

EDITORIAL**A TIME FOR INNOVATION**

The present editorial is prompted by the ongoing global pandemic caused by the SARS-CoV-2 virus. Crises have an interesting effect on human creativity – they tend to increase it. Creativity leads to innovation through new solutions to existing problems, more efficient processes or improvements in products and technologies. Perhaps if the relationship between the magnitude of a crisis and innovation were to be modelled, it would be linear with a significant positive correlation. As the saying goes, ‘necessity is the mother of invention’. Creative ideas initially arise from trying to address problems or finding solutions to unmet needs. Innovation is defined in the Merriam-Webster dictionary as ‘a new idea, method or device’. A second definition is given as ‘the introduction of something new’. Innovation has been further described as the process of making an invention into a practical and useful form or in other words, actual reduction to practice.

Within the last few weeks, we have seen several home-grown examples of innovation. One which has drawn national attention has been the development of a prototype medical ventilator by a multi-disciplinary group of students drawn from the schools of engineering, medicine, nursing and pharmacy at Kenyatta University. The initiative demonstrated by these bright scholars should be supported and the project be moved to the next step – product development, testing, optimization and large-scale manufacturing.

This example illustrates an important aspect of innovation. Teams comprised of individuals from different disciplines and backgrounds provide a diversity of ideas that enhances the creative process. The importance of multi-disciplinary approaches has been recognized, for example, in the US pharmaceutical industry where it is common to have drug product formulation departments made up of scientists drawn from chemistry, pharmaceuticals and engineering backgrounds. Complex challenges require the ability to see problems from all angles as well as the freedom to explore unusual ideas.

Manufacturers who were previously manufacturing textiles are now manufacturing protective face-masks. Following recent recommendations that cloth masks may reduce transmission, local tailors are now fashioning them from an array of fabrics. Local manufacturing is critically important as the current major international manufacturers of respiratory personal protective equipment cannot at the present time meet global demand. In fact, the ongoing restrictions in supply chains will make many countries reconsider domestic manufacturing of certain critical goods.

Alcohol beverage producers and a major oil product supplier have already revamped their production lines to supply hand sanitizers. The face-mask and hand sanitizer manufacturing initiatives have been supported by the Kenya Bureau of Standards (KEBS) which has waived its fees for accessing the standards documents for these critical products.

The Aga Khan Hospital has explored how to use a single ventilator for two patients as an emergency intervention in the event of ventilator shortages. Examples of creativity extend to the classroom with the next generation of health care workers being trained in part through online courses. E-learning has suddenly become mainstream.

Innovations must be nurtured and given an enabling environment in which to thrive. Recognizing that universities are a major driver of innovation, governments that have supported academic research have benefited their nations and citizens greatly. The out-licensing of university patented technologies can be a major source of revenues for academic institutions which also reduces dependence on government non-research funding. Spinoff companies that have been established based on novel and valuable academic

research provide employment and tax revenues (not that I am advocating for an increase in tax rates). Innovative technologies that address unmet needs also attract foreign direct investment.

While many questions regarding the pandemic remain unanswered, there is no doubt that challenging times always require mankind to meet new challenges head on. The best solutions to challenges lie along the path of innovation and creativity.

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