Abstract:

Title: Frontiers in Skills, Business and Health and the role that modern STPs might play.

The most common words screamed by children attending pantomimes in the theatre are, "Look behind you", warning the players on the stage of threats they cannot see. In our fast changing world there is no 'one size fits all' model for STPs and they need to be relevant, open, inclusive and above all well supported politically & publically to survive. Such status cannot be achieved by ignoring issues in society today by pretending that STPs have little to offer or that such things will only distract their focus.

In this paper I want to explore a few issues (and our responses to them) that emerged from our planning scenarios to extract the full potential from our modern Science and Technology Park. These issues are (in no particular order):

The risk of failing to have access to the human capital or creative skills required to realise our potential. Without an adequate flow of creative scientific talent or human capital our prospects look dim. This issue can be traced back to the link between national education levels (particularly in Science and Mathematics) and the performance of innovation systems & research capability in certain countries. It is hardly surprising that those countries that have high performing school systems have high performing innovation systems and in fact perform well on most indicators, Finland and South Korea are good examples.

Declining levels of interest and performance in Science and Mathematics at primary and secondary schools in many western countries is now widely documented, as is their declining share of the commercialisation cake increasingly under threat. How can STPs play a role and become more connected to this vital resource? I will outline our own strategic, early intervention programs & approaches to nurture young talent and our efforts to be perceived as an STP that is having an impact on local social development.

Those new 'kids' on the block – Business innovation and the emerging empowerment of the consumer in surging developing economies (like China and India) are leapfrogging over their Western Economy peers and are not constrained by the formers legacy systems and mindsets. Many large firms with traditional business models are under threat from emergent fast moving multinationals with out-sourcing or near shoring business models. I want to look at how STPs can respond to these entrepreneurial / business forces and how they can actively participate in this modern business innovation revolution. Our own efforts to forge links and attract tenants within these areas will be explored.

Health futures - The emergence of ageing population profiles in the world's major economies (e.g. by 2030 China will have a similar aged population profile to the US i.e., average age 37) and the alarming prevalence of modern 'affluence' diseases such as obesity and diabetes so often linked to patterns of conspicuous consumption, are huge challenges that demand innovative responses. Modern STPs that can embrace change, move fast and convince tenants to collaborate will be well placed to respond to this challenge by providing broad, holistic & cross disciplinary responses. I will explore how from our existing and emerging tenant base we have cross disciplinary teams from engineering, business systems, statistics, nanotechnologists, biologists, research hospitals, medical technicians & treatment centres responding to what will be big business opportunities for STPs.

The three issues outlined above are just a sample of some of the new frontiers that STPs must confront in their quest to be relevant, open & inclusive and as a consequence well supported politically & publically.

IASP International Association of Science Parks

ROADMAPS FOR FUTURE NAVIGATION
IASP 28TH WORLD CONFERENCE ON SCIENCE AND TECHNOLOGY PARKS

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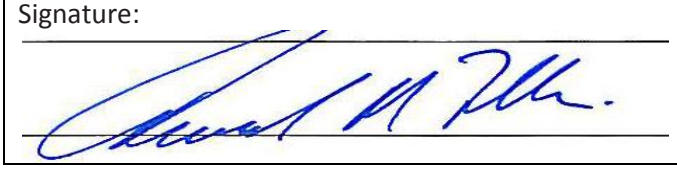
Signature: 	

Frontiers in Skills, Business and Health and the role that modern Science and Technology Parks might play.

Executive Summary

This paper explores some of the new frontiers that STPs must confront in their quest to be well supported politically & publically. The issues examined are: 1. The risk of failing to have adequate access to the required human capital or creative skills, and the link between national education levels (particularly in Science and Mathematics) and the performance of innovation systems & research capability in certain countries. 2. Developments in Business innovation and the emerging empowerment of the consumer in surging developing economies (like China and India) which are leapfrogging over their Western Economy peers. 3. Ageing population profiles in the world's major economies and the alarming prevalence of modern 'affluence' diseases are huge challenges that demand innovative responses. Those STPs that can provide leadership and direction to their tenants in providing broad, holistic & cross disciplinary responses to such issues are the heroes the world needs.

Key words: human capital, national education levels, business innovation, emerging economies, ageing population, cross disciplinary, leadership.

The hero in the child's pantomime is nearly always stalked by a 'villain' that comes up behind the hero during the performance and the audience scream out "look behind you" warning the hero of danger. Science and Technology Parks (STPs) are often local heroes in their communities as they represent modern thinking, innovation, exploration and above all a link to the fantastic emerging world of science and technological discovery that is often beyond the lives of those who live in surrounding communities. For STPs to establish or maintain their hero status they have to act like heroes and, just like the hero in a child's pantomime, they have to listen for clues and take on risks and opportunities with courage and passion. STPs need to demonstrate leadership and sound direction to their local communities in issues that demand attention.

There are a number of significant issues that some might consider to be beyond the mission of a STP but if ignored, they can leave the STP vulnerable to external forces and are missed opportunities to improve their hero status within the community, often without expending a great deal of resources. This paper explores a few such issues: human capital provision (Skills), changing business models and global health challenges; and, explores where STPs might take the lead and have a positive impact at community, national and global levels.

STPs are by their very nature interested in the future and what opportunities it might hold. Even a cursory glance at conference themes and titles of keynote addresses over the last decade of IASP events indicates the accuracy of this observation. However just being aware of future trends and issues isn't enough STPs are required to take action. It is often the situation with modern management, including those in STPs, that they ignore longer term issues because they are too hard to measure impact, too difficult to define, too hard to motivate stakeholders; or (most disturbing of all, yet far too common) not possible within the terms of my current limited term contract. Significant issues need action and everyone can make some contribution. STPs are in a great position to take action and not only improve their standing within their own community and increase their political appeal.

Skills Crisis

In the middle of the last decade the world was struggling with a skills crisis and then along came the Global Financial Crisis which distracted attention. Just as the world recovers from the financial crisis the skills crisis is back (in fact it never went away) and STPs need to be aware of the longer

term implications and start to take action now if they are to stay at the cutting edge of science, technology and groundbreaking discovery. The human capital or skills crisis has at least three dimensions, the first is demographic, i.e. the ageing "baby boomer" population cohort with skilled people is retiring out of the professions and they cannot be replaced at the rate required as there simply aren't the same number of people in following generations to replace them. Secondly, young people (particularly in western economy countries) are not studying science and maths in the same numbers as they have in past. Thirdly and perhaps of even more concern is that many of those who are studying science and maths are not performing as well as others did in the past, i.e. the level of education performance in schools is in many countries in a very poor state indeed and something drastic needs to happen to ensure that producers of innovation and discovery, like STPs, will have access to the skills they require in future.

While nothing much can be done about the fact that the existing skilled workforce are getting older and wishing to retire, however there are actions that can be taken to address the quality and quantity of those who are being prepared to replace them. There are a variety of commissioned reports and international benchmarking studies on educational performance which highlight these problems. A recent study in Australia [1] reports that student taking advanced Maths in High School fell by 27% from 1995-2007 and further between 2001-2007 students enrolling in Maths at University level was down 15%, yet demand for such graduates was growing at 3.5% pa until late 2015. Clearly an unsustainable situation, made worse when considering the declining results for Australia in (Program for International Student Assessment (**PISA**) scores in a 2007 Mc Kinsey report [2].

A further McKinsey Report in 2010, entitled 'Closing the talent gap' looked at ways to address the problems identified in under performing schools systems that were exposed in the international benchmarking exercise of performance in schools in the earlier 2007 study conducted by Mc Kinsey entitled "How the best schools stay on top". In summary the report suggest that it isn't just a matter of how much money is spent on schools, as the USA and UK, despite increasing School Education funding by 21% & 37% respectively between 2000 & 2007, both saw declines in their OECD PISA scores (Program for International Student Assessment)[3]. Some things do make a difference and these are (in summary) to tightly control entry to teacher education programs (top 30% of graduates only), pay teachers well, continue to allow them to develop professionally and give them respect. South Korea appears to have a good working model where they tightly control entry into teaching at Primary School level and the results of the South Korean Primary School system are outstanding. The system falls down at secondary school level when the standards of entry to teacher education are lowered and results are poor.

Professional development for teachers needs to be ongoing and works best if decentralised, allowing teachers to learn from each other and others around them. They need to be exposed to best practice methods and keep abreast of new developments in subject based knowledge. The status of teachers needs to be lifted and respect should be given to teachers for being part of an honoured profession that is having a direct positive impact on the lives of others.

So what can STPs do to help this situation? Perhaps the best way is to explain what happens at the Innovation Campus, a small modern STP in Australia, which has started to make a contribution, with the help of the Science Centre and Planetarium located on the Innovation Campus. The Science Centre and Planetarium is an interactive centre geared to explain science and technology concepts to people of all ages, and has 60,000 young school aged children visit each year. Students from the Science, Engineering, Education and Mathematics faculties from the local university, the University of Wollongong, are selected and trained to work in the Science Centre as explainers (on a part time basis while studying) to communicate science, technology and mathematical concepts to the visitors. This project exposes university students to school students and both to the latest scientific developments from within the Innovation Campus' own research laboratories.

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[1] Institute for Innovation in Science and Mathematics Education (IISME) 2007 (R&D Review March 2010 P 12).

[2] Mc Kinsey Report 2007 entitled "How the best schools stay on top"

[3] Mc Kinsey Report 2010 entitled "How to close the gap"

This project helps those chosen graduates communicate their passion for science, mathematics and technology and influences them to perhaps consider a noble career in teaching. The other impacts are that young primary school age children get to look into the workings of a modern STP and hear about the latest developments in different branches of research and discovery from young passionate advocates, who represent great role models. Importantly, this project also gives an opportunity for existing school teachers to refresh their knowledge and to recharge their own passion for their career by coming into contact with with world class researchers from within the iC's own laboratories. Teachers get to work with them on new instructional materials to explain the bleeding edge of scientific research first hand. The positive results from this programme are simply enormous and it is particularly gratifying to know that it is making a difference in the choices of young people, to study science based degrees at university and for others to consider sharing their passion as teachers. There are so many repeat visits to the Science Centre where students bring their families and younger siblings back at weekends to share the experience that they have had. Other programs run by the Science Centre include an out reach program where a mobile team visits more remote schools, and special professional development days for serving teachers and programs targeting poor performing schools for special attention.

Case study - Virtual Nano- Laboratory Exhibit within the Science Centre.

Set up within the Science Centre and Planetarium on the Innovation Campus is a joint venture project between active nanotechnology researchers (from laboratories on the iC) and the student explainers working within the Science Centre, called the Virtual Nano- Laboratory Exhibit. This demonstration area has a parabolic (wrap around) projection screen and an interactive menu driven video where visitors step inside a virtual nanotech lab and have a series of interactions that explain to them the significance of the Nanotechnology activity on the Innovation Campus. Below is a truncated sample of the dialogue between visitor and pre-recorded researcher explanations at the elementary level.

What is Nanotechnology really all about?

Nanotechnology deals with the fabrication and behaviour of materials, devices and systems at the smaller than normal scale, this is called the nano-scale. At this scale the size of the materials begins to approach atomic dimensions; the classical laws of physics no longer apply and some very interesting properties begin to emerge.

But why do the laws of physics change in nano-scale? *The smaller a particle, the larger the ratio of surface area (covering or skin of the particle) to the bulk (material inside the covering or skin) of that particle. Because chemical and physical properties are determined by surface area, when the surface area of a particle changes, hardness and erosion levels can also change.*

So what does this mean? *Though the changes in properties in the nano-scale are not routinely predicable, they present an incredibly new and uncharted platform for discovery and innovation. Materials in normal scale that were non-conducting can become semi-conducting and hardness and resistance levels can increase. Other materials, once impervious to membranes, may easily pass through such barriers at the nano-scale, potential uses for such particles include targeting drug delivery to certain organs or diseases. The possibilities are amazing!*

So what are some of these other possibilities? *As more properties are discovered, so too are opportunities for commercial uses for these new properties. Materials have already been developed and integrated into many manufacturing processes such as, automobiles, whitegoods, clothing, medical devices, battery technologies and many more. While nanomaterials are still very expensive to produce, as volume goes up and these materials become more widely used, costs will go down. The market for nano-enabled products is expected to be measured in trillions of dollars by 2020.*

So what are the Labs here at the Innovation Campus working on? *There are a number cross disciplinary teams working in different laboratories with a wide variety of commercial and research organisations on some of the really big issues in society today. We have teams working on major medical research in several groundbreaking nano-bionic areas, such as new artificial muscles and limbs, artificial hearing and seeing applications (bionic ear and eye) and one really*

exciting project is working on the regrowth of severed spinal column nerves, so that one day people who are quadriplegic can walk again. In the engineering related fields are teams working on solar energy generation and energy storage research, like using solar energy to split water atoms and produce and store low cost Hydrogen for fuel. We have started to print nano-materials in layers using adapted inkjet and 3D depositional printers to assist prototyping of new devices and explore even more new applications. We are also starting to weave nano materials to examine their properties when structured in new combinations. There is a lot going on and everyone involved just loves to come to work as you never know what exiting things you will discover next.

Using the modest examples of the Innovation Campus it should be possible for other STPs to consider how they could make a contribution, for very little cost but for considerable impact, in this important area of human capital development. Activities like hosting of days for teachers and students to brief them on what is taking place within their STP labs. Giving students an opportunity for regular updates and expose them to the latest scientific and technological thinking perhaps using a web based newsletter targeted at school level. Undertaking collaborative teaching material development and be connected to developing models of good teaching practice, they could to offer awards and prizes for inspiring science teachers.

All STPs need an abundant supply of passionate scientists and nearly every passionate scientist will happily tell you that the passion they have for science they caught for those who have had the greatest influence on them, usually their teachers! STP can play a hero role for both teachers and school students helping them to develop an unquenchable passion for science and technology based subjects. Such community engagement activity by a STP can help grow a pool of talented Science and Maths teachers and boost the numbers of students choosing those subjects at undergraduate level and even lift the levels within our schooling systems. To ensure a steady supply of talented youngsters who love science and want to make a difference why wouldn't STPs want to do something to help? But don't think you are alone is this endeavour, other forward looking businesses can see the value in this activity also. See the comments below from Vineet Nayar, Vice Chairman and CEO of HCL Technologies, one of India's huge new technology companies who was interviewed recently in the PwC 14th Annual CEO interviews in 2011[4]

"At HCL, we're re-defining the traditional concept of value. We've said that HCL is in the business of creating value for our employees through our 'Employee First' philosophy; creating value for our customers through continuous innovation; and creating value for society by being a socially responsible organisation. Therefore, an organisation needs to be an active participant in developing the society in which it is embedded. The private sector's involvement in areas such as rural education, assistance to the poor, and disease management is, in my view, a very positive step. ***HCL has chosen primary education as its way of giving back to society****."*

Health Challenges

Just as the retirement of the ageing 'baby boomer' generation has revealed a skills crisis for most industrialised countries this same ageing population cohort has also been responsible for the increase in the prevalence of modern 'affluence' diseases related to patterns of conspicuous consumption. Cardio-vascular disease and diabetes which is related to obesity are how major health problems for most countries. The aged population profiles are not just the sole concern of western countries as it estimated that by 2020 China will have a similar aged population profile to the USA, i.e., average age 37, while in Western Europe it will be 45 and in Japan 49[5]. These aged populations create huge global healthcare challenges that demand innovative responses and modern STPs that can embrace change will be well placed to respond to this challenge by providing collaborative environments for broad holistic and cross disciplinary research responses.

[4] www.pwc.com/ceosurvey 2011

[5] " The other demographic dividend" Oct 7 2010 The Economist

In medical and health research and it is clear that there are two different cost models, i.e., a western economy model and an emerging economies model. Medical treatments and healthcare costs have reach unfathomable heights in many western countries where the costs are largely met by insurance companies (US) or government subsidisation (Western Europe) and the consumer rarely pays the direct real cost so has little motivation or ability to alter the situation. The same is not true in the booming emerging economies, with their frugal innovation cultures, where consumers cannot or will not pay the price that western cultures have allowed health care (including medical treatments and devices) to cost.[6]

As a result of this dual price structure there is the increasing prevalence for Western firms to set up shop in fast growing developing countries to tap into massive emerging markets but more than this, to tap into that frugal innovation culture while maintaining their more expensive efforts at home. In emerging economies the use of lean or frugal innovation models and the manufacture of basic medical equipment, treatments and devices to undertake specific tasks is now well within the reach of many local communities. STPs need to help bring their clients into new business models and embrace the change and use their connections to form new market opportunities and collaboration partners. Health is a booming industry and STPs are well placed to create the right mix of partners and people will be innovative and fast to respond to challenges.

How can STPs play a role in what is happening and can they have any impact on development that take place within their campuses. In the context of emerging markets and old business models being sidestepped, commercial laboratories are being outsourced and ideas are being produced by collaborative effort more than ever. Well, they can facilitate better collaboration between stakeholders by ensuring that the right mix of tenants is present on their sites. Increasingly medical and health related developments are cross disciplinary in nature and creating a place where practitioners, students, engineers, biologists, chemists, and entrepreneurs are all located can help channel efforts. By hosting researchers who examine the activity based costing of existing health care operations and looking at where to remove or improve functions and steps will give teams the data they need to identify further opportunities. The Innovation Campus (iC) is already examining, from the existing and emerging tenant base, how to ensure there is a solid cross disciplinary mix emerging from engineering, business systems, statistics, nanotechnologists, biologists, and with the presence in the near future of research hospital, medical technicians & treatment centres. In this way the Innovation campus will be better placed to respond to big business opportunities globally.

The Innovation Campus (iC) has recently put forward an exciting proposal for future expansion that not only facilitates this type of interaction but will through a new hospital, medical school and primary health care facilities help to re-engineer the health service provision model that is currently in operation. Sometimes it is necessary to sidestep the old culture and its expectations and create a new model, one that is holistic and patient wellness not illness is the focus. The Innovation Campus iC) now has Nanotechnologists sitting down over coffee with Medical researchers & specialists and coming up with design changes to certain devices and within hours are able to see them created by 3D depositional printing, rapid prototyping devices which has revolutionised the collaborative medical research scene. STPs can play a pivot role in creating an environment that facilitates bringing these key players together and helping them to realise their potential, once thought only the domain of large expensive commercial laboratories that controlled the prototyping of such devices and ideas.

But all this costs much money and takes time to build are there are other simple cost effective actions that STP can take which also contribute to these challenges? Yes, they can corporately and publically raise awareness of health related problems and lead a collective campus response just like that on display in Daedeok, Korea in IASP 2010, where STPs proudly proclaimed their responses to environmental issues. We heard at length from STPs about ‘various green initiatives’ they had undertaken and many like paperless workplaces, reduced energy consumption & carbon producing workplaces were very sound actions. STPs can also take the lead in Health awareness by promoting health, exercise and a healthy diet for STP. Regular exercise related events can be held where everyone can participate and reinforce the healthy message, things like Health challenges where teams from different companies compete on the basis of participation levels rather than

[6] Frugal Healing – The Economist Jan 20 2011

performance. Activities can be cleverly designed to raise awareness of staff fitness levels or even their health condition. There is ample evidence to suggest that healthy people are more productive in the workplace and are less likely to get sick and disrupt work practices.

In most modern work places occupational safety is now mandatory and a huge effort goes into see that hazards within the workplace are identified and dealt with and procedures are developed for the safe handling of materials or objects. In short, safety it is taken very seriously because it has an impact on productivity and your reputation as an employer. However many more people die of health related conditions than workplace accidents with less than 2% of deaths are workplace related where preventable disease related deaths are twenty times that![7] So there appears to be a powerful economic argument should there need to be one to have a health promotion program within STPs?

Showing leadership and promoting a culture of healthy lifestyle on a STP for all tenants and administrative staff can also help bring them together and build bonds of friendship and trust, which we know is so vital for effective collaboration. A simple examination of the offerings at food outlets on the STP to see what they sell, and applying some gentle pressure on outlets to reduce poor product offerings and improve healthy food choices has a real impact. This type of action is completely consistent with the aims of research teams dedicated to eradication of certain diseases or their symptoms. STPs are in a great position to publicise the work being done on the park, and also lead public promotion and fund raising efforts or events to support such research. This way the STP is garnering solid public and political support but also being consistent in its aims and also relevant to its community.

At the Innovation Campus (iC) we have undertaken several of the activities suggested above in the hope that our staff appreciates our efforts to have them live a healthy lifestyle and work at prevention rather than cure. We have agreements in place with out food outlets about the type of food and products we don't want to we sold on campus (no cigarettes!). We have regular visits from heath promotion teams to test blood pressure and body mass index and we hold regular team based physical activity events that promote participation in a healthy lifestyle. We regularly fund raise for cancer, diabetes & heart disease research. Our campus incorporates facilities like showers and change rooms into each building to encourage people to exercise during the day. There are also regular groups that undertake gym challenges, walking, running or cycling exercises. All this is part of a healthy campus lifestyle consistent with the aim to improve global health.

Another benefit of holistic healthy lifestyle culture on a STP is that it resonates with young skilled workers who are increasingly attracted to healthy work places, and let's face they do have a choice! A healthy lifestyle culture allows workers to identify with the culture of the Park and see it is not only doing exciting work but is striving to promote a healthy lifestyle and is good place to work. HCL boss Vineet Nayar, reflects these sentiments when he says that " HCL is in the business of creating value for our employees through our 'Employee First' philosophy"[8]. STPs would be well advised to follow this lead.

Business - these new kids on the lock

Not a month goes by where it is not reported that developing countries are becoming a hotbed for business innovation and entrepreneurship[9] and much the same way that the Japanese total quality management and just in time inventories approach had on western manufacturing in the 50s and 60s so will the impact of new business models being developed in emerging economies have on western economies today. In response to this the world's biggest multinationals appear happy to pursue their business and R&D in emerging markets, with companies like GE, CISCO, HP, have taken this route and have a foot in both camps, so to speak.

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[7] World Health Organization(2008) *Chronic disease and their common risk factors.* http://www.who.int/whosis/whostat/EN_WHS08_Full.pdf

[8] www.pwc.com/ceosurvey 2011

[9] The World Turned Upside down - An Interview with Adrian Wooldridge April 5 2010 Economist

The interesting feature of business developments in emerging countries is that they are often disruptive and are leapfrogging ahead of establishes economies especially in areas such as mobile finance and banking, computer recognition and sensing. These emerging economies are becoming a major source of disruptive innovation, not constrained by the same legal and consumer detachment of the western world. India is a good example of emerging economies and has some 45 million entrepreneurs[10] and will add more in the next decade than China. STPs can't pretend this isn't happening any longer and they need to get to know the Indian and Chinese business worlds and how they function if they are to play a role in this revolution.

STPs need to closely examine the emerging nations of India, China and Africa to see how new models of doing business, processing information, communications has leapfrogged over western models of practice. Legacy legal, regulatory, communications and finance systems are all hampering the efforts of established economies to stay in touch. STPs need to be able to introduce their clients and tenants to what is happening in new markets and to embrace opportunities that are before them. Open innovation and partnering models for deeper collaboration are just part of the necessary action required. The Innovation Campus has a small administrative team but have dedicated staff working in both markets (India and China) examining tenant attraction and business and research matching opportunities in those important markets. This work is culturally difficult but the rewards are staring to flow and recently new tenants (Indian IT developer) have been signed and collaborations from both markets are on the rise.

Entrepreneurs and innovators need a climate that allows them to flourish and take risks. In the past much research activity has been conducted by firms that appear to become increasingly risk averse as they grow. The Institute for the Future predicts that 'Garage' innovation will have a high impact over the next few decades where individuals and small groups will undertaken experimentation and make some major breakthroughs.[11] The same thing is happening with business innovation, the high impact disruptive ideas are coming from small operators within emerging markets.

HCL Technologies, employing more than 75,000 workers all across the world, is one of the new breed of rising stars to come from the Indian IT world and has become a leading exporter of new business processing ideas. When interviewed recently for the Price WaterHouse Coopers Annual CEO survey **Vineet Nayar,** Vice Chairman and CEO was asked about new business approaches he said,

> *"We view innovation as being driven by four mega-developments. The first, of course, has to do with ongoing technological improvements and breakthroughs. The second is the rise of the emerging economies, which will bring entire populations onto digital networks. The third is the new way that digital services are consumed, as exemplified by the preferences of Generation Y. And the fourth is the re-pricing that will be necessary to make digital services ubiquitous around the globe. So you see, innovation is not just technology-led. It is driven by all of these developments. Given that, what the market needs is an integrator that can put these four developments together to drive innovation. By themselves, tech companies, or emerging market companies, or Generation Y companies are not able to drive the kind of innovation that's necessary"*[12].

Indian companies like HCl, Infosys, Wipro and doing just all over the world. It is interesting to note that HCL has an arrangement where it does not charge for services unless the client can realize a profit increase then they share in the upside. This position does not fit well with other major competing consulting firms.

Learn, engage and collaborate. The world of business, skill development and health care is changing fast and unless part of the energy driving forward one can will become lost and stagnate. This then a challenge for all STPs, how do we guard against a talent drought, inspire our research teams and stay in touch with the changing world of business. Heroes are known for their actions in

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[10] Bumpier but freer road, Business in India - Economist Sep 30 2010

[11] The Age of Mass Innovation – The Survey of Innovation, Economist Oct11 2007

[12] PwC 2011- 14th Annual CEO Interviews www.pwc.com/ceosurvey

times of adversity or high risk. STPs today live in interesting times and must as Winston Churchill once wrote, be “like the optimist and see the opportunity in every difficulty not see difficulty in every opportunity”.*[13]

[13] www.brainyquote.com/quotes/quotes/w/winstonchu156899.html