Perspectives
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So, You Want To Be A Consulant

Testing The Open Market

Anytime that you, as a computer professional, perform technical work outside of your full-time job, you are consulting. Consulting is a wide-ranging term. As it relates to computers, it includes:

- systems analysis
- business programming
- scientific programming
- system configuration
- system recommendations
- system maintenance
- system troubleshooting

Consulting can be a very exciting and profitable activity; however, as we shall see, it is not always easy.

Where to Find Consulting Work

Computer professionals have skills for which a client is willing to pay. How do you find clients in need of your services? Some fairly simple methods are:

- Run advertisements in newspapers.
- Make arrangements with retail computer stores to put your name on a list of consultants.
- Contact computer manufacturers. Many times they keep a list of consultants, which allows them to offer complete systems—their hardware and system software and a software consultant to customize the system.
- Check the phone book yellow pages for possible clients.
- Contact the local government agencies (city, county, state and federal), which occasionally make use of consultants.

A word of warning: Most of you are employed, full time, for your technical skills. Your company probably has some policy regarding outside employment. In the company's eyes, consulting might be a nice word for conflict of interest. Be sure to check with your supervisor, personnel manager or other appropriate person. Consulting can be lucrative, but it might not seem as attractive when it is your only source of income.

What to Do with a Client

Clients are a strange and unusual breed; they require very special handling and care. Unless you are telepathic, never assume you understand what your client is saying. The client can say something that makes sense to both of you, but means two entirely different things. For example, your client says that he has used computers before. You understand him to mean that he has programmed before. He meant that he assembled card decks and fed them into a remote job entry station.

Questionnaire

I have included a systems requirements questionnaire, intended to direct both the client and consultant towards a well-defined, well-documented description of a proposed computer system. This questionnaire is only a guideline. It does not include every question necessary for all applications. It is for the class of consulting that is most common - business applications. Since it is very open-ended, it can, and sometimes should, take along time or several iterations to complete.

1. What do you expect the computer to do? For example, do you want accounts payable, inventory, a real-time flight simulator, a management information system, process control?

2. Describe as completely as possible the tasks in question 1. For inventory applications, an example might be: Database Description—number on hand, lower limit for restock alarm, upper limit for overstock alarm, vendor, color, size, location in warehouse, retail and wholesale prices, links to items that might be a substitute. Operations on Inventory Database–add an item, delete an item, update an item, examine current status, list restock needs, list overstock items, calculate profit for a sale on an item. Miscellaneous—approximately 400,000 items in inventory; the inventory files are to be online; only certain people can add, delete or edit an inventory item.

3. What sort of growth or changes do you expect for the description in question 2? For example, ZIP codes going from five to nine digits, or adding a new field to inventory items to account for product smell.

4. List any peculiarities of your business or the jobs you are expecting the computer to perform. For example, the owner of the company has to have a good implementation of backgammon available on the system. The company payroll regularly deals with transient workers (they might not have a permanent address or social security number). The inventory has large fluctuations, on a seasonal cycle (or on no cycle). The system needs to be able to handle simultaneous on-line sales, receiving, shipping and management inquiries (this implies some database lockout mechanism to ensure there is always correct data in the database).

5. From the list in question 1, what is the minimum you will be satisfied with for the first running system? If the client wants a large system, he should start out small and slowly build up to the maximum system. This limits the amount of work and equipment invested before the client sees the system (in case the client

doesn't like some aspect of the system). It will give the employees the opportunity to become familiar with the idea of acomputer and the system you are implementing.

6. Over what period of time will it be acceptable to build up from the minimum system to the total system?

7. Is there a good time to get the system up and running? Does the business | have a seasonal lull or holiday hiatus?

8. What sort of switch-over to the computer do you want to have? Some options are complete overnight conversion, phased introduction of each portion of the new system, and a parallel operation of both systems for an arbitrary period of time.

9. What long-term information needs to be stored, how long does it need to be kept and in what form must it be stored? . An example for an inventory system might be: Once a month the inventory files are dumped to tape for archival storage (not at the business site). Also, each month the transactions to the inventory are dumped for archival storage (so at least a partial inventory can be regenerated in case the on-line files are destroyed). The monthly files are kept for four months and then recycled. Once a year the inventory is dumped to tape and saved for ten years. There might be regulations regarding how the records are to be kept. For example, a federal regulation might require that quality assurance records from the production of a batch of serum be kept for seven years. Furthermore, it must be readable—this means printed reports (not disk or tape)—and it also must be nonthermal (since some thermal paper fades after a period of years).

10. How many and what sort of people will be using the system? Office personnel, salespeople, managers, owners, loading dock people, customers. This will have an impact on the operator interface and its level of user-friendliness.

11. How long can the system hardware be down before it has a serious effect on the business? This question will determine the level of hardware reliability of the system. It might be necessary to institute a series of backup measures for a hardware failure. For example, some form of hardware service contract, redundant hardware, short-term rental agreement worked out in advance, a 24-hour-a-day service contract with a specified response time.

You need to determine how expensive down-time is to the client before you choose a backup measure. Keep in mind that there are hardware failures other than a failed component. For example, noisy ac line, power outage, dirty or poor quality media, theft, improper environment for the system (temperature, humidity, static).

12. How long can the system software be down before it has a serious effect on the business? Some of the software measures that you can take are software service contract, programmer on call, the quality assurance/testing phase of software development. This list points up a fundamental difference between the

hardware and software. It is possible to spend enough money (for the redundant hardware) to ensure that the system will keep running. It is not quite that easy with software. The first two options might be adequate, but it is my belief that the only way to really provide any assurance of software up-time is to build it in (at design time) and test it in (during the testing phase).

13. What, if any, manual backup systems do you want to maintain with the computer system? This has a major impact on the design of the system. It can affect the design of the programs, databases and operating procedures.

14. How much do you want to spend on the total system? All the front-end costs, including hardware, software, system integration, training. It is best to get a range that the client can afford and then show the client the trade-offs and what can be upgraded at a later date (if a trade-off was made). (You can suggest a less reliable printer but don't recommend a less reliable disk.)

15. How much do you want to spend on continuing support? Retraining, system modification, hardware maintenance, software support and machine rental (a real alternative).

In some ways this questionnaire can be intimidating. It makes the client consider the possibility of hardware and software failures, long switch-over periods, system growth and maintenance. The client might have thought he could buy everything off the shelf (and some salespeople might agree). The questions (and the communication between the client and consultant) may be difficult, but it is unlikely that a good system will be developed without them. When you are ready to talk with a client, use a two-pass proposal. The first proposal will state that you will do the initial system analysis for a specified fee. The product of this analysis will be a second proposal which will be your complete system proposal.

The Fee

There are two important questions with regard to the consultant's fee—how much and in what way do I get paid?

The amount is arbitrary. Remember that you are doing the consulting on your own time. Be sure to take into account the cost of travel, equipment and supplies. Also, don't overcharge based on your talents. Take into account if this is your first consulting job or if it is outside of your expertise.

You will need to pay income tax on your consulting income. Check with the current federal, state and local government regulations with regard to self-employment income. It is very important to check immediately, because income that is a major portion of your annual salary is subject to taxes every quarter. If you wait until April 15th, you might have to pay a penalty and interest above and beyond the taxes.

There are several ways that the fee can work. One way is to bid on the whole system and the consultant will provide almost everything. I would not suggest doing this unless you are very experienced in the application and with consulting in general. A better approach for a first-time consultant is to charge an hourly or daily rate. This way, if you miscalculate how long the application will take it is not

disastrous for you. It is wise for a consultant to set up an agreed-upon method for payment. Some of the possibilities might be: one lump sum at the start of the project: a lump sum at the end of the project; regular monthly payments; partial payment at the completion of project checkpoints recommend the partial payment at project checkpoints. This shows the client where his money is going.

Conclusions

Now you know what consulting is - a professional activity that you can perform. Finding clients can sometimes be difficult, but you have some places to start looking - computer stores and the general business community.

Communication is a fundamental par of the client/consultant relationship. The system requirements questionnaire is a tool to assist you in those communications. As a final suggestion, you should always act in a professional manner - organized, competent, knowledgeable.

That is why you were hired.