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CIEC's Profiles in Creativity and Innovation: Dr. Ahmad Al-Ghazawi

Innovation drives long-run economic growth. But who are the people who can make works of art, scientific breakthroughs and technological leaps possible in some of the world's most challenged economies?

Profiles in Creativity and Innovation is a series of vignettes that recognize individuals who have advanced creativity and innovation in countries around the globe. Throughout the year, CIEC's researchers will share with you stories of great people we've met who, against all odds, embrace new technologies, new research methods and new artistic outlets to make a difference.

Dr. Ahmad Al-Ghazawi

Founder & President
Triumpharma, LLA
Amman, Jordan

"The intellectual property reforms and excellent pharmaceutical science education make Jordan a great place to be an innovator."

- Dr. Al-Ghazawi



Dr. Ahmad Al-Ghazawi: The Supergeneric Innovator Contributed by Michael P. Ryan and Shauna Eisenberg

Dr. Ahmad Al-Ghazawi is the founder and president of Triumpharma in Amman. He is the supergeneric innovator because he established Triumpharma to develop innovative formulations of known generic medicines that improve efficacy for the patient, and he is doing it in his native Jordan. He says that he owes his pharmaceutical business strategy to what he learned during the ten years that he worked in the United Kingdom for companies such as Baker-Norton (which later came to be owned by generic powerhouse Teva), Smith-Kline (which has since merged to become multinational giant GlaxoSmith-Kline), and Merck (which later became Merck-Serono). At each company, he learned more about innovative drug delivery R&D, a specialization for him that had been the main focus of his PhD studies and dissertation at the University of London. But, he says, "I owe all of that to what His Majesty the late King Hussein made possible for my generation in Jordan."

A Jordan-Educated Alumnus Comes Home

Some forty years ago, when Dr. Al-Ghazawi was a small child, the late King Hussein was told by World Bank development advisors that his small kingdom was economically unsustainable—no oil, no minerals, no water. King Hussein, however, was not a man who responded to challenges by folding his tent. He founded schools and universities and



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initiated a long-term investment into education aimed at making his people the best-educated in the region. Today some of the best schools and universities are in Jordan, the Jordanians are indeed considered among the best-educated people in the Arab world, and young people from around the Middle East flock to Amman to attend school. The young Ahmad was educated in these schools and earned a degree in pharmaceutical science at the Jordan University of Science & Technology. During his high school years, he spent a year studying in Florida, a time he remembers fondly as an introduction to American ways of thinking. With this educational preparation, he left for the University of London.

Dr. Al-Ghazawi admits that when he left for London he did not know whether he would ever return to Jordan to live and work. The Jordanian economy did not create so many opportunities for young people determined to become expert in a specialized area of biomedical science and technology. Good schools and universities are a necessary—but not sufficient—condition for sustainable economic growth. That is where King Abdullah II comes in. The young King, of the same generation as Ahmad Al-Ghazawi, succeeded his father in 1999. He quickly emerged as the one of the most important diplomats in the Middle East and, in that way, is following in his father's footsteps: He has played a key leadership role in efforts to achieve security, stability, democracy, and peace in the Middle East. What is less well-appreciated, however, is that King Abdullah has also been quietly going about the business of leading a path-breaking economic development strategy as well. Educated in the United States and the United Kingdom, he appreciates that his people's know-how and talents need to be given new opportunities to flourish.

By way of development comparison, the Republic of Korea, like Jordan lacking in raw material wealth, based its economic development strategy on demand for manufactured goods from the presence of thousands of U.S. Cold War troops and the associated opportunities for exports to the United States. Singapore, small like Jordan but long a trading center in Southeast Asia, established itself first as an information technology manufacturing and logistics hub, then as a financial services center, and more recently as an R&D, professional services, and business headquarters center for the prospering region. Ireland, similarly small and modestly endowed but known for its literate immigrants, may be the closest comparison country. But Ireland could and did leverage its membership in the European Union to become the information technology center for the richest integrated market in the world. Jordan has none of these advantages, so its strategy aims to leverage that which it does possess—well-educated people with an entrepreneurial spark and the spirited determination of the late King Hussein and of King Abdullah II.

The King and the Jordanian reformers articulated a *Vision 2020* national strategy such that the country will be characterized by its high-tech and R&D-orientation, high educational attainment, export orientation, popularity as a tourist destination, and a high quality of life for the Jordanian people. That is, they want to be prosperous, competitive, high-tech, and healthy. Ireland and Singapore are the benchmarks. To achieve the vision, they are focusing on creating competitive clusters in agriculture, olives, Dead Sea cosmetics, phosphates, information and communication technology, tourism, pharmaceuticals, and higher education. The government focused on several policy priorities as key enablers of the vision, including World Trade Organization accession and fundamental economic structure and policy reform,



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Jordan-U.S. Free Trade Agreement and additional policy reforms, qualified industrial zones and export competitiveness, education investment into English as a second language and computer literacy, and World Economic Forum regional leadership. Jordan embraced the WTO and U.S. FTA intellectual property commitments so that effective patents, copyrights, and trademarks would encourage Jordanians to be technological innovators, cultural product creators, and good brand managers, and American and European companies would base their high-tech, knowledge-rich, branded activities in their country rather than somewhere else in the region.

In February 2002, King Abdullah spoke in London to a group of Jordanian "alumni." Dr. Al-Ghazawi was among those who gathered for the occasion to listen, a first opportunity for him. The King spoke of his vision for Jordan and told them that the vision could not become reality without their help. "I had been thinking for some time about starting up my own company," he recalls, "but it was then that the idea really came together in my own mind about how I should do it." The intellectual property rights reforms and the plentiful well-educated talent, which was available at lower cost than in the U.S. or Europe, made Jordan an ideal place for a pharmaceutical research enterprise. He left Merck in summer 2002 to seek venture capital, find customers, and begin the process of establishing his company in Jordan. He confronted some substantial problems with local authorities in Amman getting his laboratories and clinics built and approved, but overcame them and launched his enterprise.

Today Triumpharma provides pharmaceutical bio-analytical services and clinical research services to U.S., European, Jordanian, and regional pharmaceutical clients. He knew that to get American and European clients, and to retain Jordanian and regional clients over the longer-term as their pharmaceutical R&D practices and regulatory environments matured, he would need to demonstrate Good Laboratory Practices and Good Clinical Practices to the stringent standards of the U.S. Food and Drug Administration and the European Agency for the Evaluation of Medicinal Products. USFDA and EMEA approvals have enabled Triumpharma to grow its services business.

But, Dr. Al-Ghazawi's real entrepreneurial goal from the beginning was to apply his knowledge regarding drug delivery and formulations to develop generic medicines and, especially, improved generics. The profits from bio-analytic and clinical services have been paying for his innovative activities, and these efforts are bearing fruit. A generic is a medicine that has gone off-patent, so pharmaceutical manufacturers other than the original innovator are permitted by regulatory authorities to manufacture and sell the same drug. In the United States, Europe, and Jordan, though unfortunately not in many developing countries, drug regulators require that the potential generic entrant into the market demonstrate bio-equivalence with the original, i.e., that it has formulated the active ingredient in the same way as the original. Triumpharma provides bio-equivalence services to help generic makers do this. But Triumpharma also applies its know-how to formulate generic medicines in therapeutic areas such as specially-formulated aspirins that reduce stomach irritation and to lower heart attack and stroke risk, a transdermal patch version of an opiate pain reliever for cancer patients, and combination medicines that treat diabetes by lowering blood glucose levels. Generics are essentially commodity products, so the keys to being successful in the pharmaceutical marketplace with generics are substantial manufacturing scale and marketing



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capacities. Triumpharma neither manufactures nor markets, so it develops generics that are tricky to formulate and then licenses the formulation to a generic company with manufacturing scale and marketing clout.

A special focus of Dr. Al-Ghazawi's has been to innovate so-called "supergenerics." A supergeneric differs in a fundamental way from a regular generic medicine. A supergeneric is an innovative medicine, because it is specially formulated so that improves on the generic in some way. The formulation is changed, and efficacy sometimes improved, for all or perhaps a certain class of patients; the method of delivery may also be changed, perhaps from an orally-taken pill to an injectable formulation or vice versa. Supergenerics thereby require the investment of specialized know-how, time, and money into laboratory and clinical research and regulatory approval. The supergeneric provides physicians with something better for their patients. For an entrepreneur such as Dr. Al-Ghazawi, the beauty of the supergeneric is that is a patentable innovation. Patents grant the pharmaceutical innovators exclusive rights so that only they themselves or their licensees may manufacture and distribute the improved medicines. Of course, the supergeneric entrepreneur's challenge is to innovate something that physicians, their patients, and the public and private medicine buyers and payers decide really is better and merits a premium price.

Triumpharma is developing a number of supergenerics, including a different formulation of the popular antibiotic azithromycin, a combination anti-diabetic medicine that improves both clinical performance and patient compliance, another improved combination that lowers blood glucose levels in diabetic patients, an improved antiemetic to treat the nausea cancer patients face after chemotherapy, and an improved formulation of an osteoporosis medicine for postmenopausal women. For Dr. Ahmad Al-Ghazawi, returning home to Jordan has allowed him to achieve his entrepreneurial dreams and to help his fellow Jordanians achieve their King's vision for their country.