# TIM 105, MOT I, Homework 8:

# Product Platform Strategy and Economic Analysis of Product Development

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**Reading**: “Apple/Intel Product Platform” class handout; U&E, PDD, 4th Edition, Chapters 8 (Testing), 12 (Prototyping), 9 (Product Architecture), and 15 (Product Development Economics);

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**Homework Problems (Due Thursday, 3 December, 2015):**

The following guidelines apply: (1) create/implement an overall plan/schedule; (2) use the structured problem-solving approach on each problem. Also, explain everything you do.

1. **Intel and Apple Product Platform and Product Lines**

Read the class handout on Apple’s and Intel’s product platform and product lines. Create an appropriate table or diagram (or both) to summarize Apple and Intel’s product platform/product line strategy, or lack thereof. Fill your table with the appropriate information regarding Apple and Intel. Draw relevant conclusions about each company’s product (platform) strategy. Relate/connect your present analysis of Intel’s product (platform) strategy to previous analyses of Intel (performed in earlier homework sets). If you were in-charge of Apple’s product strategy during the time-period 1976-1999, what would you do differently?

1. **Product Platform/Product Line Strategy for an indoor mobile robot (continued from Homework # 6, Problem # 2)**

Develop a simple product platform and product lines based on a well-defined (and **product-specific**) product (platform) strategy for the indoor mobile robot designed in the previous homework set. This mobile robot should be capable of performing moving indoors, climbing stairs, and performing useful tasks like cleaning.

1. **Financial Modeling for Technology Development (NPV Analysis):**

First, read the “Getting Started Using Excel” handout on the class website. Then use the “Excel Tutorial” posted on the class website to setup and then reproduce the “base-case” financial analysis from the “Product Development Economics” chapter of the U&E text in Excel. Then do the following:

* Perform sensitivity analyses with respect to development cost, development time, unit manufacturing cost, and sales volume.
* Provide at least one specific trade-off law, e.g, tradeoff between development cost and NPV.
* If manufacturing cost increases to $500/unit, what sales volume would be required to yield the same NPV? What actions would be necessary to increase the sales volume?

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**Final Project Report**: The completed project report is due either on Tuesday, December 1 (in class), or (if you need more time) Tuesday, December 8 (before 5 PM, E2 in Room 543). To this end perform the following:

* Create a **clear**, well-structured, and well-written “end-to-end” **complete** and **correct** project report that could be understood, used, and/or implemented by a third-party (e.g., a senior management review group, another project group, an UCSC SOE awards committee, business plan competition committee). Make sure to name your company and your product.
* Include a Table of Contents.
* The report should be broken up into numbered sections with captions (e.g., Section 3.5: House of Quality…..).
* The front-end of the report should have two components. First, create a **useful 1- page executive summary**. Then, create a 3-5 page cross-referenced description (of the actual contents of the report) which includes (1) a “function-structure” diagram for the report, showing how all the parts (e.g., competitive landscape, HOQ, conceptual design) are connected to each other, and (2) a paragraph (or two) which references this function structure to explain “how the report should be used”.
* The different sections of the report should have brief but clear explanations of the work done, with all figures and tables **clearly cross-referenced** to the text. Each section should have a clear set of **conclusions**.
* The sections of the report should be **connected** to each other to tell a coherent story.
* End the report with an overall set of **conclusions and guidelines**, and with a detailed statement of the next steps (or future work).