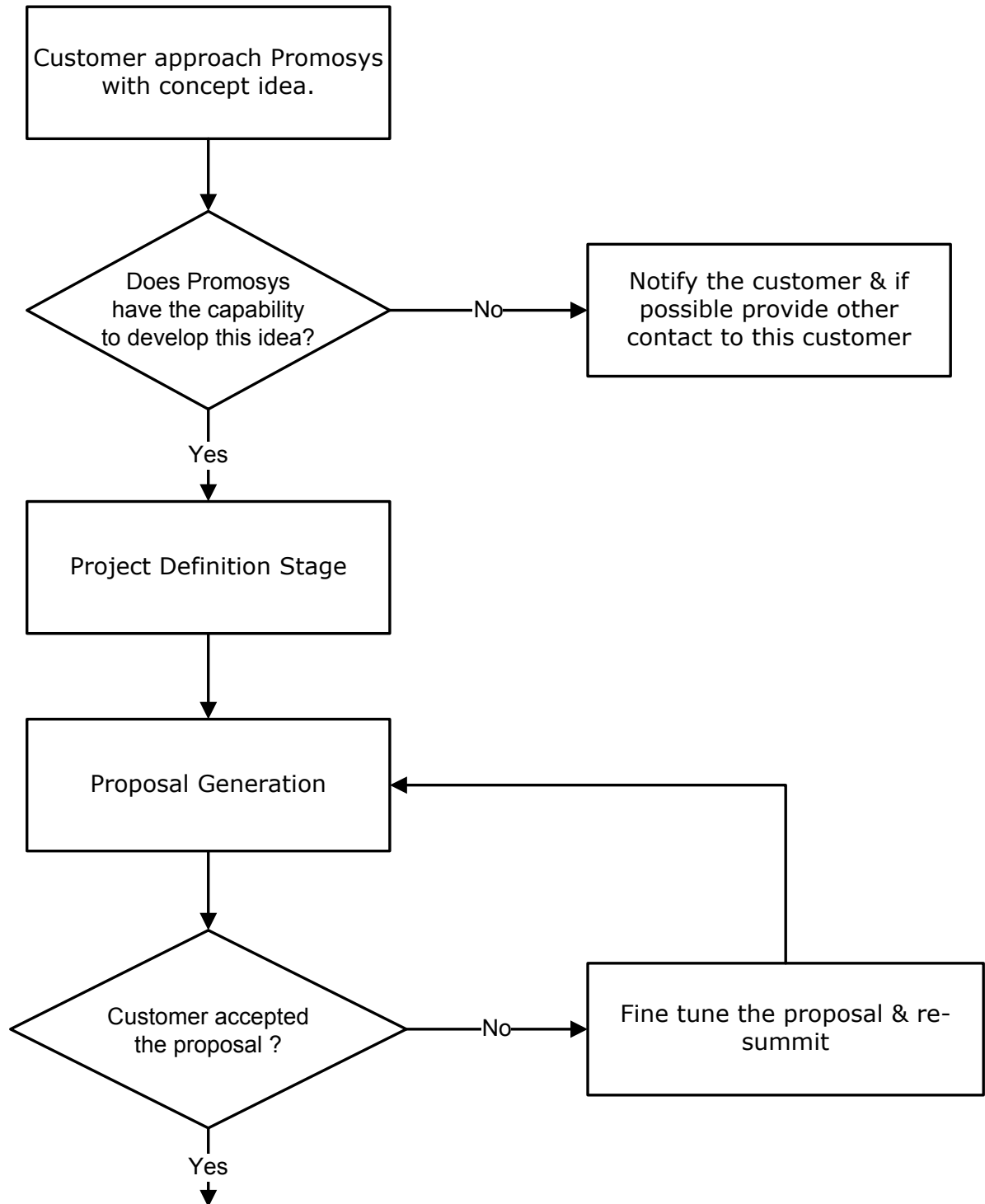
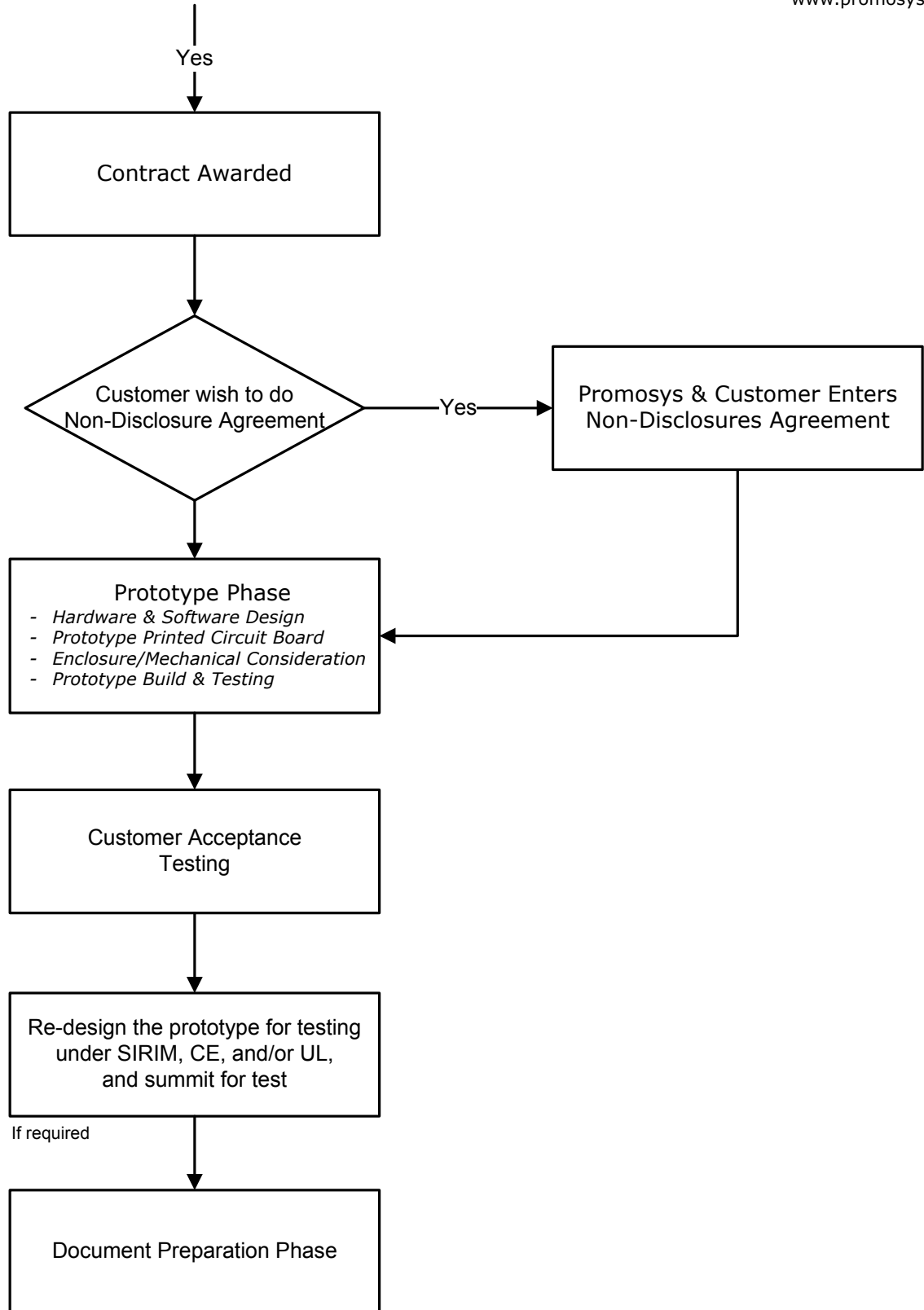


## Typical Electronic Design Stages and Project Flow





See next page for detail explanation

### **Project Definition Stage:**

The initial contact is correspondence between the customer and Promosys which generally describes what is desired for the product. If Promosys determines that the proposed project is compatible with our capabilities then the requirements are formalized in a document. This document is usually written by the customer but depending on the scope of the requirements, this document can be generated by Promosys. Once the requirements have solidified the job can be quoted and a proposal written.

Typical requirements might include:

- ❖ General circuit operation and function. If the device employs an RF radio link, the frequency, desired operating range, antenna requirements, etc are considered.
- ❖ GSM/GPRS/MMS/EDGE or GPS technology consideration
- ❖ Interfaces to other equipments (RS232, USB, digital or analog I/O, etc.)
- ❖ Desired user interface (keypad, display, indicator lights, audio output, etc.)
- ❖ Power requirements and desired battery life (if applicable)
- ❖ Software functionality and interfaces to any existing software components
- ❖ Software structure and desired language
- ❖ Enclosure requirements (size, weight, panel layout, plastic vs. metal tradeoffs)
- ❖ Regulatory Requirements such as SIRIM, UL, CE etc.
- ❖ Anticipated Production Quantities
- ❖ Desired recurring cost or selling price
- ❖ Desired schedule for development
- ❖ Desired schedule for production

### **Proposal Generation and Contract Award:**

Once the requirements have been defined, Promosys typically prepares a proposal which summarizes the requirements and describes the approach. Sometimes separate technical and cost proposals are created. These documents are reviewed by the customer to ensure compliance with technical specifications and cost goals.

Payment to Promosys can take a variety of forms, but usually only one is proposed. The cost and technical proposals are usually the focus of negotiations between the customer and Promosys.

**Cost Plus Contracts.**

In this type of contract, a ballpark cost figure is usually given, but the customer is contractually obligated make progress payments. Promosys quotes "cost plus" for jobs where the requirements are not well defined, where the acceptability of the finished product depends on subjective conclusions, or where the project is deemed high risk.

**Fixed Price Contracts.**

In this type of contract, a single dollar value is proposed and Promosys is obligated to provide the goods and services for that price, regardless of the actual costs involved. Promosys usually quotes "fixed price" for follow-on contracts or for contracts which are deemed straight- forward or low risk.

**Fee plus Royalty.**

This approach is usually not taken, but if the customer grants Promosys a portion of the final profits, and if Promosys is thoroughly convinced of the products final success, Promosys may take a nominal fee to provide the goods and services in the hope that revenues from the final product will make up the balance. This approach is only taken if Promosys determines that the customer has a viable and solid business plan.

**Prototype Phase:**

Once a contract has been negotiated, the real fun begins with developing the prototype. Promosys excels at providing high quality, quick time to market designs. Typically, one or more prototypes are built. It is in the prototype phase where the meat-and-potatoes of the design effort occurs. Cost tradeoffs are made, and the hardware and software are designed, tested, and debugged. Typically a printed circuit board (PCB) is fabricated for the prototype and any required mechanical or enclosure issues are addressed.

After the prototypes are built they are tested using a procedure that ensures that the product meets the stated requirements. Depending on the project this procedure can be generated by the customer or by Promosys.

### **Customer Acceptance Testing:**

Once Promosys has deemed that the prototype satisfies the stated requirements, one or more prototypes are supplied to the customer for evaluation, test marketing, field testing, etc. If the results of the Customer Acceptance Testing are favorable then any necessary regulatory certifications can occur, if applicable.

### **Regulatory Certifications:**

After acceptance testing there is typically some level of re-design involved in getting the product ready for regulatory compliance. Quite often, a "final" version of the PCB is produced, as well as the final enclosure. When the finished product is ready, Promosys may subcontract a certified test lab to put the product "through its paces" to make sure it complies with government and regulatory specifications. There is usually a 6-8 week turn around time once the testing is finished until "certifications of compliance" are received by the customer. Any testing other than SIRIM (such as UL or C-Mark) can occur in parallel. It is always unwise to begin production of the final product prior to receiving the necessary certifications.

### **Document Preparation Phase:**

Once the finished product has been "blessed" by the test labs, manufacturing begins.

Upon conclusion of the project, or at various stages during development, Promosys can provide design documentation detailing all aspects of the products design, manufacturing, programming, and testing activities.

Promosys also have a network of Contact manufacture which Promosys can introduce to our customer, many of our customers found it to be beneficial to allow Promosys to manage the contact manufactures, because we have done the original design, we are already familiar with the product and can quickly address any problems that may occur during manufacturing.

Among the document we provide is:

1. Detail schematic diagram,
2. PCB development file & firmware source codes
3. Component specification,
4. Component supplier details,
5. PCB supplier details,
6. Manufacturing/testing/quality control method
7. Fault Finding method.
8. List of local and oversea Electronic Assembler