
API.AI	Natural Language Processing	Go!
Clarifai	Computer Vision	Go!
Cleverbot	Web chat bot	Go!
Keen IO	Data Analytics	Go!
Unplugg	Forecasting API for timeseries data	Go!
Wit.ai	Natural Language Processing	Go!
Kaggle	Competitoin and repository of ML datasets	Go!

MISC

API	Description	Link
Twilio	SMS API	Go!
mailgun	Email Service	Go!
News API	Headlines currently published on a range of news sources and blogs	Go!
Yelp	Find Local Business	Go!

This is not an exhaustive list. You might want to do your research and add some more resources depending on the challenges that you choose.

4.2.3 Managing Mentors**Hackathon Mentoring**

Mentorship is an integral part of a successful hackathon. Online mentors act as floating resources for the duration of the hackathon, and help teams refine their ideas, problem-solve, and develop final concepts. We recommend having a total of 12-15 mentors chosen using the following criteria:

- gender equality,
- If international from each country
- empathy & people-to-people interaction skills,
- experience/understanding of the challenges at hand
- seniority

Mentors should be briefed early in the process. We ask a minimum two hours commitment from each mentor for the duration of the hackathon.

How it works:

- Mentor profiles are published on the hackathon website so participants can decide who might be most helpful for their project.
- At the beginning of the hackathon, each mentor is assigned to a particular challenge channel on slack depending on their expertise, so it's easy for participants to find them.
- When a team identifies a mentor they are interested in, they simply reach out to her and schedule a time to talk. We recommend a fifteen minute time slot per mentor.
- In the conversation, the mentor listens to the project description and gives feedback on how it can be improved or give new ideas to be explored.
- Depending on the mentor's availability, the teams can follow up and arrange further conversations.

4.2.4 Promoting the event

In order to reach out to a relevant target audience and source quality ideas, your communication plan should be set out in advance and take into account the specificities of your audience. We divide the communication plan into 3 phases:

	PHASE 1: PRE-LAUNCH	PHASE 2: CHALLENGE LAUNCH	PHASE 3: ON-BOARDING
Aim	Prepare content & Recruit outreach partners	Recruit participants	Follow up & engage with participants
Audience	Your target partners	Your target audience	Registered participants
Key activities	<ul style="list-style-type: none"> • Prepare copy & communication assets • Identify and approach potential partners. • Approach relevant media outlets with Press Release 	<ul style="list-style-type: none"> • Launch dedicated website & registration page • Approach potential participants in your network • Add event to existing Hackathon directories • Run targeted Social media promotion and paid ads 	<ul style="list-style-type: none"> • Send welcome email and slack invitation to newly registered • Weekly email with tips and tricks on winning hackathons • Organise a Webinar to prepare participants and Q/A • Answer questions as they come

4.3 Execution

4.3.1 Facilitating the event online

- Kick-off with an online session to introduce the agenda, challenges and welcome participants
- Participants have the opportunity to form teams and start working on their ideas
- Each team should submit their project
- Throughout the hackathon, expert mentors shall be available to support and challenge the teams on their ideas. Mentors could include employees from the banks, fintech entrepreneurs, investors, government officials as well as doctors and scientists.
- Technical and design mentors will be available throughout the event as well as to help make the prototypes come to life
- At the end of day 3, participants are asked to submit their project to an online platform
- To close the event on a happy note, an online party will be organised to congratulate the participants and explain the next steps

4.3.2 Managing the submission process

At the end of the event, participants are asked to submit their project to an online platform. Submission should cover:

- Details about the project and team members
- A video pitch of maximum two minutes length that shows how the project works
- Link to source code or to working prototype (optional)

We recommend using DevPost or F6S to manage this submission process.

4.3.3 Judging and Awards

Judging occurs once the hackathon is done and all submissions have been received. Selected judges go through all the contributions and nominate the winners. A pre-screening phase can be envisaged if there are too many submissions for the jury to go through, the organisers will do an initial round of filtering in this case. The assessment of submissions is based on a set of judging criteria which are defined during the planning phase of the event. We recommend the following set of criteria to evaluate the prototypes as a basis of discussion:

Challenges – to what extent are the proposed challenges met?

Creativity – is the idea innovative or do we have seen it before in this market?

Completion – how much progress has been made since day 1?

Feasibility – how feasible and realistic is this project?

Viability – is the idea viable as a long-term business?

The hackathon prizes will be awarded to the team that scores the highest based on these criteria. We recommend having an odd number of judges to simplify deliberation.

4.3.4 Following up after the event

A hackathon is as good as its follow-up actions. After each hackathon, you need to follow up with all stakeholders (including mentors and judges) with at least the following:

- Thank you note
- Photos/Video from the event
- Link to the project submissions

- Feedback Survey

- **Next steps: other actions they can take after the hackathon**

Thinking about the next steps early on in the process is crucial, having clear and concrete next steps can help attract participants and gear your event towards success and provide you with success stories if you want to do it again the next year.

Some of the ideal next steps for the participating projects after a virtual hackathon are:

- **Onsite meetings with government bodies or private actors that can support the selected projects**
- Ongoing access to mentorship
- Priority access to smart city accelerators
- Access to global opportunities or to funding opportunities
- Free access to a coworking space for the teams who wish to continue working on their projects
- Establish Network among the participants

4.3.5 Recommended tools

These are the tools that we recommend using during the hackathon:

TOOL	DESCRIPTION	WHY/HOW TO USE IT?
Slack	Instant and group communication platform	Used to communicate with participants and exchange information. We recommend creating 5 channels: <ul style="list-style-type: none"> • News and Important updates • Meet the participants (Introduce yourself) • General discussion • Tech channel • Random / Fun • One channel per challenge • One channel per team
Youtube	Online video and live streaming platform	Used to livestream the video conversation and workshops
Google Docs	Online document editing tool	To share editable documents and collaborating on an evolving piece of writing
DevPost	Platform to run physical and online hackathons	<ul style="list-style-type: none"> • To collect the projects and the final submissions as well as manage the judging process. • DevPost is paid for online event but if you ask nicely the team behind it, they can give you a free trial

5. Recommended Agenda

See below for a typical virtual hackathon agenda that we recommend. Of course, this should just give you inspiration, up to you to model the agenda to the particular needs of your audience. For instance, the hackathon can be week-long, it can involve two live streams per day to keep the communication flow, it can offer further workshops, the judging and results can be done one week or more after the event. Consider these are the minimum blocks each agenda should include. Don't be afraid to be creative.

DAY 1	DAY 2	DAY 3	DAY 4
up to 2:00 PM Online registration	9:00 AM check-in (slack)	9:00 PM Relaxation	10:00-12:00 PM sorting results
6:00 PM slack invitation sent	10:00 AM live stream	9:00 AM check-in (slack)	2:00-4:00 PM judging evaluation
7:00 PM Kick off live stream (challenge + APIs)	11:00 PM Partner Workshops (livestream)	10:00 AM live stream	6:00 PM presenting results (livestream)
8:00 PM Ideas Speed-Dating (slack)	2:00 PM Mentor session	11:00 AM Pitch Training (livestream)	
10:00 PM Start working		6:00 PM make final submission	
		6:30 PM Closing party (livestream)	

6. Closing & Recommendations

6.1 Tips & tricks for a successful hackathon

6.1.1 What to do.

Plan ahead – have at least 4-6 weeks of preparation before the actual hackathon. Use the time wisely to prepare and bring all parties together.

Show the example – always be the first to do what you ask people to do.

Trust in the process – at all time, share the process and overall flow with the participants, clarify expectations and next steps. Respect the time allocated to each activity.

Be proactive on slack – make sure participants see you on slack (use ORGA_ as name handle), pin and repeat most important information and be quick in addressing their questions.

Testing the technical equipment – make sure that during the virtual event the technical equipment is running well.

Plan Follow up activities – To ensure that the Hackathons have impact think about Follow Up activities in advance and stay in contact with the participants

6.1.2 What not to do.

Being a control-freak – hackathons thrive when there is a bit of chaos in place.

Criticizing ideas – as a facilitator and organiser your role is to enable a safe space where people can explore their ideas. It is not your role to make people feel bad.

Forget the code of conduct – if someone doesn't abide by the code of conduct, they should be told off.

6.2 Your Checklist

Use this checklist on the eve of your event to make sure you have covered all the most important points.

ACTION ITEM	CHECKED?
Hackathon Guide – You have read this guide and asked the authors for any clarifications	X
Project Plan – You have a clear plan in place and a list of actions assigned to the appropriate individuals	
Date/timing – You know when the event is going to be held	
Challenges – You have defined 3-4 clear and attractive problem statements for your hackathon	
Prizes – You have selected and acquired the hackathon prizes (if any) and agreed award categories	
Mentors & Judges – You have confirmed the mentors and judges. They have been briefed on their call and have confirmed attendance	
Partners – You have confirmed the partner. They have agreed their role	
Registration page – You have a registration page or website up and running. The registration page covers the challenges, prizes as well as terms of participations and code of conduct. You have enough registrations already	
Communication – You have your slack channels setup already as well as a mailing list to all participants. You have sent a slack invitation to all participants	
Submission – You have clarified the submission process and judging criteria to everyone and have devpost page setup already	
Follow up – You have some concrete follow-up actions already planned for after the event	
Contact details – You have the contact details of your organizing team and of all mentors, judges and stakeholders of the event at hand	

6.3 Conclusion

Hackathons are an amazing engine for innovation. By bringing together the right people and creating a space where all ideas are welcome, they have the potential to foster breakthrough solutions in particular in the smart city field.

Running an event virtually can attract a large audience, joining the hackathon from the comfort of their home, it also means a lower budget compared to a physical hackathon.

This booklet offers everything you need to know to organise a virtual hackathon from the steps to take to the do's and don'ts that one needs to follow. It shows how to:

- Define relevant challenges for your virtual smart city hackathon
- Choose prizes and awards that are true to the spirit of the event
- Find mentors, judges and partners that will enrich the experience
- Attract the right audience to your event
- Deliver an exceptional hackathon experience completely online from registration to award ceremony
- Follow up with participants after the event
- Tips and tricks for a successful hackathon

We hope it will be helpful in your journey to organise a virtual hackathon and to dream the smart city solutions of tomorrow.

GO HACK!



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