

10: Less Mass

The leaner you are, the easier it is to change

The more massive an object, the more energy is required to change its direction. It's as true in the business world as it is in the physical world.

When it comes to web technology, change must be easy and cheap. If you can't change on the fly, you'll lose ground to someone who can. That's why you need to shoot for less mass.

Mass is increased by...

- Long term contracts
- Excess staff
- Permanent decisions
- Meetings about other meetings
- Thick process
- Inventory (physical or mental)
- Hardware, software, technology lock-ins
- Proprietary data formats
- The past ruling the future
- Long-term roadmaps
- Office politics

Mass is reduced by...

- Just-in-time thinking
- Multi-tasking team members
- Embracing constraints, not trying to lift them
- Less software, less code
- Less features
- Small team size
- Simplicity
- Pared-down interfaces
- Open-source products
- Open data formats
- An open culture that makes it easy to admit mistakes

Less mass lets you change direction quickly. You can react and evolve. You can focus on the good ideas and drop the bad ones. You can listen and respond to your customers. You can integrate new technologies now instead of later. Instead of an aircraft carrier, you steer a cigarette boat. Revel in that fact.

For example, let's imagine a lean, less mass company that has built a product with less software and less features. On the other side is a more mass company that's got a product with significantly more software and more features. Then let's say a new technology like Ajax or a new concept like tagging comes around. Who is going to be able to adapt their product quicker? The team with more software and more features and a 12-month roadmap or the team with less software and less features and a more organic "let's focus on what we need to focus on right now" process?

Obviously the less-mass company is in a better position to adjust to the real demands of the marketplace. The more-mass company will likely still be discussing changes or pushing them through its bureaucratic process long after the less-mass company has made the switch. The less mass company will be two steps ahead while the more mass company is still figuring out how to walk.

Nimble, agile, less-mass businesses can quickly change their entire business model, product, feature set, and marketing message. They can make mistakes and fix them quickly. They can change their priorities, product mix, and focus. And, most importantly, **they can change their minds.**

11: Lower Your Cost of Change

Stay flexible by reducing obstacles to change

Change is your best friend. The more expensive it is to make a change, the less likely you'll make it. And if your competitors can change faster than you, you're at a huge disadvantage. If change gets too expensive, you're dead.

Here's where staying lean really helps you out. The ability to change on a dime is one thing small teams have by default that big teams can never have. This is where the big guys envy the little guys. What might take a big team in a huge organization weeks to change may only take a day in a small, lean organization. That advantage is priceless. Cheap and fast changes are small's secret weapon.

And remember: All the cash, all the marketing, all the people in the world can't buy the agility you get from being small.

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Emergence

Emergence is one of the founding principles of agility, and is the closest one to pure magic. Emergent properties aren't designed or built in, they simply happen as a dynamic result of the rest of the system. "Emergence" comes from middle 17th century Latin in the sense of an "unforeseen occurrence." You can't plan for it or schedule it, but you can cultivate an environment where you can let it happen and benefit from it.

A classic example of emergence lies in the flocking behavior of birds. A computer simulation can use as few as three simple rules (along the lines of "don't run into each other") and suddenly you get very complex behavior as the flock wends and wafts its way gracefully through the sky, reforming around obstacles, and so on. None of this advanced behavior (such as reforming the same shape around an obstacle) is specified by the rules; it emerges from the dynamics of the system.

Simple rules, as with the birds simulation, lead to complex behavior. Complex rules, as with the tax law in most countries, lead to stupid behavior.

Many common software development practices have the unfortunate side effect of eliminating any chance for emergent behavior. Most attempts at optimization — tying something down very explicitly — reduces the breadth and scope of interactions and relationships, which is the very

source of emergence. In the flocking birds example, as with a well-designed system, it's the interactions and relationships that create the interesting behavior.

The harder we tighten things down, the less room there is for a creative, emergent solution. Whether it's locking down requirements before they are well understood or prematurely optimizing code, or inventing complex navigation and workflow scenarios before letting end users play with the system, the result is the same: an overly complicated, stupid system instead of a clean, elegant system that harnesses emergence.

Keep it small. Keep it simple. Let it happen.

—Andrew Hunt, [The Pragmatic Programmers](#)

12: The Three Musketeers

Use a team of three for version 1.0

For the first version of your app, start with only three people. That's the magic number that will give you enough manpower yet allow you to stay streamlined and agile. Start with a developer, a designer, and a sweeper (someone who can roam between both worlds).

Now sure, it's a challenge to build an app with only a few people. But if you've got the right team, it's worth it. Talented people don't need endless resources. They thrive on the challenge of working within restraints and using their creativity to solve problems. Your lack of manpower means you'll be forced to deal with tradeoffs earlier in the process — and that's alright. It will make you figure out your priorities earlier rather than later. And you'll be able to communicate without constantly having to worry about leaving people out of the loop.

If you can't build your version one with three people, then you either need different people or need to slim down your initial version. Remember, it's ok to keep your first version small and tight. You'll quickly get to see if your idea has wings and, if it does, you'll have a clean, simple base to build on.

Metcalfe's Law and project teams

Keep the team as small as possible. Metcalfe's Law, that "the value of a communication system grows at approximately the square of the number of users of the system," has a corollary when it comes to project teams: The efficiency of the team is approximately the inverse of the square of the number of members in the team. I'm beginning to think three people is optimal for a 1.0 product release...Start out by reducing the number of people you plan to add to the team, and then reduce some more.

—Marc Hedlund, entrepreneur-in-residence at [O'Reilly Media](#)

Communication flow

Communication flows more easily on small teams than large teams. If you're the only person on a project, communication is simple. The only communication path is between you and the customer. As the number of people on a project increases, however, so does the number of communication paths. It doesn't increase additively, as the number of people increases, it increases multiplicatively, proportional to the square of the number of people.

—Steve McConnell, Chief Software Engineer at Construx Software Builders Inc. (from [Less is More: Jumpstarting Productivity with Small Teams](#))

13: Embrace Constraints

Let limitations guide you to creative solutions

There's never enough to go around. Not enough time. Not enough money. Not enough people.

That's a good thing.

Instead of freaking out about these constraints, embrace them. Let them guide you. Constraints drive innovation and force focus. Instead of trying to remove them, use them to your advantage.

When we were building Basecamp, we had plenty of limitations. We had:

- A design firm to run
- Existing client work
- A 7-hour time difference (David was doing the programming in Denmark, the rest of us were in the States)
- A small team
- No outside funding

We felt the “not enough” blues. So we kept our plate small. That way we could only put so much on it. We took big tasks and broke them up into small bits that we tackled one at a time. We moved step by step and prioritized as we went along.

That forced us to come up with creative solutions. We lowered our cost of change by always building less software. We gave people just enough features to solve their own problems their own way — and then we got out of the way. The time difference and distance between us made us more efficient in our communication. Instead of meeting in person, we communicated almost exclusively via im and email which forced us to get to the point quickly.

Constraints are often advantages in disguise. Forget about venture capital, long release cycles, and quick hires. Instead, work with what you have.

Fight blight

What has been described as “creeping elegance” is probably better described as “feature blight,” for like a fungus on a plant it gradually elaborates and blurs the true outline of the product while it drains its sap. The antidote to feature blight is, of course, the “constricting deadline.” This results in features being discarded in proportion to the time it would take to implement them. It is often the case that the most useful features take the longest to implement.

Thus the combination of the blight and the deadline yields software as we know and love it, comprised of bountiful quantities of useless features.

—Jef Raskin, author (from “Why Software Is the Way It Is”)

14: Be Yourself

Differentiate yourself from bigger companies by being personal and friendly

A lot of small companies make the mistake of trying to act big. It's as if they perceive their size as a weakness that needs to be covered up. Too bad. Being small can actually be a huge advantage, especially when it comes to communication.

Small companies enjoy fewer formalities, less bureaucracy, and more freedom. **Smaller companies are closer to the customer by default.** That means they can communicate in a more direct and personal way with customers. If you're small, you can use familiar language instead of jargon. Your site and your product can have a human voice instead of sounding like a corporate drone. Being small means you can talk with your customers, not down to them.

There are also advantages to internal communications at small companies too. You can ditch formalities. There's no need for arduous processes and multiple sign-offs on everything. Everyone in the process can speak openly and honestly. This unfettered flow of ideas is one of the big advantages of staying small.

Be proudly, defiantly truthful

Though you may think that a customer can be fooled by exaggerations on the number of staffers in your company or the breadth of your offerings, the smart ones, the ones you really want, will always learn the truth – whether through intuition or deduction. Embarrassingly, I've been a part of white lies like this in the past, and none of those situations ever resulted in what matters most to a business: meaningful, lasting and mutually beneficial relationships with people who had a real need for the services offered. The better course would have been to be proudly, defiantly truthful about the exact size and breadth of the company.

–Khoi Vinh, Subtraction.com and co-founder of Behavior LLC

Any time at all

No matter what business you are in, good customer service has got to be the biggest request that any client will ever make. We demand it for the services we use so why would we think our customers would be any different? From the very beginning we made it easy and transparent for our customers to get in touch with us for any number or questions they might have. On our website we list a toll-free number that forwards to our mobile phones and on our business cards each of us list our mobile numbers. We emphasize to our customers that they can get in touch

with us any time no matter what the problem might be. Our customers appreciate this level of trust and no one has ever abused this service.

–Edward Knittel, Director of Sales and Marketing, KennelSource