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EDITORIAL

BACK TO THE BASICS

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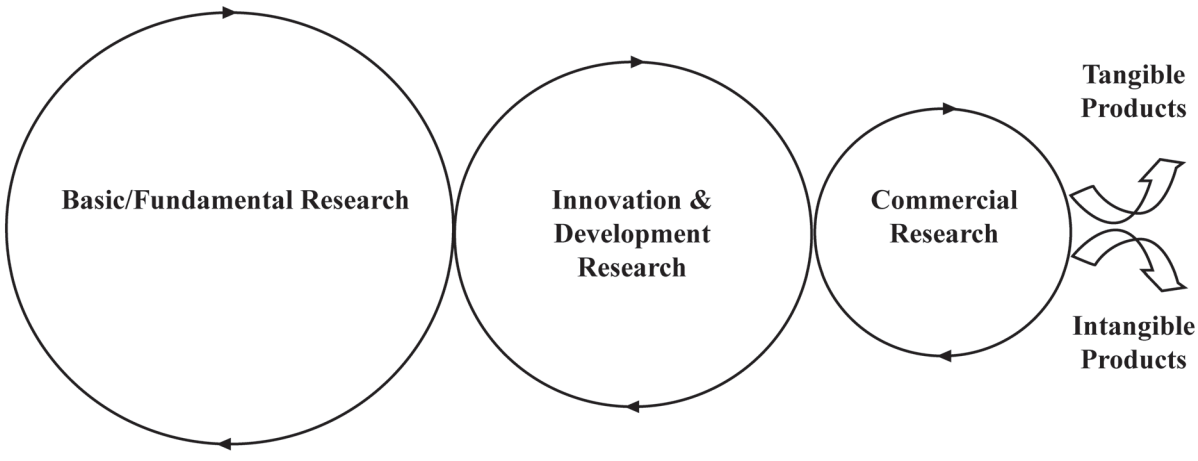
Over the past 15 years researchers in Malaysia have come to rely upon the IRPA and to a lesser extent other programs from the Ministry of Science, Technology and Innovation (Environment) as their main source of research funding. During this period the emphasis have grown for projects with "products" as the main outcome. If the rumours are true, this emphasis its seems will be reinforced in the next Malaysia Plan. This is a cause for concern for its impact on the development of a growing research environment and culture in this country will be significant.

Whereas we can understand the economic reasons for such a move, not the least is the considerable amount of money that has already been spent on research funding with what appears to be very little returns, nevertheless it might be prudent to reflect and learn from the developed countries which has had considerable success from exploiting science and commercialization of products arising from scientific research.

Taking biotechnology as an example, it needs to be noted that the successes that are being reaped today by countries such as the United States and the United Kingdom is the direct result of over 60 years (1-4) of investment in fundamental or basic research. Although no one is suggesting that Malaysia needs to wait 60 years to see a return on its investment, there are several lessons that can be extracted from the experiences that these countries have undergone in those years. A study of these experiences show that there are many factors involved but perhaps can best be simplified by Fig. 1. This diagram shows that the different types of research (basic/ fundamental, innovation and development, commercial) are connected in a cogwheel-like manner and the biggest "wheel" is the basic research which provides the driving force to move the structure forward. Excellent cutting edge basic research, which are often curiousity driven, creates the knowledge base and the human capital that feeds into and drives the downstream research activities that eventually generates commercializable products. A considerable part of the generated wealth

Figure 1 : The Drivers of Research



Intangibles products such as reputation and fame attract grants, quality staft and students that can be "re-invested" into the research activities

are also channelled back to the upstream activities which provides further impetus.

It is no surprise therefore that in the United States, which has the biggest biotechnology industry in the world, most of the (extremely huge!) government funding resources are channelled into basic (which include basic technology) research and not into projects with a declared commercial end. This is the same with all the major biotechnology players in the world. The aim is to maintain a strong scientific base, generate knowledge and a well-trained workforce which provides the creativity and ingenuity needed for innovative products.

These countries however already have viable biotechnology industries and mature risk capital structures that can provide the funding necessary for the innovation and development and commercial research activities. Both of these are not yet available in this country and Malaysia needs to find a solution in between but it needs to do so in a rational and intelligent manner. At this stage in our biotechnology industry development it is perhaps sensible to include human resource (Masters and PhD graduates), a major output of fundamental research, as a "product" of research investment. By applying the experiences of successful countries we can and should find a proper balance between basic and applied research.

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