

Engineering Economy Solutions

IIE's Engineering Economy Division Newsletter | Summer 2004

Director's message

As my term as Director comes to a close, I feel grateful to have had the opportunity to work with a dedicated team of members. Thank you, Tom, Heather (B) (Bradley), Heather (N) (Nachtman), Affan, Femi, Harriet and everybody else who did more than their share and kept the Engineering Economy Division (EED) as one of the more active IIE groups. Heather N, has put together an excellent set of research sessions at this year's IERC (presentation topics are listed in this newsletter). Affan did excellent job writing, organizing, and managing this year's newsletters. We are privileged to have Tom O' Boucher as Wellington Award Chair. Due to his insight and enthusiasm we now have a detailed set of procedures for the Wellington Award nominations and selection process, which can be used by future leadership. None of this would have been possible if not for Heather B, who organized numerous conference calls, newsletter publications and helped us in every thing we did throughout the year. And, finally I would like to thank Femi who helped us with website.

At the IIE Annual Conference, on Tuesday May 18th (From 2.45 pm-4.15 pm) we will be holding our Annual EED Business/Town Hall Meeting. We will also be presenting the Wellington Award at the meeting, electing new members for the Leadership Directory, and will be discussing future directions and opportunities for our division. This is an important meeting and I encourage you to attend and give us your support.

I hope we fulfilled the membership needs this year. If not, please let us know. As you know a new group of officers will take on their responsibilities this year. I am certain that you will provide them with the same level of support, input, and guidance as we received this year.

I look forward to seeing you at the IERC. Again, thank you for the tremendous support this year!

Hemantha Herath
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Director



Editor's Message

This is our third newsletter of 2003-04. This issue is dedicated to the 2004 IERC: Engineering Economics sessions and Town Hall meeting. This will be our last letter before the new leadership take up their assignment, I would like to thank the EED members, leadership, and Heather Bradley for their support throughout this year.

Look forward to seeing you at IERC.

M. Affan Badar
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Newsletter Editor

IIE Annual Conference 2004

May 15-19, 2004 | Houston, Texas



It's time to get ready for the IIE Annual Conference -2004. As in the past years, we hope that the Engineering Economy Division (EED)'s participation continues to grow. The EED has planned two Engineering Economy sessions: "Advancements in Engineering Economy" and "Engineering Valuation" and a Town Hall meeting on Tuesday (May 18).

Session: Advancements in Engineering Economy | Chair: Narcyz Roztocki
Tuesday, May 18, 9:30 - 10:45 am

1. Turning Point Economics: A Micro-economic Analysis of Trend Fluctuation | By Mario Beruvides and Ana Maria Canto

Abstract: Performance information is intended to be useful to managers and policymakers involved in the operation of the system to be measured. In order to statistically forecast the performance of any system it is necessary to determine if the system is in statistical control. Several methods have been developed to measure economic performance. A large amount of the research has been concentrated in recessions and expansions predictions. However despite of the positive outcomes in reducing uncertainty about economic performance, existing models have not been successful in accurately predicting turning points in the economy. This paper presents an engineering point of view to economic growth forecasting. The aim of the paper is to provide information on the nature of statistical variations of economic growth and ultimately even predict future variations based on historical data utilizing a proposed methodology. Results of a pilot study are presented as an attempt to validate the proposed methodology.

2. Equipment replacement under probabilistic technological change | By Jennifer Rogers and Joseph Hartman

Abstract: Replacement analysis models generally consider only one type of technological change: continuous or discontinuous. We present a model that includes continuous technological change and uncertain breakthroughs. Solution methods will be presented for solving this model and the results compared to models with only one type of technological change (or none at all).

3. Diffusion of Activity-Based Costing: New Evidence From the Field | By Narcyz Roztocki

Abstract: Activity-Based Costing (ABC) is highly reliable in estimating the overhead-related costs. However, according to many studies, the diffusion of ABC is rather slow. The reasons for this lack of acceptance are not absolutely clear. Therefore, the objective of this paper is to use the results of a current survey in order to determine which factors may impede the diffusion of ABC.

Session: Engineering Valuation | Chair: Venkat Allada
Tuesday, May 18, 11:00 am - 12:15 pm

1. Integrative Present Value Analysis Model for Evaluating Information System Projects | By Olufemi Omitaomu, Godswill Nsofor, and Adedeji B. Badiru

Abstract: In this paper, net present value is formulated and analyzed with respect to the unique characteristics of Information system projects. Information system projects are unique projects with several distinguished characteristics, such as the level of professionalism involved, its high technological nature, time sensitivity of projects, and intense collaboration of different stakeholders. They are also subject to several conditions of risk as a result of the combination of these characteristics. Several information system projects have been cancelled before completion in the last decade as a result of budget overruns to the tune of several tens of billions of dollars to industry. In addition, less than one-half of completed information system projects were within budgets. Although engineering economic analysis offers tools and techniques for evaluating risky projects, the tools are not enough to place information system projects on a safe budget track. There is a need for an integrative net present value analysis model that will account for the unique characteristics of this important part of the technology world. This model has the potential of reducing budget overruns in information system projects.

2. Valuing Information Technology Investments Using Fuzzy Logic | By Narcyz Roztocki

Abstract: Estimating expected costs and benefits of investments in Information Technology represents perhaps one of the greatest challenges of the Engineering Economy. Uncertainty, mainly resulting from the rapid change in technology, limits the applicability of traditional evaluation methods such as Payback, Net Present Value, or Internal Rate of Return, which require precise estimates. Since Fuzzy Logic is a methodology devised to deal with vague or uncertain information, it appears to be a promising tool to address evaluation of Information Technology investments. The objective of this paper is, therefore, to examine the use of the Fuzzy Logic theory specifically for valuation of Information Technology investments.

3. Evaluation of New Product Development Projects Using Real Options | By Venkat Allada and Shil Prasenjit

Abstract: Product Planning is widely touted strategy employed by companies for mass customization. However, due diligence should be exercised before implementing a company wide product planning strategy. The crux of the problem lies with the financial model that is used for evaluating the strategic future product roadmap derived from the platform developed. Traditional financial tools such as net present value method are static since they do not compensate for any exogenous and endogenous uncertainties and risk that may occur during the course of the project. While many view uncertainties in a product planning project as problematic, it can also be a source of new opportunities to a corporation. We argue that the uncertainties should be an integral part of the financial evaluation model. If the future possibilities (or options) are not considered in the evaluation model, the corporation may face a “myopic syndrome”. In this paper, we build a comprehensive framework to evaluate strategic product roadmap plan using real option analysis. The framework consists of three phases. First, we evaluate terminating decisions for the existing product line. In the second phase, we foray into future development by selecting the right project option and finally in the last phase we determine the optimum time frame for each future product variant derived from the selected platform to be in the market. We illustrate the working of the proposed model using an example.

Town Hall Meeting

Tuesday, May 18, 2:45 - 4:15 pm

Come find out what your Division has in store for the coming year by participating in this Town Hall Meeting. It's more than just a board meeting - it's your chance to help determine the future direction of your Division. Come with your ideas - we'd love to hear from you! For more information, contact Heather Bradley at hbradley@iienet.org.

For the conference registration, please visit www.iienet.org/annual

The Engineering Economist

The Engineering Economist is a journal sponsored by the Institute of Industrial Engineers and the American Society for Engineering Education. This quarterly refereed journal is the only publication devoted to the field of capital investment analysis and related topics in the private and public sectors. Articles on such topics as capital budgeting, project evaluation, equipment replacement analysis, and economic design are regularly featured.

We welcome your participation as an author, editor, or reviewer. If you are interested in such a role, please contact Joseph Hartman by phone at 610-758-4430 or by e-mail at jch6@lehigh.edu.

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Engineering Economy Division Web Page

The EED web page can be viewed at <http://engecon.iienet.org/>. Femi Omitaomu has been designing and maintaining the web site for over two years. If you have any suggestions concerning the site or any information that you want to post on the site, please e-mail to the Webmaster at omitaomu@utk.edu. If you have any comments or contributions for the newsletter, please e-mail to the newsletter editor at mbadar@indstate.edu.

Other Important Websites

EED Homepage: <http://engecon.iienet.org/>

The Engineering Economist Homepage: <http://www.eng.auburn.edu/~park/journal>

IIE Homepage: <http://www.iienet.org>

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