

# Innovation & IP at the Core of the 4th Industrial Revolution

by Ahmad Saleh - ah.saleh@tamimi.com - Dubai International Financial Centre  
Bachir Abou Chakra - b.chakra@tamimi.com - Riyadh

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Few will contest that the fourth industrial revolution is well and truly in full swing across the globe. The revolution, known as industry 4.0, we are witnessing today is not merely an extension or continuation of the prior revolution. Instead, industry 4.0 is witnessing new inventions and breakthroughs in the fields of autonomous transport, nanotechnology, the internet of things, smart devices, artificial intelligence, 3D printing, robotics, quantum computing, biotechnology, to name a few.

## The Industrial Revolutions – Past and Present

The first, mechanical, revolution witnessed the invention of locomotives and the gradual rise of factories. The second electrical revolution, introduced electricity. The third revolution ushered in digital technologies (telecommunications, computers and finally the internet). All three revolutions have led to human progress; and particularly the development of sophisticated legal intellectual property (IP) protection and exploitation regimes. At an international level, IP legal development culminated with the coming into force of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) on 1 January 1995. TRIPS required member countries of the World Trade Organisation to enact laws, which are in line with international standards on the protection and enforcement of IP rights. On the digital electronics front for instance, TRIPS paved the way for the universal recognition of integrated circuit layout designs among WTO member countries. Overall and in line with the digital revolution's changes, TRIPS instilled a common goal among WTO members to actively promote technological innovation and the transfer and dissemination of technology. However, all these developments arguably pale in comparison to the disruption that industry 4.0 is causing. Compared with its predecessors, industry 4.0, is surpassing expectations and is rapidly changing the foundations of several disciplines, including intellectual property (IP).

## Brief Look at the Evolution of IP from the mid-20th to 21st Century

In terms of IP, each revolution of course introduced something new – an innovation that in turn caused a series of changes in all sectors of the economy and a proliferation of new patents and designs. The last revolution, for instance, began in the 1960s with the introduction of semiconductors and culminated with the introduction of the internet during the mid to late 1990s. In less than fifty years, the digital revolution generated an unprecedented amount of IP. According to the European Commission's Eurostat quarterly review, statistics show that the number of patent filings during the 1990s alone rose by more than 40%. In this respect, a prime example of a new form of IP arising during that period was that relating to mobile phones.

What the digital revolution managed to achieve on the IP front in four decades, industry 4.0 is now achieving in less than a decade. In terms of patents, the global rise in patent filings this decade is unprecedented. The World Intellectual Property Office reported that the total number of patent filings worldwide in 2011 exceeded 2 million for the first time ever, with a growth rate of nearly 8% for that year alone from 2010. In technology and telecoms, the rapid evolution of mobile phones to smart phones, the associated proliferation of mobile applications and the unfolding patent wars (such as between Apple and Samsung) evidence how much and how quickly things changed in this

past decade. So what exactly are these new changes, which occurring with industry 4.0, and what are the associated IP consequences? The next section briefly takes the UAE as a case study to examine how industry 4.0 is developing in this country and what the IP outlook is.

## Industry 4.0 in the UAE

To be better placed to address the changes arising from industry 4.0, on 28 March 2017 the UAE Cabinet of Ministers formed the UAE Fourth Industrial Revolution Council (FIRC). Broadly speaking, the FIRC is now the UAE government body responsible for the UAE's strategy to adopt new technologies and develop the digital and knowledge based economy in the UAE. Shortly after its formation, FIRC worked closely with the UAE Government to formulate this strategy and on 27 September 2017, announced its main goals. Very briefly, those goals focus on four fields: the education sector, the health and medical industry, economic security and finally urban planning and the defence industry. These four fields are among the principal sectors set in the UAE's Vision 2021 and each of them entails actions which would lead to various improvements in our daily lives.

In the education sector, the FIRC will implement the utilisation of smart devices, nanotechnologies and artificial intelligence (AI) to offer advanced expertise in the transfer of knowledge and enhancing the learning experience in all types of academic and vocational settings. In the health and medical industry, the FIRC will work with the institutions to introduce telemedicine, robotic healthcare and intelligent genomic medicine, AI analysis and processing of a patient's genomes, to optimise the diagnostic and therapeutic treatment of patients. In the field of economic security, the FIRC aims to capitalise on the development and use of blockchain based technologies and applications across all types of transactions and services to reduce costs and pollution in the UAE by going fully paperless. For urban planning and the defence industry, the FIRC aims to develop and use smart systems for processing satellite data in planning future cities and to empowering the armed forces with advance robotic systems and autonomous vehicle technologies.

At the core of the FIRC strategy are innovation and IP. In this respect, FIRC wants to establish a national environment that encourages the development of new technologies and incubates the innovative efforts and initiatives of the younger generations in the UAE. To this end, one of FIRC's main aims is to usher in a new digital era in the UAE where the younger generations will better appreciate the IP value of innovations and the development of an advanced patent protection regime to secure the rights to such innovations.

To implement its ambitious agenda, the FIRC will need to consider the existing UAE legal framework as it relates to attracting talent, stimulating research and development, protection, commercialisation and deployment of IP and innovation and to understand what refinement may be required. This could include education and talent placement policies, tax incentives for research and development, infrastructure policies, regulatory licensing, competition and consumer protection legislation, commercial and insolvency legislation, labour laws, public procurement rules, technology transfer and IP legislation.

The implementation of FIRC's strategy coupled with the enactment of new laws, regulations, and policies is likely to improve the UAE's ranking on the Global Innovation Index from its current 35th position globally in 2017. The Index ranking of the UAE was and continues to be contingent among others on how many resources the UAE invests in research and development capabilities and patent protection. Therefore, as IP and innovation are at the core of FIRC's strategy, assessing and securing innovative and patentable solutions, advancements and breakthroughs, which will come about in all four fields, is equally important for the public and private sectors.

To foster, incubate and grow creativity and innovation, securing the accompanying patent rights is the key to commercially leveraging benefits of the FIRC strategy, increasing foreign investment and unlocking the potential that it has to offer. As such, intellectual property protection, including patenting innovations arising from the execution of FIRC's strategy, is a vested interest for both public and private stakeholders in the UAE. With a joint public and private effort, the UAE should

continue to rise up the ranks of the Global Innovation Index of this year.

As trusted advisors with a team of qualified knowledgeable IP experts, Al Tamimi & Co are best placed to help clients in formulating and executing patent strategies, which are mindful of all the changes occurring in this fourth industrial revolution we are witnessing. For further details and/or enquiries on this topic please contact the authors of this article, Bachir A Chakra and/or Ahmad Saleh (Partner & Head of Patents & Designs – R&D and Innovations) at [b.chakra@tamimi.com](mailto:b.chakra@tamimi.com) and/or [a.saleh@tamimi.com](mailto:a.saleh@tamimi.com).