

# An Approach for Effort Estimation of Service Oriented Architecture (SOA) Projects

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## Abstract

In the last few decades SOA (Service Oriented Architecture) has become the new trend in the IT industry. Many organizations tend to migrate to SOA in order to cope with the rapidly changing business. Effort estimation of SOA projects has become a real challenge to project managers due to the limited literatures addressing this issue. The traditional effort estimation techniques do not fit SOA projects entirely, as SOA has unique characteristics were not addressed by the traditional cost estimation approaches. These unique SOA characteristics include: loose coupling, reusability, composability and discoverability. On the other hand, cost estimation approaches that were proposed to estimate SOA projects, are still immature and most of them are impractical. They cannot be used in real life projects, as they are more guidelines than actual practical cost estimation approaches. This paper proposes an effort estimation approach for SOA projects that has been applied to different variety of services. It considers SOA characteristics and the various cost factors for different types of services including available, migrated, new and composed services. This proposed approach provides effort estimation technique for each type of service. The proposed approach also gives effort distribution among project phases for easily resources allocation. This framework has been applied to real life projects in the IT industry as the SOA project is divided into its component services and each service is estimated solely based on its type. The services' efforts are then aggregated to calculate the project's overall effort. The estimated effort relative error in the case studies ranges from 3.66 % and 19.14%.

Key words: Software engineering, effort estimation, cost estimation, phased effort estimation, SOA projects,

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