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| **Case Module :** Evaluating a Software Process |
| **Prerequisite Knowledge:** enrollment in a software engineering course. |
| **Learning Objectives**:<br>Upon completion of this module students will have increased ability to:<br>1. Understand and analyze the purpose and implementation of software processes.<br>2. Evaluate the fundamental elements of the content and structure of a software process for a given project. |
| **Keywords:** software process |
| **Case Study Artifacts:**<br>1. DH Background Scenario<br>2. DH Team Biographical Sketches<br>3. DH Launch Scenario<br>4. DH Customer Need Statement<br>5. DH High Level Requirements Definition (HLRD)<br>6. DH Development Process Script |
| **Case Study Participants:**<br>• The DH Team<br>• Jose Ortiz, Director, DigitalHomeOwner Division of HomeOwner, Inc. |
| **Scenario:**<br>In late August of 2010, HomeOwner Inc. (the largest national retail chain serving the needs of home owners) established a new DigitalHomeOwner division that was set up to explore the opportunities for equipping and serving "smart houses" (dwellings that integrate smart technology into every aspect of home living).  In August and September of 2010, the Marketing Division of HomeOwner conducted a needs assessment for a DigitalHome (DH) product that would provide the computer and communication infrastructure for managing and controlling the "smart" devices into a home to best meet the needs and desires of homeowners. The Marketing Division produced two documents: the DH Customer Need Statement and the DH High Level Requirements Definition (HLRD).<br><br>Using the documents developed by marketing, DigitalHomeOwner has launched a pilot project (called the DH project) to examine and assess the technical and developmental issues of the smart house concept. A five person team was assembled for the project in early September 2010. During the DH project launch in September, Jorge Ortiz, the DigitalHomeOwner Director prepared a "DigitalHome Development Process Script" to guide the DH project work. He has requested that the DH project team review the process script and provide him with and evaluation of its viability, with comments and recommendations. |
| **Exercise:**<br>1. As preparation for the case module, ask each student to read the Case Study Artifacts listed above.<br>2. Divide the class into a set of small teams (4-5 people)<br>3. Each team evaluates the DH Development Process Script. The following questions should be considered in the evaluation:<br><br>   **>** Is this a description of an agile or a plan-driven process?<br><br>   **>** What are the strengths and weaknesses in the process? |

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| > Is the process appropriate for the domain area, development context, and delivery schedule?<br><br>> Is the process clear and easy to understand? Does it have sufficient detail? Or is it too detailed?<br><br>> Is the process complete? Are there any missing phases or activities?<br><br>> Are there ways that the process could be improved with changes or additions or deletions?<br><br>> What roles would you assign to the DH team members to carry out the project?<br><br>4. Each team summarizes its discussion and conclusions in a team evaluation. Choose one member of their group to report to the class on the team's evaluation. |
| **Appendices:** Exercise Booklet |
| **Resource Information:**<br>[Boehm 2004] Boehm, B. and Turner, R.,  Balancing Agility and Discipline¸ Addison-Wesley, 2004. |
| **Teaching Notes:**<br>• Class discussion and a reading assignment on software processes (e.g., from [Boehm 2004]) should proceed the exercise.<br>• This case module could be used in different level courses (from a freshman level introductory course in software engineering to an upper level or graduate course in requirements engineering).<br>• Although this case module designed as  a team exercise, there are a couple of other ways the case could be used:<br><br>> This could be a teacher-led discussion of the issues related to the software processes for the DH project. The discussion could follow the questions listed in the above exercise section.<br><br>> Students could be assigned as an individual homework assignment of studying the case module materials and completing the exercise.<br><br>• Assuming an adequate student preparation for the exercise, students should need at least thirty minutes to complete the exercise. And each team will need time to report on their evaluation. It would be beneficial to follow the team reports with a ten to fifteen minute summary of the student team results.<br>• If the course involves actual student development teams, this exercise could provide a good team building experience: it could be carried out at the beginning of a course; it does not require any special technical knowledge; and everyone can participate.<br>• The course instructor could liven things up a bit by designating each student on a team to role-play a member of the DH team.<br>• A nice extension to this exercise would be to assign a follow-up take home exercise to reformulate the DH Development process assuming some changes:<br><br>> How would the process change if Jorge Ortiz wanted the DH team to use an agile process (say like XP or Crystal)?<br><br>> How would the process change is Homeowner wanted a full development of the DH product (not just as a pilot)? |