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RECRUITING THE BEST

My job can be so exciting. I get to work with some of the
brightest minds and most accomplished luminaries in tech-
nology, politics, and business. I am consistently humbled
and feel lucky for the opportunities I get.[1]

—Christopher Sacca, former Head of Special Initiatives,
Google, Inc.

Few companies have expressed so strongly and
repeatedly their desire to recruit only the best
people. Google's recruitment web pages abound
with mantras like "Google seeks to hire only the
best." Although reports are that Google has had
to relax its hiring policies a bit over the years with

its dramatic increase in number of employees, headhunters who have worked with Google make it clear that you have little chance of being hired without a doctorate or at least a master's degree from a top school.

This elitism, the object of ongoing jokes, is not exclusive to Google; the same holds true at Amazon.com and Microsoft. For example, in a 1993 interview, Bill Gates, then CEO of Microsoft, made these remarks, which the owners of Google could repeat verbatim today:

> The key for us, number one, has always been hiring very smart people. There is no way of getting around, that in terms of I.Q., you've got to be very elitist in picking the people who deserve to write software. Ninety-five percent of the people shouldn't write complex software. And using small teams helps a lot. You've got to give great tools to those small teams. So, pick good people, use small teams, give them excellent tools, vast compilation, debugging, lots of machines, profiling technology, so that they are very productive in terms of what they are doing. Make it very clear what they can do to change the spec. Make them feel like they are very much in control of it.[2]

Why the Very Best?

This elitist attitude needs to be considered within the singular context of the technology industry and its fast-growing companies.

At Google, as in all booming firms, a position's scope expands rapidly: An employee may be promoted several times during the years following the start of his or her initial employment. In these circumstances, hiring overqualified people is better. And that means choosing the best.

But that's not the only motive for choosing the best people. Academic qualifications reveal a candidate's psychological profile.

When times are good, tech companies besiege universities trying to hire away their students. Those who remain in school to do graduate work are not only more intelligent and better trained than average—which are already plus points—but also more impassioned and motivated. Immediate money is not their main goal.

These candidates have already shown that they prefer learning to paid employment. The fact that they stayed in school long enough to earn a graduate degree means they already turned down numerous offers to earn fast money as developers—so, in these cases, staying in school long enough to get an advanced degree shows strength of character. Recruiting people with graduate degrees is a way to hire those who are highly motivated and value the quality of their work above their immediate personal interests. In an industry with very high turnover, where fortunes can be made quickly, this factor is important.

Equally important, new hires with graduate degrees are more rigorous in their habits. There's a joke about how doctoral graduates of the École Polytechnique, France's most elite school, put their everyday life into equations. What's certain about recruiting people with PhDs is that they've learned to rely on precise observation, to have confidence in math, to trust rational thought over intuition wherever possible, and to value factual analysis over improvisation. Google looks for these qualities because its co-founders put more confidence in mathematics and rationality than in other qualities.

Finally, the experience of graduate-level research, which is generally done solo, teaches these job candidates to operate autonomously. Each graduate student has had to choose a thesis topic, which familiarized them with what might be called *controlled innovation*. A thesis topic, however original it might be, would have no chance of being accepted if it didn't fall within a certain scope.

So behind this oft-criticized elitism is a realistic motive: The very best employees have a special psychological profile that benefits high tech companies. What would be truly arrogant is the leaders believing that because they are so brilliant themselves they don't need intelligent people around to help develop their company.

A Recruitment Factory

Hiring the best people is usually very expensive. Fortunately for Google, the IT collapse that began in 2000 dumped thousands of trained IT specialists, in all disciplines and at all levels, back into the job market. In 2001, Motorola alone laid off one-quarter of

its 150,000 employees. And the search engines weren't doing any better. In January 2001, then-leader AltaVista laid off 250 people, one-fourth of its staff, and canceled its plans to go public. Yahoo!, the other leader in the sector, also suffered large cutbacks. Sun Microsystems, General Electric, and Siemens laid off thousands more, and the list goes on.

Of course, most of those unemployed people didn't go to work for Google, but some of the best ones did. Google was hiring at that time and could recruit from a large applicant pool. Because of the economic situation, Google was able to hire excellent engineers at low starting salaries, with partial compensation in stock options.

As we all know, the economy recovered, and Google's recruitment efforts continued to ramp up aggressively. Rather than settle for the conventional recruiting methods used by most human resources departments (résumé analysis, psychometric tests, and interviews), Google chose a different path—yet again.

The company's reputation, coupled with competitive salary offers, would certainly have enabled it to recruit all the employees it needed. Google's management did something different: They built a veritable recruitment machine, massive to the point of being far disproportionate to the number of employees. In late 2005, Dr. John Sullivan, a human resources expert, reported that 350 people at Google were dedicated to recruitment. With 5,000 employees at the time, this meant that 1 in 14 Google employees was working in recruitment. That's an extremely high ratio, considering that in traditional companies the ratio is 1 recruitment employee per 100 employees. Cisco, another company that is extremely particular about the quality of its new hires, had one recruiter for every 68 employees in 2005.[3]

Of course, these figures are not entirely comparable; not all of Google's in-house recruiters were working full time, and other companies relied more on outside agencies for recruitment. Still, the number of people involved in recruiting was huge, and this most likely continues to be the case.

The human resources department at Google is mostly made up of temporary staffers. The Google recruitment machine is a factory, but a flexible one whose workers are called in as the need arises.

This paradigm is something new in recruiting. In most companies, the size of the recruitment staff remains pretty constant. Procedures adjust to meet workload: Recruitment becomes more complex when fewer open positions exist, and the process is simplified when more openings are available. As a result, the quality of those hired tends to decline as the number of openings (and perhaps the company's desperation) increases. Conversely, the fewer people the company needs to recruit, the more interviews per candidate and the more thorough the process.

Google's recruitment figures show how much importance the company places on a function that most organizations neglect or deal with in a haphazard way. And for good reason: In a fast-growing company that hires a lot of people, the quality of the workforce is at stake and can very quickly deteriorate.

The mechanism is simple. Allow average employees to recruit coworkers, and they will likely choose those who won't outshine them. This leads to a bureaucratic organization clogged with people who lack the authority to make the slightest decisions without seeking the approval of those above them. This phenomenon is an all-too-common one that has even given rise to a proverb in Silicon Valley, pointed out repeatedly by Ram Shriram,[*] one of Google's first investors and now a member of the board of directors: "Hire only A people, and they'll hire other A people. If you hire a B person, they'll hire C or D people." Forgetting this rule leads to sloppiness in very fast-growing companies. And Google has been particularly fast growing: At the end of 2003, Google had 1,628 employees, a number that grew to 10,674 by the end of 2006. That increase of over 9,000 employees represents a more than five-fold increase in only three years. And, as of June 2008, Google had 19,604 full-time

* Before starting his own venture capital firm, Shriram was one of the original team at Netscape, held an executive position at Amazon.com, and founded several startup companies.

employees—nearly double the number of employees that it had at the end of 2006. As Peter Norvig, Director of Google Research, explains:

> But how do you maintain the skill level while roughly doubling in size each year? We rely on the Lake Wobegon Strategy, which says *only hire candidates who are above the mean of your current employees*. An alternative strategy (popular in the dot-com boom period) is to justify a hire by saying "this candidate is clearly better than at least one of our current employees."[4]

Evaluating Technical Expertise

On the surface, Google's recruitment process looks similar to those of other companies. Like Microsoft and most large technology firms, Google gives candidates a more or less traditional series of tests.

Those applying for a technical position take the Google Labs Aptitude Test (GLAT), which is distinguished not only by its difficulty (with some fairly complex statistical and mathematical questions) but also by its originality and humor. For example, here's a sample question taken from an actual GLAT:

> On your first day at Google, you discover that your cubicle mate wrote the textbook you used as a primary resource in your first year of graduate school. Do you:
>
> A) Fawn obsequiously and ask if you can have an autograph.
>
> B) Sit perfectly still and use only soft keystrokes to avoid disturbing her concentration.
>
> C) Leave her daily offerings of granola and English toffee from the food bins.
>
> D) Quote your favorite formula from the textbook and explain how it's now your mantra.
>
> E) Show her how example 17b could have been solved with 34 fewer lines of code.[5]

Once the tests are passed, interviews follow. Nothing about the process is casual.

Only in the details does the originality of this process become apparent, however. The first difference is in its organization. At other companies, recruiters generally use only a small number of tools: specialized employment agencies, print ads, job fairs, contacts with schools and professors, and headhunters whose main expertise is in building networks of contacts.

Google uses those tools, too, but it also relies on its academic culture and its experience in the field of research (both in terms of database searching and research within a university environment). Its Summer of Code, a program that offers student developers stipends to write code for various open source projects, allows human resources to identify candidates capable of resolving complex problems. Google also sponsors contests that attract the most brilliant minds in the field. And Google uses its own search tools to identify people who are interested in its job openings.

Another hallmark of Google's recruitment strategy is *recruiter specialization*. The recruitment process is managed and organized along particular roles. Some recruiters specialize only in first jobs, others in technical people or managers, and still others speak only to candidates for overseas employment. Even at the largest companies, finding such specialization in the field of human resources would be rare.

The result is that each recruiter sees only a very narrow sector of candidates, so he or she can evaluate them closely to select those who will be asked to take the psychometric tests and then, if they pass the tests, be called in for interviews.

The most original part of recruitment at Google is the actual selection process. During this process, Google brings in future coworkers for multiple, lengthy interviews—as many as eight interviews per potential new hire. (This information comes from candidates who weren't hired, because those who get jobs are bound by a lengthy confidentiality agreement.)

By all accounts, the process is similar to university seminars where a candidate is examined by peer experts who ask him or her technical questions. They don't ask about his or her personality or ability to get along in a group; they want to know about the candidate's capabilities. The questions are technical, challenging, and very close to the

topic at hand. The interview is a strict evaluation of the candidate's technical competence and his or her ability to comprehend, address, and resolve the company's technological challenges.

And when the peers asking the questions don't have the know-how to evaluate the answers (as must happen often), they can at least pose questions that will help form a clearer opinion. Greg Linden, one of the creators of Amazon.com, explains it this way:

> . . . exploring someone's knowledge doesn't necessarily require knowledge of it yourself. You can just keep asking questions, diving deeper and deeper. If they really understand the problem, they should be able to explain it to others, to teach people about the problem. Eventually, you should get to a point where they say "I don't know" to a question. That's a great sign. Knowing what you know isn't as important as knowing what you don't know. It is a sign of real understanding when someone can openly discuss where their knowledge ends.[6]

During these discussions, the questions tackled are real ones that arise within the company. One famous example is a question from Amin Saberi's interview; Saberi was a student in the final year of the IT doctorate program at the Georgia Institute of Technology.

In one interview, Monika Henzinger, then Director of Research, asked if he had any ideas about how to improve the ad rankings on Google's pages. The question was minor, but back at the university, the young researcher mentioned it to his thesis advisor, who recommended exploring it. After some study, they decided that it would work better to include the daily budget of the advertiser within the ranking algorithm. Saberi and his colleagues wrote the algorithm and filed a patent.[7]

This sort of question is a long way from traditional evaluation methods used in small firms, which often base their methods on intuition and empathy.* But Google's process is just as far from the

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* Interviews of this sort can become pretty intense. A former Apple employee related how Steve Jobs upset a candidate whom he found a bit uptight by asking if he was still a virgin. Needless to say, the candidate concluded he wasn't the right guy for the job. (Andy Hertzfeld, "Gobble, Gobble, Gobble," *http://www.folklore.org/*)

The Google Way
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formal evaluations used by large companies, which attempt to evaluate a prospective employee's personality as well as his or her ability to fit into the professional environment. At Google, a candidate must convince his or her future peers that he or she can solve the problems encountered in the everyday work environment. That is all that counts.

If, on the surface, Google's recruitment procedures resemble those of other major companies, it becomes obvious, when looking at the details, that their methods are actually the opposite of traditional ones:

- Recruitment is considered a major function, which is rarely the case.

- Human resource staffing is flexible so it can quickly be adapted to meet current need.

- Degrees and academic qualifications are used to evaluate personal qualities such as chosen career path, rigor in reasoning, and autonomy. Normally, degrees are used only to evaluate technical expertise.

- Interviews are used to examine technical qualifications: Candidates are asked questions that apply to the work environment.

These ideas contribute to Google's success. Can they be applied anywhere? I'm not so sure. Google's hiring process has one main shortcoming: It is very, very long. So long that Google's specialists decided to limit the number of interviews candidates went through. They also asked staff members who interview candidates to submit their assessment within a week.[8] And if Google's process is too long for Google, it's definitely too long for companies that don't have its magnetic pull. In most cases, candidates won't wait several months before receiving an answer.