The Measurement of Fuel Consumption under Hot Ambient Temperature

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Abstract

Many types of marine structures are susceptible to vortex-excited oscillations. These include the risers and conductor tubes that are employed in offshore drilling and production, deep water pipelines, and members of jacketed structures. Deepwater pile installation and driving operations also have been hampered by problems arising from vortex shedding. A discussion is given in this paper of the problems caused by vortex shedding from flexible, bluff cylinders in steady current flows. In particular, recent measurements of the steady and unsteady deflections caused by the vortex-excited drag and lift forces are discussed. Various approaches that have been developed for the suppression of vortex-excited oscillations are reviewed. A classification and a comparison are made of the effectiveness of several suppression devices, and some practical examples of their application are presented.

Keywords: citations, impact, unbiased

Introduction

For the few scientists who earn a Nobel prize, the impact and relevance of their research is unquestionable. Among the rest of us, how does one quantify the cumulative impact and relevance of an individual's scientific research output? In a world of limited resources, such quantification (even if potentially distasteful) is often needed for evaluation and comparison purposes (e.g., for university faculty recruitment and advancement, award of grants, etc.).

The publication record of an individual and the citation record clearly are data that contain useful information. That information includes the number (N_p) of papers published over n years, the number of citations (N^j_c) for each paper (j), the journals where the papers were published, their impact parameter, etc. This large amount of information will be evaluated with different criteria by different people. Here, I would like to propose a single number, the "h index," as a particularly simple and useful way to characterize the scientific output of a researcher.

A scientist has index h if h of his or her N_p papers have at least h citations each and the other ($N_p - h$) papers have $\leq h$ citations each.

The research reported here concentrated on physicists; however, I suggest that the h index should be useful for other scientific disciplines as well. (At the end of the paper I discuss some observations for the h index in biological sciences.) The highest h among physicists appears to be E. Witten's h, which is 110. That is, Witten has written 110 papers with at least 110 citations each. That gives a lower bound on the total number of citations to Witten's papers at h^2 = 12,100. Of course, the total number of citations ($N_{c,tot}$) will usually be much larger than h^2, because h^2 both underestimates the total number of citations of the h most-cited papers and ignores the papers with $<h$ citations. The relation between $N_{c,tot}$ and h will depend on the detailed form of the particular distribution (1), and it is useful to define the proportionality constant a as

$$N_{c,tot} = ah^2 \ldots.[1]$$

PROBLEM IDENTIFICATION: NEED FOR CONCEPTUAL PROCESS AND MENTAL MODEL IS researchers have developed an interest in DS research over the last 15 years. Three papers from the early 1990s, (March et al. 1995; Nunamaker et al. 1991; Walls et al. 1992), introduced DS research to the IS community. March and Smith (1995) argued that design research could contribute by facilitating research to address the kinds of problems

faced by IS practitioners. In their view design and natural science IS research are complementary to produce relevant and effective results for IS practice. Nunamaker et al. (1991) were interested in integrating system development into the research process. They proposed a multimethodological approach that would include 1) theory building, 2) systems development, 3) experimentation and 4) observations. All of these methodologies interact with each other and are essential for complete research products. Walls et al. (1992) took a more general approach to define information systems design theory, as a class of research that would stand as an equal with traditional social science based theory building and testing.

Uniform speed: Operation, 2, is a sample of these types of operation. Duration of operation = 6S Car speed = 20 km/h First gear is used The car tractive effort in this case is given by: Rt = Rt + Ra Rr = krmg = 168 N Ra = KAV2 = 0.3 1.82 = 17 N N Where engine power Where , when the first gear is applied. The engine speed = 2000 R.P.M Thus, the engine power Where the = 0.3 barThe research literature on ERP systems has exponentially grown in recent years. In a domain, where new concepts and techniques are constantly introduced, it is therefore, of interest to analyze the recent trends of this literature, which is only partially included in the research papers published. Therefore, we have chosen to primarily analyze the literature of the last 2 years (2003 and 2004), on the basis of a classification according to six categories: implementation of ERP; optimisation of ERP; management through ERP; the ERP software; ERP for supply chain management; case studies. This survey confirms that the research on ERP systems is still a growing field, but has reached some maturity. Different research communities address this area from various points of view. Among the research axes that are now active, we can, especially, notice a growing interest on the post-implementation phase of the projects, on the customization of ERP systems, on the sociological aspects of the implementation, on the interoperability of the ERP with other systems and on the return on investment of the implementations.

Waste is the element of production that adds no value to the product, adding only cost and/or time. It is the work customer is not willing to pay for. The recognition and understanding of waste is key in defining root causes in order to eliminate waste. Classification of Work Value Added Any activity that adds to or changes the fit, form, or functions progresses the product towards it's finished form. Basically the work the customer is willing to pay for. For example: processing, bending, shaping, etc. Non Value Added Any activity that does not add to or change the fit, form, or function of the product and does not progress the product towards it's finished form. For example: moving material, walking, rework or repair, inspection, etc Non Value Added but Necessary Any activity that does not add to or change the fit, form, or function of the product and does not progress the product towards its finished form, but allows the Value Added activity to be performed

Today Manufacturing enterprises use different production policies to enhance customer's needs satisfaction, such as Make-to-Stock (MTS), Make-toOrder (MTO), Assemble-to-Order (ATO) and Engineerto-Order (ETO), each of which yields different advantages and disadvantages. Among these policies, MTS and MTO have been widely applied in the production planning. In MTS systems, finished good products are made and stocked upon forecast of the customer demands and customer's reception of products from a warehouse near to the customer. The main characteristics of MTS systems are high storage costs, short delivery time and low responsiveness to the customer orders (Soman et al. 2004). In contrast with MTS systems, MTO systems are conducted based on the customers' orders leading to lower storage costs, higher flexibility and longer delivery time are the major features of these systems (Olhager 2003). In this regard, many studies have been done in relation to the performance and control of these systems. In last decade, analysis of these systems has shown into some extent that appropriate combination of these two systems may balance the two above-mentioned systems to achieve better results

As noted above, a production system which has recently attracted many studies attention is hybrid MTS-MTO which leads to major effects on responsiveness and competitiveness of the companies and it can exploit advantages of both MTS and MTO systems such as lower inventory (Kober and Heinecke 2012) and short delivery time (Olhager and Ostlund 1990). Also, studies by Atali and Ozer (2012) and Kaminsky and Kaya (2008) showed the cost of the new hybrid systems is significantly lower

than the cost of either pure strategy. Although the MTS-MTO systems have a better performance in many cases, it faces limitations in operational decisions when system capacity is constrained or system has service constraints. Gupta and Benjaafar (2004) and Chang and Lu (2010) show the cost of the hybrid systems will decrease when the production constraints become more restrictive In MTS-MTO production systems, for as much as a portion of the production system operates in MTS mode and the other portion operates in MTO mode, thus several items are produced to stock and others are produced to order. For these reasons, two questions are addressed about these systems, including (Hoekstra and Romme 1992; Gupta and Benjaafar 2004): Which items should be stocked or made to order? How must production capacity be allocated among MTO and MTS items?

In this paper, a multi-product multi-period model with consideration of multi-site production is presented. Connections between production sites are established through the transferring inventory of semi-finished products and inventory of raw materials among themselves. Two different approaches for solving the model are proposed. The main goal of the first approach minimizes the labor costs and of the second minimizes the holding costs. Also, for solving proposed model of this paper, Random Production Strategy Algorithm has been developed. Table 1 results, show if the ratio of labor costs to holding costs be in the same level, both of these approaches and hybrid approach will provide the same answers. But if the ratio of labor costs to holding costs be a considerable value, provided answers by different approaches will differ and the higher ratio values lead to greater differences in answer. Meanwhile, the hybrid approach has shown good performance and provided the best answer among others. As previously mentioned, the proposed algorithm in this paper is heuristic. In the future, metaheuristic algorithms can be used to solve the model and obtained results can be compared with the results of the RPSA

Once the methodological ice was broken for DS research, Walls et al. (2004) expected a rush to it in IS. DS research was the link between IS research and practice, and who wouldn't want IS research to have more impact on practice, to embed research in inventive systems, or to use design to develop better theory? For some reason, however, it doesn't seem to have happened. Walls et al (2004) lament that little DS research has been done in IS in the last 10 years. We collected the articles published in four top IS journals in the last 10 years in our own subject domain, requirements engineering (RE). RE seems a likely focus for DS research because of the domain's close links with practice and because the outcome of research in the domain is often a new meth- 87 odology, a potential artifact in design research. Of the 15 articles, just two could arguably be considered DS research (see Appendix I for details). Given that many software engineering or computer science papers take such a design science approach (Morrison et al. 1995), we wonder why it shouldn't be happening in IS.

One reason why DS research hasn't been widely adopted in IS might be a lack of a conceptual process for carrying it out and a mental model for presenting the research and evaluating the outputs. Such a process and model could help researchers produce rigorous research acceptable for the IS community and help reviewers and the researcher audience recognize it as such. Other research traditions have addressed these issues. Engineering, for example, appears to use a wide variety of approaches to conduct design research (Evbuonwan et al. 1996), i.e., research about engineering design. The emphasis in engineering has been quite applied and the focus could be described as process targeting the production of artifacts (van Aken 2005). Evbuonwan et al (1996) mention fourteen different process models. Many of these, like Cooper's StageGate (Cooper 2000; Cooper 1990), are clearly intended more as design or development methodologies than research methodologies. Since DS has strong roots in design it is not surprising that many of papers concentrate more on doing research about design (Eekels et al. 1991; Hybs et al. 1992; Macmillan et al. 2001).

CONCLUSION

In this paper, single phase fuel cell powered standalone power system which generates alternating power through

two stages is simulated. Dc-dc boost converter converts the unregulated fuel cell power to regulated DC power and the next section which is a semi-Z-source inverter converts the regulated dc power to alternating power. Comparing withconventional inverters, the semi-Z-source inverter system has only two active switches thereby reducing switching loss and giving same output as a full bridge inverter. The harmonics present in the output voltage from the semi-z-source inverter is only 2.5%.This percentage is under the allowable harmonic limits. The world is using up all the resources to meet the daily demands of energy and it is quite expectable that in the near future we will run out of any naturally occurring ore/mineral/petroleum. As a result, renewable energy solution is a way today to save the natural resources and also to tackle the crisis of energy. This type of small low power, off grid power systems using renewable resources mitigates energy scarcity and also offers a greener solution to the environmental pollution

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