Silver Bullets: No Secret Ingredients

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There's no great secret to software development. Put a team of the right people in place, surround them with a healthy organizational culture, manage them well, and collectively they’ll figure out how to be successful. As all good managers know how to manage well, the only issues that remain are the definitions of “right people” and “healthy organizational culture.”

A survey of the literature reveals the problem: everyone has their lists, which range from what to look for in recruiting candidates to the attributes required in forming your team’s ethos. It’s difficult to argue with anything on any of these lists—they’re unsailable and politically correct—and therein lies the problem. They’re too long. Not only will you never fulfill the implied desiderata in any one candidate or culture, but the lack of prioritization clouds a fundamental issue: when you have 10 equally important items, you can’t focus on any of them.

The Problem

It’s easy to throw lots of ingredients into a pot; the more difficult task of distillation requires that you turn up the heat. Let’s focus on just three attributes each in recruiting people and building a team culture, because that exercise forces tough decisions about what you absolutely can’t do without.

Let’s begin by defining the problem domain as the project. A project is defined as a time-bounded effort undertaken by a team of people. All projects have three aspects:

- **What** are we trying to do?
- **Why** are we doing it?
- **How** do we plan to get it done?

The most stable ingredient over the project’s life cycle is the **why**. We often modify the **what** as we come to better understand the problem space. And we almost always fiddle with the **how** before we’re done; we learn as we go and often implement things differently than we first planned.

**Who**, **where**, and **when** are consequences of the what, why, and how, and follow naturally and logically once we distill the latter. But without understanding the what, why, and how, we can’t move on to recruiting and culture.

Projects come in all sizes, and the criteria we seek apply to everything from a mile to a marathon. Sprints are over so fast that generalizations don’t apply to them. For shorter and simpler projects, the people dimension tends to dominate; when projects become longer and more complex, and the team size grows, the cultural factors tend to influence the outcome to a greater extent.

The People Dimension

Projects have a short-term focus, and we recruit for skills much more heavily with that in mind. Long-term recruiting places more emphasis on learning ability and communication; any set of specific skills will become obsolete with the passage of time and get replaced by a new set, over and over again.

Here’s my short list for recruiting project team candidates. Remember, the challenge is to limit it to only three items:

- **Intelligence**, because good judgment is vital in figuring out the what;
- **Motivation**, because the why drive is both crucial to success and internal; and
- **Skills**, because they embody the

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competency—the how—to get the job done.

Are there other valuable assets? Sure, but the must-have characteristics are key. I maintain that without these three, you’re in trouble. You can address a minor skills deficit, but it adds cost and inefficiency.

These three fit together nicely. Acquired skills are the result of intelligence applied over time; intelligence implies the potential to continue to develop new skills as the need for them arises; motivation is the fuel that drives the process.

A frequent quibble comes up at this point: sometimes intelligent people exhibit poor judgment. I agree that there appear to be cases of very bright people who make bad decisions; they’re a liability on teams. But I consider good judgment to be a component of intelligence, so I recruit for intelligence rather than explicitly looking for judgment. I make a similar argument for communication skills: it’s no accident that intelligent people are usually superior communicators, both as teachers and learners.

Not every candidate will excel in all three dimensions, but it’s crucial that candidates don’t have big issues with any of them.

**Coupling the People to the Problem**

A mapping begins to emerge:

- what $\rightarrow$ intelligence $\rightarrow$ the brain (analytic);
- why $\rightarrow$ motivation $\rightarrow$ the soul (affective); and
- how $\rightarrow$ skills $\rightarrow$ the sword (pragmatic implementation).

The art of putting together great teams is to meld people with complementary strengths. In the American Revolution, Ben Franklin best epitomized the brain, Thomas Jefferson the soul, and George Washington the sword. Together they were a powerful combination, each brilliant in his specialty and certainly more than adequate in the other two. Yet it is difficult to imagine any one of them having nearly as much success in one of the other roles.

**Coupling the Culture to Both**

But what about the cultural cradle that surrounds a nascent team? You have to bind them together and align them to the mission at hand. Once again, I limit my list to only three items:

- customer focus, to turn the vision into a truly useful what;
- integrity, to create a high-trust environment and ensure fidelity to the why; and
- results orientation, to make sure that the how is delivered.

These three criteria often take people by surprise. Customer focus is often lacking when teams become too internally directed. Without constant attention to what the product consumer requires, you risk even the best teams missing the mark—they might offer something interesting and unique, but it won’t be what customers want.

Integrity also comes as a bit of a shock, as many believe it’s an individual attribute, not an organizational one. In fact, it’s both, and it’s most important that it reside in the organizational culture. Low-integrity people are driven out of high-integrity organizations, but, unfortunately, the converse is also true. Without a culture that stresses integrity as fundamental, it’s impossible to have a high-trust environment, and so much depends on trust that we can’t succeed without the integrity that fosters it.

A results orientation means getting down in the dirt and getting it done. Good intentions and valiant efforts often precede great results, but in no case are they acceptable substitutes for them. The successful organization values whatever it takes to get to the finish line. Of course, that doesn’t mean that the end justifies the means; that would trump the integrity card, which we won’t allow. But it does mean that we put results ahead of process; we know that from time to time, we might have to bend, or even break, a rule or two to achieve the objective.

A useful cross-check on your recruiting process is to assess whether the candidate is a good “cultural fit” for the organization. Outliers who aren’t usually turn out to be high maintenance, despite their otherwise positive characteristics.

**Putting It All Together**

To continue with our mapping, we can now superimpose cultural norms on top of our previous picture:

- what $\rightarrow$ intelligence $\rightarrow$ customer focus $\rightarrow$ the brain (analytic);
- why $\rightarrow$ motivation $\rightarrow$ integrity $\rightarrow$ the soul (affective); and
- how $\rightarrow$ skills $\rightarrow$ results orientation $\rightarrow$ the sword (pragmatic implementation).

This means that the what will ultimately be determined by focusing on your customers and applying the team’s collective intelligence to figure out the product or service that can best satisfy them along all relevant dimensions. The brain is the appropriate metaph to figure out the product or service that can best satisfy them along all relevant dimensions. The brain is the appropriate metaphor here. The why is sustained by both motivation and integrity. These two factors both drive and preserve the intent of the project. The soul captures the emotional content of these elements. Finally, the how is all about the implementation, and it’s mostly the province of skills and results orientation. Logistical details are buried here, and without results orientation, the project never gets finished. The sword serves as the symbol of winning in the heat of battle.

This mapping is comprehensive, coherent, and aesthetically pleasing. Figure 1 may serve as a one-page reminder.
Although my use of three lists of three items each certainly isn’t perfect, it was designed to fit a specific context. You might have other things that you feel are essential, but you might try constraining your lists to three items to find your own personal truth:

- What are the three things that define the problem space?
- What are the three qualifications for team candidates?
- What are the three elements of the culture that foster success?

Let me know what you come up with.

You can view a five-minute presentation about these ideas at www.doi.ieeecomputersociety.org/10.1109/MS.2012.48.

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FIGURE 1. Successful projects result when teams combine the personal characteristics of intelligence, motivation, and skills with the organizational assets of customer focus, integrity, and results orientation.