Anti-cyber bullying software: Technology transfer at its finest

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In the innovation landscape, the commercial exploitation of inventions is the ultimate goal of practical research. This process of technology transfer is the mark of successful research inventions and affords the inventor the opportunity to actively contribute to the promotion of society in one way or another. Khutso Bapela, a BSc Computer Science graduate from the University of Pretoria, whose company resides at the University's research partner, the Innovation Hub, is one such inventor.

Bapela has successfully developed an anti-cyber bullying application (app) aimed at helping parents of young children in all South African communities to monitor their children's online activities in an attempt to prevent continuous unsurfaced cyber bullying. The Motswadi system (meaning "parent" system) is a specialised SIM card for modems and cellphones and an accompanying downloadable app. The system enables parents to regulate the online activities of children aged 9 to 15 in the overwhelming and ever-expanding world of the internet and social media.

The Motswadi system

While studying towards his Computer Science degree, Bapela started to entertain ideas for the development of a system that could not only prove commercially viable, but also improve the lives of South African communities at grassroots level. With the advent of the digital revolution, all facets of social life have moved towards incorporating the digital space to varying degrees. While this shift has many positive attributes in terms of education, business and technology, it has expanded the vulnerability of young children to new platforms. Cyber bullying, as well as access to masses of inappropriate and harmful information, poses a serious threat to the wellbeing of young children both in South Africa and the rest of the world.

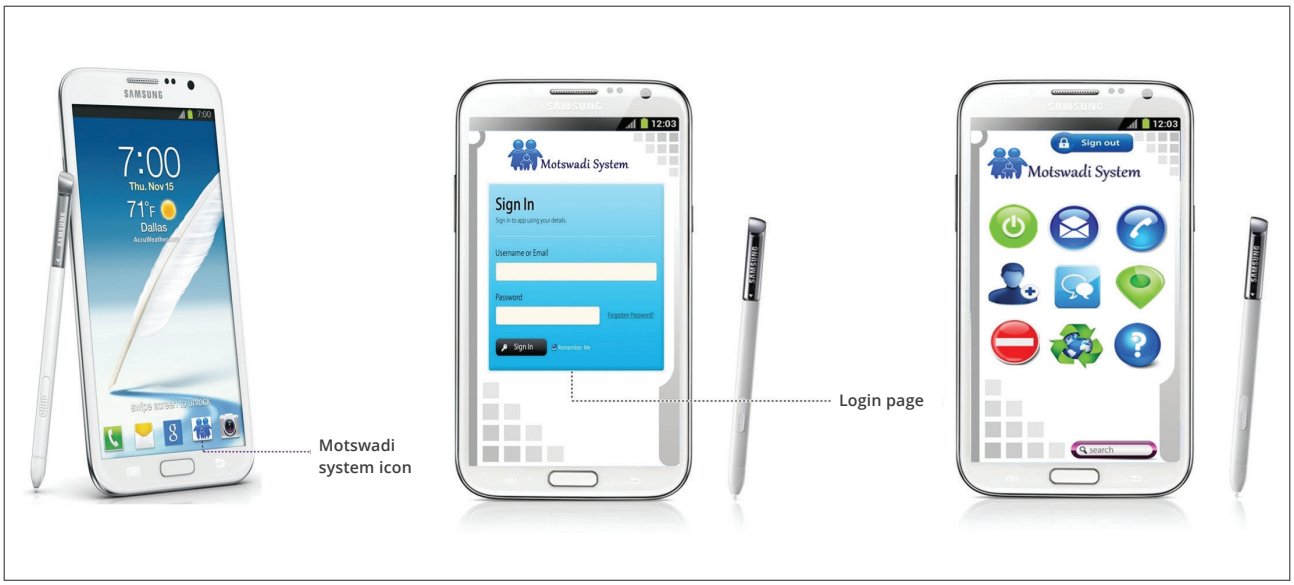
The Motswadi system employs an app algorithm that wirelessly picks up the specialised SIM card in a child's cellphone or modem. The app enables parents to set up an internet profile for each of their children that is tailored to each particular child's needs and vulnerabilities. Standard age group settings determine the level of protection that the system applies to a child's profile. These settings can then be customised at the parents' discretion. The app allows for restrictions in terms of time limits for features like internet use and WhatsApp messaging, the blocking of searches for certain keywords, the blacklisting and re-allowance of specific websites, the blocking of selected apps and the implementation of a web schedule, among others. The system also allows for the monitoring of a child's internet activities, SMSs, Facebook account via notifications and the child's location (updated every 15 minutes).

Innovation through technology transfer

The most important strategic goal of research is to increasingly address the innovation needs of the society in which it functions. To achieve this goal, the emphasis of research must continuously be on accelerating knowledge generation by fostering collaborative relationships with various external partners. In a university research environment, these partners are government, higher education institutions and the private sector. The primary way to ensure the practical implementation of research in society is to generate hybrid spin-off businesses led by innovative and passionate researchers.

In South Africa, it is important for researchers to concentrate on problems of national and/or regional concern in order to maximise local impact. By focusing on unique local opportunities, researchers can strengthen activities in areas of immediate national need and ensure that these fields, which ultimately affect human welfare and development, are addressed. When a researcher has isolated a need in his or her society and has successfully developed a product to serve that

→ *Khutso Bapela.*



The complete system on a smartphone.

need, the process of technology transfer is set in motion.

Technology transfer is the transfer of technology developed by researchers from universities and research institutions to the private sector. Its main goal is to improve national economic growth through greater technological innovation. Technology transfer contributes directly to technological innovation by supplying the private sector with new technologies that have commercial potential. Private sector businesses look forward to the prospect of receiving new products and services, and universities and research institutions are motivated by the potential income stream from successful licensing agreements and greater employment opportunities that graduates may have with industry partners. Bapela's Motswadi system is a perfect example and embodiment of the successful technology transfer the University attempts to foster in all its students and graduates.

Bapela took part in the University of Pretoria Business Incubator (UPBI), a programme nurtured by the Department of Business Management since 2008. The incubation programme is designed to aid the successful development of entrepreneurial ventures by offering an array of support services and resources, based on the fundamentals of the entrepreneurial process, to student-driven entrepreneurial business initiatives. It does this by offering students an intensive three-month incubation programme from which they gather essential business skills and resources, such as business model generation. This challenges students to take their ideas and transform them into business opportunities. The experience and skills that Bapela built up through this programme, paired with the utilisation of the advice and expertise of a friend and manager for business development, enabled Bapela to proactively continue the innovation chain for his unique and practically implementable research invention.

The innovation chain

The innovation chain is the process that research, with the potential for technology transfer, follows from inception to commercial implementation. Firstly, researchers or inventors develop an idea.

It is important for them to safeguard their ideas until the necessary protection in the form of a patent is applied to the idea before they publish their research findings. For this reason, it is important for researchers and inventors to take a long-term approach rather than chase short-term benefits.

Secondly, an intellectual property (IP) strategy has to be formulated. This encompasses the identification of licensing and commercialisation opportunities, and brings about investigations with regard to patent opportunities both locally and internationally. At this stage, it is important for researchers and inventors to take a proactive approach to investigating commercialisation opportunities, including industry partners.

The idea then has to be evaluated in terms of its qualification for either a South African provisional patent or a Patent Cooperation Treaty (PCT). A patent is important, because it allows the researcher or inventor to safely conduct further research and develop his or her product for either 12 or 18 months without fear of compromising the research through publication. The most important consideration for the patent process is the novelty of the product. A patent is a standard way to protect innovators' IP assets.

Thirdly, a business plan or strategy has to be developed. This is essential for successful technology transfer. The two main strands of a business strategy are the commercialisation strategy (selling the product through an independent business entity) and the licensing strategy (selling the product to consumers through its lease to other companies).

→ *The complete system on computer.*

The way forward for the Motswadi system

The Motswadi system has been awarded a South African provisional patent through the Innovation Hub's patent package. This patent provides Bapela with a further 12 months to safely conduct additional research and development to perfect the system. Bapela intends to use this time to improve the system's functionality and the app's interface. Bapela intends to license the Motswadi system to mobile network providers in South Africa and other countries on the continent. He has already entered into conversations with leading South African network providers to commercialise the system on home soil.

As a young inventor, Bapela serves as an inspirational role model for undergraduate and young postgraduate students to strive for the development and optimal utilisation of practically implementable research. This proves that there is no minimum age limit to the integration of innovative thinking and a commitment to the improvement of society.

Khutso Bapela *is a BSc Computer Science graduate of the University of Pretoria. He has established his own company at the Innovation Hub.*

→ *Using the Motswadi system on a laptop.*