good to keep notes and send the client (and your mentor!) meeting summaries

PHASES OF CONSULTING

1. Establish rapport

2. Identifying the research problem

   Tell me about your study

   learn about the data

   * What does one (single, complete) observation look like?

   * If you measure this again, will you get the same answer?

   * If I can (solve this research problem), then what would you do next?

   Clients often have a very specific idea of what their research problem is (i.e. what they want), but they may not be able to express cleanly.

   Part of your job is to figure out what they want, without changing it into something more familiar or easier to you.

3. Setting goals

   in my experience goals evolve over time, and you will have to circle back to the goals several times during a project

   there is a tradeoff between

   * being sufficiently flexible about this, vs.

   * not so flexible that you lose control of the feasible scope of the project

4. Agreeing on a division of responsibility

   the advice here is more germaine to a consulting center

   (some projects are for a fee, others not, but treat every project as if for a fee!)

   generally speaking

   - set up regular meeting schedule that works for the client
   - similarly for your faculty mentor
   - client is responsible for
     o getting you non-statistical information about the project

    - procuring data (unless the project is explicitly for you to do that)
  - you are responsible for
    - learning about the problem
    - learning what you don't already know about stat/datascience
    - offering advice and analysis (quant qual) that is meaningful to the client

5. Reviewing what has occured / summing up

   at the end of every meeting; and followup with a written summary to the client!

CONSULTING ROLES

* Helper Role
  - lower-level "do'er" role

* Leader Role
  - client wants you to lead the whole research project (not recommended!)

* Data-blesser Role (or conclusion blesser)

  How does this table look?

  I want to conclude X. Does my analysis allow me to do that? Or -- what analysis should I do to reach this conclusion?

* Collaborator Role

  This is the most fun. you pool talents and different knowledge bases/experiences with the client's and jointly work out approach, analysis, interpretations, etc.

* Teaching Role

  You are always a teacher, whether or not you think you are!

  You *have* to teach the client about what you're doing - this is part of explaining and reporting

  But you will also teach about what statisticians consider important, about the phases of consulting, about what it's like to work with someone from Carnegie Mellon, etc.

HUMAN SIDE OF CONSULTING

* Negotiating for a desired role

* Some negotiating principles

  - Never attack a client's position clients have multiple interests

- use common (project-related) interests to form strong rapport; address divergent interests later

- clients are more likely to accept a role for yoy if it seems "right" -- fair, reasonable, honorable

- suggestions with precedent (objective standard and persuasive argument) are easier for clients to accept

- if you are on the short end of a power differential, try negotiating on the basis of principle

  o you have the advantage here of 3 backups: me, your faculty mentor, and Jamie. So power differentials should be easier to manage in 726 projects

* Influencing the direction of a consultatiobn

- good tools (positive)
  o clarification
  o approval
  o general leads

- good tools (changing the direction of client's thinking)
  o information gathering
  o rejection (paired with a positive alternative)
  o introduction of new information

* Consulting on a wide range of problems

- always be a student of the subject area
- there are no dumb questions

You many also be consulting using a wide variety of quantitative tools

- always be a student of statsitics and data science
- there are no dumb questions

(the first time a question is asked it is not dumb, by definition. If you repeatedly ask the same questions, that *is* dumb)

(don't be afraid to ask for more time to think about [or do research on] really tough problems)

* working with clients with varied statistical backgrounds

- work at the client's level of expertise; don't try to dazzle

- you may end up teaching the client something new, to taise their level of expertise

- clients sometimes do not know what they do not know. Be gentle

and graceful in helping them to understand better

- you will occasionally run into a client who wants you to do procedure X against your best judgement (e.g. use support vector machines when a simple logistic regression would suffice)

  o this requires grace and flexibiity on your part, and maybe some of the negotiating tools we mentioned above!

  o if it is not so time consuming that it ruins the project, a good approach can be to try the client's suggestion and compare it with simpler methods -- either you will see that svm's are helpful, or the client will see that logistic regression is just fine.

* cleaning up the mess

- the data or the constraints are so inappropriate that the client's quesions cannot be answered

- patience and teaching are required

- also refocus the project on (planning for) better data collection and variable storage

* Surviving (in academia)

- some statistics departments undervalue consulting
- some consulting units undervalue statistical sophistcation

- you have to find / negotiate / build the happy medium

- in general good strategies are;
  o mounting an agressive ongoing education campaign
  o energetically pursuing collaborative roles
  o be assertive regarding joint authorship