

# Al Tamimi Patent & Design team Partners with Abu Dhabi's TAKAMUL program

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This initiative was specifically created to help UAE nationals, universities, enterprises (both large and SMEs), to maximize the full potential of their innovative ideas.

The Technology Development Committee of Abu Dhabi spearheaded the TAKAMUL program to facilitate the integration of each stage of the innovation lifecycle, which starts with the generation of ideas and successfully concludes with the practical application of these ideas through innovative products and services. Initially, the TAKAMUL program aims to increase the number of international patents granted to Abu Dhabi based entities.

The TAKAMUL program is part of the realisation of the Abu Dhabi Policy Agenda and Economic Vision 2030.

The Abu Dhabi Policy Agenda and Economic Vision 2030 manifests the Abu Dhabi government's commitment to build a knowledge based economy. By 2030, Abu Dhabi will be an Emirate in which the benefits of Science, Technology and Innovation (STI) will pervade every aspect of life - inspiring the people, empowering the Emirate and transforming the economy.

Al Tamimi & Company is proud to have been a strategic partner in the pilot program of this exciting newly launched program, which lays down the foundation of science, technology and innovation for Abu Dhabi's envisioned knowledge based economy. The firm worked with leading Abu Dhabi innovators, Khalifa University of Science, Technology and Research, and The Petroleum Institute, in complex technological innovations across cutting edge technology such as nanotechnology, communications network security and oil discovery & extraction methods.

Hand in hand with local innovators, we assisted in the harvesting of inventions to ensure that the local inventive was properly captured as patentable ideas and filed as patent applications, which will surely provide dividends as a return on investment to Abu Dhabi's knowledge based economy.

An overview of each of the aforementioned inventions follows:

## **Improving Network Security**

Network security in communications systems is of critical concern to users, however, such security protocols typically slow down the high speed networks which consumers demand in this internet speed age.

Researchers at Khalifa University of Science, Technology and Research worked on a solution to ensuring proper security of high speed networks without slowing them down by providing military-grade secure communications using advanced cryptographic techniques over broadband networks. The team is optimizing and tailoring a security protocol for high data wired and wireless communications using OFDM (Orthogonal Frequency Division Multiplexing) technology which involves applying advanced cryptography at the "physical" layer of communication protocols. This allows for more efficient and cost effective operation without sacrificing strength of security.

## **Nanotechnology**

The world appears to have a fixation with handheld communications devices as evidenced by the meteoric

rise in consumer demand for portable technologies. Smaller and faster semiconductor chips are necessary to meet such demand.

Khalifa University of Science, Technology and Research's researchers have been at the forefront of developing sophisticated nanotechnology tools with the utmost precision that can create and test the tiniest of components used in the semiconductor industry. Nanotips comprise an essential nanotechnology tool that is critical for the creation of smaller and smaller microchips. The challenge has been developing a way to create these advanced nanotips using electron bombardment as opposed to prior methods that used a gas based process resulting in a nanotip that is more precise and symmetric – properties that are vital for next generation semiconductor chips.

## **Oil & Gas**

The research teams at The Petroleum Institute have been developing ways to discovering and extracting oil from the challenging geography of the Arabian Gulf with greater efficiency.

Researchers have been working on algorithms to filter out the “noise” caused by the Gulf's unique underwater terrain, which will help oil exploration teams in the Gulf identify potential oil pockets faster and with more accuracy. They have also developed an algorithm, which filters through the surface waves to get more accurate readings in the analysis of seismic data in shallow waters.

The Petroleum Institute has also developed a new method of measuring the wettability of rocks and materials by using a customized algorithm that expresses wettability in terms of contact angle in order to make such measurement more economical, faster and with greater accuracy.

These inventions are indicative of the inventive capability of local talent in cutting edge technologies, which may find application in industry throughout the world. Al Tamimi & Company is actively working with local inventors to harness the creativity of their ideas into protectable intellectual property, which ranks with best in class technologies on the world stage by filing and prosecuting patent applications in patent offices including the United States Patent & Trademark Office and the European Patent Office.

Acknowledgement: Sources and information on the TAKAMUL program and the specific inventions quoted are found in [www.tdc.gov.ae](http://www.tdc.gov.ae) and the Abu Dhabi Innovations brochure published by Technology Development Committee.