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CREATION OF A QUALITY SYSTEM BASED ON CALS TECHNOLOGIES

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Abstract: *This article examines the possibilities of using CALS (Continuous Acquisition and Lifecycle Support) technology in the creation of a quality system. CALS technology is used to create digital and data exchange systems by integrating product and service development, production, operation, and disposal processes. The study looks into the main advantages of CALS technology, the stages of its implementation, and its effectiveness for industrial enterprises. The results confirm the importance of CALS in digitizing and optimizing quality control systems.*

Keywords: *Quality system, CALS technology, digitization, integration, industrial efficiency.*

Sign in. Modern industry in enterprises product and of services quality manage and control to do important importance occupation is enough Technological of development high pace of the product whole vital cycle during information exchange demand does CALS technology quality manage in systems high integrated and digitized approaches apply enable gives This in the article quality system CALS technology in creation role and importance research will be done.

Research methodology. Research methodology as modern industry enterprises activity analysis, digital technologies app to do according to practical examples learning and CALS technology product quality in improvement role to determine methods choose received This is the process the following stages own into takes:

1. CALS technology the basics learning and his components to determine.
2. Quality manage of CALS technology to systems integration stages analysis to do.
3. CALS technology using data in real time mode manage opportunities research to achieve.
4. Industry enterprises in the example of CALS technology efficiency study [1,2].

CALS (Continuous Acquisition and Lifecycle Support) technology initially military in the industry, in particular, the USA defense in the industry current done being his purpose product and services whole vital cycle during digital in the format manage and support from providing consists of This technology the product work from exit starting from release, exploitation to do and last stage disposal to do processes unites CALS technology the following aspects own into takes:

– CALS technology main purpose all data flow digital to form is to transfer. of this product vital cycle during to be created technical documents, projects, technical requirements, service show instructions such as information digital in the format storage

and of them to use provides. These documents are real time mode updated to go and to them access simplifies [3,4].

– CALS technology different systems and participants between of information continuously and automatic respectively exchange provides. In this the product work exit from the stage from to his exploitation and until disposal has been all data one different digital on the platform is stored and is used. This is technology data in exchange mistakes reduces and processes efficiency increases [5,6].

CALS technology the product whole vital cycle during watching to go and to manage provides. This is the following stages cover takes :

– The product design stage all design information and technical documents digital in the form is created and is stored.

– Worker release processes automated and integrated systems using managed. CALS technology work in output technological processes to optimization possibility gives

– Product exploitation being done at the time technical service show, repair and watching to go works digital system through done is increased. Of the product technical features and use instructions updated in real time mode there is will be.

– The product disposal to do also technical in the process and legal requirements digital system through manage opportunity there is will be.

CALS technology the following advantages present will:

– Digital management and information automatic update processes simplifies and a person factor because of surface coming possible has been mistakes reduces

– Data digitization and combined systems using work release resources, time and energy savings opportunity have will be.

– Product and services about all data the only one digital on the platform to be because of decisions faster acceptance will be done and this through product quality increases.

CALS technology only military in the field not but aviation, automobile industry, industry technologies, pharmaceuticals and another many in the fields successful is being used. Har one in the field product and of services vital cycle during effective management provides.

CALS technology products and services work release more optimization and digital transformation development for strategic technology is considered This is especially the industry enterprises and work release processes for digital integration necessary has been today's in the day important important have

Analysis and results. Analysis of CALS technology industry enterprises in the activity product and services quality in increasing high to efficiency have that showed. The product work exit and him to the consumer delivered to give in the process information digitization and of them effective use product quality control of doing much acceleration provides. Quality manage systems with CALS technology integration through the following advantages achieved:

1. Data of flow merging and real time mode observation opportunity.

2. Technological processes automation and optimization.

3. Quality control to do systems flexibility and quickness.

In research given industry examples based on CALS technology quality manage in systems quality indicators to improve service to do proved.

Conclusions. CALS technology industry in enterprises application product and services quality in improvement important importance occupation is enough This technology products vital of the cycle all stages quality manage enable gives and digital platforms through information complete control to do opportunity creates Quality system digitization and automation CALS technology main advantages is one That's it due to CALS technology in the future industry enterprises for strategic important have being remains.

References:

1. Ахмедов Б.М. Разработка документации систем менеджмента качества по ISO 9001. Учебный курс. -Т.: Агентство «Узстандарт», 2004. – 74 b.

2. Б.М. Ахмедов, П.Р. Исматуллаев и др. Основы системы менеджмента качества, Учебное пособие Ташкент 2007.

3. A.A. Abduvaliyev, V.B. Latipov, va boshq. Standartlashtirish, metrologiya, sertifikatlashtirish va sifat. Toshkent 2008 y.

4. Smith, J. 'The Role of CALS in Modern Industrial Systems', Industrial Engineering Journal, 2022.

5. Johnson, L. 'Digital Transformation in Quality Management', TechPress, 2023.

6. Zhang, Y. 'CALS Technology: A Comprehensive Guide', Springer, 2021.

7. Турдиалиева, М. М. (2024). Анализ путей улучшения адаптации к международным стандартам и лучшим практикам. *Universum: технические науки*, *1*(9 (126)), 11-14.

8. Турдиалиева, М. М., Хамракулов, М. Г., & Хамракулов, Г. Х. (2024). Исследование образцов мяса индейки при помощи метода оптико-эмиссионной спектрометрии произведенной в некоторых странах. *Universum: технические науки*, *6*(4 (121)), 42-46.

9. Mukhtaralievna, T. M., & Mukhtoralievna, R. M. (2023). Interrelation of science and education in engineering higher educational institutions: challenges and opportunities. *American Journal of Applied Science and Technology*, *3*(09), 23-27.

10. Topvoldiyeva, G. A., & Turdialiyeva, M. M. (2023). Implementation of the principles of quality management in the educational process. *European International Journal of Multidisciplinary Research and Management Studies*, *3*(01), 170-174.

11. Турдиалиева, М. М. (2023). Современные звукоизмерительные приборы. *Universum: технические науки*, (10-2 (115)), 5-7.

12. Turdialieva, M. (2023). Surface quality in abrasive treatment of car windows, physical and chemical properties of the treated material. *Universum: технические науки*, (10-6 (115)), 49-51.

13. Qodirova, S., & Turdialiyeva, M. (2022). Metrologiya va standartlashtirish bo'yicha xalqaro tashkilotlar faoliyatining tahlili. *Академические исследования в современной науке*, *1*(19), 72-76.

14. Турдиалиева, М., Аманова, Ф., & Холикова, Г. (2022). О Вертикальной и горизонтальной границе ландшафтов. *Новости образования: исследование в XXI веке*, *1*(5), 533-536.

15. Холикова, Г., Турдиалиева, М., & Аманова, Ф. (2022). Некоторые принципы организации ландшафтно-экологических в ферганской долине. *Новости образования: исследование в XXI веке*, *1*(5), 537-540.

16. Akhmedov, S. S., & Turdialiyeva, M. M. (2022). Circuits and operating principle of DC converters. *Science and Education*, *3*(9), 128-134.

17. Yusupjan, M., Yusubjonovna, M. N., & Jamoldinovich, A. E. (2023). Development of a system for modeling the process of petroleum products processing based on fuzzy logic. *Open Access Repository*, *10*(11), 11-16.

18. Мамасодиков, Ю., Мамасодикова, Н. Ю., & Алихонов, Э. Ж. (2023). Построение моделей систем управления мультисервисными сетями на основе системного подхода. *Research and implementation*.

19. Erkaboev, A., Obidov, J., Madmarova, U., & Alikhonov, E. (2023). Analysis of the ISO 9001 standard model of risk management in analytical testing laboratories. In *E3S Web of Conferences* (Vol. 452, p. 06009). EDP Sciences.

20. Yusupjan, M., Yusubjonovna, M. N., & Jamoldinovich, A. E. (2023). Synthesis of a Robust Control System with A Reference Model of a Nonlinear Dynamic Object with State Delay. *Genius Repository*, *24*, 32-37.

21. Mamasadikov, Y., & Jamoldinovich, A. E. (2022). A Device for monitoring the weight of cotton ribbons. *International Journal of Advance Scientific Research*, *2*(12), 64-72.

22. Mamasadikov, Y., & Alixonov, E. J. (2022). Optoelectronic device for regulation of linear density of cotton tape in the process of deep processing of raw materials in cotton-textile clusters.«. *Paxta to 'qimachilik klasterlarida xom-ashyoni chuqur qayta ishlash asosida mahsulot ishlab chiqarish samaradorligini oshirishning iqtisodiy, innovastion-texnologik muammolari va xalqaro tajriba» mavzusida Xalqaro ilmiy-amaliy anjuman. Namangan muhandislik texnologiya instituti-2022 yil*, 27-28.

23. Мамасадиков, Ю., & Алихонов, Э. Ж. (2022). Роль оптоэлектронного автоматического контроля линейной плотности хлопковой ленты в решении задач в легкой промышленности.". *Yengil sanoat tarmoqlari, muammolari, tahlil va yechimlari"*

mavzusida Vazirlik miqyosida ilmiy va ilmiy-texnik anjuman ma'ruzalar to 'plami, FarPI, 303-306.

24. Mamasadikov, Y., & Alikhonov, E. J. (2022). An optoelectronic device that controls the linear density of cotton tape during quality processing of cotton raw materials. *Science and Education*, *3*(9), 168-177.

25. Алихонов, Э. Ж. (2022). Определение линейной плотности хлопковых лент. *Журнали*, 233.

26. Jamoldinovich, A. E. (2022). About the Integration of Information Security and Quality Management. *Eurasian Research Bulletin*, *12*, 18-24.

27. Алихонов, Э. Ж. (2021). Оптоэлектронное устройство для автоматического контроля линейной плотности хлопковые ленты. *Научно-Технический журнал Ферганского политехнического института*, *24*(2), 151-154.

28. Mamasadikova, U. Y., & Ergashev, S. F. (2022). Quyosh kollektorlarini xaroratini masofadan nazorat qilish uchun optoelektronik qurilma. *Ilmiy texnika jurnal*, *26*(1), 111-116.

29. Ergashev, S. F., Axmadaliyevich, K. A., & Yusupjonovna, M. U. (2021). Optoelectronic device for remote temperature control of sanitary units. *EPRA International Journal of Multidisciplinary Research*, *7*(6), 211-215.

30. Турдиалиева, М. М. (2022). Анализ конструкций токарных станков. *Universum: технические науки*, (10-1 (103)), 52-54.

31. Турдиалиева, М. М., Хамракулов, М. Г., & Хамракулов, Г. Х. (2022). Разработка стандарта организации на производство деликатесов из мяса индейки. *Universum: технические науки*, (9-3 (102)), 19-22.

32. Турдиалиева, М. М. (2022). Анализ нестандартных конструкций инструмента штампа. *Universum: технические науки*, (10-1 (103)), 49-51.

33. Mukhtaralievna, T. M., & Mukhtoralievna, R. M. (2022). Poultry meat and its processed products. *American Journal of Applied Science and Technology*, *2*(10), 35-40.

34. Yusupjan, M., & Muhammadsharifovna, K. G. (2023). Device for control of raw silk thickness based on optoelectronic generator. *Open Access Repository*, *10*(11), 17-20.

35. Siddikov, I., Mamasodikov, Y., Mamasodikova, N., & Khujanazarov, U. (2023). Methods for optimizing data processing based on fuzzy adjustment of time series elements and identification model variables. In *E3S Web of Conferences* (Vol. 452, p. 03010). EDP Sciences.

36. Siddikov, I., Mamasodikov, Y., Mamasodikova, N., & Jurayeva, G. (2024). Simulation modeling of a synergetic chemical reactor control system. In *BIO Web of Conferences* (Vol. 84, p. 05026). EDP Sciences.