



# LECTURE 3: PROJECT PROPOSALS

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Slides are based on the lectures  
Given by Kent VanderVelden  
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# GOAL

What is a proposal and why do we need it?

# WHAT IS PROPOSAL ABOUT?

- Called charter when from with-in the organization
- Explains what you'll deliver, when, for how much, what you need from your client, etc.
- A negotiation between someone with a need and someone providing services
  - e.g., client and contractor

# WHEN ARE THEY NEEDED

- Following solicitation from client
- Following interview with client
- Prior to project start

# WHY THEY ARE NEEDED

- Convince sponsors and stakeholders that the project is worth doing (employee)

(or/and)

- Convince sponsors and stakeholders that you can do the project (consultant)

(or others?)

# WHO DEVELOPS A PROPOSAL

- Project manager (within a company)
- Consultant or contractor (bidding on jobs)
- Internal freelancer (within a company, rare)
- Others?

# ECONOMICS

- How much should you charge?
  - How badly the work is needed?
  - How badly do you want to do the work?
    - Difficult client, uninteresting project, etc.
  - Flat rate or hourly rate?
  - Consider return multipliers
    - Retain rights, ability to resale, exclusivity for maintenance, etc.
- Charge enough so you'd be happy doing the job or losing the job
  - Price the job to the utility provided, not the effort exerted

# ECONOMICS

- How many hours?
  - Mostly based on experience
- Subcontracting?
  - Specification must be clear
- Project includes hardware design?
  - Another dimension to the estimating challenge
  - Off the shelf vs. build
    - Integration: reverse engineer, license, other?
  - Reconfigurable hardware to minimize reliance on shops



# ECONOMICS

- When to be paid (and how to keep it)?
  - Pre-payments and post-payments
    - Help to reduce client's risk
    - Ensure you receive enough to cover out-of-pocket development expense
- Contractors and consultants: W2 vs. W9
  - W2 is employee and W9 is independent
  - W9 has more responsibilities
  - W9 has more advantages
  - Consider hiring contractors before employees
    - Employees are expensive and create more filing responsibilities
- Find a great CPA (Certified Public Accountant)
  - Return will be multiples of their fee
  - A well connected CPA will help to find partners

# DISCUSSION

What information should you provide to stakeholders to convince them about your project?

# COMMON COMPONENTS OF PROPOSALS

## 1) Context and goals

- What is the project about?
- What will be delivered and how the company will benefit?
  - They already know the benefit, but remind them, point out additional benefits, etc.
- E.g., Goal for a face recognition project: remind a lecturer of student names

# COMMON COMPONENTS OF PROPOSALS

## 2) Requirements or approach

- Background information on the technologies you are proposing
  - Overview of how do you plan to achieve the goal(s)
  - This should help the client to believe that you are the right team with the right idea
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- Example of project requirements
    1. Snap an image and separate faces from the background
      - A video stream is decomposable to a series of pictures, can be used to increase reliability
    2. Compare faces against a database to find most likely match
    3. Present the image to the lecturer, overlaid with metadata (name, last seen, etc.)
    4. Client program should run on portable device (laptop, phone, etc.)
    5. Unidentified individuals are remembered for follow-up introduction

# COMMON COMPONENTS OF PROPOSALS

## 3) Deliverables

- What will be delivered and when during the project?
- Example
  - Deliverable 1: A model for predicting development effort -- The group will analyze the data to extract metrics about the development time to fix security code defects and will use the information to project the cost of fixing security code defects.
  - Deliverable 2: An integrated prediction tool -- The results from Deliverable 1 will be used to build an integrated prediction tool as outlined in the proposal.

# COMMON COMPONENTS OF PROPOSALS

## 4) Required from the client

- What do you need from the client in terms of
  1. Resources
  2. Equipment
  3. Data
  4. building access
  5. etc.
- Example: Data collected about fixing security vulnerabilities

# COMMON COMPONENTS OF PROPOSALS

## 5) Risks

- What challenges or “known unknowns” exists that may hinder success?
- What mitigation methods exist?
  - All risks should have some mitigation strategies
- Examples:
  - Data are not of good quality
  - The quantity of data is not sufficient to draw conclusions
  - Limited knowledge about the process of fixing vulnerabilities
  - Limited knowledge about the technology

# COMMON COMPONENTS OF PROPOSALS

## 6) Timeline

- A table of <Phase, Duration, Description>
- Examples:
  - Project starts on 1/1/2015
  - Deliverable 1 by 2/28/2015
  - Deliverable 2 by 8/31/2015



# COMMON COMPONENTS OF PROPOSALS

## 7) Payment terms

- A table of <Phase, Pre-payment, Post-payment>
- Examples: Payments are due 30 days after acceptance of each deliverable. The daily rate is 100 USD/day.

# COMMON COMPONENTS OF PROPOSALS

## 8) Intellectual property

- Who owns what, licenses, royalties, NDAs, etc.
- (also consider conflict of interests, i.e., does this work prevent other more lucrative work?)
- Example: The client has the intellectual property but patents are submitted jointly with equal shares.

# COMMON COMPONENTS OF PROPOSALS

## 9) Other thoughts

- Whatever you feel needs to be said that does not fit elsewhere

# PROPOSALS VS. TECHNICAL PLAN

- Proposal
  - A negotiation between a client and the contactor
    - or between management and a consultant, employee, etc.
  - Minimal technical elements
    - Some is unavoidable, know your client
  - Does not change after acceptance
    - Requires both parties to agree
  - Not a contract (but will hopefully be part of one)
- Technical plan
  - How is the work going to proceed?
  - Skillset of team
  - Who is going to do what?
  - Potentially full of technical elements
  - A detailed (enough) specification
    - Continue to populate as you go
    - Fine for all but the most critical applications

# WHAT MAKES A GOOD PROPOSAL?

- Before awarding the project
  - The description of the items is clear for the customer
  - Convince the client
  - Include all major items
  - Include the main information for developing a project plan
- After awarding the project
  - The delivered project fulfills the goals stated in the proposal
  - The customer is satisfied with the project

# ON WRITING THE PROPOSALS

- Uses minimal technical jargon, acronyms, etc.
  - leave that for the technical plan
  - leave yourself maneuvering room
- Be short but complete
  - not a contract, but it'll become part of one (you hope)
- Be professional
  - your proposal may be the client's first impression of you

# SELF-CHECK

- What is a proposal?
- Why do you need a proposal?
- What are the main components of a proposal?

What are the goals of your project?

Next time you work on your proposal