

Doctorate and Professional Projects

Introduction

The Ministry of Industry, the Association of Lebanese Industrialists, the Lebanese National Council for Scientific Research, and Banque du Liban are proud to launch the annual Conference and Exhibition of Lebanese Industrial Research Achievements (LIRA). All universities and professional entities are encouraged to participate in this showcase of innovation, which aims to transform high quality, creative industrial research into productive industrial investment opportunities.

Academic Researchers and Professionals are invited to submit projects that reflect a strong potential for industrial application. The participating projects compete in an open forum and are evaluated by a specialized jury during the LIRA Exhibition, based on the enclosed criteria. Cash prizes and trophies with certificates from LIRA Advisory Board are awarded to the best projects. There are two awards offered to the first and second places of each of the following:

- Applied research projects developed and submitted by engineering or sciences doctorate researchers/professors at higher education institutions
- Applied research projects submitted by professionals

Eligibility

To be eligible for consideration in this category, project applications must be:

- Submitted through the online application portal prior to the deadline
- Prepared within doctorate programs/or by professors, or by professionals

- Strongly leading to industrial development
- Indicative of rigorous applied research outcomes
- Supported by a functional prototype

Furthermore, the applicant(s) must clearly express the potential benefit of the project to the Lebanese industrial sector in particular. The applied research project must have at least one of the following potential outputs:

1. Development of a new product that can be feasibly produced in Lebanon
2. Development of a new industrial process that can be applied in favor of a Lebanese industry, in order to improve:
 - a. Productivity
 - b. Efficiency
 - c. Quality
3. Any other disruptive or incremental innovation

Evaluation Process

Project applications must include all the necessary documents, as submissions should reflect on two main parts:

- Technical Description: Clear description of the problem and methodology with relevant bibliographical research, and detailed technical solution with results.
- Business Perspective: Clear description of business planning with regards to marketing, feasibility, and benefit to the Lebanese industrial sector.

A specialized jury of technically qualified peer reviewers, industrialists and investors, meticulously evaluates applied research project submissions according to the following criteria. These are highlighted below, and detailed in the following section, in order to provide a precise description of what is expected for the evaluation process. Applicants are encouraged to carefully read this description before producing the project documents.

I. Innovation and Uniqueness (30%)

A. Novelty/Inventive Step (15%)

B. Added Value to the Lebanese Industrial Sector (15%)

II. Design and Quality (30%)

A. Process/Product Design (10%)

B. Multidisciplinary Aspects (10%)

C. Overall Quality (10%)

III. Business Planning (40%)

A. Market Research (15%)

B. Strategic Fit (15%)

C. Financial Feasibility (10%)

Assessment Criteria

I. Innovation and Uniqueness (30%)

Novelty/Inventive Step (15%)

Applicant(s) should clearly identify all novel innovations introduced, if any, benchmarked to prior art. Alternatively, it should be clearly pointed out where there has been an improvement or an inventive step to an existing innovation. In a doctorate project, the project outcomes should be linked to the research achievements within the doctorate program, in creating knowledge.

Added Value (15%)

Productivity is best measured by the ratio of the added value to the input factors invested in producing it. The grading of this index is based on round number approximating typical rates of productivity in industrialized nations. The applicant(s) must show serious effort in estimating the added value of the product, by calculating the expenses incurred and proposing a "Tag Price" for the finished product. The academic need to include this factor resides in the necessity of creating strong awareness among applicants and industrialists for the need to measure and continuously work on improving this critical factor.

II. Design and Quality (30%)

Process/Product Design (10%)

Many of the excellent lab prototypes never make it to the manufacturing stage due to a lack of design for manufacturing approach. Many good designs cannot be easily manufactured and may have to be radically modified to accommodate the needs of mass production processes and/or to reduce the cost of such processes in order to improve the competitiveness of the product. Applicant(s) are expected to prepare a thorough documentation on the design of various processes needed to move the prototype from the lab to manufacturing.

Multidisciplinary Content (10%)

In today's knowledge based economy, a high degree of competitiveness can be achieved by successful integration of multiple specializations, yielding in a production of more complex products achieving higher added value. Thus, there is a great need to encourage researchers and professionals to develop multidisciplinary projects. The inclusion of this parameter aims at promoting multidisciplinary applied research environments, as applicants are expected to indicate the multitude of disciplines and specialization areas used in the project.

Overall Quality (10%)

In today's market, it is imperative to include quality as a parameter in any product evaluation. It has long been established that quality is mostly a management system. But whereas systems can be evaluated with respect to quality management standards, such as ISO 9001/2000, it would be difficult to subject operating prototypes, or single product/projects to such an evaluation. Instead, this is done through three main criterions that carry a qualitative assessment of the eventual production system, and that of the finished product. Those three parameters are: degree of robustness, simplicity, and durability. These parameters are applied to the design, prototype, and finishing. Noting that it may be difficult to apply all three to some of the entries in the LIRA exhibition, additional criteria for specific products may be used in order to establish a comparative measure of quality.

III. Business Planning (40%)

Market Research (15%)

It is essential that available resources be directed towards economically viable and commercially acceptable activities. It is thus imperative to be aware of the global market, and to put emphasis on those products that can be economically viable and marketable, given Lebanese economic constraints, namely products in which Lebanese producers may have a competitive advantage. The global market reality is a fact that applicants need to be aware of, and clearly represent in their application documents. The main factors in product marketability today are quality, price and acceptability by end user. As such, cost as a percentage of global prices for equivalent products, is believed to be a good indicator of marketability. Applicant(s) are expected to prove the marketability through a market research, identifying the prices of comparable products in the market, and the expected market size, in addition to an estimate of acceptability by end users.

Strategic Fit (15%)

To reflect the need for interaction with local industrialists/potential investors, and to widen the scope of evaluation, applicants should clearly identify the potential of the project with regards to investment and incorporation into the Lebanese industrial sector. An industrialist is a past, current, and future investor and this evaluation criterion would act as proof test and user acceptability of the project. The applicant(s) should also be concerned about the competitiveness of the product in local and in export markets. The export constraints (legal issues, quality control, transportation...etc.) and their impact on prices and competitiveness of the project are to be evaluated and professionally presented.

Financial Feasibility (10%)

It is essential for applied research projects to demonstrate commercial viability, best exemplified professionally through a detailed cash flow. Project application documents should include a detailed study of the associated costing, through a cash flow projection highlighting the following:

- An estimate of the capital investment
- A detailed breakdown of the manufacturing costs
- An estimate of growing return on capital invested with time.