

More Lessons From Observing The Leadership of UBC Solar

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Christopher Kalitin Blog (<https://ckalitin.github.io/posts/solar-integration-draft/>)

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More lessons from observing the leadership of UBC Solar

Notes

- Never decouple authority from responsibility
- what kind of members do you want? CAD / soldering monkeys or insert Mischa quote
- ask what people want to work on, Dont order
- the ideal member is told the mission and allowed to further that in any way possible
- let people make the changes they want to, even if they fail, it's in service of the first goal
- be the member you want to recruit, Krish
- the culture of a team is what people do, not what you write down, again, Krish

Really it all comes down to application of that Mischa quote

Structure the blog post as individual insights

Maybe this blog post should be what I would do if I were lead

1. The ideal UBC Solar member, and hence the ideal engineer

- Two Team Goals
- If you want CAD Monkeys, you're in the wrong place
- Mischa quote

2. Never decouple authority from responsibility

- The member you want is self directed, which requires ability to make decisions autonomously

3. Ask people what they want to work on

- If you order an autonomous agent to do something, you'll get worse results than if that agent does what it thinks is best (which may be different from what you think)
 - this is how I am with my parents too
4. Let people make changes they want to
- again, optimise for autonomous agents
5. Be the member you want to recruit, expect incentives to manifest themselves
- incentives are important
 - never have I heard that I need to write shorter Monday updates
 - i Don't like useless documentation, and the incentives are to produce more of it
 - skunk works quote B2 bomber
6. The culture of a team is what you do, not what you write down
- Optimize for what's going on in your members' brains, not what you project onto them
 - ie, do they actually read your docs
 - changing culture is impossible with a wiki page, only through constant nudges is it possible (this is similar to how you change who you are, your own personality, consciously or subconsciously)
 - if you write a doc, expect the culture to be magically changed, then continue the exact same things YOU (as a lead) did before and continue cracking jokes and being slightly unprofessional at all times, nothing will change. You'll also short the battery and die

Blog Post Text

JUST ONE PART OF WHAT YOU WRITE DOWN AND TEAM CULTURE

Our new team captain, Tima Komarov, has added a slide to our weekly team wide presentation for near term goals for UBC Solar. This is a great step in the right direction, but only works if these goals are always present in everyone's minds, not just something you read on a slide on the morning and then forget about.

For example, one of the points on this slide is to have scrutineering go smoothly without mistakes. I don't remember us talking about scrutineering and asking ourselves how to make to go more smoothly at any point in the last few months.

THE IDEAL UBC SOLAR MEMBER, AND HENCE THE IDEAL ENGINEER

About a year ago I realised that if I were a lead on UBC Solar I would make it explicitly clear that the team has two fundamental goals:

1. Produce Competent Engineers
2. Succeed At Competition

From these two goals, we can derive what an ideal UBC Solar member would look like.

I believe the ideal member of a technical organisation, most and foremost, is capable of being told a high-level goal and independently take actions to achieve such a goal. Everything else is secondary to this goal and only matters in that it helps to achieve such a goal (eg. Communicating with peers only matters to the extent that it helps you do useful things within a technical organization).

This is in contrast to the idea of a CAD / Soldering monkey. Such a member is only capable of following orders and does nothing creative themselves.

If your goal is to have CAD monkeys, the rest of this post will not be of use to you.

Also, if you are a lead, you should deeply consider what your actions incentivise. For example, if you tell members to solve a problem in one particular way (eg. “Solder this wire there”), or if you give them space to solve problems on their own (“this board doesn’t work, figure out a solution, my guess is you’ll have to solder a wire there”).

“I put 100% of my focus into applying frameworks that would **empower members to output fast-paced, high quality work that required minimal oversight from leads**, while at the same time training members to become leads themselves - following the team motto of “recruit your replacement”.”.

- Mischa Johal

From what I’ve seen of past UBC Solar leads, Mischa Johal was (and still is) the best to ever do it. The quote above perfectly encapsulates the ideal leaders should strive for. By extension, we should all strive to be like Mischa.

NEVER DECOUPLE AUTHORITY FROM RESPONSIBILITY

“The basic concept of always keeping authority and responsibility together never changed.”.

- General Leslie R. Groves on how he ran the Manhattan Project

Now that we've laid out the kind of member we want, the rest of this post will be about how to incentivise the behaviour you want, and (maybe more importantly) how not to disincentivise this behaviour.

- AUTONOMOUS BEHAVIOUR REQUIRES MINIMAL OVERSIGHT
- YOU WANT PEOPLE WHO GO AFTER THE HIGH LEVEL GOAL
- YOU DONT NEED CONSTANT CHECK-INS (LIKE MECH TEAMS DO WITH THEIR MONKEYS)
- INSTEAD, ENSURE NO INTEGRATION PROBLEMS AND THAT THE WORK IS ROUGHLY IN THE RIGHT DIRECTION
- TESLA BOT
- UBC SOLAR ISNT TESLA BOT

If you expect your members to be able to autonomously make useful additions to a team, they must have the authority to make the decisions they must to achieve their goals.

This results in a vastly different model of leadership than if you're managing CAD Monkeys. In such a case, you may supervise little details of your members work and want continual updates.

In contrast, leading an autonomous member doing self directed work involves letting them make their own design decisions, and merely making sure those decisions dont substantially effect integration with another members work down the line. Continual *short* check ins also serve as a course correction mechanism in case the self directed members work is no longer serving the high level goal of the team

I'd like to rewrite this section, unfortunate it got deleted by discord UI

This also speaks to how documentation / project updates are done. CAD Monkeys are told to write project updates, while a self directed member produces updates because they think it's a useful thing to do.

While I was in San Francisco in the summer I got to speak with a member of the Tesla Bot team. He described the management of the team where Vice Presidents (or Elon himself) set functional goals for the team to achieve by a particular date, and members of the technical staff work mostly independently to achieve the goals. Very quick check in meetings with technical managers take place throughout the week to ensure any given employees work is still working towards the functional goal.

This is the kind of environment I would love to spend a career working in and is in sharp contrast to the environment of UBC Solar (and hence I'd hate to spend a lifetime as a UBC Solar member). This is particularly evident among our Mechanical teams, where's leads assign very specific closed

projects to members and expect constant updates, leaving no room for self directed fundamentally creative work.

ASK PEOPLE WHAT THEY WANT TO WORK ON

Of course it is not always possible to let individuals autonomously tackle projects, as large projects often require specific members assigned to them. It's also not efficient to have members jumping around projects randomly.

So, some level of assigning tasks is required.

When task assignment must be done, be sure to optimise for what members want to work on themselves, and don't blindly assign tasks.

My lead on BMS seemed to have decided one morning to change the upcoming projects of several of our members without ever having consulted them.

I've spoken to these members and often ask them what they think their next tasks are, and changing this seemingly on a whim with no warning is the opposite of how you should treat members who you expect to produce great self directed work.

This has also happened to me when my lead tells me to work on a new task, unrelated from what I think is the most pressing work, and which I know will have a significant negative impact on our timelines.

LET MEMBERS MAKE CHANGES THEY THINK ARE USEFUL, EVEN IF THEY POSE RISKS

Autonomous self directed members intrinsically must have decision making capability, otherwise they are not able to execute on the vision they have for their projects.

This requires letting such members make changes and design decisions. On a small scale, this is easy for a lead, but as you get to higher level decisions, it becomes harder and you must put more faith into your members.

- even if it fails, it still serves the primary goal of the team
- just make sure you don't also fail the secondary goal, but if your members are aware enough of the second goal, they can make these decisions themselves
- power path example, I didn't want another shunt situation