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PD-White Paper

The Need:

Many software products fail to achieve a worthwhile return on the investments of company. This paper examines the critical product development issues that can lead to company failure. A model for the evolution of product development from startup to maturity is provide.

Why many software products fail?

There could be numerous reasons behind the failure of a particular software product. However several studies have shown that in many instances there was a lack of welldefined product development methodology that led to the failure of a software product. Often product development responsibility goes directly to the engineering without proper planning to provide human solutions to the very human users that the product intends to serve.

Robert G. Cooper, a well-known researcher on new product development, states that there are several core factors (listed in order of importance) for any successful new product design process:

1. A unique, superior and differentiated product with good value-for-money for the customer.
2. A strong market orientation – voice of the customer is built in.
3. Sharp, early, fact-based product definition before product development.
4. Solid up-front homework – doing front end activities like market analysis well.
5. **True cross functional teams:** empowered, resourced, accountable, dedicated leader.
6. Leverage – Where the project builds on business's technology and marketing

competencies.

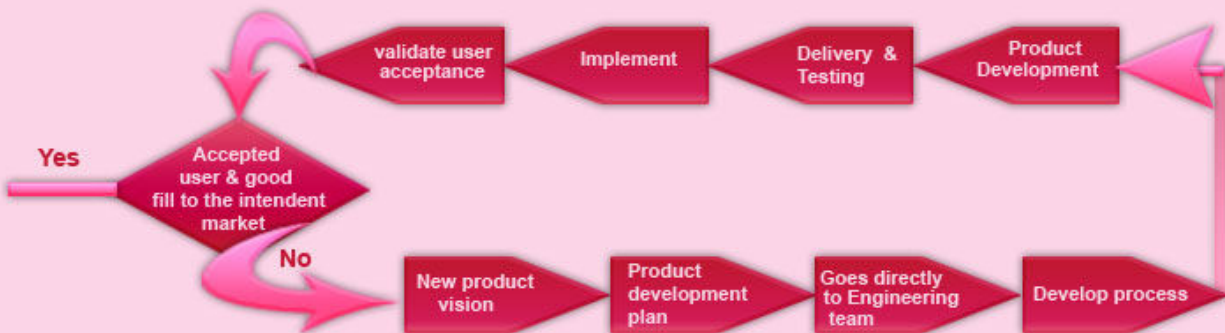
7. Market attractiveness – size, growth, margins.
8. **Quality of the launch effort:** well planned, properly resourced.
9. Technological competencies and quality of execution of technology activities.

The Challenge:

Every product manager's goal is to develop and implement a product based on the above core factors. But most of the cases the product development responsibility directly goes to the engineering team without giving due consideration to the usability of the product, implementation plan and final acceptance of the product by the users. When the product is ready it is usually late, with bugs and over budget and missing functionality.

Our Solution:

We design & develop a product that provides human solutions to the very human customers that you serve. We start working with you at the very beginning when you have the vision for the product. We will work with you to transform this vision into a reality. Many times we find that there is a wide gap between what our customers want and what they actually need. We always listen to our customers' ideas and interests. We carefully and methodically examine our customers' assumptions and requirements and if required we might challenge them in order to help our customers gain insights. We will leave no stone unturned to cover all aspects of product engineering in order to develop a unique product concept that will ensure the proposed product is not only user friendly and technologically superior but also has a good fit to the intended market.



2. Selected software specifications are identified, controlled, and made available.
3. Changes to identified specifications are controlled.
4. Product groups and individuals are informed of the status and content of software baselines.

Top-level activities:

1. A SCM plan is prepared for each product development project according to a documented procedure.
2. A documented and approved SCM plan is used as the basis for performing the SCM activities.
3. A configuration management library system is established as a repository for the software baselines.
4. The software specifications to be placed under configuration management are identified.
5. Change requests and problem reports for all configuration items/units are initiated, recorded, reviewed, approved, and tracked according to a documented procedure.
6. Changes to baselines are controlled according to a documented procedure.
7. Products from the software baseline library are created and their release is controlled according to a documented procedure.
8. The status of configuration items/units is recorded according to a documented procedure.
9. Standard reports documenting the SCM activities and the contents of the software baseline are developed and made available to product groups and individuals.
10. Software baseline audits are conducted according to a documented procedure.

Intergroup coordination:

Goals:

1. The product specification requirements are agreed to by all at the product group.

2. The commitments between the engineering groups are agreed to by all at the product group.
3. The engineering groups identify, track, and resolve inter group issues.

Top-level activities:

1. The Core engineering group and the other engineering groups participate with the customer and end users, as appropriate, to establish the system requirements.
2. Representatives of the product's Core engineering group work with representatives of the other engineering groups to monitor and coordinate technical activities and resolve technical issues.
3. A documented plan is used to communicate intergroup commitments and to coordinate and track the work performed.
4. Critical dependencies between engineering groups are identified, negotiated, and tracked according to a documented procedure.
5. Software specifications produced as input to other engineering groups are reviewed by representatives of the receiving groups to ensure that the software specifications meet their needs.
6. Intergroup issues not resolvable by the individual representatives of the product implementation and engineering groups are handled according to a documented procedure.
7. Representatives of the product implementation and other engineering groups conduct periodic technical reviews and interchanges.

Product development planning:

Once a customer agrees to develop the product and after defining the process with the customer, the product development phase becomes a software project.

Goals:

1. Software estimates are documented for use in planning and tracking the software project.
2. Software project activities and commitments are planned and documented.

3. Product groups and individuals agree to their commitments related to the software project.

Top-level activities:

1. The product development group participates on the project proposal team.
2. Software project planning is initiated in the early stages of, and in parallel with, the predefined process.
3. The product development group participates with other cross-functional groups in the overall project planning throughout the project's life.
4. Software project commitments made to individuals and groups are reviewed with senior management of the customer according to a documented procedure.
5. A software life cycle with predefined stages of manageable size is identified or defined.
6. 6 The project's software development plan is developed according to a documented procedure.
7. The plan for the software project is documented.
8. Product specifications that are needed to establish and maintain control of the software project are identified.
9. Estimates for the size of the product development are derived according to a documented procedure.
10. Estimates for the software project's effort and costs are derived according to a documented procedure.
11. Estimates for the project's critical computer resources are derived according to a documented procedure.
12. The project's software schedule is derived according to a documented procedure.
13. The software risks associated with the cost, resource, schedule, and technical aspects of the project are identified, assessed, and documented.
14. Plans for the project's software engineering facilities and support tools are prepared.

15. Software planning data are recorded.

Software product development tracking:

Goals:

1. Actual results and performances are tracked against the software plans. Corrective actions are taken and managed to closure when actual results and performance deviate significantly from the software plans.
2. Changes to software commitments are agreed to by the product groups and individuals.

Top-level activities:

1. A documented product development plan is used for tracking the development activities and communicating status.
2. The product development plan is revised according to a documented procedure.
3. Software project commitments made to individuals and groups are reviewed with senior management of the customer according to a documented procedure.
4. Approved changes to commitments that affect the product development are communicated to the members of the Core engineering group and other software-related groups.
5. The size of the development work is tracked, and corrective actions are taken as necessary.
6. The project's software effort and costs are tracked, and corrective actions are taken as necessary.
7. The project's critical computer resources are tracked, and corrective actions are taken as necessary.
8. The project's software schedule is tracked, and corrective actions are taken as necessary.
9. Software engineering technical activities is tracked, and corrective actions are taken as necessary.
10. The software risks associated with cost, resource, schedule, and technical aspects of the project are tracked.

11. Actual measurement data and replanning data for the software project are recorded.
12. The product development group conducts periodic internal reviews to track technical progress, plans, performance, and issues against the product development plan.
13. Formal reviews to address the accomplishments and results of the product development project are conducted at selected project milestones according to a documented procedure.

Software Quality Assurance:

Goals:

1. Software quality assurance activities are planned.
2. Adherence of software products and activities to the applicable standards, procedures, and requirements is verified objectively.
3. Product groups and individuals are informed of software quality assurance activities and results.
4. Noncompliance issues that cannot be resolved within the software project are addressed by senior management of both the customers and Circar Consulting.

Top-level activities:

1. A SQA plan is prepared for the product development project according to a documented procedure.
2. The SQA group's activities are performed in accordance with the SQA plan.
3. The SQA group participates in the preparation and review of the product development project plan, standards, and procedures.
4. The SQA group reviews the software engineering activities to verify compliance.
5. The SQA group audits designated product specifications to verify compliance.
6. The SQA group periodically reports the results of its activities to the Core engineering group.

7. Deviations identified in the software activities and product specifications are documented and handled according to a documented procedure.
8. The SQA group conducts periodic reviews of its activities and findings with the customer's SQA personnel, as appropriate.

Implementation and Support

We work with you in final implementation of the software that includes production launch, preparation of user manual, user training, on going maintenance and support. Our ongoing maintenance of the software includes fixing customer reported bugs and change requests.

Future Enhancement

As end users start using the products, companies must plan for the next versions so that the new features can be incorporated in the next version. We work with our client right from the concept development stage and develop pre-defined future version documents. We also provide well-defined version control methodology to ensure smooth transition to higher versions. We also provide porting service and re-engineering the software to new operating system platforms or technologies as per the business objectives of our customers

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OR

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