
3Point1
Developments

Projects, and how they proceed

- Who
- What
- Great projects
- Typical projects
- Breaking the cycle
- Moving through the professional space
- Q&A

Who

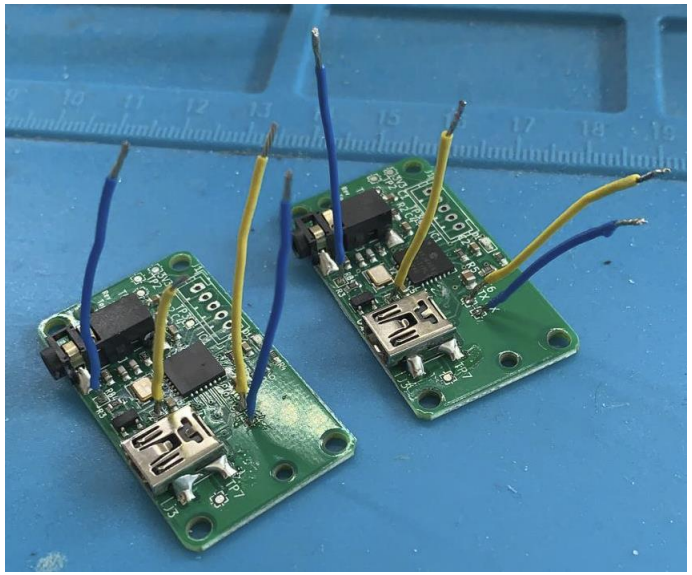
- 80-odd years in project and business management
- Many projects
- How many projects arrive at us due to failed development?
    - 70% ish
- All over the map – consumer, scientific, security, medical, industrial, aviation
- Common elements in all the good / bad ones

A great project

- Definition
- Test plan
    - Confirms we understand the requirements
- Expert work
- Delivery
- Champagne
- Easy. Right?

A typical bad project

- Phone call from prospect, presents as a NORP
- Months writing specification
    - Receive 25 words on a soggy beer coaster, requested delivery date “yesterday”
- Return specification with comments in 48h
    - 6 weeks of silence then, “yes that’s fine, when can you start, we can’t take any more delays”
- Write test plan
- Quote, quote accepted in 7min due to internal customer pressure
    - Delivery now “last week”
- Expert work … sickness … expert work … holiday … expert work … new offspring … expert work …
- Weekly customer calls
    - Feature creep
    - Scope creep
- Delivery, 2x quoted time to delivery, 4x original budget, business plan fails
- Customer rejects, “Didn’t I say it had to be green? Isn’t it obvious?”
- Recriminations, blame for the innocent, rewards for the guilty, finger pointing, all parties furious



Break the cycle

- NPD is tricky!
- None of that was fun
- Nobody is happy with the outcome
- Why perpetuate it?
- Because it's people pleasing, and lots of engineers are people pleasers
- Sales is easy – just say yes!
- Anything is possible, but time and money are affected
- Customer expectations are often not aligned with the real world

A typical engineering project manager

- Probably not top of the class out of University
- Can talk to people without sounding condescending, doesn't stare at shoes
- Fluent in both English and Engineer
- Maths superior to comparable positions in other industries
- Endlessly stressed due to pressure of middle management
- Unlikely to have been trained as a manager
    - "Some are born to greatness, others achieve greatness …"
- Winging it, at least at first
- Yet to have all hope snuffed out (experience dependent)

How the professionals do it

- Business plan
  - Bit much for today, but it's the motivation for all the work so cannot be ignored
  - Market viability, cost, risk, time to market
- Requirements
- Test plan
- Expert work
- Do the testing
- Supply the test report
- Repeat as needed

How the professionals do it

- Requirements – be strong!
  - Write with the customer
    - They probably have a product spec, not an engineering spec
  - People can only concentrate 1h at a stretch, don't do it all in a day
  - Reflect on it
  - Share around, ask people
  - All surprises are unpleasant – avoid them, be as thorough as you can
  - State the bleedin' obvious, repeatedly
    - 0-35C temperature range? OK! Say so!
  - Engineering spec can be scheduled, product spec changes (validation phase) can change everything
  - Market requirements can change everything, e.g. was desktop, now handheld
  - Identify research, as opposed to development
- Test plan – be strong!
  - Customer must agree to this, it scopes all efforts
  - If it ain't in the requirements, it ain't in the test plan, don't expect it in the product

How the professionals do it

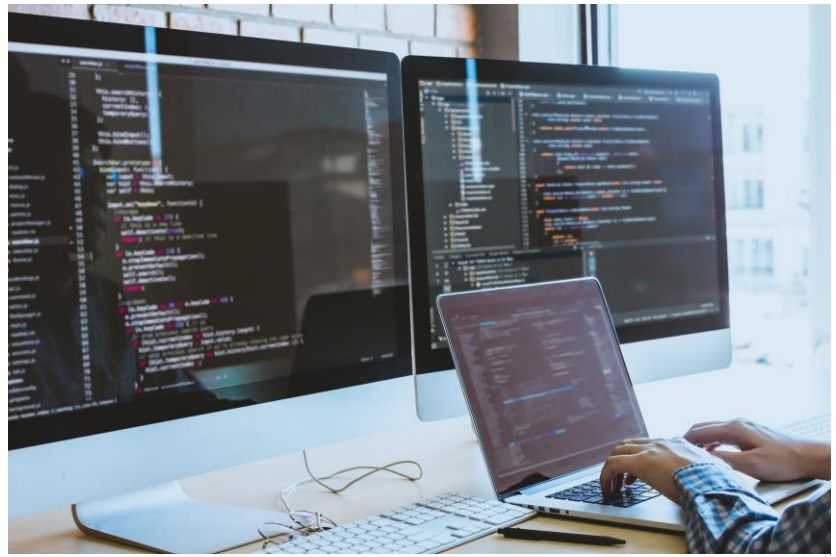
- Expert work
    - Include contingency and label it explicitly. Professionals expect this and worry when it's absent.
        - Make it real. Poor spec, more contingency. Explain to the customer why the quote just went up.
    - Specify error handlers and default states, don't trust to "judgement" since yours and mine could be different
    - Optimism sells … delays get you sacked (and we want to finish the project). Be as realistic as you can be. Professionals smell a rat when your estimate is 50% of the competitors.
    - Communicate regularly, even when there's nothing to say. People like reassurance, and things come out you won't hear otherwise.
        - People will fill a silence
    - Maybe the spec needs to change, maybe the test plan needs to change. Get buy-in. Changes are delay and cost.
    - Earned Value Management can help you here
        - Measures the project plan against deliverables, there's an ISO standard if you need it
- Test report
    - Do we allow failures? How bad?
- Repeat as needed – critical to scope the work before it starts

How the professionals do it

- Requirements
  - SMART = Specific, Measurable, Achievable, Relevant, Time-Bound
  - Be aware of the difference between technical and business requirements, e.g. delivery date
  - Every requirement without a test is a feasibility / research requirement
- Fight feature creep
  - Requirements and test plan defend you here
  - Changing scope should change all your estimates, and the act of estimating costs time, so you should be charging for it (even as a reverse charge built into the project cost)
- Fight intrusion on engineer time
  - Project engineers probably shouldn't communicate directly with customers, let them concentrate
- Budget more
  - You'd be amazed what the market will bear, for results
  - Engineers like toys, and toys demonstrate their time is taken seriously
  - Allows wiggle room

How the professionals do it

- Estimate cautiously
    - You haven't seen it all, never mind done it all
    - All idiot proof products have not met a sufficiently ignorant customer
    - Technology depends on innovation, so you're probably working on something new / untested / half complete / based on an open source project maintained by a teenager in somebody's basement. Such is the life of engineers.
    - Innovation involves experimentation, experimentation involves research, and research is inherently unbounded
        - This fights prescriptive requirements and is the opposite of quality control, which tries to reduce variation
- Quality management
    - If you're not measuring it, you're not managing it
    - Measure plans vs outcomes (yes you start out as Mystic Meg but half an Oracle is valuable)
- Amateurs don't manage, professionals do
    - "Management is too much effort" – rubbish, you don't want to know how bad you are
    - Measure it and improve
    - Rework is a cost



Change

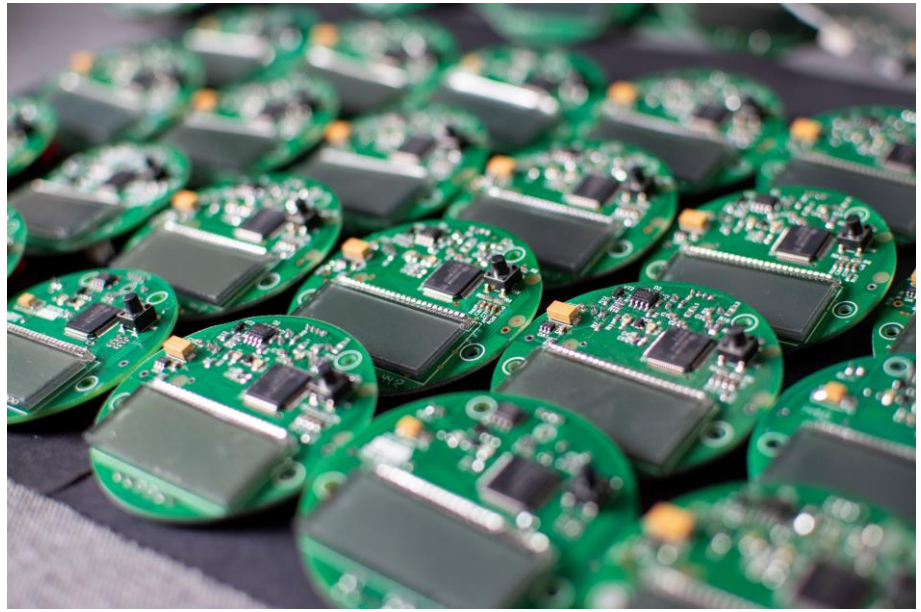
- All of these can change the scope of work
  - Internal testing
  - Beta trials
  - Ongoing market research
  - Manufacturing

The Professional Space

- We're in the West, we can't compete on price
    - Always somebody cheaper, sometimes even domestically
    - Leads to customer churn
- If we can't compete on price, we can compete on quality
- Quality control means knowing how good you are … or bad
    - 1:10 good:defect rate can be acceptable in some industries, ask ESA
- Happy customers come back
- Our defect rate for software during CY2022 was 9.2%, as measured by re-opened Issues
- Our detected shipped defect rate for software during CY2022 was 4.4%
- We are ISO9001 so the 2023 target is … ?
- What else do you think we are measuring?

The Professional Space

- All this makes the business easier
- Customers are happier with projects when there are fewer surprises
- Communicate regularly and effectively
- Be open – even when you know you're in the wrong. Professionals respect you for it. Amateurs throw rage.
- Be strong about your scoping, and defend / warn against changes
- No surprises
- No shocks



How do we get there?

- Recognise all of these elements together make project delivery less stressful
- Good requirements mean less variation
    - How do we know our requirements are good?
    - What's the difference between a product spec and an engineering spec?
- Good test planning
- Plan ahead, avoid surprises, avoid shocks
- Customers will thank you!

Thank you for listening

Scan to contact us and learn more about what we do

3Point1 Developments