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Digital Transformation of the Healthcare Sector: Ã?Â¢Ã¢â??Â¬Ã?Â¨ Challenges and OpportunitiesÃ?Â¢Ã¢â??Â¬Ã?Â¨Ã?Â¢Ã¢â??Â¬Ã?Â¨

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Singapore: Jake Evill is a recent college graduate who lives in Wellington, New Zealand. Jake had the misfortune of breaking his arm, which, if you've ever faced a similar situation, meant weeks of having a limb wrapped in a heavy, uncomfortable cast. I can think of one upside to this story: Perhaps, if Jake were younger, his classmates and friends would sign the cast in magic marker.

But this young professional was way beyond the age during which a cast is fun. The plaster wrapping is a vestige of a bygone era and he knew there must be a better way to heal his broken arm. So Jake set out to form a recyclable, breathable exoskeleton using a 3D printer. The brace provided his arm with ventilation and could be removed when he wanted to take a shower. Best of all, his prototype would be quite affordable if formed out of any number of readily available resins or plastics.

When a centuries-old methodology - laying plaster strips around a broken limb - is made virtually irrelevant with the functions of one 3D printer, it's a clear sign that the healthcare sector is changing at the speed of light. Perhaps the most striking aspect of this transformation is that it's being led by people who don't necessarily have an MD or PhD after their names. Information Technology is connecting the globe and helping everyone innovate better medical devices and solutions for the next generation.

Jake's exoskeleton is just one example. What we're really talking about here is the sheer power of crowd-sourcing. For instance, Patientslikeme.com is a social platform where people connect with others who have the same disease or condition and track and share their own experiences. Only today are we beginning to figure out how to harness the potential of real-time data and translate that into programs, practices, and devices that can heal a world that is in great deal of need. Information Technology is shrinking the globe and bringing healthcare and medical solutions to the remotest of villages. Now, with a mobile telephone and a few downloaded apps, citizens of the emerging world can get the kind of care someone would receive in the finest Western clinic.

The digital transformation of the healthcare sector is all about extracting intelligent data to your advantage in order to provide better care. First, there's the promise of the social platform. People across the globe are connecting and sharing information in order to create common solutions to everyday problems. Did you know, for example, that the prestigious Centers for Disease Control in the United States typically took a couple of weeks to trace outbreaks of influenza based on their research in the field? Google came forth and demonstrated how they could trace, in near real-time, flu outbreaks by looking at where in that country residents were using the search engine to look up things like "flu symptoms" or "how to treat the flu."

Another opportunity of this digital transformation comes from increased mobility. True, a mobile phone can receive any number of medical solutions. But digital healthcare is also solving issues that have to do with what is known as "the last mile." Throughout Southeast Asia, for example, the healthcare industry is changing rapidly because of new mobile health practices. If a person in a remote village can get to a spot in town with a mobile hook-up, then she can speak with a doctor in a far-away hospital about her affliction. The doctor in some cases is able to make a remote diagnosis - even over handheld devices - and begin that patient on a course of preventative action that stop pandemics in their tracks. To be sure, we must establish trust in the quality of the data that's generated in order to facility widespread acceptance of new solutions.

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One group is working on a healthcare solution that includes a medical-grade wristband, a smartphone application, and in-depth modules - all of which enable fast self-diagnosis. Physicians can monitor vital signs of the user and modules support the entire process. The medical history is saved in an application while enabling detailed screening of an individual's health condition. Doctors can share data with the physician who can prescribe therapy based on a broader range of information. The result is considerable savings in time, energy, and medical costs. With this particular solution, a patient does not need to visit a physician to complete her first check-up.

Think of the potential. Doctors armed with real-time digital data can develop specific drugs to target any outbreak. They can even "print" organs using 3D printers for patients desperately in need of a transplant. They can develop drugs faster and at lower costs. That's because there's no shelf life issues. The drugs are manufactured in the amount needed for the job at hand. Plus, the digital promise combats yet another killer: counterfeiting. With drugs produced right on the spot with digital technology, it will be more difficult for counterfeiters to flood the market with bogus products. The FDA recently cleared a smart pill that senses when it's been taken and sends data to a wearable patch.

There is a certain amount of so-called "buy-in" from both enterprises and patients like. One promising area that I see is the use of gamification. Other industries have turned to the human penchant for playing games to deal with often odious aspects of their industries. In healthcare, gamification can help providers overcome the challenges posed by the seemingly unending array of compliance and regulatory issues. Medical device manufacturers can also use consumer games to help innovate and build new products.

Finally, there's the continuing challenge of bringing the latest in medical science to the furthest regions through education. For instance, Google Glass is being used with amazing amounts of success in surgery. A lot of surgeons are using it so others - anywhere - can witness complicated operations and learn from them. Digital adoption is a big thing when you don't have to get on an airplane and fly 14 hours to witness an operation at a medical school. As an alternative to wearable devices, there are now temporary tattoos that can track health status like MC10's biometric health sensor.

All of this might seem totally futuristic - better fit for science fiction. But the good news is that the digital transformation of the healthcare sector is happening now. And there will be a time in the not-too-distant future when each person's genetic profile can be accessed by healthcare workers so as to give you customized treatment immediately. When Jake was first designing and printing that futuristic exoskeleton, I'll bet he didn't even realize how close he is to all of the amazing digital transformations of the healthcare sector.