

MeetInventor™: An Academic Innovation and Science Research towards Commercialization

Ong Sing Goh*, Yogan Jaya Kumar, Mohd Jailani Mohd Nor, Mohd Hafiz bin Zakaria and Chew Boon Cheong

Universiti Teknikal Malaysia Melaka, 76100, Durian Tunggal, Melaka, Malaysia; goh@utem.edu.my, yogan@utem.edu.my, jai@utem.edu.my, hafiz@utem.edu.my, bcchew@utem.edu.my

Abstract

This paper describes a framework, named MeetInventor™, which aims to promote academic research towards commercializing academic research products. MeetInventor™ enables this process by encouraging researchers to expose their research works and capabilities, request funding, and then use that funding to bring their product closer to the market place. The need for promoting academic research products is essential so that the research work does not end in the academic arena. These potential research innovations need to be exposed to the world to increase the chances of getting funding from interested agencies and companies. While traditional funding sources for academic research are only made available through allocated funds by academic or governmental institutions, this often slows down the process of getting promising innovations into the market. Thus, in this paper, the proposed framework is intended to bridge the gap between ideas and reality in academic research. There are four main phases in the framework, i.e., repository, educating, facilitating and marketing. The use of these phases for elevating academic innovation products could improve the likelihood of commercial success.

Keywords: Academic Research, Commercialization, Innovation

1. Introduction

Academic innovation is important for creating a nation that produces rather than uses. It can also boost the country's knowledge economic for enhanced competitiveness¹. As innovation and entrepreneurship are important drivers of productivity and economic growth, many funding agencies aspire to stimulate and commercialize technological innovation. However, innovation products, especially academic research products often fail to reach the potential investors in order to get the products get rolling into the market.

For researchers to commercialize their products successfully, they have to carefully and strategically plan and execute their product or service in the highly competitive market environment where technology innovation products are to be found. However, most of the time, although their projects are executed on time and within budget, they still fail to establish new ventures

with potential Small, Medium Enterprises (SMEs), manufacturing partners or venture capital firms. These investors and start-ups play significant role in technology transfer for commercializing university research².

Likewise, in universities, the technology transfer processes are managed by their Research and Development (R&D) office. However the majority of R&D management in universities are quite complex, due to the substantial uncertainties in a research project life-cycle³. Despite the existence of university Research Management Centres (RMC) with available guidelines, a benchmarking study indicated that project selection and commercialization is one of the weakest facets when closing the loop of a research activity⁴.

As far as academic innovation is concerned, many efforts are made to promote the commercialization of university research products⁵. New structures to support technology transfer activities through electronic strategies have been set up to increase commercialization and

*Author for correspondence

start-up investment⁶. Still, university commercialization activity remains highly concentrated within the university itself⁷. The success of research project is often valued based on the number of awards claimed by the product, instead of its ability to penetrate into the market. One of the difficulties is that the concept of 'project success' has not been well-defined by the university research management centres⁸. In fact 'project success' does not always imply successful commercialization.

Due to the uncertainty in commercializing research innovations, many studies over the decade have investigate the critical factors leading to the success and failure of the research projects⁹⁻¹¹. It was found that many of these projects never reach the commercial markets; and so very few do, in fact, succeed. Other related studies suggest that strategic project management can contribute towards the achievement of project success^{12,13}. However, it was also noted that project management, by itself, cannot ensure that a project will necessarily succeed¹⁴.

In the literature, significance is also given to the criteria for selecting a project in which to invest^{15,16}. Finding interesting projects is often hard, as they are expected to meet various objectives such as organization objectives, commercial objectives and economic objectives. These often include expected benefits, profit and economic impact. Various qualitative and quantitative criteria for selecting projects have been proposed. These include commercialization feasibility, self-managed work teams, marketability, product integration, technology innovation and intellectual property, collaboration and business process. Details on these criteria can be found in.

Although project selection is deemed important for commercial success, the processes to get innovative products to the investors and end users are often overlooked. One other significant step is to accelerate the pace between discovery and commercialization to provide more benefit to both university and investor¹⁷. In this study, the motivation is to systematically guide university researchers, in this case the inventors, to swiftly bring their innovations to the attention of investors and end-users.

Based on the abovementioned motivation, this study has proposed a framework, named MeetInventor™ which aims to promote academic research towards commercializing technology innovation projects. Our goal is to help bring promising academic innovations closer to the market place. The use of the framework model could increase the likelihood of commercial success for academic research products.

The rest of this paper is organised as follows: In the next section, the overview of the MeetInventor™ framework will be given. Each element of the proposed framework will be explained namely repository, educating, facilitating and marketing. This will then be followed by the discussion section where we discuss the benefits and advantages of the proposed framework. Finally we end the paper with a conclusion section.

2. Meetinventor™ Framework

Academic research in science and technology often provides the foundation for creating new concepts and innovative products that can positively impact the world. But how often do these academic innovations reach the public's consciousness? Although universities regularly produce new ideas and innovations, most academic research innovations are not well showcased and often fail to reach public awareness at large, including the potential investors. Many at times, such innovations end in the laboratory.

MeetInventor™ helps to educate the researchers to think through a market lens, differently from a researcher seeking grant funding. The proposed framework is intended to bridge the gap between ideas and reality in academic research. The MeetInventor™ framework (via MeetInventor™ portal) uses the idea of digital communication to speed up the process of getting promising innovations into the market. Here, researchers are able to post information about their innovations to be exhibited on the portal. Unlike crowdfunding-based sites, we only allow researchers to post projects that have been approved by the university to maintain consistency of quality. This will allow considerations for Intellectual Property (IP), copyright and other patent filings which are important for universities seeking for commercialization opportunities¹⁸⁻²⁰. Besides that, MeetInventor™ provides a platform to facilitate innovators to promote and market their projects. It is to ensure that the necessary steps are followed to transfer academic research products to the end user. The research to business model is shown in Figure 1.

Research and development activities can be transformed from ideas into reality through technology invention. Here, the design for each invention will be established. These inventions will also need to be protected as protection of ideas and inventions are necessary feature in the commercialization of research. It is a tool to prevent competitors from exploiting their (researchers)

ideas. Marketing is another crucial phase where inventions which becomes developed products will be transferred to the end users to achieve its business endeavours. Many successful businesses (products) are attained due to their marketing strategies²¹.

MeetInventor™ also creates opportunity for researchers to negotiate with potential funding institutions and commercialization agents. Such research funding model will ensure huge fund amount can be obtained if the project being posted able to satisfy the funding institution's needs since the MeetInventor™ portal gives a clear insight into what the project has to offer upon completion.

The portal supports researchers at various phases of their product lifecycle. There are four key elements in the proposed framework, i.e., repository, educating, facilitating and marketing Figure 2. Each of these elements can assist the transformation of research ideas into marketable products to the end users. This framework was modeled based on the existing practice in most university

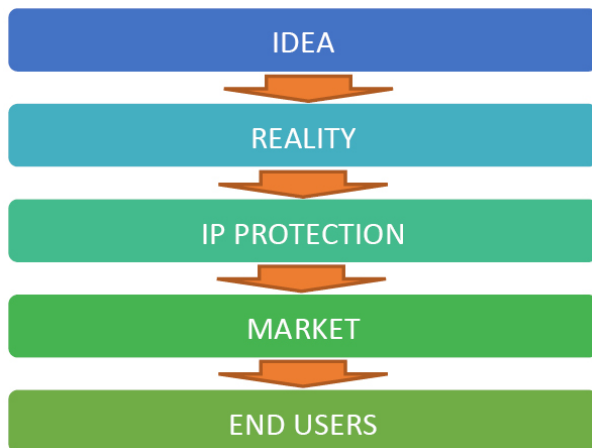


Figure 1. MeetInventor™ research to business model.



Figure 2. MeetInventor™ framework.

Research Management Centres (RMC) whereby some of these elements are managed by various departments in these centres. The process from research to commercialization often takes time as it involves ad hoc services. Due to this, many research products fail to reach the commercial markets. The MeetInventor™ portal aims to facilitate and speed-up these services by means of digital presence.

In existing practices, most research management centres mainly functions as repository to keep records of research activities, including research innovations. These information are kept at the management centres and are not easily accessible by other researchers for future collaborations. Furthermore, there seems to be no links or associations between the inventors, i.e., inventors who share the similar research interest are not connected with each other. Also, there are no links that are established by the research management centres between investors and inventors. This is important to increase the chances of getting funding from interested agencies and companies. Again, currently such services are offered based on ad hoc requirements.

MeetInventor™ web portal supports the existing and additional services which are currently lacking in most RMCs. It even provides a platform for monetizing, which can boost the income generation for the university.

As aforementioned, the framework has been integrated into the MeetInventor™ web portal and can showcase all the posted projects which are approved by the university Figure 3. The portal is also supported on mobile devices,

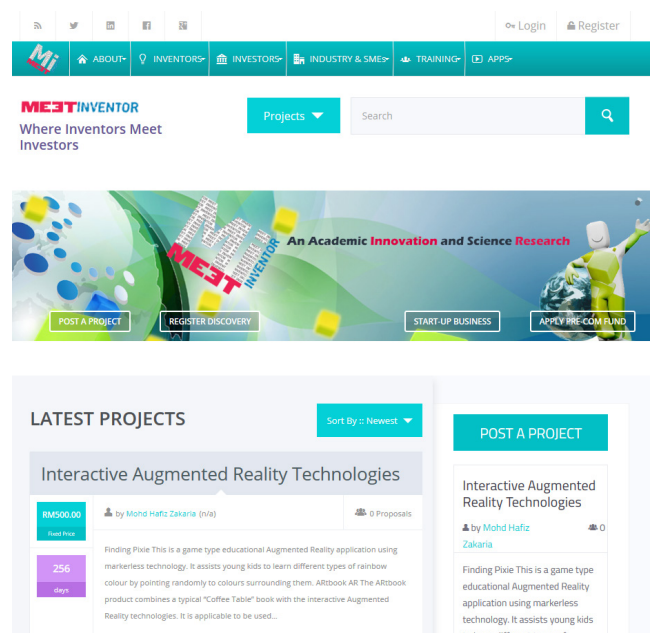


Figure 3. MeetInventor™ portal.

hence making it easily accessible by anyone who wants to get information on the new projects or products posted by the researchers. Figure 4 next, we will detail out each of the elements of the proposed framework i.e., repository, educating, facilitating and marketing.

2.1 Repository

The MeetInventor™ portal serves as data repository (warehouse) to keep record of all products which are posted on the portal. This includes the inventor's product descriptions, intellectual property documents, inventor's profile, etc. This information will be reviewed first by the university research management centre before being deposited to maintain consistency of quality; as shown in Figure 5. The records in the repository will enable the public to search for the products by project title, categories, skills, inventors or location. Interested parties may then directly get contacts of the relevant technical experts for research or business collaboration.

As for the Intellectual Property (IP) records, MeetInventor™ will work closely with the technology transfer office at each university to ensure that appropriate provisional or IP filings have been completed for each product and that no IP protection are compromised. As for requirement, MeetInventor™ uses a submission system

which requires the inventors to upload their product's IP records into the system.

2.2 Educating

One of the key objectives of MeetInventor™ is to educate the researchers to think through a market lens, where they require training, collaboration and team building. The MeetInventor™ platform supports online learning where virtual training will be given to researchers Figure 6. University researchers need to be trained and equipped with the knowledge to transfer their innovations into commercial products. However as academic researchers often do not get the right opportunity to develop their entrepreneurship knowledge and skill, hence creating an environment for them to develop such knowledge is crucial. Virtual based learning environment is most suited for academics as it gives them maximum flexibility to learn at their own convenience. The MeetInventor™ training portal offers Research to Business Massive Open Online Course (R2B-MOOC) modules; as depicted in Figure 7. The course is divided into three levels of training: Basic,



Figure 4. Responsive design.

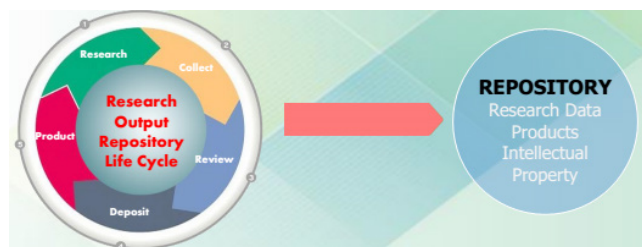


Figure 5. MeetInventor™ repository.

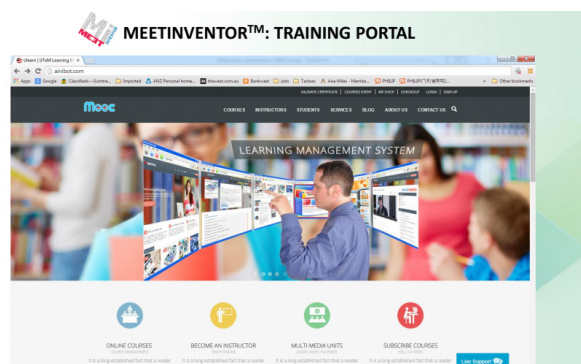


Figure 6. MeetInventor™ training portal.



Figure 7. Research to Business Massive Open Online Course (R2B-MOOC).

intermediate and advanced, dedicated to educate the researchers to think through a market lens—to accelerate the commercialization of academic innovations.

Besides training, MeetInventor™ also allows researchers to get connected with other researchers having similar research interest. This will encourage them to collaborate and work as a team to generate new ideas and inventions. In existing practice, most academic research works are confined to the researcher or the research group located within the university. This limits active intra and inter-universities R&D collaboration which involves researchers with different background, knowledge and experience. With such collaborations, it can strengthen the exchange of knowledge, expertise and working culture in doing commercial research projects.

2.3 Facilitating

The MeetInventor™ also incubates and facilitates researchers by providing support in technical and business skills. Through MeetInventor™, researchers will be able to use their ideas and innovations for better access to funding. The portal can be directly linked with the university department responsible for research funding administration. Hence, the study goal process focuses on helping researchers define a concrete time-scoped study that increases the likelihood for obtaining funding from grants available through allocated funds by academic, governmental or private funding institutions. Upon completion of the study, the research output is expected to be much closer to being licensed or spun out into a start-up. This often leads to redefining the project in ways that will favour a successful outcome.

As protection of ideas and inventions are necessary feature in the commercialization of research, MeetInventor™ encourages researchers who post their products on MeetInventor™ portal to register for Intellectual Property (IP). The different types of IP include copyright, trademark and patent. It is important to remember that IP is not a goal itself for achieving the university's requirement, but it is a tool to help research endeavours. IP can be crucial in commercializing research and running a successful science-based business. The MeetInventor™ portal will guide researchers on how to protect their idea or prototype and filing the IP documents. The module for IP protection will be included in the R2B-MOOC training module. Successful registered documents will then be published in the portal under the inventor's profile and recorded in the IPs repository.

Thus this allows researchers to use the MeetInventor™ platform as their virtual business office for the establishment of strategic business with 'protected' inventions.

2.4 Marketing

The most important feature of MeetInventor™ is the ability for researches to 'sell' their ideas and innovations. In usual practices, most academic research ideas are made 'visible' only to the academic arena and it takes rather a long time to get to the attention of the investors. To bridge this gap, MeetInventor™ provides a platform where new research innovations can be posted on the MeetInventor™ portal. The web based portal can be accessed by anyone around the globe, thus establishing strategic market linkages for the researchers with multinational corporations, government-linked companies, research institutes, financial community and industry, locally and globally.

Researchers can exhibit their products or projects through virtual presence. The first step is to register and submit a research project to the MeetInventor™ portal. Various information are required to be inputted during the submission process. These include project title, project description, category, skills, research interest, budget, location, project document files, videos, etc. An example submission template is shown in Figure 8. Once a project has been submitted by the researcher/inventor, an auto generated QR code will be created for the project. A novel application called QOI (Quick Response Object Identifier) which uses the QR code is developed to create a digital fingerprint for each submission (creating a new way for R&D publications to increase the universities KPI). Figure 9 this allows quick sharing with others through social networks such as Facebook, Twitter, Whatsapp, etc.

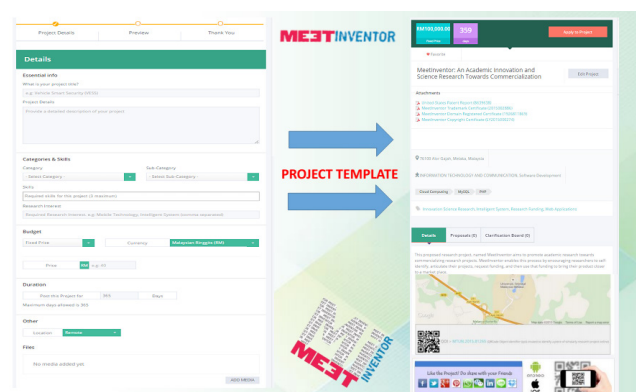


Figure 8. Project submission through MeetInventor™ portal.

Hence, the research innovations can now be promoted to a greater extent.

With quick sharing, it also increases the chances of getting the attention of potential investors. Investors will be aware of the new innovations and can obtain further details of the projects being carried out from the portal. MeetInventor™ also allows investors to register themselves to the portal, where information about the company's business interest will be stored. With the list of registered inventors and investors, MeetInventor™ through its affiliate system (Pintors) can link inventors with investors by matching their research and business interest. This promotes smart partnerships and collaborations between universities and industries in technology development and commercialization of research results. This is also important to increase the chances of getting funding from interested agencies and companies Figure 10.

Additionally, the MeetInventor™ offers a platform, called InventorStore, to sell ready to market research products via its portal. It supports online shopping activities where customers can find and discover university

technology innovation products Figure 11. InventorStore also has its own affiliated monetizing system where revenues can be transferred to the university, inventor and investor based on mutual business agreement. To this end, we can say that the MeetInventor™ can function as a 'one-stop centre' for transferring academic innovations from ideas to end users, i.e., towards commercialization.

3. Discussion

In order to close a research loop, the outcome of the research should be transferred back to the society, whether in the form of services or useful products. However many at times, most research projects often ends in the laboratory. The need for promoting academic research products is essential so that the research work does not end in the academic arena. These potential research innovations need to be exposed to the world to increase the chances of getting funding from interested agencies and companies. While traditional funding sources for academic research are only made available through allocated funds by academic or governmental institutions, this often slows down the process of getting promising innovations into the market. This paper has proposed a framework named MeetInventor™ to bridge the gap between ideas and reality in academic research. The study has demonstrated how internet-based strategies through MeetInventor™ portal can assist in commercialization to market the creation of innovation. There are four main phases in the framework, i.e., repository, educating, facilitating and marketing.

MeetInventor™ repository system keeps record of all the academic innovation products that are posted to the portal. This is to provide search engine for the access of research innovation bank. It will enable interested

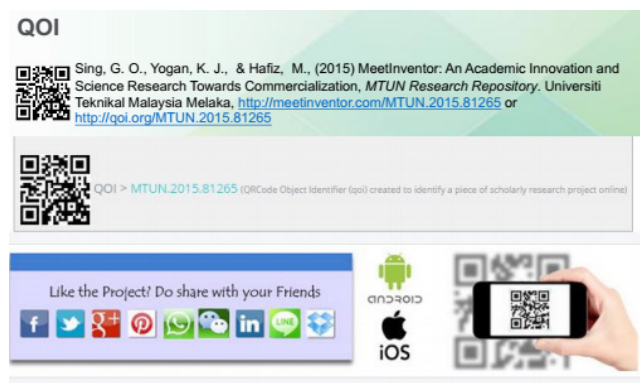


Figure 9. Auto generated QOI reference for project submission.

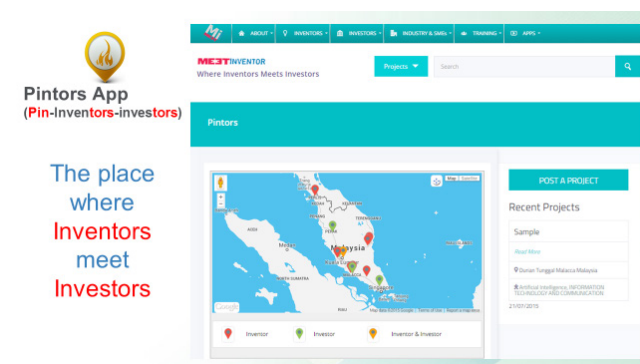


Figure 10. Pintors: Linking inventors with investors.



Figure 11. InventorStore: Online-based shopping.

parties to find the research product information and directly get contacts of the relevant technical experts for research or business collaboration. MeetInventor™ also educates the researchers to think through a market lens, where they can improve their entrepreneurship skills. The MeetInventor™ portal is integrated with Research to Business Massive Open Online Course (R2B-MOOC) where virtual training can be taken by the researchers.

Besides that, the portal facilitates researchers by providing support for better access to funding. The portal can be directly linked with the university department responsible for research funding administration. MeetInventor™ also link inventors with investors by matching their business interest. This is important to increase the chances of getting funding from interested agencies and companies. Apart from that, it facilitates researchers to protect their ideas and prototype by filing for IP. This is important for the establishment of business with 'protected' inventions.

MeetInventor™ also provides additional support for marketing research products through promotion, exhibition and affiliation. Research projects which are posted on the portal can be shared or linked to manufacturing partners, venture capital firms, as well as potential customers. MeetInventor™ enables this process by encouraging researchers to post their products, request funding, and then use that funding to bring their product closer to the market place. Marketing through this platform can also expose the researchers, their works and their capabilities to the world. Presently, such marketing supports are offered ad hoc in most universities.

4. Conclusion

This paper describes a framework for promoting academic innovation and science research towards commercialization. In existing practices, most research management centres mainly functions as repository to keep records of research activities, including research innovations. The process from research to commercialization often takes time as it involves ad hoc services. Due to this, many potential research products fail to hit the commercial markets. The MeetInventor™ portal aims to facilitate and speed-up these services by means of digital presence. It is deemed necessary to have a 'one-stop centre' to help universities to search for relevant investors, thus creating better opportunities for research funding and product commercialization. The use of MeetInventor™ framework for elevating academic

innovation products via the MeetInventor™ portal could greatly improve the likelihood of commercial success.

5. Acknowledgements

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