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TDRA | هيئة تنظيم الاتصالات والحكومة الرقمية
TELECOMMUNICATIONS AND DIGITAL
GOVERNMENT REGULATORY AUTHORITY

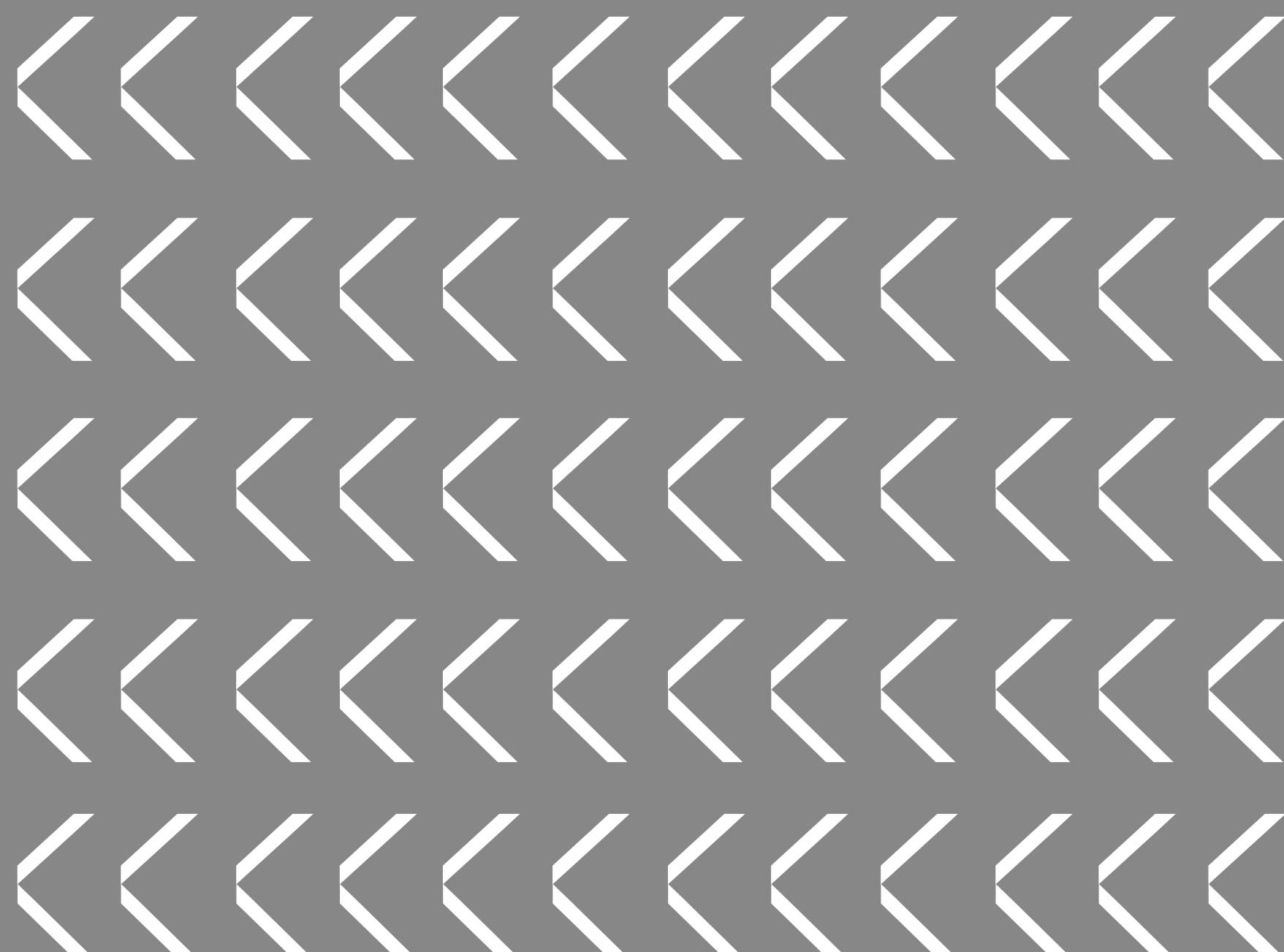


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الإمارات تبتكر
UAE INNOVATES



REPORT

HACKATHON 5.0

UAE



UAE HACKATHON 5.0 REPORT
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Executive Summary

On the basis of its vision towards encouraging innovation and the use of modern tools, through organizing the “UAE Innovates 2022” event nationwide by The Mohamed Bin Rashed Center for Government Innovation from the period of 21 to the 27th of February, the “Innovation Month 2022” event has launched on the 1st of February and lasted until the 28th across the UAE under the motto “UAE Innovates.” As part of the government’s ongoing efforts towards the new fifty years, to support and embrace innovative ideas and celebrate innovators, thus enhancing the position of the UAE as a global hub for innovation and knowledge.

The “Innovation Month 2022” edition events were presented in real-life and virtual form, tackling six key pillars: **Sustainability, Environment, Education, Technology, Financial Technology, and Government Services.**

Federal and local government entities, the private sector, and academic institutions participated in the “UAE Innovates” events for 2022. This national event contributed to establishing and disseminating the culture of innovation and enhanced community participation to design and develop future experiences, initiatives, and projects -in alignment with the year of the 50th- to face any challenges in a rapidly changing world. Thus, it works towards preparing the country’s vital sectors for the post-oil era or any emerging challenges, such as those resulting from the COVID-19 pandemic, establishing a knowledge economy based on innovation and modern science towards designing the future of the UAE.

Within these activities, the Telecommunications and Digital Government Regulatory Authority (TDRA) virtually launched the fifth edition of the UAE Hackathon under its motto “**Data for Happiness and Well-being**” nationwide across the seven Emirates. In its fifth year in a row, the Hackathon has offered the youth a great opportunity to creatively compete and use open data to come up with innovative solutions that contribute to enhancing well-being, raising the happiness meter of individuals, and designing the future of the country.

The fifth edition of the UAE Hackathon coincides with The Principles of the 50 and the UAE Vision 2071. The “Centennial” aims to invest in the nation’s youth, equip them with the skills and knowledge necessary to keep pace with all the rapid changes and ensure the UAE stands as the best country in the world by the centenary of the UAE’s establishment in the year 2071.

TDRA partnered with the seven local e-governments: Abu-Dhabi, Sharjah, Ajman, Umm Al-Quwain, Ras Al-Khaimah, Fujairah, and Dubai. It also cooperated with several major universities within the country, such as United Arab Emirates University, the University of Dubai, the American University of Sharjah, Umm Al-Quwain University, the American University of Ras Al-Khaimah, University of Science and Technology of Fujairah, University of Sharjah, Ajman University, Rochester Institute of Technology of Dubai, Zayed University, and Khalifa University. In addition to cooperating with many top leading private sector technology companies such as Google, HERE Technologies, du Telecom company, Ericsson, and SAS, all of which have helped achieve extraordinary success in the organization of the Hackathon in its hybrid edition.

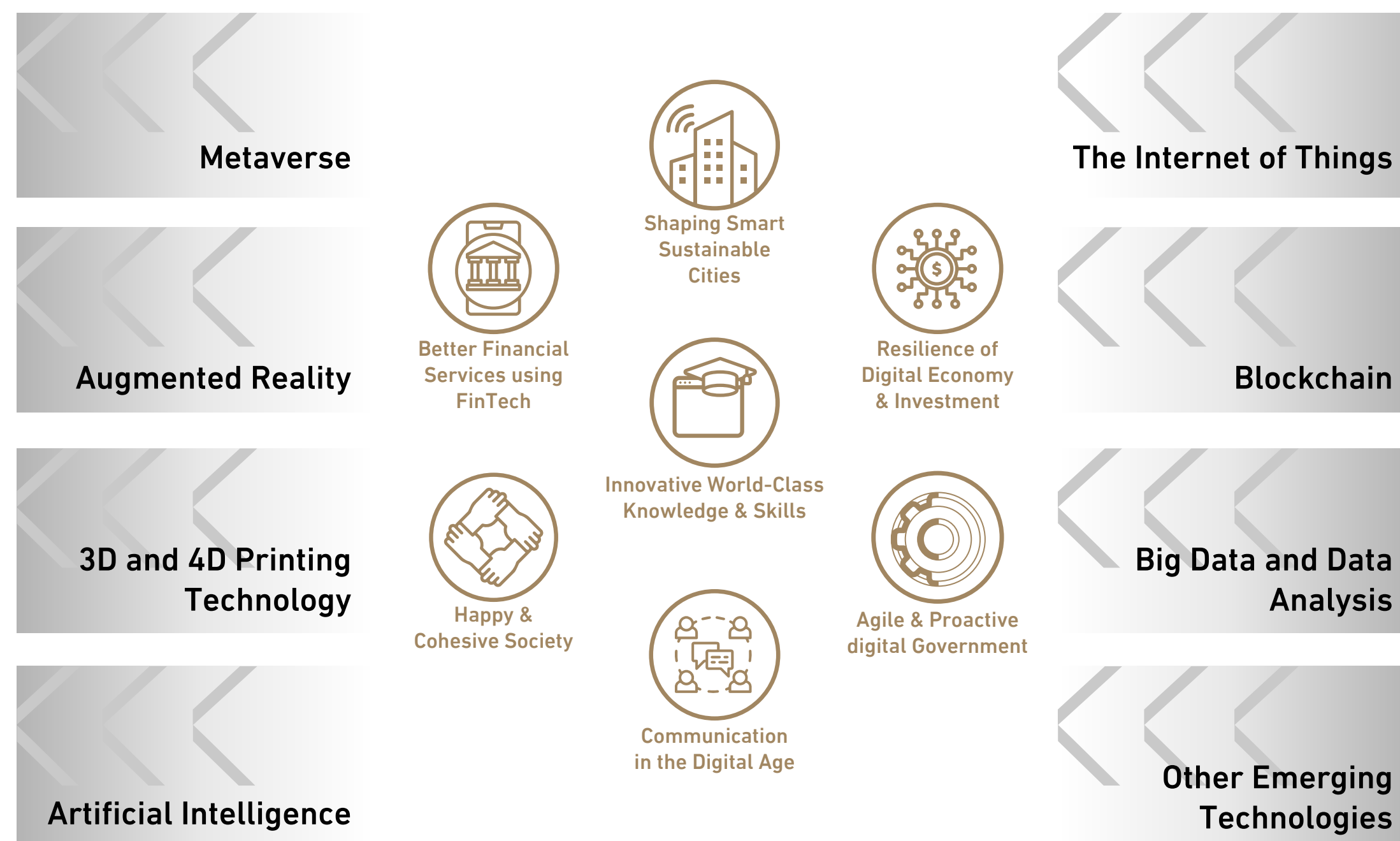
TDRA provided the youth with the necessary training and mentoring in technology, innovation, and entrepreneurship; to assist them with their different tracks; the Start-ups & Entrepreneurs track, University Students track, and School Students track to produce the most creative ideas. In addition, TDRA helped youth develop websites, smart applications, and electronic services. As well as integrate the latest various technology techniques such as Metaverse, Artificial Intelligence, and the Internet of Things while implementing their ideas and putting them into practice. The establishment of the tracks system in the fifth edition enhanced the quality of the UAE Hackathon outcomes.

The previous Hackathons have helped numerous participants learn how to utilize open government data and develop applications and digital solutions, which contributed to the production of a staggering number of creative solutions in the following seven themes:

- Shaping Smart Sustainable Cities
- Resilience of Digital Economy & Investment
- Better Financial Services using FinTech
- Communication in the Digital Age
- Agile & Proactive digital Government
- Happy & Cohesive Society
- Innovative World-Class Knowledge & Skills

Using the following set of emerging technologies:

- Metaverse
- Augmented Reality
- 3D and 4D printing technology
- Artificial Intelligence
- The Internet of things
- Blockchain
- Big data and Data analysis
- Other Emerging Technologies



Through this, it achieved the following primary outcomes:

- To reach and meet creators and innovators from the seven Emirates and help them develop and present their ideas and innovations.
- To produce innovative ideas and develop models of realistic solutions using open government data to raise the happiness meter and enhance wellbeing.
- To cooperate with teams and participating groups and support them in working with the UAE government to utilize data to achieve happiness.
- To spread digital awareness among participants, employ the latest technologies, and broaden data science knowledge.
- To support and monitor the winning teams throughout the different Hackathons and help them transform their innovative ideas into concrete reality.
- To produce new data and statistical information added to the open database.

The UAE Telecommunications and Digital Government Regulatory Authority (TDRA) celebrated the winning teams of the fifth edition of the UAE Hackathon at the University City Hall of Sharjah in the presence of **Her Excellency Hessa Bint Essa Bhumaid**, Minister of Community Development, and **His Excellency Eng. Majed Sultan Al Mesmar**, TDRA Director General, where first-place winning teams across the seven emirates were announced. HCMS.ai, a human capital management system project, won first place in the Startups & Entrepreneurs track. The UAEPixel, an artificial intelligence-powered system that reduces road accidents, won first place in the University Students track. Finally, Meta Edu won first place in the School Students track. These projects ranked first for providing innovative solutions and brilliant ideas for the challenges following the state's future policies to promote digital transformation and prepare a stimulating environment for artificial intelligence technology and the tools of the Fourth Industrial Revolution.

Chapter One: Preparation and Organization of the UAE Hackathon

Launching and objectives

Since its launching five years ago, the idea of the Hackathon emerged from the Telecommunications and Digital Government Regulatory Authority's (TDRA's) vision to promote the open data portal (bayanat.ae) during the Month of Innovation and to embrace activities based on open data, information technology, and the latest offerings of technology in the seven UAE Emirates. TDRA viewed the Hackathon as an excellent and effective way to spread a culture of innovation, support the country's ambition towards creativity and capacity building among youth, and enhance the connection between various societal segments and institutions. It also incorporates the seven local e-governments to support one goal: the expansion of open government data.

The UAE Hackathon was based upon several objectives, including:

- The country's approach towards the Fourth Industrial Revolution and Artificial Intelligence.
- E-Government, Smart City and The Era of Big Data.
- The increasing focus on Big Data Analytics nationally and worldwide.
- To prioritize civic happiness among the national objectives of the United Arab Emirates.
- To reach the largest segment of innovators and creators residing in all seven Emirates.
- To expand the range of open data, increase its efficiency, and digitally display it, thus meeting the goals of the national open data portal.

It is with these objectives that the UAE Hackathon 5.0 purposes emerged, including:

- Not only to keep pace with the technological advancement the world is witnessing in various fields but also to actively participate in this renaissance by providing solutions and innovations that contribute to spreading happiness and well-being in all parts of society and the world.
- To contribute to supporting the national policy vision for the quality of digital life in the UAE; to enhance the existence of a creative and productive digital world in a safe and positive digital society.
- To complete what has already been presented by introducing new challenges aligned with the rapid worldwide changes without repetition or duplication, such as tackling the challenges resulting from the novel coronavirus pandemic.
- To explore flexible, adaptable, and advanced solutions to face the rapidly evolving change in modern technology tools.
- To continue spreading knowledge and innovation, foresee the future of data, and contribute to enhancing the competencies of youth.
- To qualify and transform the winners' ideas into projects by bringing them together and providing them with the necessary support to work on their ideas.

The UAE Hackathon Support Structure

The Telecommunications and Digital Government Regulatory Authority (TDRA)

Under its mandate and role to supervise the digital transformation in the UAE, the TDRA initiated launching the UAE Hackathon 5.0 across the seven



Emirates in its virtual edition. It provided the mentorship, guidance, financial support, along with substantive support to ensure the success of the Hackathon in its fifth edition despite all the implications of the Coronavirus pandemic. It also provided training, mentoring, and guidance to ensure a successful outcome. Moreover, it enriched the open data portal to contain as many datasets as possible. It also developed the Hackathon website to keep pace with developments and improve the efficiency of performance and productivity.

The National Program for Happiness and Wellbeing

Since launching the UAE Hackathon, the National Program for Happiness and Wellbeing has provided excellent support and was keen on complementing this support for the Hackathon's fifth edition. Her



Excellency Hessa Bint Essa Buhmaid, Minister of Community Development, left a significant impact on all participants in the digital closing ceremony held at the university city hall of Sharjah; her presence among the winners as she congratulated them on their outstanding performance throughout the Hackathon made a true impact that affirms the motto "Data for Happiness and Wellbeing."

Federal Competitiveness and Statistics Authority (FCSA)

FCSA offered technical support by providing various datasets to promote different themes and challenges. In addition, these datasets helped provide training and mentoring to the participants and share expertise regarding dealing with and analyzing databases and datasets to get the best outcomes that serve creative ideas.

Government Entities

The Hackathon received tremendous support from various government entities. The UAE Hackathon 5.0 also witnessed the participation of diverse government entities

as proof of their trust in and support for the goals of the Hackathon, where a total of 35 local and federal entities participated.

Universities and Academic Institutions

Universities and schools' role was not only limited to hosting the Hackathon 5.0 digital introductory sessions, but they also encouraged students of all specializations to participate and learn about the Hackathon 5.0 and its themes, motivating them to participate in its events.

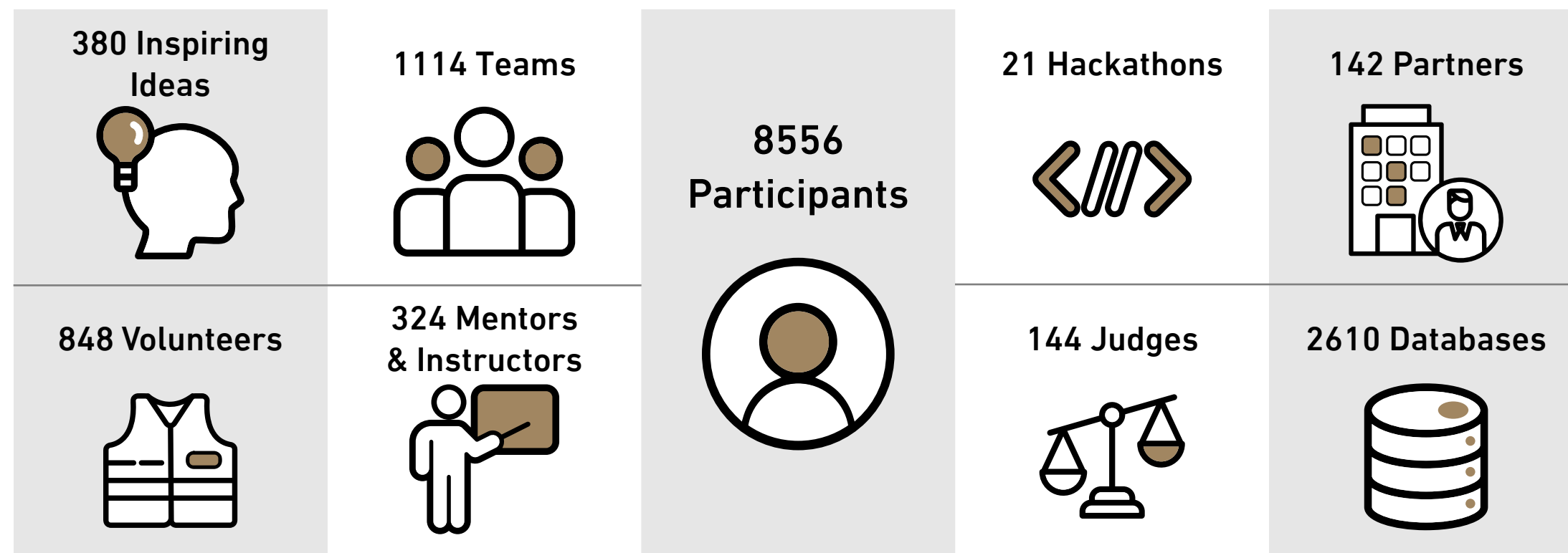
At an unprecedented level, universities offered logistic support through mentors and judges who actively supported and guided participants with creative ideas to help present them in the best possible way.

The Private Sector

In the fifth edition of the UAE Hackathon, the private sector significantly participated in offering its services and substantive and technical support to help the youth efficiently develop their ideas to meet the Hackathon's motto. It also provided several explanations in different technical fields such as artificial intelligence, the internet of things, blockchain, 3D and 4D printing technology, data analysis, and reading charts and graphs skills. In addition, it also offered explanations for creative thinking and entrepreneurship.

Preparation for the UAE Hackathon 5.0

The Hackathon presented outcomes and achievements of the four previous editions, which were as follows:



The Telecommunications and Digital Government Regulatory Authority (TDRA) team dedicated its efforts to update and evolve the UAE Hackathon 5.0 program in the wake of the Covid-19 pandemic to meet the demands of the stage, and this has been positively reflected on the UAE Hackathon 5.0 outcomes.

The UAE Hackathon 5.0 Tracks

The UAE Hackathon is characterized by the active participation of different social groups, namely school and university students, as well as experts who contribute to the development of technical solutions to the challenges posed. Therefore, the fifth edition of the UAE Hackathon introduced the “Tracks” system to help all participating groups achieve the best outcomes. In addition, all ideas were evaluated according to standards that corresponded to the nature of participants in each track, their qualifications, and the level of expected outcomes.

- **School Students Track**

This track is designed for students aged 11 to 18 who are not yet enrolled at a university. It is aimed at students in public or private schools throughout the UAE. The essential criterion for evaluating the ideas in this track is that the participating teams generate revised ideas and present them as a model before the arbitration committee. At this stage for the School Students Track, it is not necessary to have low or high-fidelity prototypes of the idea.

- **University Students Track**

This track is aimed at students between 18 and 25 years of age or slightly older who do not yet have long-term professional experience. The essential criterion for this track is the development of innovative technical solutions that preliminarily reflect the practical utilization of one of the recommended emerging technologies. Students are expected to design low-fidelity prototypes for their proposed solutions.

- **Start-ups & Entrepreneurs Track**

This track is aimed at experts from various fields with technical and substantive expertise that enables them to develop high-quality and implementable solutions. In addition, early-stage start-ups that can offer solutions to the challenges of the Hackathon can participate.

The essential criterion for this track is the development of advanced solutions. Participants have to design high-fidelity prototypes of their projects, which in turn helps them build or develop their start-ups on a solid basis by seeking new resources and different investment opportunities.

UAE Hackathon 5.0 Themes Development

TDRA deemed it essential to develop a set of new themes that correspond to the UAE Centennial 2071 Vision and the global developments, precisely the challenges that emerged from the Coronavirus “COVID-19” pandemic, thereby ensuring the prevention of ineffective repetition of specific themes or the duplication of what has already been presented in the previous four Hackathon editions within the context of keeping pace with the rapid worldwide changes. Furthermore, it introduced themes that are not only related to the UAE but also encouraged the concept of introducing themes that are of concern to the whole world. Thus, the UAE Hackathon 5.0 themes incorporated internal challenges connected to the UAE’s everyday life and challenges beyond that, including what affects the world as a whole.

The themes were as follows:

Theme	Description
Agile & Proactive Digital Government	Aiming for the UAE to have the first digital government regionally, we help support the infrastructure and strategies that lead the digitalization of the UAE's governmental entities by proceeding with sustainable digital initiatives and effective policies. It's an opportunity to contribute to accelerating the digital transformation in the UAE government.
Better Financial Services using FinTech	Financial Technology is a key component in the evolution of the financial services industries, such as digital payments, mobile banking, money transfer, and cryptocurrency. According to forecasts for 2024, the total revenue of the global fintech sector will grow to 214 billion dollars. Being at the forefront of FinTech in the region, the UAE is working towards better financial services.
Resilience of Digital Economy & Investment	The transition to a digital economy can boost competitiveness across all sectors, new business and entrepreneurial activity opportunities, and new avenues to access global markets. Moreover, through investment in digital transformation, businesses can lay the foundation for long-term resilience to future crises.
Shaping Smart Sustainable Cities	A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve the quality of life. The UAE Government aims to ensure sustainable development while preserving the environment to achieve a perfect balance between technological, economic, and social development.

Innovative World-Class Knowledge & Skills	The UAE Centennial 2071 plan aims to invest in future generations by preparing them with world-class skills and knowledge needed to face rapid changes and make the UAE the best country in the world by the next centennial in 2071.
Happy & Cohesive Society	Making the UAE the best place to live in, the government aims to accelerate the digital transformation toward establishing a secure, tolerant, cohesive, and ethical society that embraces happiness, a positive lifestyle, and high quality of life.
Communication in the Digital Age	With the rapid, constant changes in the digital world, the importance of communication between all segments of society is becoming more pressing. The UAE Hackathon seeks to find solutions for better communication technologies.

The UAE Hackathon Training Content

TDRA complemented the Hackathon with training content provided by a team of experts at regional and global levels in the fields of technology, innovation, and entrepreneurship to enable participants to benefit from their expertise in helping them to promote and develop their ideas effectively. The training program was as follows:

Training Content Components	
Content in the Field of Innovation	Content in the Field of Technology
Introduction to design thinking	Blockchain Technology and Applications
Team building skills	Artificial intelligence technology at the age of the fourth industrial revolution

Defining the problem and identifying users	3D/4D printing technology and how it's used
Developing ideas	Introduction to the concept of Metaverse and the employed techniques
Testing idea validation	IoT and its utilization in the development of effective solutions.
Business model	Introduction to Big Data and its characteristics
Exploiting the latest technology	Augmented reality technology and how it's used
Effective presentation skills	Other emerging technologies

In addition, the TDRA partnership with various government entities and the private sector has enhanced the mentoring process for participants in developing their ideas and increasing their efficiency through the guidance, advice and strong presence of experts to support all teams.

- **Mentors from academic and government entities:** Mentors from government entities and universities played a pivotal role in helping participants understand the challenges of government entities. They also guided the participants and provided them with valuable information. In the preparatory phase of the Hackathon, prior arrangement with government entities and universities helped in preparing a list of names, numbers and areas of expertise of experts and academics nominated to participate in the Hackathon. Urging them to register as mentors on the UAE Hackathon platform helped attain the desired goals and made it easier for participants to identify the shortcomings in some challenges and seek appropriate solutions.

- **Private-sector experts:** Through providing numerous experts and technical and substantive services, the participation of the private sector has improved the quality of the mentoring and training process in the Hackathon. Meetings arrangements with various private sector companies to be part of the Hackathon with their experts, services, and participation in some of the training workshops, have been efficiently rewarding, as confirmed by the Hackathon participants, who described their support experience as genuine and memorable.

The beginning of the UAE Hackathon 5.0 Journey

Having developed a comprehensive vision for the UAE Hackathon 5.0, TDRA announced that participation would be open online on Wednesday, February 9, 2022.

In preparation for the fifth edition of the Hackathon, TDRA coordinated to hold virtual meetings with information technology-related local authorities and specialized agencies to obtain the necessary support. In addition, it coordinated all the organizational matters with universities. Moreover, TDRA developed a strategic marketing plan that achieved great success due to its partnership with major institutions, such as the Federal Competitiveness and Statistics Authority, the National Program for Happiness and Well-being, and the seven e-governments as well as universities and the private sector.

TDRA spared no effort to include digital transformation in all the Hackathon's internal processes and activities, consequently evident in the preparation and organization of a hybrid edition in the wake of the coronavirus pandemic. It also enhanced the nation's approach towards a safe and efficient digital transformation, which contributed to raising performance efficiency and increasing the productivity index.

TDRA enhanced its marketing plan with several clauses to encourage different segments of the youth to participate in the UAE Hackathon 5.0

UAE Hackathon Introductory Sessions

TDRA assigned digital introductory sessions as a marketing strategy for the Hackathon. These sessions were held for different university and school students across the UAE, which witnessed cooperation reflected in the dense presence of young people and their desire to know more about the UAE Hackathon and how to participate in it.

The introductory sessions demonstrated what the Hackathon is and what its goals are. It also presented the achievements of the previous four Hackathon editions to motivate the youth, followed by an explanation of the Hackathon themes and the most critical challenges it offers, its journey, and the schedule of its various activities. Eventually, all inquiries by attendees were answered so that they could form a better understanding of the Hackathon's multiple activities.

The introductory sessions helped achieve a set of marketing objectives for the UAE Hackathon, including:

- Promoting the UAE Hackathon online across the seven Emirates and motivating the youth for effective participation.
- Emphasizing the UAE Hackathon's presence in close affinity with all segments of society with the strength of its diversity; because the UAE Hackathon is made for all UAE residents to create a happier, more positive community.
- Engaging with the youth and responding to all their Hackathon-related inquiries ensures a well-planned journey of developing creative solutions and ideas during the Hackathon events.



The UAE Hackathon Promotional Activities

- As a means of promoting the Hackathon to as many students as possible, cooperation agreements were concluded with several government and private universities. In addition, the Hackathon is being promoted to government and private schools through the Ministry of Education and the Emirates Schools Establishment. This has encouraged a significant number of students to benefit from the Hackathon experience and create a better society through

their ideas. The School Students Track has proved successful, with many teams of school students participating and submitting exceptional ideas.

- Create engaging, interactive content and disseminate it via the TDRA platforms that include the definition of the Hackathon, its history, journey, themes, and challenges. Thus, raising awareness among those interested in participating to know what to expect.

The UAE Hackathon 5.0 Website

The UAE Hackathon 5.0 website facilitated many operations for the Hackathon events, which encouraged all teams to participate actively:

- Approving the Website, with all its details and content, as a digital manual for participants. The platform's unique design made it easier for participants to browse the website, as they could access all essential information without the necessity to contact the organizing committee frequently.
- Activating communication between the participating teams and mentors from the government and private sector via the Hackathon website. Teams were able to find and communicate with a mentor or expert with ease once they have selected one of the Hackathon challenges and the technology on which their innovative solutions are based.
- The website has been linked to the TDRA Virtual Training Academy so that participants can more easily access all kinds of courses to help them in the process of developing their ideas.



Training and Mentorship Program Activation

The training and mentorship program lasted intensively for 12 days, from 13 to 24 February, and left a positive impact on the outcome of all the inspiring ideas featured in the final presentations, which received tremendous recognition from the judges for the different Hackathon tracks.

Topic	Instructor-Mentor	Link
Sunday, 13/02/2022		
What is the UAE Hackathon? - Orientation session	Eng. Mohamed Aboud	
Innovation in action	Dr. Ayman Ibrahim	Link
Monday, 14/02/2022		
What is the UAE Hackathon? - Opening session	Eng. Mohamed Aboud	Link
Blockchain Technology	Dr. Alberto Fenandez	Link
What is the UAE Hackathon? - Introductory session	Mohamed Mukhtar	Link
Tuesday, 15/02/2022		
Top 30 technologies that could change our lives	Eng. Mohamed Aboud	Link
Start-up Journey, How to break into the start-up world?	Mohamed El Dallal	Link
Wednesday, 16/02/2022		
Problem Based Learning to solve complex real world problems	Dr. Mohamed Saleh	Link
Location enabled AI	Mohamed Salama	Link
Open Mentorship Session	Mohamed Mukhtar	Link
Perfecting your Pitch	Joseph Wei	Link

Thursday, 17/02/2022		
1. Entrepreneurship and the skills of the future 2. Creativity and Innovation and its data	<ul style="list-style-type: none"> • Dr. Suzan Marwan Shahin • Dr. Maan Saati 	Link
Introduction to AI & IoT	<ul style="list-style-type: none"> • Ahmed Bin Sougat • Khalid AlAli • Amena AlHammadi 	Link
Creative Approach for Innovative Projects	Dr. Mohamed Saleh	Link
AI for Livability	<ul style="list-style-type: none"> • Badshah Mukherjee • Ahmed Kamal 	Link
AI, 4IR & Innovation	Dr. Mohamed Baloola	Link
Open Mentorship Session	<ul style="list-style-type: none"> • Ali Al Falasi • Sultan Khalifa 	
Friday, 18/02/2022		
3D/4D Printing	Rami Ali Ahmed	Link
Monday, 21/02/2022		
How to be an innovator in a disruptive world?	Eng. Mohamed Aboud	Link
Tuesday, 22/02/2022		
Blockchain technology and applications	Dr. Amjad Gawanmeh	Link
Introduction to Artificial Intelligence and Deep Learning	Dr. Usman Tariq	Link
Design Thinking - Empathy & Insights	Eng. Ashraf Twakol	Link

6 Essential steps to creating a digital marketing plan	Ahmed Bauomy	Link
Wednesday, 23/02/2022		
Recent Advances In IoT-enabled Systems: Emerging Concepts, Inter-disciplinary Technologies, and Contemporary Applications	Prof. Raed Shubair	Link
Design Thinking - Problem Definition & Ideation -1	Eng. Ashraf Twakol	Link
How to plan for a successful Start-up?	Eng. Mohamed Aboud	
Thursday, 24/02/2022		
Futuristic AI in UAE	Dr. Moayad Aloqaily	Link
5G-Platform for the Innovation	<ul style="list-style-type: none"> Zoran Lazarevic Ali Cheema 	Link
Design Thinking - Ideation - 2 & Prototyping	Eng. Ashraf Twakol	Link
Customer segmentation & Pricing	Kais Badran	Link
Saturday, 26/02/2022		
Ideas Submission		

Chapter Two: Outcomes and Feedback from Participants

Hackathon Outcomes

Despite all challenges, this year's Hackathon outcomes reflect its outstanding success, represented in the participation of more than 2162 contestants, divided into over 254 teams. The presence of more than 46 observers and mentors has efficiently boosted the success of the Hackathon. In addition, over 22 trainers helped teams unleash the best creative ideas that use data to enhance the happiness and wellbeing of individuals.

These successes can be overviewed through specific figures that reflect the effort exerted to continue establishing the UAE Hackathon as an annual event that seeks to anticipate the future, enhance the concepts of innovation and creativity for a better society, and develop solutions that contribute to the happiness of society.

Outcomes of the UAE Hackathon 2022



Outcomes of the training and mentorship stage, from 13 to 24 February

12	Days of training & Mentorship	28	Mentors & Observers
61.5	Hours of training content	4176	Technical Inquiries
42	Sessions & Workshops	22	Trainers
759	Hours of Mentorship		

Outcomes of the arbitration stage – from 28 February to 3 March

4	Days for arbitration	5	Judges for the School Students track
190	Inspiring ideas	13	Judges for the University Students track
36.7	Hours of evaluation & arbitration	5	Judges for the Startups & Entrepreneurs track
14	Representative entities in the arbitration committees		

First Place Winners of the UAE Hackathon Tracks

First Place in the Startups and Entrepreneurs Track

The HCMS.ai. team won first place in the Startups and Entrepreneurs track as the team developed a system that runs skill analysis based on supply from universities and demand by the labor market inside the governmental, enterprise, and educational institutions to help empower talents with the correct skillset. The system successfully sat a complete Standardized Classification of Occupations (SCO) incorporating skills and competencies for the UAE job market, obtained through Natural Language Processing (NLP), Machine Learning, and AI. It can match skills

between what is offered in the educational institutions and compare them to the skills demanded by standardized job profiles (also conducted by HCMS.ai system). The system's ultimate goal is to create synergy between the labor market and the educational institution through the utilization of AI and Data Science.



First Place in the University Students Track

In terms of the University Students track, **The UAE-PIXEL team** from Umm Al-Quwain University won first place. UAE-Pixel developed an AI system to reduce road accidents. It is an AI system that enables the UAE police force to transform the traditional data-handling process into a more enriched, methodical, and AI-driven way. UAE-Pixel consists of three major systems:

1. Advanced data entry system.
2. Accident spatial data analysis system.
3. AI system (Prediction of location and severity of vehicle accidents on the UAE roads through artificial intelligence)



First Place in the School Students Track

As for the School Students track, **the META EDU team** from Al Salamah Girls School won first place. Their idea was to employ technology to create a virtual reality that is more interactive and communicative to achieve a high-quality education in the face of the Covid-19-caused challenge when distance learning continued, and both teachers and students were behind computer screens lacking communication or interaction.



The Distinctive Features of the UAE Hackathon 5.0 in its Hybrid Edition

The UAE Hackathon 5.0 has continued to directly contribute to achieving the UAE Centennial 2071 goals in the fields of capacity building, information and communication technology development, and emerging technologies, overcoming all the obstacles caused by the Coronavirus pandemic.

This year, it required the UAE Hackathon to continue to adapt to the Coronavirus pandemic implications. Therefore, it was presented as a hybrid edition, following the past year's same approach. As a result, the UAE Hackathon established itself as a model for the continuity of everyday life during and post-pandemic.

The UAE Hackathon journey was launched at the beginning of February, starting with the announcement that it was open to participation on the 9th of February, marking the point of departure of all the Hackathon events throughout February.

UAE Hackathon 2022 Promotion Stage

From the first day of February until the eighth day of the same month, The Telecommunications and Digital Government Regulatory Authority (TDRA) held a series of introductory sessions with various government entities and universities in the UAE before announcing the opening of participation in the Hackathon for all residents of the UAE, during which it announced the launch of the fifth edition of the UAE Hackathon.

Throughout the first week of the training and mentorship stage, a set of introductory sessions was launched to demonstrate what the Hackathon is, its distinctive themes, and the recommended emerging technologies for the year 2022. Many young people from universities and schools all over the Emirates attended these sessions. Consequently, all information concerning the UAE Hackathon's hybrid edition was provided, and all questions and inquiries raised by attendees about themes, challenges, and announced emerging technologies were answered.

A series of technical sessions were held in parallel with the Hackathon introductory sessions for the rest of the training and mentorship stage duration, attended by a group of technology experts from the private sector who shared the latest updates in the world with the Hackathon community of technology. They also shared with the participants tips on how to employ these updates as they develop their creative ideas to pave the way for them to participate more effectively.

Training and Mentorship Stage



The training and mentorship stage lasted twelve days, from February 13 to 24. It included a series of workshops and training in technology, innovation, and entrepreneurship for capacity building, providing practical information, guiding participating teams through brainstorming, and developing their solutions. This stage also included training on proper preparation for the final presentation and completion of its data through the Hackathon website.

This stage was remarkable for the presence of specialized mentors from government entities or academic institutions who proposed the Hackathon challenges. They served as a robust addition to the mentorship stage for their expertise and academic knowledge that helped evaluate and develop tens of ideas into more effective and practical solutions through the support, training, and mentorship of various teams when using a set of tools or different digital platforms, all of which helped them improve their creative ideas.

Evaluation and Arbitration Stage

A highly competitive stage among different participating teams, since 190 teams, divided into 39 teams in the Startups & Entrepreneurs track, 116 teams in the University Students track, and 35 teams in the School Students track, presented their inspiring ideas and creative solutions ahead of a selection of judges representing government entities, academic institutions, and the private sector. This stage lasted for four days, during which it was quite challenging for the judges to choose the best out of all presented ideas.



The largest turnout for this stage was the University Students track, with the participation of 116 teams tackling all 41 proposed challenges. This stage witnessed an intense competition among various teams that was eventually concluded in favor of the UAEPixel team from Umm Al Quwain University.

Digital Closing Ceremony



In its fifth edition, the Telecommunications and Digital Government Regulatory Authority (TDRA) celebrated the winners of the UAE Hackathon 2022 under the motto “Data for Happiness and Wellbeing.” The ceremony took place at the University City Hall of Sharjah in the presence of H.E. Hessa Bint Essa Buhmaid, Minister of Community Development, H.E. Eng. Majed Sultan Al Mesmar, TDRA Director-General, participating teams, and government, academic, and private entities representatives.

The ceremony witnessed the announcement of winning teams who presented the best innovative solutions. The first-place winner for the Startups & Entrepreneurs track “HCMS.ai” won the “50 thousand dirhams” grand award. The team works on bridging skill gaps by analyzing the supply and demand of skills using AI & NLP.

The first-place winning projects were also announced for University Students and School Students tracks. In the university students track, UAEPixel, An AI-Powered System to reduce road accidents and improve road safety, won first place. Whereas the Meta Edu team won first place in the School Students track for their idea of a virtual school that simulates real-life schools where students enroll and abide by all the rules.

The closing ceremony included an exhibition of inspiring ideas, including the 30 best ideas from the UAE Hackathon 5.0, covering the three Hackathon tracks. Besides the exceptional projects that emerged from the previous Hackathon editions and were transformed into real projects serving the UAE community.

Many success stories came to light, such as the Futaim World App, Madraste, and the CommunoHealth App. In addition to many other inspiring projects like Horizon, Alyah, and Shield*. H.E. Hessa Bint Essa Buhumaid, Minister of Community Development, and H.E. Engineer Majid Al Mesmar, Director General of the Telecommunications and Digital Government Regulatory Authority, expressed their great pleasure at witnessing the development of inspiring ideas over the past years that have turned into start-ups and real projects after receiving the necessary support and guidance.

Feedback from Participants



This year, participants' feedback was outstanding and positive. Everyone expressed their happiness with the evolution of the UAE Hackathon platform, which hosted all creative ideas by teams, and the development of the registration process, team building, and technical support until the final procedures, such as digitally receiving certificates, to ensure the continuity of applying the digital transformation strategy to the fifth edition of the UAE Hackathon. These weren't the only moments of fascination and happiness; participants also praised the cooperation of the TDRA organizing team, its ability to inspire and motivate various teams, and facilitate any obstacles or hardships they faced, which helped improve their performance. The majority of participants mainly recommended sponsoring more of these events throughout the year and adding more data to Bayanat.ae data portal to allow them to benefit from more graphical analyses to reach the best outcome of their ideas.

Teamwork and team spirit were the most significant skills they learned from the Hackathon, they also gained scientific skills to develop ideas and use open data for practical application using the proposed emerging technologies. The Hackathon events, which hosted the training of over 2162 participants and 254 open data-based ideas, resulted in plenty of fruitful outcomes. Furthermore, the digital closing ceremony was well-received by all qualified teams and participants in terms of management and organization to face the ongoing arising challenges of the Coronavirus pandemic.

All participants wished for this success to continue in the upcoming years so that they could participate once again. The Telecommunications and Digital Government Regulatory Authority (TDRA) was motivated to support the UAE Hackathon Community to guarantee the continuity of these Hackathon events and successes. Based on the positive feedback of the supporting and participating entities that expressed the triumph of unleashing inspiring ideas. The TDRA also decided to activate the Happiness Wallet, dedicated to inspiring ideas, to be an interface between teams, their ideas, supporting entities, and business incubators and accelerators who are willing to endorse and adopt these ideas.

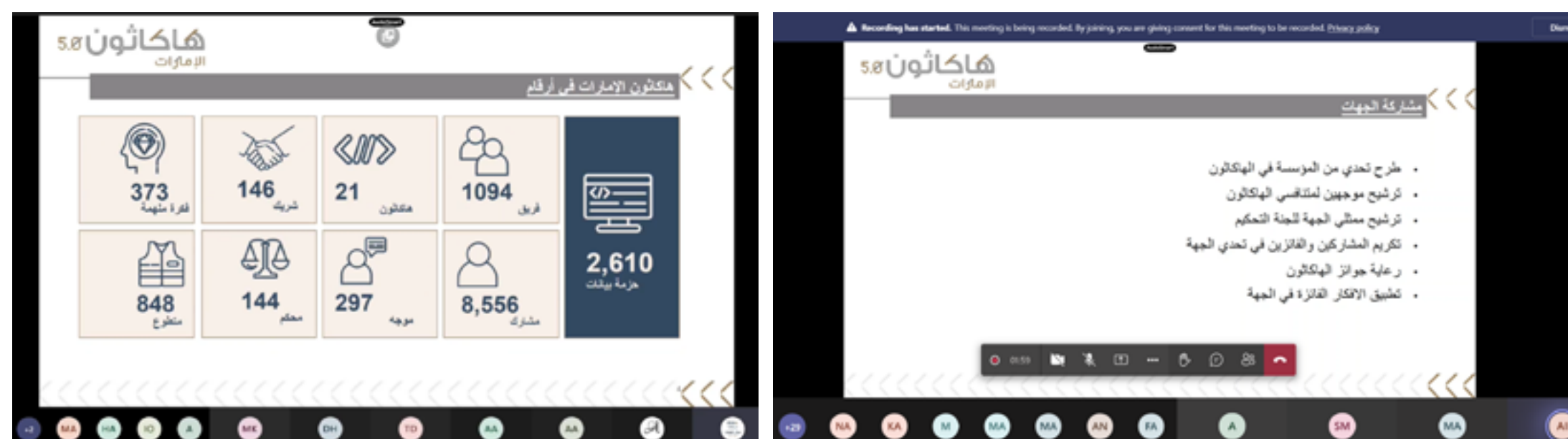
* For a more detailed look on success stories, refer to the summary of the development of previous ideas

Chapter Three: Milestones

The TDRA team worked with dedication and sincerity during the Hackathon, in cooperation with government, academic, and private sector partners to facilitate and support participants in applying their ideas and transforming them into practical and feasible solutions.

Workshops for Government Entities and Institutions

For the second year in a row in the UAE Hackathon, a group of workshops for government agencies and institutions were virtually conducted to make it easily accessible for all government entities and institutions. These workshops aimed to help government agencies and institutions identify and select the most critical challenges that face them and include them to the UAE Hackathon 5.0 themes. This offered a better opportunity for participants to understand these challenges, resulting in the emergence of various outstanding ideas throughout this Hackathon edition as an outcome of the detailed description of the challenges.



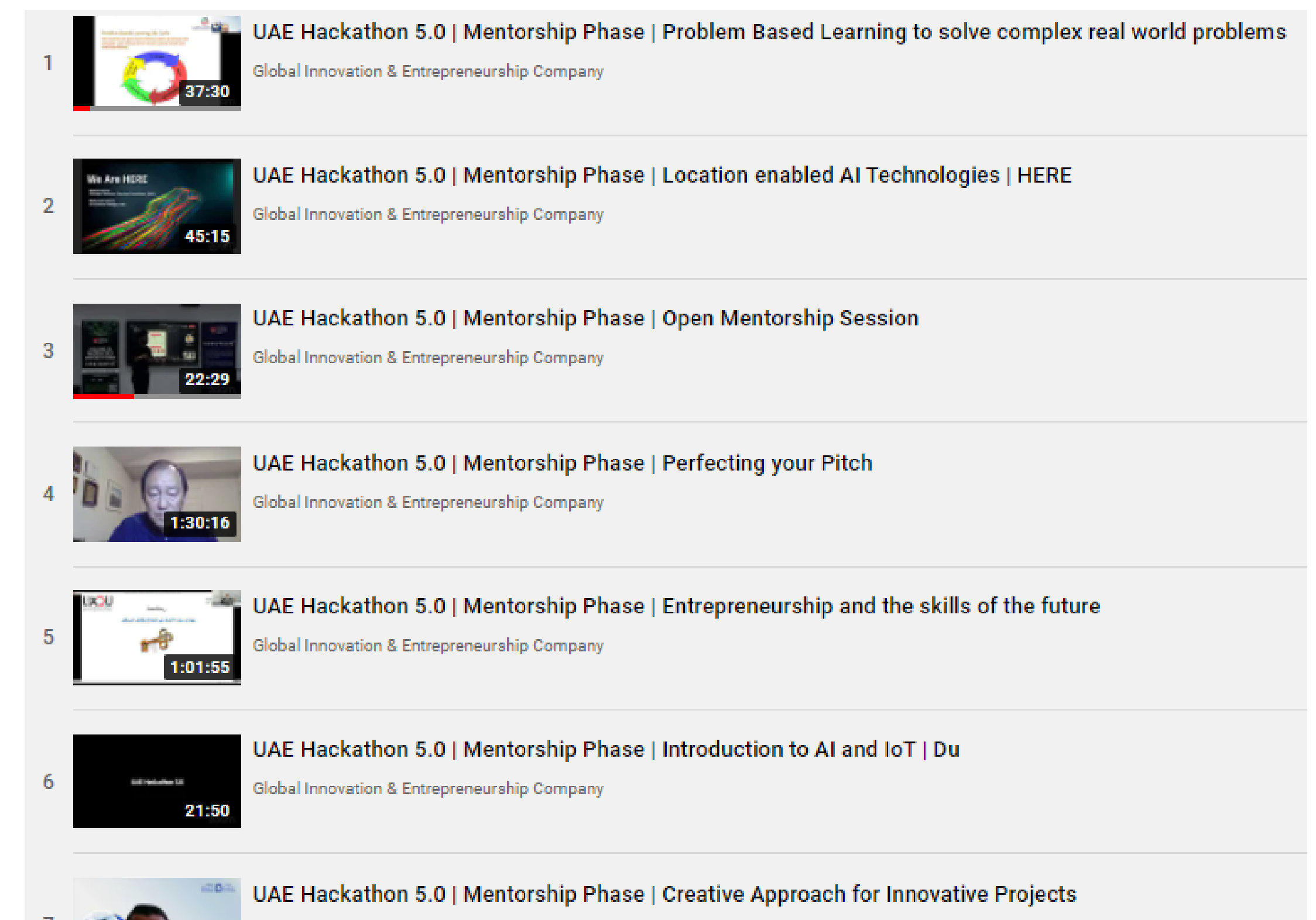
Digital Archiving

The UAE Hackathon 5.0 provided full media coverage to document all pre, during, and post internal events of the Hackathon in the form of videos and photo albums, particularly in terms of the content of training provided by the UAE Hackathon's experts in innovation and entrepreneurship or in various emerging technologies. The UAE Hackathon has a rich digital library of sustainable content to help all

participants develop their creative solutions in all subsequent Hackathon editions.

The UAE Hackathon platform was an important pillar of digital archiving and served as a repository for keeping and storing the data of the participants, teams and the files and links of their inspiring ideas. This facilitated access to all data at any point in the future and increased the protection of this information through a specific security policy that only allows those concerned to access this data or information.

Another aspect of digital archiving has emerged as the Hackathon events also witnessed a comprehensive coverage recording the enthusiasm of youth while creating their ideas, interactions, and communication with mentors and trainers from academic and government sectors while developing their ideas through the various platforms offered in this hybrid Hackathon edition, such as Slack and Zoom applications and the Hackathon Website.



In addition, many scenes were captured as the various teams presented their ideas to the juries, and whole scenes of joy and enthusiasm among the various participants were filmed. This allowed the fifth edition of the UAE Hackathon to build on the success of the previous fourth edition and became unique in terms of digital archiving.

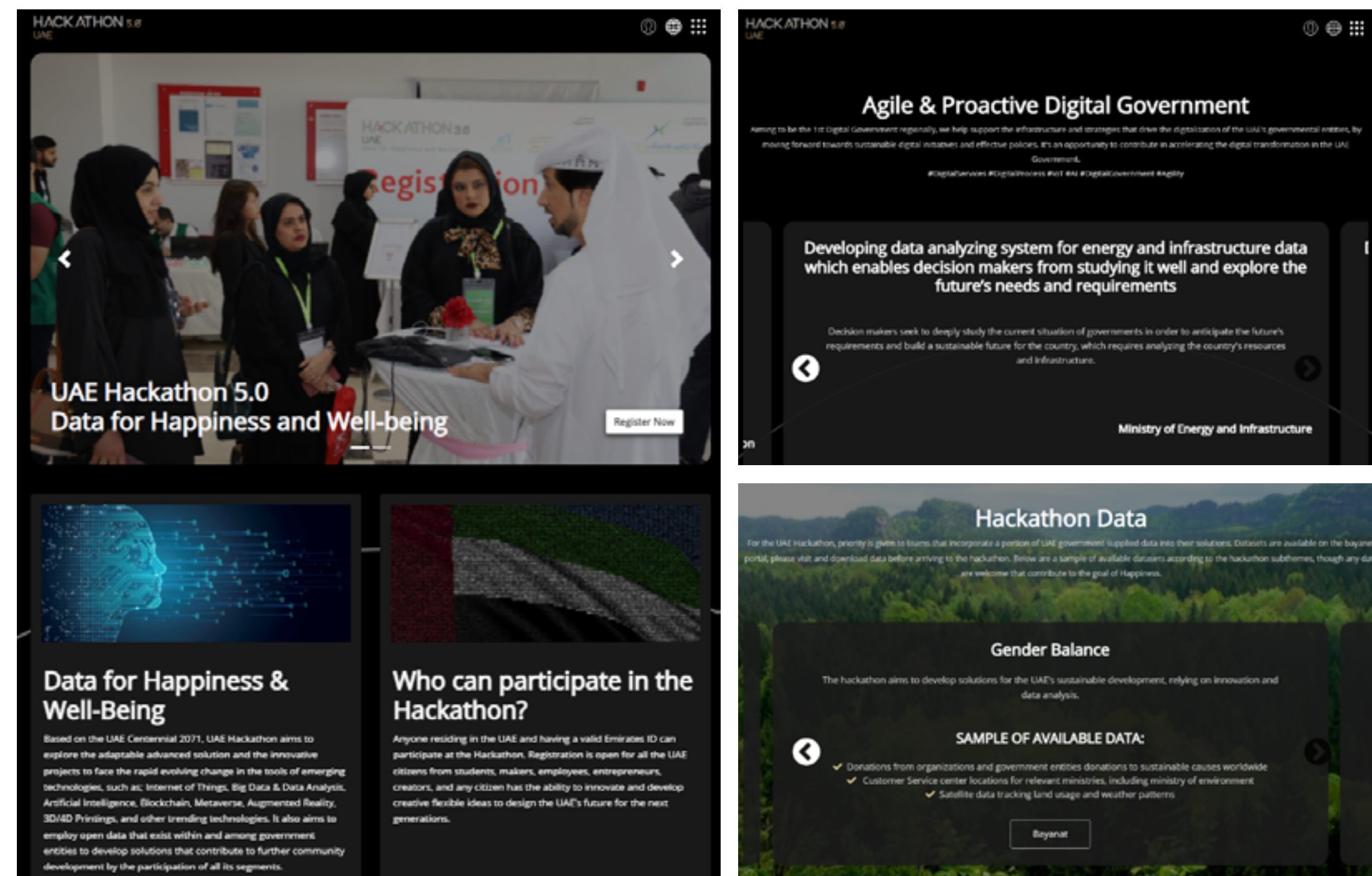
Great Youth Turnout

Despite all the ongoing challenges of the Coronavirus pandemic, outcomes of proper Hackathon planning realistically appeared when a massive number of youths from schools and universities participated and the number of participating teams across the seven Emirates. The Hackathon set a record as the number of participating teams reached 254. Also, as a result of creating good content and formulating it interactively with participants, attendance figures stabilized since the first day of the virtual events of the Hackathon and formed an ascending curve during the following days, which confirms the quality of the content, as well as the guidance, provided by mentors from government and academic institutions and the private sector.



Digital Transformation of the Internal Processes of the Hackathon

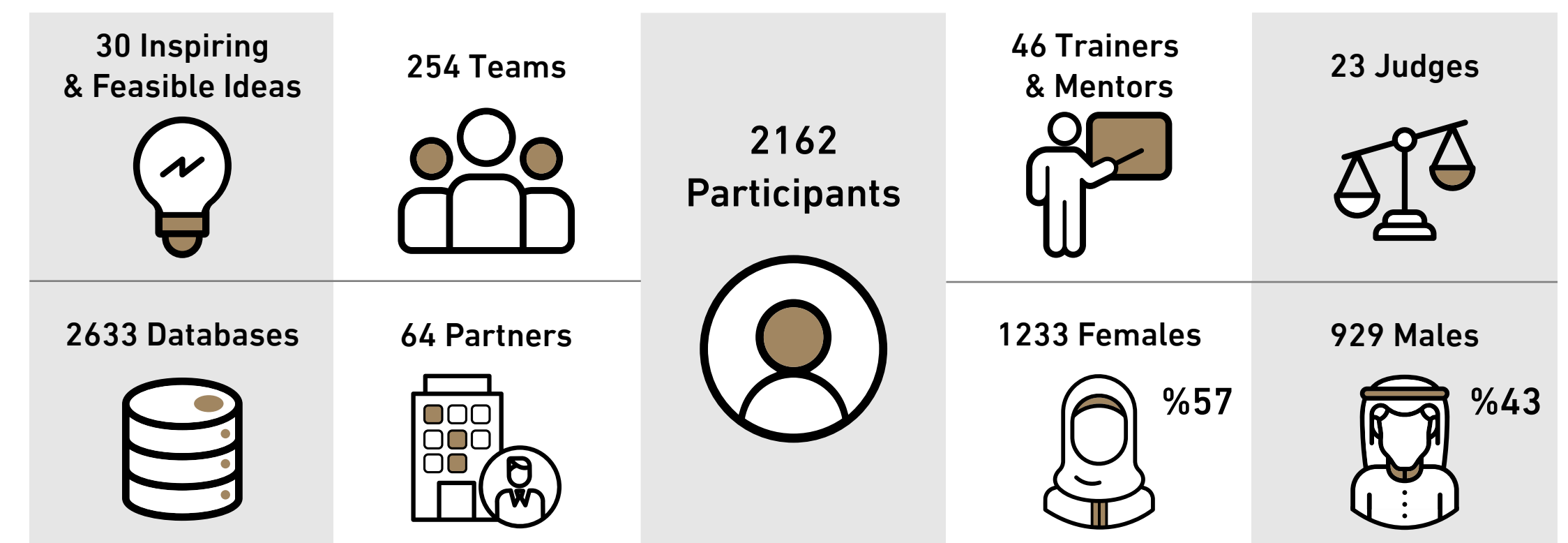
The Hackathon website was approved as the main hub where all internal processes of the Hackathon events are completed. In addition, it facilitated the registration process for participating teams and enabled communication between mentors, according to their specializations and experiences, and participating teams that need such expertise via a direct link on the website. The website also made it possible to save and document the participating teams' final ideas, which contributes to reducing face-to-face interaction between working groups and participating teams. As well as contributing to the presence of an arbitration platform hosting various arbitration committees, which facilitated the arbitration process for teams and accelerated the process of showing the outcomes to participants in no longer than twenty minutes. Approving the website as a primary hub, and other digital applications such as Slack and Zoom, helped improve different Hackathon processes and achieve the maximum possible efficiency.



A Breakthrough in the Number of Participants in the UAE Hackathon 5.0

The UAE Hackathon 5.0 achieved a great success amid the implications of the Coronavirus pandemic, which was evident in the numbers of participants, teams with distinctive ideas, trainers, and mentors

UAE Hackathon 5.0 Statistics:



Increase in Private Sector Contribution

Having a previous successful experience in the fourth (first virtual) edition of the UAE Hackathon, the number of contributions from the private sector increased as the international and local companies were keen on participating in the UAE Hackathon thanks to their trust in the successes achieved by the Hackathon. Many companies such as Google, SAS, HERE, du, Ericson, and others were present. The private sector contributions also increased in terms of participating in various training workshops and sharing their expertise and knowledge with the young participants.

Activating the Happiness Wallet to Host Inspiring Ideas

In continuation of the Happiness Wallet's role in hosting the UAE Hackathon inspiring ideas, it's now ready and prepared to display inspiring ideas in a more dynamic level, having achieved a breakthrough in the quality, quantity, and diversity of ideas. The Happiness Wallet aims to help connect owners of inspiring ideas with government agencies, incubators, and business accelerators willing to support and adopt their ideas. It also seeks to archive and develop these ideas with their owners until they reach their full potential, then tracks its various development phases.

Enhance communication within the UAE Hackathon Community

Aspiring to continue the success and to develop the UAE Hackathon 4.0 prosperous achievements within youth society through motivating and inspiring them, and having established the grounds of the UAE Hackathon community by the end of the previous edition, The Telecommunications and Digital Government Regulatory Authority (TDRA) is currently aiming to activate the UAE Hackathon Community in a form that corresponds with the current circumstances, overcoming all obstacles, and aiming at realizing the concept of remote innovation which seeks to be in contact with all participants of the UAE Hackathon over the five years. Maintaining communication helps those interested in the Hackathon community obtain a different set of services, training courses, and digital activities. In addition, it helps them gain more skills and knowledge to acquire the kind of innovative thinking that contributes to solving challenges faced by members of society in their professional lives and within their work entities.



Chapter Four: Recommendations

Strengthening the open data portal and enriching the type and quality of available data

- Supporting the implementation of service level agreements with different institutions and government entities who present their open data through Bayanat.ae team, corresponding to publication guidelines and forms of preliminary data.
- Signing an agreement with government entities and ministries to publish their data using the national open data portal.
- Encouraging government entities and ministries to digitally publish data to help innovators easily use and analyze them, instead of publishing these data in their annual reports and statistics as a hard copy.

Implementing the principle of transparency in data and information availability

- Celebrate government entities that have contributed to the dissemination of data in an open framework and give motivational awards for the best, most sought-after and most effective data.
- Work on developing an annual plan that encourages authorities to publish data in collaboration with the National Open Data Portal working group.
- Regularly discuss plans to monitor mechanisms for data collection, management and participation with government agencies and review criteria for the publication of this data.

Enhancing the concept and culture of government innovation

The concept of government innovation is an essential element of the government's modernization and transformation initiatives, which are designed to enable all government agencies to become more flexible, structured, and technically capable. In this way, the culture of innovation can be consolidated by:

- Support the free flow of data that enables innovation in government to emphasise the importance of transparency in the preparation and implementation of government policies.
- Establish innovation as a priority within the strategic agenda of all government entities, and motivate each government entity to prepare detailed strategic plans that include the identification and implementation of innovative solutions to develop their services and overcome existing challenges.
- Find a mechanism to share innovations and facilitate the process of stakeholder participation by operationalising the concept of inclusive innovation.

Appendix 1: Hackathon Winners

Hackathon first-place winning teams of each track across the UAE

Award	Track	Team	Additional Awards
First Place	Startups & Entrepreneurs Track	HCMS.ai	50 thousand dirhams
First Place	University Students Track	UAEPixel	25 thousand dirhams
First Place	School Students Track	Meta edu	15 thousand dirhams

Winning Teams of the UAE Hackathon Tracks - Second to Tenth Place:

Award	Startups & Entrepreneurs Track	University Students Track	School Students Track
2 nd Place	Unitors	Waqfa	change makers
3 rd Place	Dakher	Surgical Technology	MetaHumans
4 th Place	Crep ME	Qyada and Ryada	My social life
5 th Place	Cybearena	Fraggle: Bringing Sharing to Life	Hasanat
6 th Place	One Small Step 4 Man	Mental thinking	The Eco-Food Tester
7 th Place	Tagah	Talysis Education	DNS Team
8 th Place	Future creators	Gather together	Exploring the Parallel World
9 th Place	2071	Team T	UAE legends
10 th Place	echoV	Upskillr	XX force

Appendix 2: Nationalities of participants in the UAE Hackathon

The UAE Hackathon is an international event where participants come from diverse countries and cultural backgrounds. More than 51 nationalities from the six continents of the world participated in the UAE Hackathon this year:

Ethiopia	Japan	India	Iraq	Libya	Malaysia	Jordan
Lebanon	The Netherlands	Mali	Morocco	Somalia	South Africa	Syria
Bahrain	Bangladesh	France	Sudan	Belarus	USA	Tunisia
Uganda	UAE	UK	Yemen	Pakistan	Palestine	New Zealand
Nigeria	Norway	Oman	Philippines	Russia	Saudi Arabia	Afghanistan
Algeria	Argentina	Canada	Comoros	Colombia	Turkey	Austria
Egypt	China	Georgia	Australia	Ukraine	Ireland	Albania
Brazil	Mauritania					

Appendix 3: Inspiring ideas in the UAE Hackathon

This year, the UAE Hackathon was distinguished by the presence of many inspiring ideas that contributed to the enhancement of the quality of ideas produced during the Hackathon activities.

Track	Team	HCMS.ai
Startups & Entrepreneurs Track	Idea Description	
	The system runs skill analysis based on supply from universities and demand by labor market inside the governmental, enterprise, and educational institutions to help empower talents with the correct skillset. We have successfully set a complete Standardized Classification of Occupations (SCO) incorporating skills and competencies for the UAE job market, obtained through Natural Language Processing (NLP), Machine Learning, and AI. HCMS can match skills between what is offered in the educational institutions and compare them to the skills demanded by standardized job profiles (also conducted by the HCMS.ai system). The ultimate goal is to create synergy between the labor market and the educational institution through the utilization of AI and Data Science.	
	Team	Unitors
	Idea Description	
A tutoring platform connecting school children with university student tutors in various fields, such as music, dance, academics, and sports. Hiring only university students as tutors makes us unique because we provide jobs to university students as they study and affordable private tutoring for school children.		

Startups & Entrepreneurs Track	Team	Dakher
	Idea Description	
	With "Dakher," trading has never been easier. Dakher is a first-of-its-kind mobile app that allows users to manage their investment strategies through setting customized investment roles. These roles let them invest in companies where they like to spend their money. For instance, if the user loves Apple products, meaning they have believed in this company for at least the upcoming couple of years, then it's recommended that they invest in Apple company stocks.	
	Since the future is unpredictable, then certainly nothing is guaranteed. Yet, the app makes users less vulnerable to panic selling since they believe in this company (through spending money buying their products). It is a recommended strategy by many experts; to invest in companies or projects that you would regularly want to buy from or use.	
	How does it work at Dakher? Users can specify a percentage of the total amount spent to be invested in the same company or a similar company of their choice by uploading their recent receipts.	
	Team	Crep ME
Idea Description		
Crep ME is an online marketplace for buying and selling authentic sneakers. We act as both middle-man and seller to facilitate the transaction between users. As a marketplace, we work in a bid and ask mechanism that allows buyers and sellers to choose their prices, allowing them to control the market.		



Startups & Entrepreneurs Track	<p>In addition, every product sold on our platform will have to enter our in-house authentication process to ensure that every sneaker meets our quality specifications, as many counterfeits are sold at the price of authentic ones. We at Crep ME will provide safe and seamless transactions for these products.</p>	
	Team	Cybearena
	Idea Description	
	<p>Cybearena has introduced the concept of coaching in cybersecurity, an unprecedented concept that takes into account all life changes.</p> <p>Cybearena aims to produce a set of smart educational courses and programs on cybersecurity and digital wellbeing through its smart apps. It allows a peer learning system and offers continuous learning, follow-ups, and technical support. Programs correspond to various age categories and scientific backgrounds. "Don't judge a fish by its ability to climb a tree," we seek to provide an education that considers individual differences. In addition to enhancing the written content, such as printed and e-books, we enhanced auditory awareness, such as podcasts and audiobooks that meet all different cognitive learning styles.</p>	
	Team	One Small Step 4 Man
Idea Description		
<p>FASTLANE is an e-payment service for public transportation based on Facial Recognition and AI models. You quickly sign up, use any public transportation means, and we will recognize you, calculate when you got in and out, then handle the payment on your behalf. Your only job is to sit back and enjoy the ride.</p>		

Startups & Entrepreneurs Track	Team	Tagah
	Idea Description	
	<p>An accurate mathematical program that analyzes the information of the UAE energy sector to help in deciding to reduce carbon emissions, lower the cost of electricity production, and know the best future plans for expanding production capacity by energy sources (gas, nuclear energy, and clean energy).</p>	
	Team	Future creators
	Idea Description	
	<p>The idea is to build a blockchain network to digitize passports safely. We chose blockchain because it is a growing list of records called blocks linked using cryptography. It records digital transactions and decentralized, distributed ledgers that record the origin of a digital asset. It works across many computers.</p> <p>In addition, blockchain systems are immutable to data breaches and adapt to smart contracts.</p> <p>We were able to identify four current transactions:</p> <ul style="list-style-type: none"> • Supply Chain Transaction Digital • Asset Management System Transaction • Personnel Record Transaction <p>We proposed one new transaction to the digital passport system: Contract Management Transaction.</p>	

Startups & Entrepreneurs Track	Team	2071
	Idea Description	
	<p>The system is divided into a unified accounting system for everyone in the country and a payment application for individuals. It lets us know the number of sales of companies and stores, who they sold to, the buyer's place of residence, and the place of purchase or the store. By that, we can monitor crowded points of sale in the country and redirect new investors to areas with demand and no competitors. In addition, the system determines if there are suspicious sales or purchases and specifies the amount of tax required from companies. Finally, it's worth mentioning that a significant part of the system has already been built and is ready to be provided free of charge to the state.</p>	
	Team	echoV
Idea Description		
<p>Universities and institutions worldwide are not equipped with technological techniques to assist deaf and hard-of-hearing individuals in their education and employment. While few specialized entities are built for deaf individuals, sign language tutors or in-class television captioning are included for a few majors only. A novel system is proposed to assist deaf and hard-of-hearing individuals who aim to continue their education outside special centers and communicate naturally with societies that are not sign language educated. Introducing an intelligent software solution developed to offer affordable augmented reality glasses with real-time transcribing, speech emotion recognition, and voice indications feature, apart from classroom assistive tools.</p>		

University Students Track	Team	UAEPixel - An AI-Powered System to Reduce Road Accidents
	Idea Description	
	<p>UAE-Pixel is an AI system that enables the UAE police force to transform the traditional data-handling process into a more enriched, methodical, and AI-driven way. UAE-Pixel consists of three major systems, which are:</p> <ol style="list-style-type: none"> 1. Advanced data entry system. 2. Accident spatial data analysis system. 3. AI system (Prediction of location and severity of vehicle accidents on the UAE roads through artificial intelligence) 	
	Team	Waqfa
	Idea Description	
	<p>The idea is about a donation application that runs on blockchain to increase revenue for the endowments in the UAE. The application offers the user transparency in the transactions made for donations and lists all previous payments. It also has a section for engaging with the community. This is in favor of offering a unified platform for donations containing a list of all charities and projects available for choice. The user can share his recent successful donation projects and contribute to attracting users to be part of the initiative.</p>	
Team	Surgical Technology	
Idea Description		
<p>A surgical simulation model designed using 3d printing technologies for medical students as a training tool. The model is used for medical education and teaching purposes.</p>		



University Students Track	Team	Qyada and Ryada
	Idea Description	
	<p>The idea of the challenge is to create a prototype for an electronic voting system based on blockchain and metaverse technologies for the political election process in the Federal National Council of the United Arab Emirates, to increase the number of voters to ensure and facilitate the success of the parliamentary experience in the country. The proposed model is the first to include people of determination inside and outside the country to participate in the electoral process through artificial intelligence and blockchain technology.</p> <p>The model also uses a loyalty points system for the happiness of community members. In addition, the model uses metaverse technology to conduct awareness workshops and promote a culture of political participation for university students and employees. It also attracts school students in awareness campaigns to instill the spirit of belonging and train them on the necessity of the involvement and awareness of the culture of political participation.</p> <p>The blockchain is a secure system built on a decentralized and immutable distributed database; it allows data to be distributed and shared among all electors and voters while ensuring integrity and ease of dealing at the parties to the network. It also can reduce voter fraud while making votes traceable and verifiable and prevent unauthorized activity and counterfeit ones by verifying the identity and data of each voter in the system.</p>	

University Students Track	Team	Fraggle: Bringing Sharing to Life
	Idea Description	
	<p>Fraggle is a unique sharing platform aiming to enhance the value of privately owned recreational facilities and present them to everyone. Hosts can list and share any private spaces ranging from Home Theatres to Swimming Pools. We believe in bringing sharing to life and eliminating the wasted value of underutilized spaces. Owners can list the amenities they own for a suitable hourly price and start earning. On average, the facility remains unused 95% of the time; easily list it on Fraggle, stop worrying about maintenance, and start making extra cash. Users can find a perfect facility nearby for a much more affordable price hourly. Whether Jacuzzi and Sauna to Home Theater and Meeting Rooms, we have you all covered.</p> <p>There is no need to worry anymore about the expensive monthly memberships, traveling long distances only to find crowded amenities, and super-high maintenance and operating expenses. Sharing Economy is thriving and is expected to reach US\$335 Billion by 2025. Millennials are SE Enthusiasts, and with a growing number of Millennials in UAE, we can capture a Serviceable Obtainable Market of AED 2.1 Billion. We earn by simply taking a 15% commission from each booking.</p> <p>No other company provides a similar platform for listing and booking private spaces on an hourly basis globally. It is just the beginning; the future holds a lot more. Our long-term vision is to become a peer-to-peer sharing hub with a contribution of 10 SDGs. Together, we can end the wasted value of underutilized spaces and create a massive impact by harnessing the power of sharing.</p>	

University Students Track

Team	Mental thinking
Idea Description	
<p>Transforming your mental thoughts into actual actions without the need for any physical activity. A headband programmed to be able to read your mind without the need for any physical activity or effort. Moreover, it can solve a test or start a game in a blink of an eye.</p> <ul style="list-style-type: none"> You won't need any physical activity to play a game; your thoughts will do the job. Society, in general, takes care of ordinary people, and they don't produce many things that may help people with disabilities in their daily life. This application can be helpful for universities because people with disabilities will not need assistants to do their exams anymore. Accomplishing this project will open doors to many more similar applications. 	
Team	Talysis Education
Idea Description	
<p>As we forcefully transitioned education to remote settings due to the COVID-19 pandemic, research in the field has estimated that half a year's worth of education was wasted when adjusted for the depreciating quality of education.</p> <p>This depreciation was primarily due to the over-reliance on educators to make subjective predictions of student understanding in the classroom and the lack of a granular feedback mechanism apart from examination grades.</p>	

University Students Track

Additionally, there was a general lack of a data-driven lesson planning approach, and the concept of resilience in education was an afterthought. As we were exposed to these challenges during the remote-learning experience, opportunities to develop a solution have emerged.

An opportunity exists to build a platform that provides educators with granular quantitative data and a quicker feedback mechanism through an intelligence dashboard. The answer needs to be resilient to changes and deployable in all learning environments.

Talysis leverages this opportunity to build a tool that can be launched from any device to capture student emotions during classes and provide live feedback to educators using a scientifically proven model called the EADMS* to compute the levels of understanding. Talysis goes beyond the analysis of examination scores and captures new data sources that can be combined with legacy data sources to provide actionable intelligence to educators to model lesson plans, develop customized content, and eventually rework curriculum frameworks. In the grand scheme of things, Talysis fills a core puzzle piece in the immense challenge of education.

Team	Gather together
Idea Description	
<p>Autism ranks fourth worldwide and third in the UAE. Autistic people face difficulty with social interaction, especially in public places and in bright lights. Based on studies, we concluded that autistic people prefer specific colors, figures, and shapes that make them more comfortable. Thus, we invented 3D autalizer glasses connected to the autalizer app that transforms images into more comfortable ones.</p>	

University Students Track

An example of how the glasses work: in busy places, the glasses receive the scene, process it via artificial intelligence, and transform it into a better one with more suitable colors and lighting for autistic people.

Features of the glasses connected to the autalizer app via phone data:

- The EEG technology is a sensor that uses brain waves to know the patient's state, whether they are happy or sad.
- Recordings are made in the application through the camera in the glasses.
- Location is detected through the phone data on the chip inserted in the glasses.

Target audience: parents, friends, health centers, and people with autism.
Glasses Benefits: Reduce Anxiety Disorders for Autistic People.

Team	Team T
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Idea Description

"Virtual Emergency Dispatcher" An AI virtual emergency dispatcher that responds to emergency calls and classifies their severity and priority from highest to lowest based on their seriousness, severity, and tolerance duration, then automatically sends an ambulance to the case location. It will be extremely helpful in saving people's lives when the number of emergency cases exceeds the capacity of the emergency call center and paramedics, as it sends help for severe cases first, then the less. It will have an influential role in increasing rescue opportunities and reducing the number of deaths during crises and disasters. This project keeps pace with the technological development around the world and significantly contributes to achieving the UAE Centennial 2071.

University Students Track

Team	Upskillr
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Idea Description

Upskillr is a recommendation API service attached to the Google Chrome extension and chatbot service. Assuming a person is on a job hiring website (LinkedIn, monster.com, naukri.com, googlejobs.com) looking for their dream job but finds out that this particular job requires a skill set they don't have based on their profile. The person can then use the Upskillr service to extract all the skills (soft/hard) required for that job on the website and compare them with their profile.

The service will be a one-stop solution for students, teenagers, and adults worldwide to prepare for their dream job and achieve that goal with a proper, detailed roadmap and without the hassle of surfing the internet or seeking advice.

School Students Track

Team	Meta edu
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Idea Description

During the Covid-19 pandemic, distance learning continued, and both teachers and students were behind computer screens lacking communication or interaction. Therefore, the employment of technology can create a virtual reality that is more interactive and communicative to achieve a high-quality education.

Team	change makers
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Idea Description

"Bareq" is a robot and a platform programmed to discover the psychological state by interpreting body language, reading facial expressions, and detecting the boundaries of faces.



School Students Track

The authorized person in the organization controls it. When the face is detected, it can be analyzed to obtain the main feature points, such as the eyes, mouth, and nose, in order to accurately determine different facial features, such as gender, age, expression, and other information. Thus, the fingerprint can be replaced with face recognition, which saves the employee and the institution time to go to the fingerprint device. In addition, it can work with various physical environments such as large-angle side faces, shutdowns, opacity, and expression changes. The program uses the mechanism of spatial attention and temporal attention.

How does the project serve the target group?

- Providing counseling and support in the field of mental and moral health for federal government employees
- Distinguish the employees' condition by revealing his facial expressions
- Exploring the employee's inner feelings through infrared
- Indicating the extent to which the result of facial expressions and the employees' internal feeling matches the result.

Team	MetaHumans
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Idea Description

The "MetaAbles" app uses MetaVerse to experience education virtually for students of determination through virtual field trips, visualization of scientific concepts, etc. Gesture recognition feature makes the app more inclusive and user-friendly during video calls. Our speech-to-text and text-to-speech translation feature is a boon to all students of determination.

School Students Track

In Arabic, the word Rafiq translation is Companion, and our friendly, multilingual bot is ready to answer all your queries and provide updates on homework, tests, etc.

Together, these features help mitigate the lack of collaboration in online classes for students of determination and foster an uplifting community that believes in our app motto.

Team	My social life
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Idea Description

Employing modern technology such as metaverse, smartphone applications, and virtual reality glasses for the elderly and people of determination so that they can virtually communicate with the doctors and nurses staff, receive treatment and follow up on their health status without any risks to their health from infection.

Team	Hasanat
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Idea Description

The system distributes children's daily tasks from school duties to display the number of remaining homework, due dates, and their daily schedule. The system teaches children to recite the Qur'an, correct errors in recitation, and rewards them when reciting a certain amount.

Linking physical health to religion by making the student perform sports according to the coordinates of nearby mosques or Quran memorization circles, making the system more flexible by teaching children other skills such as programming.

**School
Students
Track**

Team	The Eco-Food Tester
Idea Description	
<p>In this age, pesticides are widespread among the farmers, and sometimes wax is also applied on food items, especially fruits, before exportation. People generally forget to wash their fruits and vegetables before eating or cooking, which can cause a massive problem in their wellness, mostly leading to food poisoning.</p> <p>Forty million people are affected by this problem, and 128 thousand are hospitalized due to the same. To stop this, we introduce The Eco-Food Tester. Our idea is to make the world a better and safer place. The Eco Food Tester tests your food using a needle to check the nitrates in the food items. As we all know, there are 17 Sustainable Development goals, also called SDGS Which we all aim to accomplish by 2030. We have incorporated SDG 12: Responsible Consumption and Production in our idea.</p> <p>The table highlights a few critical points in our model. First, the detection needle is attached right below the device. Being a sharp needle will sense the nitrates and chemicals in the food item. A sterilization kit will be provided to ensure that the needle is clean before use and cleaned before being exported. The display screen is placed right on top of the front side of the machine and provides the reader with the chemical composition and safety level of the food item. Finally, the instruction panel is present on the face of the device. It gives the data if a food item is safe to eat. It will also showcase how the food item should be cooked to ensure that the nutrients in the food items will not be wasted.</p>	

**School
Students
Track**

Team	DNS Team
Idea Description	
<p>A mobile application that promotes the UAE as a tourism destination for both domestic and international visitors using modern technologies like VR, AR, and AI.</p>	
Team	Exploring the Parallel World
Idea Description	
<p>The idea is to create a mobile application that uses machine learning to recognize the objects that surround children in the real world. Then, the app transforms those objects into learning materials and creates gamified, engaging, interactive, and relevant learning experiences using augmented reality. It will solve students' disengagement with teachers and provide them with a tool that meets their curiosity about the world surrounding them, as well as give them relevant, authentic, and engaging learning experiences through:</p> <ul style="list-style-type: none"> • Relevant: engaging real-world objects as learning triggers provide a great learning experience that is relevant and engaging. • Authentic: Augmented reality stimulates students to explore and learn. • Gamification: The learning journey in a parallel world called Pandora; requires help to survive. Through the attempt to save Pandora, children will get involved in different adventures to collect items, unlock codes, solve challenges, and achieve various rescuing missions throughout their journey. "Neytiri is the main character of the app. It guides and helps children to solve challenges." 	



School Students Track	<ul style="list-style-type: none"> • Connect learning to the real world: Extended learning to the surrounding world beyond textbooks where students have the opportunity to connect with the real world and have a practical understanding of their curricula. • Accessibility: Augmented reality educational solutions are more affordable and accessible; anyone can easily download them on smartphones from the App Store. • Learner-directed: Augmented reality educational programs have the advantage of being learner-directed. • Sustainability: The Carbon footprint calculator feature helps children monitor their carbon footprint and its impact on climate change. Children can earn rewards and points given that they improve their carbon footprint to save the parallel world. 	
	Team	UAE legends
	Idea Description	
	<p>Using AI and IoT to collect data about traffic caused by a car accident and solve it by controlling traffic lights and other devices.</p> <p>The first stage is to collect data about the traffic; smart cameras, google maps traffic data, mobile apps, and drones will be used to collect the required information. Then, these data will be used via AI and IoT to control devices, such as traffic lights, smart screens, mobile apps, SMS, and radio station.</p>	

School Students Track	Team	XX force
	Idea Description	
	<p>The application highlights the importance of eliminating as many as possible devices that result in destructive effects starting in the UAE. Considering that, we decided to focus on E-Wastes. An unnamed Private company that had put up an experiment found out that in Fujairah, a whopping total of 43098.817999 tonnes of leavings were collected, and those wastes were hazardous amongst multiple other similar cases in other areas of the country.</p> <p>With all the possibilities of the harmful effects these wastes face us, our vehicle ensures a continuous energy cycle where the parts of the electronic body are processed into making fuel for the self-driven vehicle with the help of the implementation of IoT and AI in the complete process.</p>	

Appendix 4: Participating teams, mentors, and arbitration

1st: Participating teams

Track	Number of Participating Individuals	Number of Participating Teams	Number of Participants	
			Males	Females
Startups & Entrepreneurs Track	462	46	279	183
University Students Track	1299	155	508	791
School Students Track	401	53	142	259
Total	2162	254	929	1233

2nd: Mentors

Number of entities participating with mentors

International Organization	Private Companies	Universities	Government Entities
1	5	7	18

Number of Mentors	46
Participating Entities	<ul style="list-style-type: none"> • Federal Authority for Identity, Citizenship, Customs, and Port Security • Fujairah E-Government • Ministry of Energy & Infrastructure • Ministry of Human Resources & Emiratization

Participating Entities

- Ministry of Economy
- Ministry of Community Development
- Umm Al Quwain Smart Government
- General Authority of Islamic Affairs & Endowments
- Federal Competitiveness and Statistics Centre
- Dubai Police Force
- General Women's Union
- Human Resources Department of Ras Al-Khaimah Government
- Emirates Schools Establishment
- Federal Authority for Government Human Resources
- Ministry of State for Federal National Council Affairs
- Ras Al Khaimah Tourism Development Authority
- Telecommunications Regulatory Authority and Digital Government
- Ministry of Justice
- HERE Technologies Company
- Google Inc
- Ericsson Inc
- SAS
- du Emirates Integrated Telecommunications Company
- United Arab Emirates University
- Ajman University
- Umm Al Quwain University
- University of Science and Technology in Fujairah
- American University of Sharjah
- University of Dubai
- Higher Colleges of Technology
- Institute of Electrical & Electronics Engineers

3rd: Arbitration

Track	Name of the Judges	Entity
Startups & Entrepreneurs Track (1 Arbitration Committee)	<ol style="list-style-type: none"> 1. Ali Al Nuaimi 2. Ayman Ibrahim 3. Marwa Al Hosani 4. Mohamad Mukhtar 5. Mohamed Aboud 	<ol style="list-style-type: none"> 1. Chairman of Arbitration Committee 2. Vice-Chairman of Arbitration Committee 3. The Telecommunications & Digital Government Regulatory Authority 4. One & Only Company 5. IEEE TEMS
University Students Track (2 Arbitration Committees)	<ol style="list-style-type: none"> 1. Ali Al Nuaimi 2. Ayman Ibrahim 3. Khalifa Al Jaziri 4. Mohamed Salihat 5. Mohamed Baloola 6. Mubarak Al Mheiri 7. Shehab Ahmed Abdullah 8. Judhi Prasetyo 9. Moza Kayaf 10. Mohamed Aboud 	<ol style="list-style-type: none"> 1. Chairman of Arbitration Committee 2. Vice-Chairman of Arbitration Committee 3. Ministry of Economy 4. University of Science and Technology of Fujairah 5. Ajman University 6. The General Authority of Islamic Affairs and Endowments 7. Dubai Police Force 8. Middlesex University Dubai 9. The Ministry of State for Federal National Council Affairs 10. IEEE TEMS

School Students Track (1 Arbitration Committee)	<ol style="list-style-type: none"> 1. Ayman Ibrahim 2. Mohamed Aboud 3. Ahmed Ibrahim Al Makki 4. Omar Al Ahmed 5. Amal Al Amiri 	<ol style="list-style-type: none"> 1. Vice-Chairman of Arbitration Committee 2. IEEE TEMS 3. Ministry of Education 4. Ministry of Education 5. Ministry of Education
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Number of entities participating offering arbitration committee members

Government Entities	Universities	International Organizations
6	3	1

Appendix 5: Success Stories throughout Previous Hackathons

Ministry of Justice Project-UAE Hackathon (2019)	
Idea	<p>The Smart Judicial Portal is a technology that aims at connecting the court, publishing houses, and users to facilitate the process of advertisement through publishing and increase user satisfaction.</p> <p>The Smart Judicial Portal also investigates, executes, and issues warrants through the temporary suspension to cancel travel ban orders in less than 30 minutes.</p>
Success Story	<p>The idea of the Ministry of Justice's project was to contribute to the provision of thousands of working hours, protect the environment, and increase the comfort of customers. It is done through a new technology that connects authorities and customers. The project was then handed to the innovation team at the Ministry of Justice to develop and apply it.</p> <p>The team developed the project idea and launched the Smart Public Prosecution Passage initiative to speed up litigation and facilitate procedures for travelers (entry and exit).</p> <p>In coordination with the relevant authorities, such as the Ministry of Interior, the "Smart Passage" app has succeeded in establishing cooperation with Abu Dhabi and officially accrediting its use on all ports.</p> <p>This technology is a perfect example of how much innovation can help simplify the travel process and prevent travel bans. It offers an exceptional travel experience in terms of timing, efficiency, and quality of procedures.</p>

Hafela Project (Beljwar)-UAE Hackathon (2020)	
Idea	<p>The "Work Bus" focuses on professionalism and raising employee happiness simultaneously. The idea is established upon providing innovative, designated, integrated and competent buses ready to transport their employees from their homes to their workplaces. This helps reduce large areas of parking spots designated for this category and instead use them for more investment. The bus also significantly helps in reducing carbon emissions. It will also embrace many innovative features that allow employees to register their fingerprints since the moment they get is and start their work early in the Work Bus!</p>
Success Story	<p>For over 3 years, the UAE Hackathon has attracted the attention of the team that included 3 female students since day one, brought together by their passion for studying Industrial & Systems Engineering at Khalifa University and their desire to continue research and development to maximize the use of all industry innovation and opportunities in a challenging time.</p> <p>And despite the impact of Covid-19, they managed to develop their idea to meet the market needs and opportunities. This massive change has even helped them as the world moves towards teleworking and the sharing economy. The outcome of the whole journey was the application "Beljwar," which connects available workspaces with users looking for a comfortable working atmosphere.</p> <p>Today, following a path of tenacity and persistence in accordance with their vision, they managed to expand their business and establish a registered company in Abu Dhabi with a location and a private number to ensure their future success and competitiveness as an Arab application developed in an Arab country that meets all elements of global competition. https://beljwar.com/</p>



	In a crystal-clear message, the team expresses its utmost gratitude and appreciation to the leaders of the UAE Hackathon, acting as their primary motivators to enhance their capabilities and skills to add yet another success story in the field of innovation and entrepreneurship, which is particularly encouraged by the UAE.
Up-Skillers-UAE Hackathon (2021)	
Idea	The Up-Skillers team has developed a system that utilizes data science techniques and AI to help with various tasks related to human capital. The system can convert tasks and KPIs into a set of skills that can be easily measured and monitored through the system. The proposed system incorporates state-of-the-art technology and is based on global best practices.
Success Story	<p>The Up-Skillers project has succeeded in building bridges of cooperation with the Federal Authority of Government Human Resources. They have also signed a cooperation agreement with Udacity, where they offer an excellent experience in analysing students' data and producing detailed reports on their scientific and skills needs, and another cooperation agreement with Next Fifty Initiative.</p> <p>In this context, they have been able to develop the program technically in recent months to meet the requirements of the target group of users. They are also currently making efforts to increase cooperation with the Ministry of Education and are seeking cooperation with all the authorities involved in the development of human resources in the country, a move that reflects their conviction that human resources are the core of future development.</p>

WeGrow Project-UAE Hackathon (2021)	
Idea	WeGrow is a user-friendly mobile app that provides livestock breeders/producers with an efficient platform to manage their livestock with multi-dimensional issues and features. The app has all the prominent features, sections, and variables to meet the requirements of livestock breeders/producers. The main sections of this app include livestock management, which helps the user track livestock in various dimensions, including health, age, gender, production, reproduction, pedigree, and space management. In addition, the user can also manage their own finances with this app.
Success Story	<p>The team plans to officially launch the app within the upcoming few months after completing over 95% of the development features and technical settings. In line with their strategic vision, they are looking for technical partners in the information technology and telecommunication sectors to support their vision for the optimum utilization of all emerging technologies for their users' goals. They are also preparing for new rounds of investment to support their financial resources and achieve their targeted expansion plans and growth.</p> <p>This strategic move comes after conducting several discussions to collaborate with the Zakat Fund for a smart link between the application and the livestock breeders/producers' Zakat account.</p> <p>This strategic move comes after conducting several discussions to collaborate with the Zakat Fund for a smart link between the application and the livestock breeders/producers' Zakat account. In addition, collaboration with the Abu Dhabi Agriculture and Food Safety Authority was discussed to establish the application as a primary supporter of the country's livestock breeders.</p>



Futaim World Project-UAE Hackathon (2021)	
Idea	<p>A creative platform that seeks to enrich Arabic digital content in the Arabic language facilitation field and arts and crafts education. Believe that language learning and the development of artistic taste are among the most important foundations for building a creative Arab generation capable of expressing themselves, their culture, and identity.</p> <p>The platform provides interactive visual tools that develop children's taste and imagination as lessons in Arabic language, arts and crafts are presented as part of a fun and entertaining narrative storytelling that brings joy to children and instills in them the values of tolerance, love, giving and belonging in them.</p>
Success Story	<p>In an effort to enrich Arabic digital content, and in the belief that learning the language and developing artistic taste are among the fundamental requirements for building a creative Arab generation, the Futaim World team has launched a website (www.futaimworld.com) where all the services offered by the platform can be found.</p> <p>The Futaim World Project participated in the 12th edition of the Sharjah International Narrator Forum and published a book on bullying in collaboration with Al-Saif Publishing House.</p> <p>The role of the Futaim Project did not end here, as they presented a reading session as part of Reading Month at the Umm al-Quwain Creative Centre.</p> <p>In addition to representing the UAE at the Bologna Children's Book Fair in Italy where they conducted workshops on puppetry.</p>

	<p>This is in addition to participating in the Sharjah Children's Reading Festival art exhibition because they believe in the importance of spreading happiness and teaching children values such as tolerance, love, giving and belonging.</p>
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Appendix 6: UAE Hackathon Partners

Government Partners



أم القيوين الذكية
SMART UMM AL QUWAIN



هيئة الحكومة الإلكترونية
Electronic Government Authority



Appendix 6: UAE Hackathon Partners

Academic Partners



Private Sector Partners



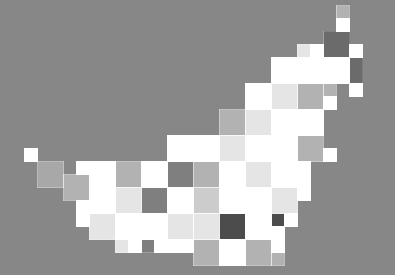
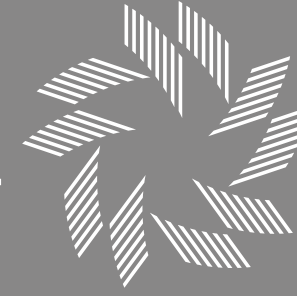
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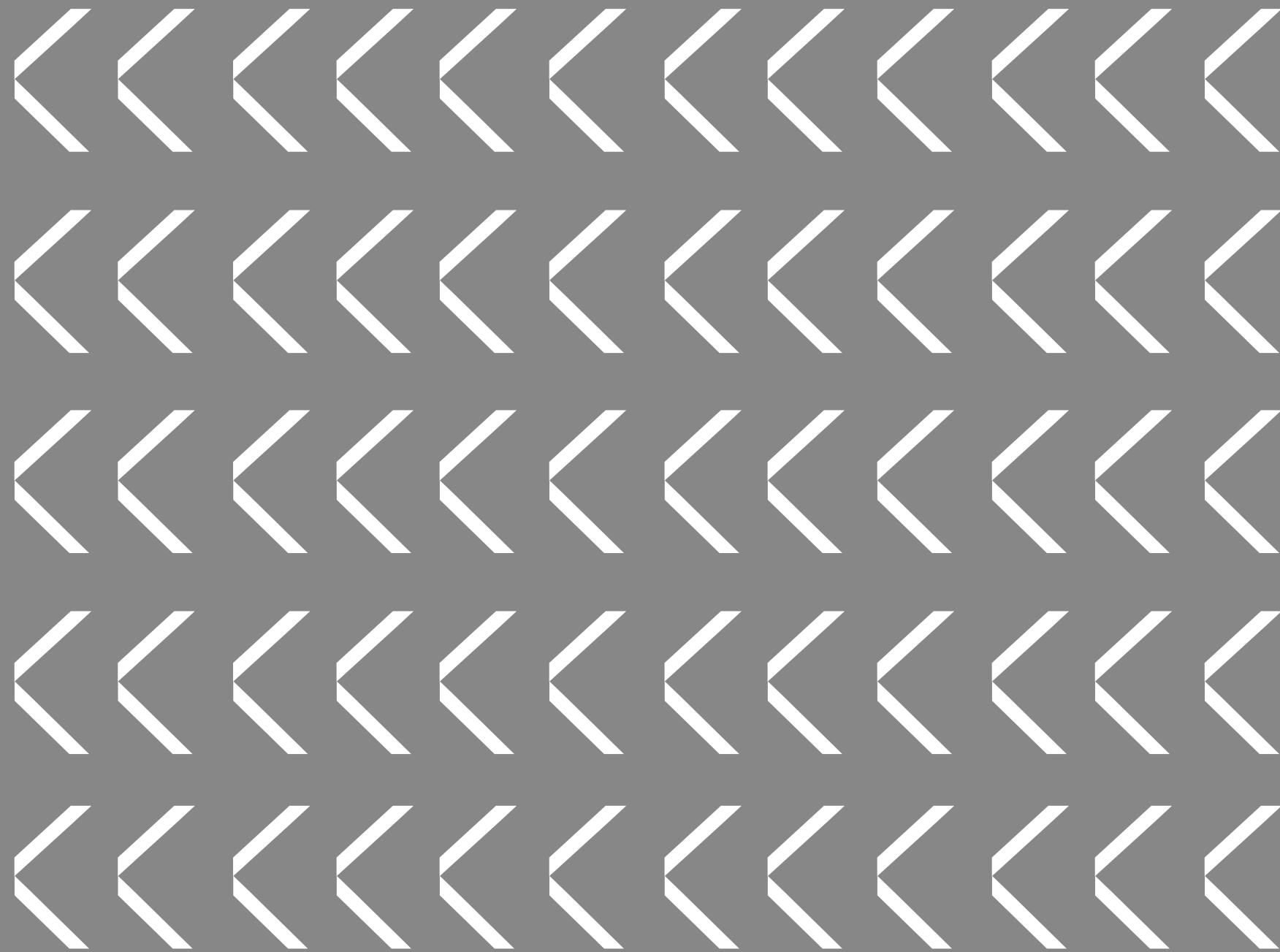


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