面向ASP的协同设计与车间生产物流精益规划研究

一、本文概述

Overview of this article

随着制造业的快速发展和市场竞争的日益激烈，协同设计与车间生产物流精益规划在制造业中的作用越来越突出。协同设计旨在整合各部门、各专业领域的知识和资源，实现产品设计的高效、优质和创新。而车间生产物流精益规划则关注于生产过程中的物流优化，通过减少浪费、提高效率，实现生产成本的降低和生产周期的缩短。面向ASP（高级计划与排程）的协同设计与车间生产物流精益规划研究，旨在将ASP技术应用于协同设计和生产物流规划中，以进一步提升制造业的竞争力。

With the rapid development of manufacturing and increasingly fierce market competition, the role of collaborative design and lean planning of workshop production logistics in the manufacturing industry is becoming increasingly prominent. Collaborative design aims to integrate knowledge and resources from various departments and professional fields, achieving efficient, high-quality, and

innovative product design. Lean planning for workshop production logistics focuses on optimizing logistics during the production process, reducing waste, improving efficiency, and achieving cost reduction and shortened production cycles. The research on collaborative design and workshop production logistics lean planning for ASP (Advanced Planning and Scheduling) aims to apply ASP technology to collaborative design and production logistics planning, in order to further enhance the competitiveness of the manufacturing industry.

本文首先介绍了协同设计和车间生产物流精益规划的基本概念、原理和方法，分析了它们在制造业中的重要性和应用现状。然后，详细阐述了 ASP 技术在协同设计和生产物流规划中的应用原理和方法，包括基于 ASP 的协同设计流程、车间生产物流模型构建与优化等。在此基础上，结合具体案例，对 ASP 在协同设计和生产物流规划中的应用效果进行了分析和评价。总结了 ASP 在协同设计和生产物流规划中的应用经验和教训，提出了未来研究方向和建议。

This article first introduces the basic concepts, principles, and methods of collaborative design and workshop production logistics lean planning, and analyzes their

importance and application status in the manufacturing industry. Then, the application principles and methods of ASP technology in collaborative design and production logistics planning were elaborated in detail, including the collaborative design process based on ASP, the construction and optimization of workshop production logistics models, etc. On this basis, combined with specific cases, the application effect of ASP in collaborative design and production logistics planning was analyzed and evaluated. Summarized the application experience and lessons of ASP in collaborative design and production logistics planning, and proposed future research directions and suggestions.

本文的研究不仅有助于深化对协同设计和生产物流精益规划的理解，也为制造业的转型升级提供了有益的理论和实践指导。本文的研究方法和成果也可为其他领域的研究提供借鉴和参考。

This study not only helps to deepen the understanding of collaborative design and production logistics lean planning, but also provides useful theoretical and practical guidance for the transformation and upgrading of the manufacturing industry.

The research methods and achievements of this article can also provide reference and inspiration for research in other fields.

二、文献综述

Literature review

随着信息技术的快速发展和全球化的深入推进，协同设计与精益生产已成为现代制造业的重要发展方向。ASP（Advanced Planning and Scheduling）作为一种先进的生产计划与调度方法，在协同设计与生产物流规划中的应用日益受到学术界和工业界的关注。本文旨在探讨面向 ASP 的协同设计与车间生产物流精益规划的相关研究。

With the rapid development of information technology and the deepening of globalization, collaborative design and lean production have become important development directions in modern manufacturing. ASP (Advanced Planning and Scheduling), as an advanced production planning and scheduling method, is increasingly attracting attention from both academia and industry in collaborative design and production logistics planning. This article aims to explore the research on collaborative design for ASP and lean planning of workshop