

## "Everybody is responsible for innovation" - Interview with Dr Phil Samuel, CIO of BMG

Ingrid Vanlangenaeker interviews **Dr Phil Samuel** from **BMG**



As the Chief Innovation Officer for global training and consultancy firm BMG, Dr Phil Samuel is a thought leader in performance improvement methodology studies including Six Sigma, Lean, Design for Six Sigma, innovation and change leadership.

With more than 20 years of technical and management experience, Phil has led countless Lean Six Sigma, DFSS and change initiatives. His extensive consulting background includes clients in aerospace, automotives, oil and gas, health care, retail and high tech, as well as regulatory agencies such as Environment Canada, the Alberta Research Council, and the National Science and Engineering Research Council of Canada.

A Master Black Belt, Phil has contributed significantly to process improvement and quality initiatives at AlliedSignal, Honeywell, Rolls Royce and the University of Calgary.

Now, as Chief Innovation Officer (CIO), Phil regularly leads executive education programmes that deal directly with emerging strategies, tools and techniques, as well as fostering an innovative company culture, establishing a systematic innovation process and accelerating innovation within organisations.

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### onesixsigma.com: Who should be responsible for Innovation inside an organisation?

Phil Samuel: That is an important question and many companies struggle with this issue. There are two quick answers:

First of all, there should always be someone in charge of leading Innovation and growth efforts within the company. For many corporations, this is the CEO's responsibility. However, there is a new trend to appoint a specific person as Chief Innovation Officer (CIO) with responsibility to drive growth through innovation. Coca Cola, Intel, AMD, Skype, BBC, Reuters, Kimberley Clark, Diageo, Cadbury Schweppes, Hitachi and Infosys are examples of companies with a Chief Innovation Officer or an equivalent title. The CIO's job is to drive organic growth strategies and establish systems and processes to make innovation scalable, sustainable and repeatable across the enterprise.

The second answer is that everybody is responsible for innovation. In this context we can look at three types of innovation -- product or service innovation, process innovation, and business model innovation. Product innovation is about creating something new for our customers to help them complete a job they want to get done. This type of innovation is not only for R&D personnel, but also for the people in sales, marketing, and other areas. Everybody in the company has opportunities to think about creating new value for the customers.

The second type, process innovation, creates value for customers by improving behind the scenes processes. The objective of this type of innovation is to perform value-added activities better, faster, and cheaper. All employees have opportunities in process innovation since everybody touches one process or another.

The third type, business model innovation, concerns new ways we can create value for our business as well as for the customer. While everybody can come up with ideas for business model innovation, typically

only a handful of employees have the ability to implement business model innovation. Many companies solicit ideas from employees for all three types of innovation.

Innovation elite firms embrace this dual nature of responsibilities. On one hand we have a person or a small group of managers leading the innovation and growth efforts. On the other hand, there should be a concerted effort to involve all employees in innovation.

### **What is the most important thing that needs to happen before Innovation can occur in an organisation?**

The most important thing is to define what innovation means. It is the latest buzz word. When I work with companies on innovation, usually my first question is if they have a definition for innovation that is adopted company-wide. R&D people often define it as creativity and new idea generation. Some companies use the number of new patents created as a measure of innovation. My next question to them is "how many of your patents culminated into successful products that customers buy? How many of your patents really generate financial results for your company?" In many cases the answer is none.

"Strategic innovation is about bringing new ideas to life... creating new value to the customer... and providing value for the business."

For a company embarking on an innovation journey, it is important to define upfront what innovation is. The next key decision is to decide how innovation will be used inside and outside the company. Is its purpose to grow the company? Is it to find new customers? Is it to come up with new ideas? If innovation is used to drive growth, then we should build a compelling case for its importance.

### **Does Innovation still mean the same for you?**

Strategic innovation is about bringing new ideas to life in order to get a job done. It should have three components. The first component is about creativity, the mechanism for generating new ideas. But that is not enough for innovation. The new idea also needs to create new value to the customer. This is the second component. The third component is that the innovation must provide a strategic fit for the company. In other words, it must provide value for the business.

Let's use an example to demonstrate this principle. One of the jobs customers want to get done is to clean clothes. One innovation from the past is to get this job done through the use of a washing machine that uses water and soap. Recently, Sanyo came up with a washing machine that uses no detergent but works on the principle of electrolysis and ultrasonic waves. This is a new idea. The obvious next question is whether this is a strategic innovation.

According to our second criteria, we need to find out if Sanyo's new washing machine generates more value (more benefits but less costs and harm) than a traditional washing machine. Are the customers able to wash clothes better? Does it perform a better job in extracting stains from clothes? Does it minimize the damage to the environment and is it less harsh on skin? Does it preserve the benefits of using a traditional washing machine? These are examples of value dimensions for the customers. If the answers to these questions are yes, then it satisfies our second criterion.

The third component is about strategic fit for the organization. The question then is whether the new idea of a washing machine with no detergent adds value for Sanyo's business? Are we making more money as Sanyo? Does it fit in our strategic portfolio? Does it fulfil the mission, the vision and the objectives of the company? If the answer is yes, then it fits the third criterion.

In summary, all strategic innovation must pass these three tests - it is a new idea, if we bring it to market it adds new value for customers, and it is a strategic fit that adds value for the provider.

### **Is there a formal process for tapping into knowledge of the workforce?**

Yes, there are many approaches to tapping into the knowledge of the workforce. One approach is to solicit new ideas from employees. Toyota is a company that does well in this area. If you look at the number of ideas their employees submit to solve known problems, and the percentage of those ideas that are implemented to create new value, Toyota surpasses most other companies on this front. And this did not happen over night, they have built this system over the last 30 years.

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If we think about Toyota as a Lean manufacturing type of company, we miss out on the notion that they are significantly good at innovation, both product innovation and process innovation. The simple approach of collecting ideas from employees is very powerful, yet many companies fail to bring these ideas to life as they are never taken seriously beyond the suggestion box. If an employee submits an idea and realises that nobody cares about it, then next time she won't offer any ideas.

The second important aspect about tapping into the knowledge of the workforce is to educate them on the notion of "jobs to be done." Customers don't just buy products or services; they hire products or services to get a job done. Customers want to clean clothes. They don't care if they use detergent or a washing machine that uses no detergent in order to get this job done. What they want is to get this job done achieving all the desired outcomes (benefits) and avoid all the undesired outcomes (cost and harm). If all employees think in this dimension, it becomes a very powerful tool to accelerate innovation.

When tapping into the knowledge of employees, companies should place emphasis on two dimensions – jobs to be done and ideas for fulfilling these jobs in uncontested market spaces. The focus of the first approach is to identify jobs to be done for which no good solution exists or customers are frustrated with the existing solution. The second approach is to solicit new ideas from employees to get these jobs done.

### **What tools do you employ to drive Innovation?**

When a company wants to create new solutions and offerings in predictable and sustainable manner, it can no longer afford to depend on a few gifted innovation athletes. It needs process, systems, techniques, tools and enabling approaches to make the innovation repeatable and scalable. On this note, I have just completed a book, along with two co-authors, on innovation process, techniques and tools. The book is to be published this fall and is titled "Innovators Toolkit: 50 Plus Practical Tools for Predictable and Sustainable Innovation." It's the culmination of our research on various processes, techniques and tools that enable innovation. Broadly speaking, these tools enable the process of identifying innovation opportunities, generating and prioritizing ideas, design the best solutions, and implementing them.

It is in this context that we introduced a process model for innovation projects. The model is known as D4, which represents four phases of innovation -- Define, Discover, Develop and Demonstrate. These phases represent a series of exploration and exploitation. Exploitation is characterised by convergent thinking in which we use data and analysis to understand the variables of a problem or solution, and its relationships within a paradigm. As a result of exploitation, we narrow the problem or solution to a smaller sub-set of opportunity. Exploration is characterised by divergent thinking in which we open up the solution or problem space.

During the Define phase of the innovation project, our objective is to identify and scope the innovation opportunity, including team members, stakeholders and financial aspects. It is during this phase that we identify the job to be done and associated outcome expectations. By understanding the importance of and current level of satisfaction with the job and associated outcomes, we can prioritise opportunities. Often techniques such as ethnography can be used to explore new market spaces by identifying unmet jobs and outcomes through observations and interactions with customers.

The Discover phase is mostly characterised by exploration of new ideas and paradigms. We do this through refining the innovation opportunity, leveraging the team's brain power to come up with new ideas from the conscious and subconscious mind, and searching for solutions from existing knowledge bases. Examples of such knowledge bases include TRIZ databases and the field of Biomimicry, which is the

science of learning from and then emulating nature's ingenious solutions to complex problems. The next step is to evaluate and prioritise ideas. The best ideas are then shaped and strengthened for further development.

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During the Develop and Demonstrate phases, we take the best solutions and go through a design process. The process of design is to convert customers' expectations about the solution into functional requirements, functional requirements into design parameters, and then design parameters into process variables.

### **What innovative companies do you most admire?**

There are two kinds of companies I admire. On one hand, I admire innovation elite companies who are successful at growth and innovation on a consistent basis. Examples of these companies include P&G, Apple, Google, GE, Bank of America, WL Gore, 3M, Whirlpool, Toyota and others. These companies have figured out a way to consistently deliver flawlessly on their promises while taking risks and pursuing growth opportunities.

On the other hand, I admire companies who are pursuing disruptive innovation by taking on an incumbent. While Toyota is very successful at growth and innovation in the automotive market, Hyundai and KIA are challenging Toyota through disruptive business models. Hyundai's disruptive journey started by producing cheaper but good enough cars for the low end of the market where profitability is low. In general, their customers are people who cannot afford Toyota's cars. Once successful in the low end market, Hyundai began to invade Toyota's territory. Hyundai has built the infrastructure and expertise needed to challenge Toyota as they move up the market.

When I consult with companies in China, I encourage them to go after disruptive innovation. In most markets, there are certain jobs customers want to get done but are unable to do so because they cannot afford the existing solution, or they don't have the skill to do it, or the time or access to get it done. Due to these reasons, certain customers do not buy the solutions from the incumbent provider.

Let us take the example of a Chinese company by the name of Galanz. They were in the textile business and decided to get into the microwave oven business. They had two choices; they could go head-to-head in competition with the major corporations that make microwaves, such as Toshiba, GE, and Panasonic. However, historical data shows that the odds are stacked against a newcomer that takes on an incumbent in their area of expertise.

The other choice is to ask who has the need for microwave ovens but doesn't buy them from traditional manufacturers. In this case, there are a large number of people in China who don't buy microwave ovens produced by companies like Toshiba or GE. These customers cannot either afford the microwave ovens from traditional manufacturers, or they are too big and won't fit in the limited spaces of Chinese kitchens.

Galanz decided to go after the non-consumption market, that is, customers who are not able to get this job done, or not very well. They created, designed and manufactured small microwave ovens that will fit Chinese kitchens and cost 39 dollars. Of course all the incumbents ignored them since they are not interested in this market where profitability is low. After learning the microwave oven business in the low end of the market, Galanz began to move up the market. In 2005, they held 75% of the Chinese market and nearly 50% of the global market in microwave ovens. They also own more than 600 patents in microwave technologies.

When we think about innovation, usually we think about the big companies such as Apple and Google. Of course I admire them. But I also admire companies like Tata Group (India), Haier (China), Galanz (China), Cemex (Mexico), Teva Pharmaceuticals (Israel), and Hyundai (Korea) who go after the low end of the market and then move up the market.

## **How was it to lead innovation training in China?**

It is very different. To begin with, there are issues with language and cultural barriers. However, my biggest challenge in China is psychological inertia. Many in China believe that they are very good at implementing a design or manufacturing a concept created elsewhere. I remember a conversation with a senior leader of a Chinese company. He said, "Bring me a blueprint or design specification of anything; I can make it for you at the cheapest cost. But if you ask me to come up with something new, it will be much more difficult." Innovation is often associated with questioning assumptions, challenging the status quo and connecting the unconnected to bring about novelty. This can be a problem when companies are so busy improving and creating other companies' designs and fulfilling worldwide orders. They forget that they could be a leader instead of a follower.

When working with Chinese companies, we often discuss the world economic pyramid. The top tier is a small group of 75-100 million individuals who earn more than 20,000 dollars annually. Tier 2 and 3 together is comprised of approximately 1.5 -1.75 billion people who earn between 1,500 to 20,000 dollars a year. The fourth tier consists of approximately 4 billion people who earn less than 1500 dollars a year. This is by far the biggest group worldwide. When I am in China, I remind them that this is their biggest opportunity. You don't have to be as good as Apple, Google, GE, Toshiba, Sony or Toyota. You only have to be good enough to serve the bottom of the pyramid, where non-consumption is very prevalent.

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The way to address non-consumption at the bottom of the pyramid is through disruptive innovation. Disruption is characterised by addressing the needs of the people who don't have solutions to get a job done because of cost, skill, access or time considerations. Almost all humans want to get their clothes cleaned. But many in developing countries cannot afford a washing machine. They get this job done through manual processes. How could we come up with an innovation that would be affordable to the many non-consumers?

## **Does the importance of Innovation vary depending on where an organisation is in the business cycle?**

While there is a case to be made about everyday innovation to consistently deliver on organic growth, the urgency of innovation is very much a function of the business cycle. Let us think about the S-curve that can be used to describe the business cycle.

We can illustrate this with a well known example from the Eastman Kodak Company. During the early 50's and 60's they were pursuing innovation in analog photography, searching for new ways to make film and photographic paper. As the leading innovator in this area, they got the attention from the market place. The culture and business emphasis of this early phase of the S-curve is characterised by innovation, exploration, risk-taking and experimentation.

This is followed by a period of improvement, where the focus is on improving the business and perfecting the paradigm the company has developed. For Kodak, this was associated with improving the chemistry of photography to make better films, papers, and printing methods. Their problem solving remained inside the current paradigm with emphasis on exploitation. This focus enabled Kodak to generate large revenue and profitability, demonstrating a leadership position in analogue photography.

The third phase on the S-curve is the process of optimisation. At this point, the offering has pretty much become a commodity. The whole world is used to colour films and printing. There is fierce competition among rivals. Customers want the solution cheaper, better and faster, so the emphasis is on cost cutting, process optimization and supply chain management.

Interestingly, the third phase is very tricky. On one hand, the culture, processes, systems and business models emphasise efficiency, getting it right the first time and avoiding mistakes. There is less tolerance

for experimentation and risk-taking. Unfortunately, this is also the time innovation and experimentation is necessary to prepare for the next phase of the S-curve, characterised by death or rebirth.

Kodak knew that it must experiment with new solutions to get the job done for the customer – the preservation of memories. In fact they invented the fundamental technology behind digital photography. However, pursuing digital photography -- then characterised by poor resolution and inefficient systems -- did not fit well with Kodak's culture, priorities or business models. The profitability with the new solution was poor and their best customers demanded superior resolutions, better colour reproductions and faster image capture. Therefore, they let other companies pursue digital photography. These companies brought digital photography to the low end of the market and eventually moved up the market to disrupt analogue photography.

Most companies fail to manage the paradox described above. This is partly why 90% of established companies fail to consistently grow and return shareholder's objectives in the long term, say more than 10 years. When you are on top of the S-curve, there is a strong force against innovation. Only the ambidextrous organizations survive this tension.

### **Can failure lead to innovative breakthroughs in business?**

Yes, failure and innovation goes hand-in-hand. We can even trace this back to the principles articulated by the Austrian economist, Joseph Schumpeter. In the early 1940's he described a phenomenon called "creative destruction" in which we destroy the old structure to create the new one.

I like to talk about the fact that every company must manage three key processes. The first process is about improving your current business with the objective of achieving better profitability. The next key process is about finding the future for the business. The focus here is revenue growth. The third box is called selectively abandoning the past. This is the hardest box for any company to do. To successfully navigate the company from the first process to the second process, it must do well with the process of selectively abandoning the past.

Imagine Kodak managing the first process. It is all about profitability in the current analogue photography business. Therefore it must do everything efficiently with low tolerance for risk-taking and exploration. On the other hand, it knows from the second set of processes that digital photography has potential and is worthy of more exploration, and experimentation, and that it must develop that part of the business. But the problem is that if Kodak tries to sell more digital, it will most likely cannibalise its analogue business.

While on top of the S-curve, most companies attempt to extend its life. The temptation is to stay there, rather than cannibalise and abandon the past paradigm and hence innovate the new one. This phenomenon happens all the time.

What happened to the Swiss watchmakers? They made the best handcrafted watches. They invented LCD technology but they said, "These watches with LCD technology are no good, they are toys. Our best customers will not buy these Liquid Crystal watches." Therefore they gave the technology away. The Japanese slowly pursued this technology and sold these watches to the non-consumers at the low end of the market. Eventually they moved up the market and disrupted the Swiss watch industry. This, essentially, is the principle of creative destruction. One failure leads to another success.

### **Traditionally Innovation has been seen as being internal to a business. However, a recent Harvard Business School study highlighted the trend for world class companies to innovate in collaboration with other organisations. Do your Innovation policies include such collaboration?**

Yes, you're referring to a concept called Open Innovation. More and more companies realise that not all smart people work for them. There are smart people in our customers group, among our suppliers, and even among our competitors. Or even people who have nothing to do with us.

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When A. G. Lafley became CEO of Procter and Gamble in 2000, he noticed that they depended too much on their internal scientists to generate new products for organic growth. In fact during this time, 85% of new ideas came from within the organisation and the other 15% was generated from outside of the company. For P&G, with about 70 billion dollars in revenue, their shareholders expect about 4-8% organic growth. This roughly translates to 3-5 billion dollars of new business each year. Lafley predicted that it would be very difficult to continue the growth at the expected rate depending solely on approximately 9000 scientists who worked at P&G. So he set a goal of achieving 50% of ideas coming from outside of P&G.

Therefore they implemented a system called "Connect and Develop (C&D)." Instead of "Research and Develop (R&D)," the new approach depends on smart ideas not only from their employees but also from their customers, suppliers, and a network of people worldwide. The traditional way of innovation suggests all innovation is developed internally with the aim of protecting the associated intellectual properties. The new way of thinking says that we collaborate with all smart people outside of our organization and pursue innovation at a faster pace and reduced cost.

The second aspect of Open Innovation concerns the ideas generated inside the company but not pursued internally. These ideas are typically shelved or abandoned. Under the new framework, we may license or sell these ideas to others who might be interested. When P&G started the Connect and Develop initiative, there was a huge resistance from inside the company over intellectual property concerns. But over the years they have learned that the best ideas don't have to come from inside.

**The feedback from the course has been positive. How was it for you? You have been working on this course for a long time.**

So far we have received great feedback on all our innovation offerings, which we have been researching and developing for the last two years. There are two key streams of offerings – consulting and workshops. On the consulting front, we help clients in different industries around the world with innovation projects.

We also offer three levels of workshops – for executives, innovation champions and project practitioners. At the executive level, the emphasis is on demystifying the growth and innovation processes, and gaining their commitment to start the innovation journey. It is this group that should set the innovation agenda, establish the framework and allocate the resources to start the growth engines.

At the champion level, the focus is on identifying innovation opportunities. They learn the basic principles behind innovation and learn the methods to evaluate and prioritise opportunities.

At the practitioner level, the focus is execution of innovation projects. The course we just finished in Europe is aimed at the practitioner level. It is in this context that we introduced the D4 framework of Define, Discover, Develop and Demonstrate for innovation projects. Following this process enables anybody in the organisation to execute innovation projects.

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BMG is a global performance excellence firm that helps organisations link strategic vision with desired business results through a proven approach to driving sustainable change.