

Low-Cost Inventions and Patents: Series II

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1. Introduction

Inventions are new, unique, and useful creations or solutions to problems that have been developed through the process of invention. Inventions can exist tangibly, such as machines, devices, or products, or intangibly, such as processes or methods. Inventors use their knowledge, creativity, and problem-solving skills to conceive of new ideas and turn them into useful inventions. Inventors may work individually or in teams, and they often go through a process of research, development, and testing before bringing their inventions to market. Inventions can have a wide range of applications and can be used to improve people's lives, solve problems, and advance technology.

Low-cost inventions are innovations that are designed to be affordable and accessible to a wide range of people. These inventions often utilize inexpensive materials and simple design techniques to make them more affordable than other products on the market. The goal of low-cost inventions is to make useful and innovative products available to people who may not be able to afford more expensive options. These inventions can be particularly useful in developing countries, where access to affordable products can be limited. Examples of low-cost inventions include water filtration systems, solar-powered lighting systems, and simple medical devices.

A patent is a legal document that grants exclusive rights to an inventor or their assignee for a certain period of time, typically 20 years from the date of filing. A patent allows the inventor to prevent others from making, using, selling, or importing their invention without their permission. In return for this protection, the inventor must disclose the details of their invention in the patent application, which becomes public information once the patent is granted. There are different types of patents, including utility patents, which refers to and useful inventions, and design patents, which refers to ornamental design of an object. Obtaining a patent can be a complex and expensive process, and it requires the inventor to adhere to certain criteria and follow specific procedures.

A patent proposal is a written document that outlines the details of an invention and provides evidence that it meets the criteria for being patented. The proposal typically includes a detailed description of the invention, including how it works and for what it is used. It may also include drawings or diagrams to illustrate the invention, as well as any background information or prior art that may be deemed relevant. In order to be eligible for a patent, an invention must be new, non-obvious, and useful. Therefore, the proposal should include evidence that supports these requirements, such as information on prior searches for art and comparisons to similar inventions. The proposal may also include information on the potential market for the invention and any plans for commercialization.

Patents are intended to encourage technological development by providing inventors with exclusive rights to their inventions for a limited period of time. This allows inventors to profit from their creations and provides an incentive for them to continue developing and improving their technologies. By granting inventors exclusive rights to their inventions, patents also encourage others to invest in research and development by installing confidence that their investments will be protected. Additionally, the disclosure requirements



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of the patent process help to promote the sharing of knowledge and ideas, which can stimulate further technological development. Overall, the patent system is designed to foster innovation and advance technology by providing a framework for protecting and rewarding inventors.

For these reasons, this Special Issue aims to review the state of the art in low-cost technologies used for patent applications. In today's competitive world, promoting technological innovation through inventions is one way for a company to survive and add value to its services and products. Managing technological innovation requires the implementation of various mechanisms, including the protection of intellectual property. Patents, licenses, copyrights, trademarks, and trade secrets are some of the legal tools that inventors and innovators can use to enforce their ownership rights to their inventions. This Special Issue focuses on low-cost technologies, which provides inventors more accessibility to protecting their innovations.

2. Publications Statistics

This Special Issue includes six published manuscripts originating from seven different countries. The details of the submitted manuscripts are summarized in Table 1. The statistics in the table only consider the first affiliation of the authors. It is common for a single manuscript to have multiple authors, each of whom may be affiliated with different institutions. The average number of authors per published manuscript in this Special Issue was six.

Table 1. Authors' countries: statistics.

Country	Authors
China	5
Colombia	6
India	4
Russia	2
Spain	8
Taiwan	4
Ukraine	6
Total	35

3. Authors' Affiliation

There are 14 different affiliations among the authors of the manuscripts in this Special Issue. The statistics in the table only consider the first affiliation of each author. Table 2 summarizes the authors and their first affiliations.

Table 2. Authors' affiliation.

Author	First Affiliation	References
Yanjun Zhu	Shandong Agricultural University	[1]
Tongxun Zhang	Shandong Agricultural University	[1]
Lipeng Liu	Shandong Agricultural University	[1]
Ping Liu	Shandong Agricultural University	[1]
Xiang Li	Shandong Agricultural University	[1]
Sergiy Kotenko	National Academy of Sciences	[2]
Svitlana Ilchenko	National Academy of Sciences	[2]
Valeriia Kasianova	Odessa University of Technology Shah	[2]
Vitalii Diakov	National Academy of Sciences	[2]
Svitlana Mashkantseva	Odessa University of Technology Shah	[2]
Vitalii Nitsenko	SCIRE Foundation	[2]
Wei-Long Chen	Chaoyang University of Technology	[3]
Kuo-Chien Liao	Chaoyang University of Technology	[3]

Table 2. Cont.

Author	First Affiliation	References
Hom-Yu Wu	Lungwa University of Science and Technology	[3]
Hung-Ta Wen	Chaoyang University of Technology	[3]
Alfredo Alcayde	University of Almeria	[4]
Isabel Robalo	University of Almeria	[4]
Francisco G. Montoya	University of Almeria	[4]
Francisco Manzano-Agugliaro	University of Almeria	[4]
Eugenia Arrieta Rodriguez	University of Sinú Cartagena	[5]
Luis Fernando Murillo Fernandez	University of Sinú Cartagena	[5]
Gustavo Adolfo Castañez Orta	Helpmedica Sas, Cartagena	[5]
Ana Milena Rivas Horta	Helpmedica Sas, Cartagena	[5]
Carlos Baldovino Barco	Helpmedica Sas, Cartagena	[5]
Kellys Jimenez Barrionuevo	Helpmedica Sas, Cartagena	[5]
Dora Cama-Pinto	University of Granada	[5]
Francisco Manuel Arrabal-Campos	University of Almeria	[5]
Juan Antonio Martínez-Lao	University of Almeria	[5]
Alejandro Cama-Pinto	Universidad de la Costa	[5]
Sukhpreet Singh	KC Group of Research and Professional Institutes	[6]
Ashish Agrawal	Manipal Academy of Higher Education	[6]
Deepak Sharma	KC Group of Research and Professional Institutes	[6]
Vishnu Saini	Lovely Professional University	[6]
Abhinav Kumar	Ural Federal University	[6]
Seepana Praveenkumar	Ural Federal University	[6]

4. Topics and Keywords

The authors of this Special Issue have conducted research in two main areas: inventions and technology, and costs. Table 3 summarizes the areas of research reported by the authors, and Table 4 summarizes the keywords of the published manuscripts.

Table 3. Topics for *Low-Cost Inventions and Patents: Series II*.

Topics	Number of Manuscripts	References
Inventions/Technology	4	[1,3–5]
Costs	2	[2,6]

Table 4. Keywords for *Low-Cost Inventions and Patents: Series II*.

Keywords	References
image recognition; HSI space model; detecting device; infrared tubes; picking point	[1]
cost of losses; risk assessment; water transport; mathematical model	[2]
finite element method; thermodynamics; stone grill plate; thermal images; ANSYS CFX; stress analysis	[3]
energy monitoring; renewable energy; sustainability; electrical engineering; online learning; virtual laboratories	[4]
inpatient safety; IoT; adverse event; hexagonal architecture	[5]
overall equipment efficiency (OEE); TPM; quality; manufacturing techniques; manufacturing industry	[6]

5. Conclusions

In conclusion, the Special Issue of *Low-Cost Inventions and Patents: Series II* has provided insight into the potential for affordable technologies to address global challenges and improve people's lives. The research reported in this Special Issue has demonstrated the viability of low-cost inventions and their ability to provide solutions to a wide range of issues, from health and education to environmental sustainability and economic development. These findings have important implications for policy makers, researchers, and stakeholders in the field of innovation and technology by highlighting the need for support and investment in the development and dissemination of low-cost inventions.

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