هيئة تنظيم الاتصالات TRA
TELECOMMUNICATIONS REGULATORY AUTHORITY

United Arab Emirates

# CENTER OF DIGITAL INNOVATION (CODI)



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# CONTEXT AND BACKGROUND

## Vision 2021

In line with the UAE's Vision 2021 to be among the top 10 countries in the world by the Golden Jubilee of the Union in 2021, the UAE has taken many steps and strives to promote and encourage innovation. All these efforts are aimed at achieving Sustainable Development Goals, especially goal 9 (industry, innovation and infrastructure and partnerships for goals).

## NEED

Every country needs a digital center where:

- Research can be done to develop new technologies;
- Courses can be created to transfer knowledge to citizens;
- Innovation can be nurtured and implemented;
- Government institutions can use test-beds to develop ideas; and
- Creativity is not only encouraged but mandatory

## The UAE Smart Government

The primary aim of this initiative is to ensure the happiness of all UAE citizens. Sheikh Mohammed describes Smart Government as one that never sleeps (working 24 hours, 365 days a year). Sheikh Mohammed has added that Smart Government could be considered as welcoming as a hotel, providing fast delivery and strong procedures, innovative and adaptive, serving the citizens at any time and everywhere inside and outside the country, improving lives and responding to expectations.

## The UAE National Innovation Strategy

The National Innovation Strategy (NIS) aims to take innovation in the UAE to new heights, where a culture of innovation is embedded amongst individuals, companies, and governments. It primarily focuses on identified priority sectors that will drive future innovation.

## PROJECT AND INNOVATION

# 3D Printing Lab

The 3D-printed lab includes four sub-laboratories: Electronics Lab, Software Lab, Mechanical Lab, the Prototype Lab, as well as an outdoor-testing facility. Located in the UAE, the first ever 3D-printed laboratory building, near 87 percent project completion is almost ready. The lab aims to study the science and technique of unmanned aerial vehicles (UAVs) and 3D-printing.

# Innovation

CoDI, through collaboration and exploration of new methods, drives innovation to enhance and develop the adoption of mobile government services. For example, the center developed a virtual surgical simulation for the Ministry of Health and Prevention, which was demonstrated at the World Government Summit (2016).

CoDI also extended its outreach to school students through the launch of the Innovation Summer Camp (2015 and 2016), the camp aimed to discover and nurture students' potential in ICT and smart technologies.

### UAE Open Source Community

The Telecommunications Regulatory Authority (TRA), represented by CoDI hosted the annual forum of the UAE open source software community, "OpenUAE" in the presence of a group of university students and experts in this field.

### Innovation Summer Camp

This camp focuses on creative challenges that are Engineering/Scientific and Creative & Performing Arts/Improvisational based. An all new first-time summer camp in the UAE, offering student ages between 7-14 creative challenges focused on 21st Century Learning skills:

- Creativity & Innovation
- Critical Thinking
- Collaboration & Teamwork
- Communication

## STORY

### CENTER OF DIGITAL INNOVATION CODI

The Center of Digital Innovation (CoDI) was established in late 2013 in line with the UAE leadership announcement of the mGovernment initiative and the need for a digital center. The services provided by CoDI are diverse, yet all work in parallel to achieve its main goal of achieving a smarter digital future for the UAE.

The CoDI was created to enable the digital journey of both citizens and the government, through innovation, research, education, training, skills development, seminars, quality assurance, and consulting services. It is structured to stimulate innovation, research, and develop new methods for building and delivering smart government services as well as provide a collaboration platform.

CoDI hosts a quality assurance lab of smart government services; the lab is focused on ensuring that government entities and academia can achieve a common level of performance, security, and quality on new and emerging services. It aims to develop and disseminate best practices through seminars, training, and partnerships with educational institutes. Also, it offers consulting services ranging from strategy support, hands-on assistance, and/or targeted guidance regarding application and service development for the transformation to smart government.

As a digital innovation center, CoDI is home to the latest forms of technology, in which the innovation team is engaged in researching, testing and developing the best solutions to creating systems that would benefit the citizens and government of UAE.

CoDI aims to build a community that brings together engineers and developers with many

talents that work well together to build futuristic services and serve the UAE's citizens and government. Through collaboration and exploration, many intelligent systems have been created in CoDI, serving multiple educational purposes and contributing to the digital drive in the UAE. Some of the technologies practiced at CoDI include 3D printing, virtual reality simulations, and the internet of things.

## Mobile application

CoDI's mobile application testing service as various tools that are capable of testing mobile applications. These test services will assist government entities to test applications before they are fully deployed; detailed reports are provided to the entities post the test.

The Smart Lab also acts as a gatekeeper for the UAE government. Through the Mobile App Testing Lab, apps are tested, and there is a level of quality assurance and security provided. The lab also can test for compatibility, performance, binary analysis, static and dynamic code analysis, and anti-reverse engineering; ensuring operational effectiveness. All testing tools are fully integrated, and tests are conducted with a high level of automation, saving time and costs. This allows the lab specialists to focus on analyzing the reports and ensuring the relevance and quality of the information provided.

### Compatibility test

Testing the application's compatibility with various hardware, operating system versions, and screen resolutions.

### Dynamic Analysis

Penetration testing performed at the level of running applications which checks for exploitable vulnerabilities.

### Binary Analysis

Analyzing properties and permissions of the running application.

### Anti-Reverse Engineering

Test Checking how safe the application is from being reverse engineered or modified, the code protections are verified.

### Static Code Analysis

Investigating and detecting errors and defects in the source code without actually executing it.

### Load Test

Realistically simulating user activity and monitoring server behavior.

## Training

With the launch of mTransformation, there was an immediate need to understand the current knowledge and awareness levels of the various government entities, their overall readiness, and the need to develop the right training material. CoDI provides training services in different formats, on-site instructor-led sessions, virtual instructor-led online sessions, and self-paced training.

Besides, CoDI produced eight training manuals and two books targeting government and academic organizations as a means of disseminating UAE's experience of mobile government transformation globally. The center hosts trainees from around the world.

Courses follow the Secure Coding Guidelines that are aimed at training app developers in best practices for coding and basics of iOS and Android development.

## IMPACT

1. CoDI has created numerous IT courses that everyone can participate in free of charge. The courses enable users to be more IT savvy and gain a better understanding of IT applications, concepts and platforms.

2. The use of 3D printing has expanded within the country as a result of CoDI early adoption of a 3D printing lab. This has unleashed the imagination of many people throughout the country.

3. CoDI's virtual health lab has trained doctors to perform virtual surgeries using augmented reality and artificial intelligence. This has improved the surgery skills of many doctors from the University of Sharjah.

4. CoDI's User Experience Lab has optimized government applications and services in all communication platforms, is on the web, smartphone, or service booths.

5. Consultation is a service that adds value to CoDI and supports the ongoing efforts of other government organizations to integrate their platforms and services with the national platforms. The center offers technical consultations to them and facilitates meetings with subject matter experts. The center also provides technical consultation to entrepreneurial projects started by Emiratis during the initial phase before funding the projects. Such consultation includes access to technology and experts at the center.

6. The service also acts as a bridge of communication for project managers and developers who are working to support the UAE's smart government initiatives with industry experts specialized in their topic of interest. CoDI offers technical consultation and acts as a platform for individuals to meet subject matter experts. This service also supports the ongoing efforts of other government organizations to integrate their platform and services to national platforms.

7. All these efforts are aimed at achieving Sustainable Development Goals, especially goal 9 (industry, innovation and infrastructure and partnerships for goals) leading to

making the UAE to be ranked 1st among Arab countries in the Global Innovation Index, 2018 and 8th rank globally in percentage of researchers in business enterprise, the Global Innovation Index, 2018.

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