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MODELS FOR PRICING SOFTWARE PRODUCT DESIGN AND DEVELOPMENT SERVICES AND THE FUNDAMENTAL PRINCIPLES OF THEIR FORMATION

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Abstract. Pricing software product design and development services is a complex managerial and economic task that directly influences competitiveness, profitability, and sustainability of IT companies. Unlike physical goods, software products are intangible, customizable, and often developed under uncertain requirements, which complicates cost estimation and price formation. This thesis explores existing pricing models used in software engineering projects, analyzes their advantages and limitations, and formulates fundamental principles for forming fair and economically justified prices. Based on comparative analysis, practical recommendations are proposed for selecting and applying appropriate pricing models in different project contexts.
Keywords: *software development, pricing models, cost estimation, value-based pricing, time and material, fixed price, software project management.*

1. Introduction

The rapid expansion of the digital economy has significantly increased demand for software products and development services. Organizations rely on software solutions to automate business processes, improve efficiency, and enhance competitiveness. Consequently, software development has become one of the most strategically important industries worldwide.

One of the major challenges faced by software companies is determining how to price design and development services. Incorrect pricing can lead to financial losses, project failures, and damaged client relationships. At the same time, overly conservative pricing may reduce competitiveness in a highly saturated market. Therefore, developing effective pricing models and clearly defined principles for price formation is essential. This article aims to analyze existing pricing models for software design and development services and to identify the fundamental principles guiding their formation.

2. Literature Review

Previous research on software project economics emphasizes that pricing and cost estimation are closely linked to software engineering processes. Sommerville (2016) highlights that software development costs are dominated by human labor rather than material resources. Pressman and Maxim (2019) note that inaccurate early estimation is one of the main reasons for project overruns.

Boehm's COCOMO II model provides a quantitative framework for estimating software development effort based on project size and complexity. Other

researchers focus on value-based pricing, arguing that software prices should reflect business impact rather than production cost alone. Recent studies also show a growing preference for flexible pricing models in Agile and DevOps environments.

3. Methodology

This study adopts a qualitative analytical approach. Academic literature, industry reports, and practical guidelines were reviewed and synthesized. A comparative analysis of common pricing models was conducted based on criteria such as flexibility, risk distribution, predictability, and suitability for different project types.

Pricing models for software design and development services

Pricing software design and development services is a strategic decision that directly affects profitability, competitiveness, and customer satisfaction. Because software projects differ in size, complexity, and uncertainty, organizations apply various pricing models depending on project characteristics and business goals. The most widely used pricing models are described below.

Characteristic	Cost Calculation	Advantages	Limitations
Fixed-Price	Total project cost agreed upfront	Predictable budget, clear scope	Low flexibility, high vendor risk
Time and Material	Actual time and resources used	High flexibility, suitable for Agile	Final cost uncertain, requires trust
Cost-Plus	Actual cost plus profit margin	Simple, transparent, low vendor risk	Weak incentive to optimize efficiency
Value-Based	Business value delivered to client	Potentially high profitability, client-oriented	Difficult to quantify value
Subscription-Based	Recurring fee for access and support	Stable revenue, long-term relationship	Requires continuous service quality

Figure-1. Pricing model comparison

Comparative analysis of pricing models for software design and development services. Different pricing models offer varying levels of flexibility, risk distribution, predictability, and suitability for different types of software projects. A comparative analysis helps identify the strengths and limitations of each model and supports informed decision-making.

Model	Flexibility	Risk Distribution	Predictability	Typical Use Case
Fixed Price	Low	Vendor	High	Small, stable projects
Time & Material	High	Shared	Low	Agile projects
Cost-Plus	Medium	Client	Medium	Internal systems
Value-Based	Medium	Shared	Medium	High-impact systems
Subscription	High	Shared	Medium	SaaS solutions

Table-1. Pricing model comparison

The analysis shows that the Fixed Price model offers strong cost predictability but lacks flexibility, making it unsuitable for projects with changing requirements. The Time and Material model provides maximum flexibility and is ideal for Agile development environments, although it introduces uncertainty in final cost.

The Cost-Plus model minimizes vendor risk but may reduce incentives for efficiency. Value-Based pricing aligns price with business outcomes, offering high profit potential but requiring sophisticated value assessment. The Subscription-Based model is effective for long-term service delivery and SaaS platforms, while Hybrid models combine strengths of multiple approaches and are increasingly popular in complex projects.

Conclusion

Effective pricing of software design and development services requires an integrated approach that considers cost, value, risk, and market factors. By selecting appropriate pricing models and adhering to fundamental formation principles, software companies can improve project outcomes and strengthen client relationships.

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