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Software Release Management And Delivery

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INTRODUCTION

Now a days the software release management starting from traditional techniques towards new phenomenon such as agile and continuous delivery via DevOps. Release and Deployment Management is the process of planning, building, testing, deploying, version controlling and distributing software products. A well-documented and well-designed process for release and Deployment Management indicates organizational maturity and the major concern of a software organization is to deliver software releases with maximal services with greatest quality within the boundaries of the resource constraints. Ineffective release management process leads to lack of control over the delivered changes and their quality which can affect any software organization badly. There are many reasons behind poor quality releases e.g. growing volume and frequency of application releases, lack of control over the release procedures, insufficient relationship between dev team and release team, complexity in version control, manual deployments, etc [1] .

SOFTWARE RELEASE MANAGEMENT PROCESS

The management of software releases is all about the release process control, so companies can promptly provide quality software. The distribution of applications is a complex undertaking involving various parties concerned, including product managers, developers, testers, construction and release engineers, senior management, and the management team[2]. The release management process has a structure that contributes greatly to the increase of service quality and continuity in IT, to decrease the risks, costs, time of product release, and to increase the consistency of the live environment. Many different technologies and tools continue to emerge to increase this contribution and efficiency. Especially release automation systems and process automation systems contribute to increasing the efficiency of release management. However, some important principles and technologies emerge throughout the entire life cycle before the release management process[3] .

Release Management process is supervised by the Release Manager whose role is principal to the success of a release. The Release manager guides to enable the readiness of the releases, and to proficiently ascertain the deployment targets for the deployment stages of a release. This level of control guarantees that, the Release Manager can deliver changes to the IT production environment successfully, to all relevant stakeholders on time also to achieve business value [4] .

SOFTWARE RELEASE METHOD

There are many models exist in the literature for the software life cycle and release management which describe the series of steps the system goes through starting from realization of need, through construction, maintenance and retirement. Brief description for some of these models will be mentioned in the following sections[5].

1.Waterfall / Adhoc Method

Before agile software developments projects were relying on waterfall approach to software development.

2. Agile Method

Agile has its origin in project management methodology and particularly in software development. However, agile project managers have an important role to play in ensuring a project's success. This relates to the kind of behavior required to achieve the success [6].

3. Incremental Method

Incremental software development is the process in which software product is developed in incremental manner such that additive components and/or faults correction are produced through the sequential product releases.

4. Devops and Continuous Delivery

The continuous approach goes beyond the borders of traditional software development to reach the operational side as well. In this scenario, DevOps stands for a continuous integration between software development (Dev) and its operational deployment (Ops)

From the various studies conducted on software release management, each research has a goal of analyzing the data. Table 1 displays state of the art of literature that discusses software release management and delivery processes for their research topic, methodology, and finding. In table 2 display state of the art of literature that discusses software release management and delivery processes for their limitation, and also area for future research and related features quantitative research on software release management and delivery. From the various studies that have been done that displayed in Table 3, deployment methods will be made and also the advantages of using this method

STATE OF ART

Source Information	Inaki Prieto, et.al (2017)	Malena. Z (2021)	Colomo Palacious, et.al (2018)	Harkarirat,AK (2021)	Syahbaz Ali, et.al (2018)	Rosero R, et.al (2017)
Research topic /Question	The continuous deployment strategy and tools used in software development, but adapted to the problem of creating, maintaining and deploying CityGML models	The framework consolidates gathered data to demonstrate how logistics startups apply agile methods and practices based on the results of the Delphi study and the survey, and how the usage of agile methods changes over the age of logistics startups.	use knowledge management tools in the adoption of DevOps practices by a traditional software vendor as away of efficiently integrating development, delivery and operations of cloud solutions	find out about the waterfall methodology and search that whether today we still use this method	discuss various aspects and issues of Software Release management and to propose a framework to promote Continuous Integration and other advanced tools in order to have better control over software releases	present an approach to RT for software products with DB access under an incremental software development context. It is based on the clustering of theDB access code along with the DB schema.
Methodology	Literature	A Delphi study and survey	Grounded Theory (GT)	Observation	Qualitative	Literature
Findings	• CD Advantage is becoming increasingly common in software development, it may be easier to find people who already know about it when hiring people to work on the maintenance and deployment of City GML models.	Agile methods are used by startups of all ages to improvecommunication within the team. More direct communication streams between the develop-ment team and the customer may help to increase the level of customer satisfaction	• knowledge management practices and beyond tools are the main enablers of continuous software engineering adoption and success	•Waterfall project is best when there is clear picture of the final product and the requirements are well defined which will not change frequently. When the time is not an issue and final product is main concern. •Traditional methods used to focus on project scope using them to determine cost and time schedule	CI will allow the developers to integrate software code into a shared repository several times a day, each check-in by developers to code repository is verified by the automated build process and allow the developers to know the problem, its location earlier	•consider iterative and incremental development environments in which the software is developed and delivered in short cycles, the execution of the complete suite of testcases is an unacceptable practice given the volume of testcases to execute (the goal of pursuing agility is lost).
Limitations	If there is a significant number of actors, there will probably be more conflicts among their changes. This could require a different Git workflow instead of the centralized one used her	it can be argued that the use of a framework in the field of agile software development in the logistics industry might be too inflexible in its usage and/or increase the over all effort applying agile methods.	Knowledge management is seen as one of the corner-stones for software quality.	concentrated on the traditional methodology namely waterfall model as if it can be used in this new e-business era and for which type of businessthis model is suitable. It explains about the waterfall model and how this model works	This approach has used configuration as minimum as possible to achieve the final goal. One sample test case is also used to validate the results.	Although results shed light on the useof the RT approach on a small and a medium size software product.
Area For Future Research	continue completing the pipeline withmore checking tools. The use of CityGML deployment pipelines should make it easier to set up large, collaborative CityGML maintenance scenarios	Future research could involve case studies to explore how and what traditional logistics companies and logistics startups can learn from each other, particularly in terms of agile methods but also how they can profit from each other's ways of approaching customer-value creation	The need for implementing DevOps emerged when Meta4 moved from on premise products toservice-oriented cloud solution	In today world scenario waterfall methodology is used very less because they are often teams which spend a long time on critical tasks which leads the project progress behind, and it ends up with a long list of unfinished tasks at the end of the project, Is it still can be used ?	As a future work, more complexity to this process can be added like if different teams consider different versions of the software build, and the developers are desirable to add third-party components integrations, for example, open source applications	it is necessary to perform studies with large scale software products
Related Features Quantitative Research On Software Release Management And Delivery	need tools that can connect between git and automated testing. besides that also need tools for code checker.	Need a comparison between methods according to company needs	Need a comparison for know a gap between two traditionally in-dependent departments: software development and IT operations	Need a method that can increase the speed in releasing a software	Need tools that can integrate CI with team collaboration tools or other tools that can help CI	need tools that can connect between git and automated testing. besides that also need tools for code checker.

CONCLUSION

From the discussion of the review paper regarding software release management and delivery, the author can conclude that there are various methods used in software releases. One of the commonly used methods is continuous delivery.

In addition, there are many tools that can be used in continuous delivery, especially in the deployment process. Based on this review paper, the author plans research on the analysis of the effectiveness of using deployment tools using the C4.5 algorithm

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