

EVENT STORMING

Alberto Brandolini



Introducing EventStorming

An act of Deliberate Collective Learning

Alberto Brandolini

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Preface - 60%

I started writing this book a few years ago. It feels weird to put this sentence down because, at that time, I couldn't imagine what was going to happen. EventStorming was a few blog posts and presentations, a small community of practitioners, and a malleable tool that was still full of surprises.

I embraced the “LeanPub philosophy”, publishing before the book was finished, and started an interesting ride: blog posts and presentation can be intentionally ephemeral, but a book is supposed to be here to stay and to provide reliable content for the readers to come, and not only for the current listeners.

At the same time, I was still exploring the technique and discovering new ideas and format, and the new ideas deserved a place in the book too! The information was growing as a travel diary, while I needed to keep the whole consistent. The writing was easy, but the rewriting is a completely different matter.

In the meanwhile EventStorming grew and led me to practice and explore EventStorming in many different domains around the world. Obviously, there was a price to pay for that: the time available for writing shrank between business trips, workshops, training classes, conferences and meetups. My updates on the book manuscript became less frequent, while the number of readers was steadily growing.

On the other hand, the practice progressively consolidated: some experimental techniques were now proven effective, and the book could be a little less naive than the initial writing. It just needed good quality time to be finished. Or so I thought.

The 2020 pandemic gave a severe blow to my intention to be future-proof. Every single page I wrote before March 2020 embraced the idea that EventStorming is primarily a human activity to be practiced putting everybody in the same room. But in 2020-2021, the notion of filling a closed

space with people started having a sinister sound in a world where social distancing became the norm.

So, I had to face a new dilemma: *"Should I rush to finish the book proposing a tool that now looks like the old world, or should I instead modernize the content to fit the changed reality?"*

I chose the second option, even if it meant painfully starting to review and rewrite much content. Ideally, this should give you a book with good ideas for any of the possible outcomes of the pandemic: back to normal, including the travel and logistic frenzy, or stuck into an endless chain of video conferences while working from home. I have no crystal ball, but I'll try to give you options when I can.

In general, large scale formats, such as Big Picture, are the ones that most benefit from human interactions, while smaller size Process Modelling and Software Design better tolerate the constraint of remote connection.

Who is this book for

EventStorming became a way more general-purpose tool than I anticipated, spanning from software development to organization design.

My background is in software development, passing through agile consulting then becoming an entrepreneur. And ideally, this is the audience I am talking to: business people that want to leverage the potential of technology and experts that want to be engaged in meaningful projects.

Notation

I'll be strict in being consistent with my notation, using a rigid color scheme (orange for *Domain Events*, magenta for *Hot Spots*, blue for *Commands*, and so on). It is born on the available colors for sticky notes, and interestingly

digital modeling platforms decided to be compatible with paper-based color palettes, so I didn't change much.

Acknowledgments

[FIXME: this is *still* going to be a big mess. So many people to thank...]

How to read this book

The current state is: there is plenty of valuable content in the book, but also much work in progress. * unfinished chapters; * finished chapters that now look a little obsolete in pandemic times pandemic; * redundant content; * I still don't know how to *end* this book.

Progress counter on top of chapters

I've added a progress indicator in the chapter headers, to provide a feeling of the completion status before reading it. The counter is arbitrary, but some readers found it useful.

Feedback

Feedback was one of those missing details in the instructions about how to write a book. I probably got too much feedback in given moments; then, my reaction was to shut off. There are a few thousand readers worldwide, and having a conversation with each one of them is not a viable option.

I just realized that in the previous version of this preface, I wrote: "*you can actually run a Denial of Service attack on me. It's probably fun!*" having experienced that, I can tell you it's not as fun as I expected.

The [official feedback page](#)¹ is on LeanPub.

There used to be a Trello Board, but I found myself not following it much, so better avoiding public references to stale information.

¹https://leanpub.com/introducing_eventstorming/feedback

1. What does EventStorming look like? - 85%

You may have heard about EventStorming, this odd-looking workshop with massive consumption of orange sticky notes. You may have even practiced it with some colleagues in your company. And maybe you are reading this book looking for guidance about what's the best way to run an EventStorming workshop.

It's only the second paragraph, and I am already sorry to disappoint you: there is no '*best way*'.

In practice, there are several ways to run an EventStorming, with different purposes and rules, but with a few things in common.

Here you'll have a taste of what you might expect, with four different EventStorming stories.

Challenging corporate processes

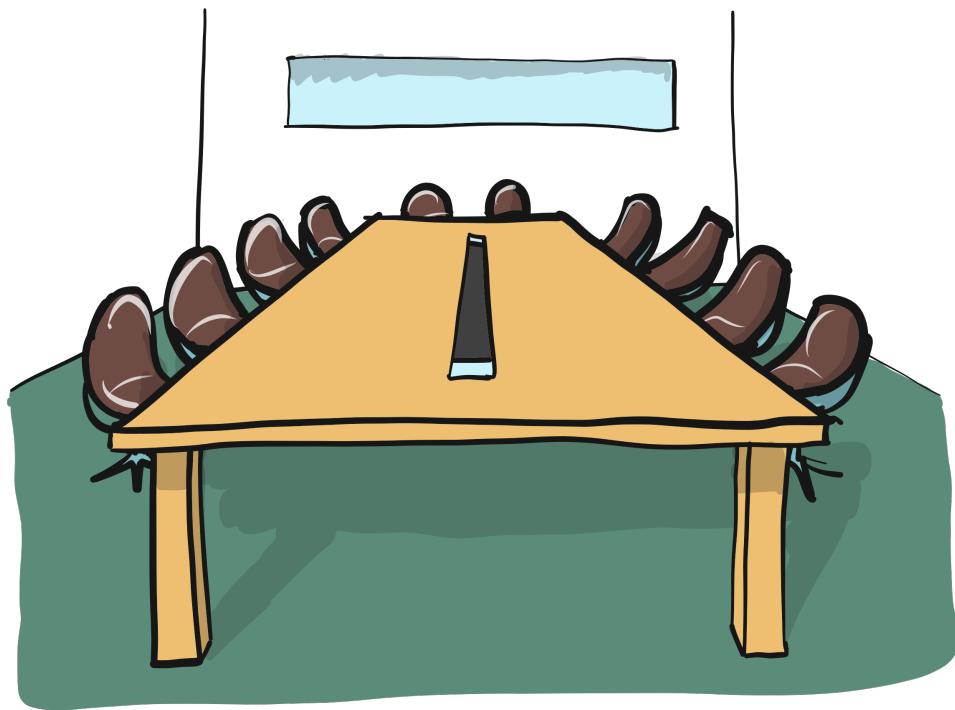
A mid-size company is struggling with a typical growth problem: the IT infrastructure that used to provide a competitive edge in the early days is slowly becoming a burden, making daily operations painful and ultimately making some strategic growth options non-viable.

I am invited to provide some big-picture level assessment of the state of the art in order to highlight the next critical actions.

The workshop

The situation looks so compromised we can't even manage the invitation process: some key people declared they wouldn't show up. However, we need to start from somewhere. We agree to call the meeting anyway, with the possibility of a follow-up.

The room looks like the typical corporate meeting room: a large table in the center and a dozen chairs around it. Poisonous¹.

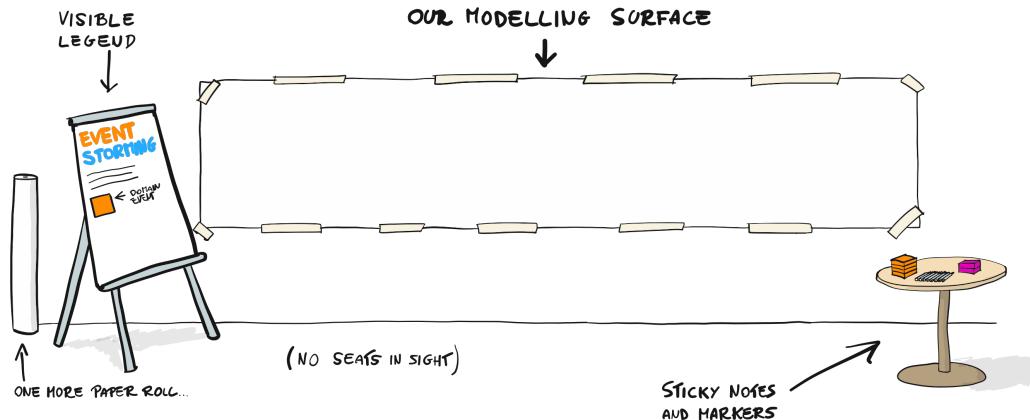


Nothing smart will ever come out from this setting, but ...please, take your seat!

We take control of the room 30 minutes before the meeting's official start to hack the space in our favor. We push all the chairs to the corners and move the table to the side (it's one of those enormous meeting room tables that makes you wonder "How the hell did they bring it in?"), and we stick 8-9 meters of a plotter paper roll onto the main wall. Then I extract a dozen of

¹If you want to know why, have a look to [Big table at the center of the room](#) in the [Anti-patterns](#) section.

black markers from my bag and a stockpile of sticky notes, mostly orange.



The room setup, right before the workshop

Eventually, participants - representatives from the different company departments, plus IT - start to show up. Some look puzzled at the unusual room setup, desperately looking for a seat. Someone else is still missing, but we decide to start.

I kick off the meeting with a short introduction: “*we’re asking you to write the key events in your business context as orange sticky notes, using a verb in past tense form, and to place them along a timeline*”.

Given the time constraints(2-3 hours overall), we agree to narrow the scope to the process of customer acquisition.



THIS IS A **DOMAIN EVENT**

- ORANGE STICKY NOTE**
- VERB AT **PAST TENSE**
- RELEVANT FOR DOMAIN EXPERTS**

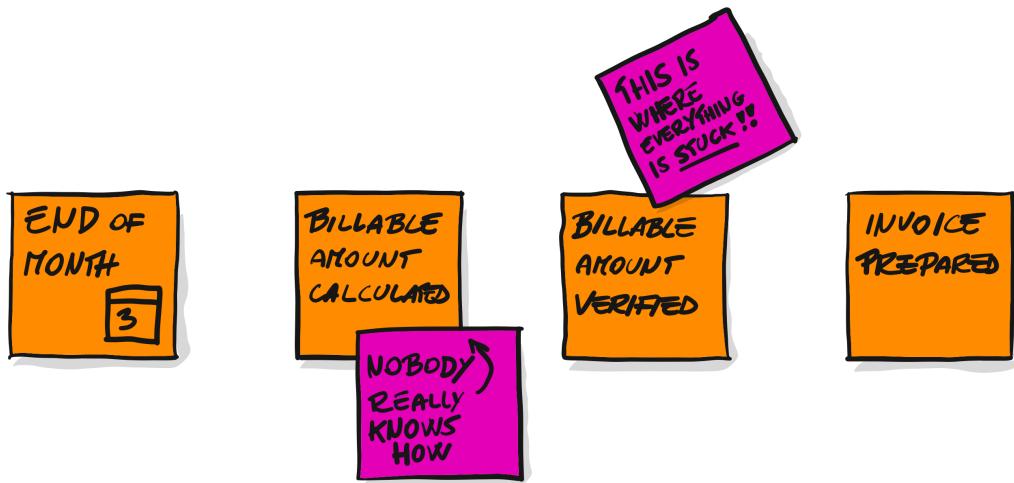
All you need to know about a Domain Event to get you started

Some participants still look confused, but most start writing their stickies and placing them on the paper roll. The *icebreakers* are doing their job brilliantly, acting as examples for the colleagues that quickly begin to imitate them. This way, we're getting into a state of flow in a few minutes.

I offer my help to those who still look uncomfortable, answering questions or providing a new marker if they're missing one. It turns out that I misunderstood their disengagement: "*I started working here two weeks ago. I finally understand what this company is doing!*", a person whispers.

Eventually, the whole process starts to make sense, and while we're merging the different points of view, people can't stop commenting on given business steps: "*and this is where everything screws up!*" or "*this never really works as expected*" or "*it always takes ages to complete this step*".

These pieces of information are crucial, so I try to capture every warning sign and write them on purple stickies decorating them with big exclamation marks, then I place them close to the corresponding step of the emerging workflow.



Capture warnings, discussions, and question marks along the way

As we expected, the number of critical issues is significant; but placing them close to the corresponding events highlights where we should concentrate our efforts.

Even my mood is different now. I asked very beginner's questions initially, but now I feel that we're getting close to the core problem quickly.

From a business point of view, the visualized process looks sound and reasonable, except for a couple of steps whose meaning I can't still figure out. The domain has many hard-to-understand regulatory constraints and bureaucratic steps, but these ones still look *really* awkward to my fresh eye.

It turns out that the steps *are* awkward. The software is imposing a couple of extra process steps to guarantee consistency of the internal data structure, but this approach is unnaturally pushing complexity outside the software², forcing users to do extra manual activities on paper and phone.

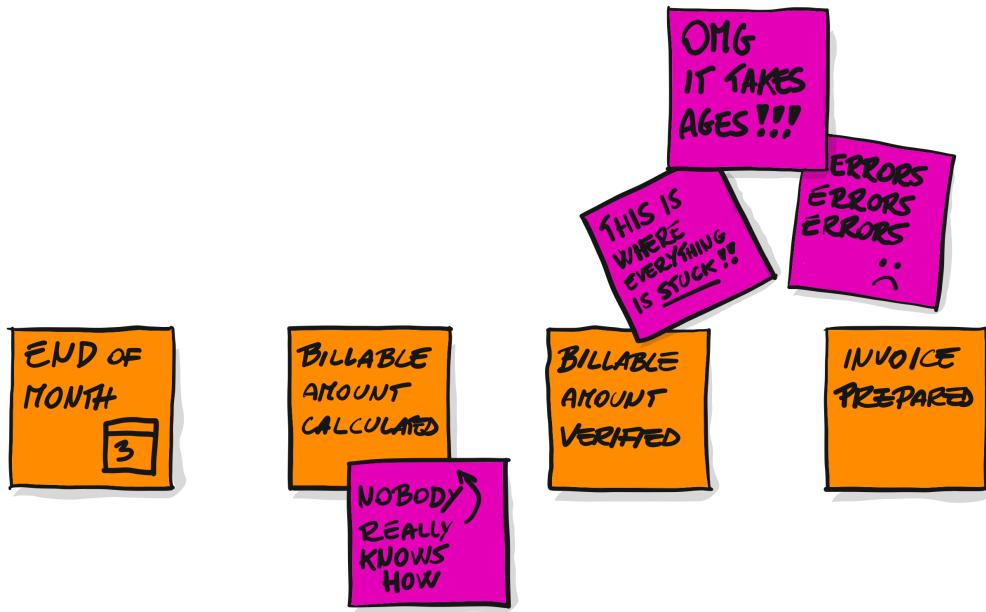
Once explored and visualized, the resulting real-world process looks bumpy and error-prone. With a disappointing consequence: the process ended up *postponing customer acquisition*, not the smartest move in a competitive

²This is a pretty recurrent modeling anti-pattern, I named it *hypocrite modeling*. We'll talk about it in the [modeling in the large](#) section.

market.

Luckily, we invited the right people: decision-makers are in the room. They propose a variation over the existing process on the fly, relaxing constraints for mandatory documentation. The currently applied requirements are unreasonably strict, so getting rid of their unintended consequences is an easy shot.

Time is getting short, so we ask if all the current blockers are currently displayed in the process (we added a couple more). Then we ask participants to prioritize them. They almost unanimously point towards one. Easy.



Looks like we have a clear winner. This is where we need to focus.

It looks like we have a clear mission now.

Aftermaths

In the afternoon, the next action becomes obvious: since we highlighted the main blocker in the flow, there's nothing more important to do than *solving that problem* (or at least trying).

Finding a solution won't be as easy as spotting the problem. And the blocker is only the visible symptom, not the root cause. But *choosing the right problem to solve is a valuable result* and we achieved it quickly.

There's a feeling of urgency to prototype a solution. So, after taking pictures (in case someone tears the paper roll down), I start working on an alternative model for the selected *hot spot*, together with the software architect, based on two separated models instead of a single bloated one.

Even if we established a clear link between the main process blocker and a possible solution, putting it to work is not only a technical issue: permissions needed to be granted, and roles and responsibilities in the organization around that step needed to be redesigned to overcome the current block.

Despite the initial assumption that software was the most critical part, it turned out that the solution was mostly *politics*. And when it comes to politics, transitions usually take more than expected, and they're never *linear* or *black-and-white*.

Kicking off a startup

Founders of a new cool startup are hiring a cool software development company and a cool UX agency to write their cool backbone software.

The business model is new for the market. It's all clear in the founders' brain since they are very experienced in the financial domain. The development team is already familiar with *Domain-Driven Design* concepts, but developers,

the ones supposed to make the thing real, have no previous domain knowledge - excluding some regrettable experience as customers - and the whole thing looks huge.

I am invited to join as a facilitator for an exploration workshop: the goal is to have the development team up to speed, learning as quickly as possible about the domain. Moreover, founders know about the business domain but are unaware of the technical risks hidden at the implementation level.

Given the number and complexity of mandatory compliance constraints in the domain, the [Minimum Viable Product](#)³ is going to be relatively big, compared to the ideal startup Eric Ries's style. Anyway, we'll need to keep under control the natural tendency to inflate the MVP since hitting the market as soon as possible is critical.

Day one

At 9 am, eight people are in the room: representing the business, technical, and UX perspectives of the exploration.

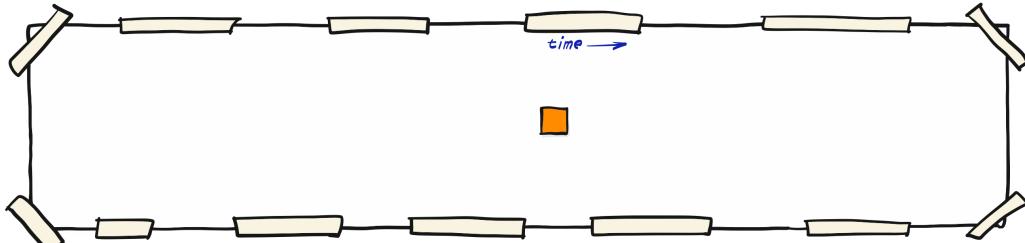
During preliminary introductions and coffee, I lay down my secret weapons: I unroll as much as I can of a plotter paper roll and stick it to the wall, then extract some hundreds of orange sticky notes from my bag and put them on the table, together with a ridiculous amount of black markers.

Some people already know about EventStorming, but the founders are totally new to the concept. However, they like the idea. The unusual setup already triggered curiosity, so I don't have to spend much time introducing the workshop. Instead, I immediately ask everybody to write the key *Domain Events* of the business process on orange sticky notes and place them according to a timeline on the paper roll.

The request sounds somewhat awkward because we're skipping introductions and explanations. What we really need is an example: once the first

³A *Minimum Viable Product* is one of the most intriguing and debated ideas presented in Eric Ries's book [The Lean Startup](#), a must-read for every startupper in the digital world. In order to gather feedback from your potential customers as soon as possible, an MVP is the smallest possible product that can be shipped. The goal is to avoid wasting money building features, only to discover that no one would buy them.

Domain Event is in place, everybody is more confident about what a Domain Event can be.



Gotta start somewhere...

We quickly enter a state of *flow*: once the first Domain Event is placed on the timeline, it becomes fairly obvious what has to happen *before* and what happens *after*, so everybody starts contributing to the model.

Some orange stickies are duplicated: probably somebody had the same idea, others look alike but with slightly different wordings. We keep them all, for the moment. We'll choose the perfect wording later, once we have some more information available.

I also remark that "*there is no right one*". Looking for the perfect wording will slow us down in this phase.

A few stickies do not comply with the Domain Event definition I provided: there's some sort of *phase* instead of a *verb at past tense*. But *phases can hide complexity* from our investigation, so I just turn the sticky note 45\? anticlockwise to signal that something is wrong, without disrupting the discussion flow.



This is not a Domain Event, this is a process...

The modeling style feels awkward but powerful. We try to model processes before the detailed explanation from the domain expert.

There is no description of the tedious, *easy-to-guess* steps of the business process. But every time the developers are off-target, then a meaningful conversation arises. We don't talk about "*the user needs to login in the system*", (*boring*); instead, we talk about places where there's more to learn.

It's more *discovery* than *translation*. This way, it feels like developers are genuinely getting into the problem.

Conversations, conversations, conversations

Sometimes, the founders provide us with really cool insights about the domain's unexpected complexity. We listen like pupils in a classroom, taking notes, formalizing the just learned complexity in terms of Domain Events and adding more precise definitions to the vocabulary.

When new terms arise, and the discussion shows that they have an exact meaning in that *context*, I start capturing key term definitions on a special sticky note and place them just below the normal flow.

It won't be a *Wikipedia-ready* definition: just the precise meaning of that term in that specific conversation.

Sometimes the knowledge is on the technical side: a developer takes the lead explaining the complexity lying behind an apparently simple problem.

We could actually see the business and the technical parties getting wiser every round.

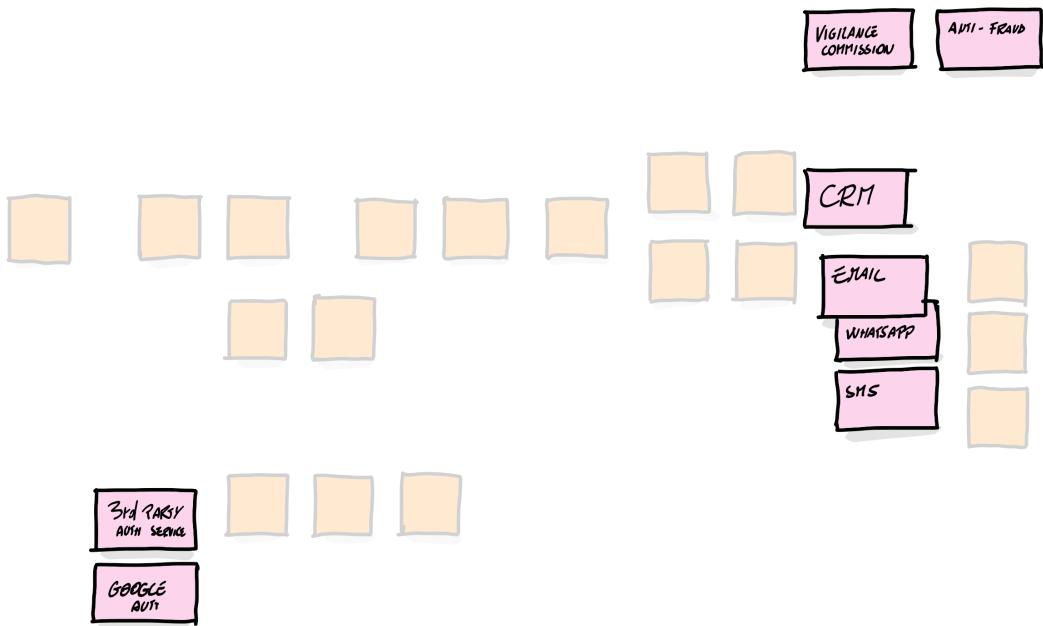
Open-ended conversations are my favorites. On a couple of occasions, the founder candidly says: "*I have no idea. We need to explore this scenario.*" I loved that. Honest domain experts admitting they don't know something are a million times better than a *wanna-be-domain-expert* mocking up answers to stuff they have no clue about.

While people keep exploring different corners of the domain, I start annotating all the hot spots in purple stickies. They may represent *problems, risks, areas that need further exploration, choice points where we don't have enough information yet or portions of the system with key requirements*.

Eventually, we start mentioning *external systems*: they can be external organizations, services, or online apps. I start representing with larger pink stickies the external systems our cool new software will have to deal with. This will happen more explicitly later on, but having some examples already available will make the following steps easier.



When precision emerges from the words of a domain expert, better write it somewhere...



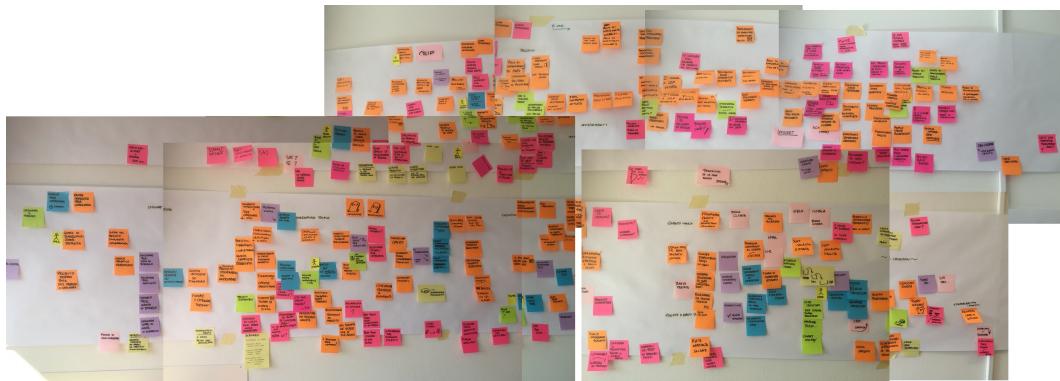
External systems started to appear quickly. For each one of them, we wrote a larger light pink sticky note.

As a background process, I start to label specific areas of the business flow⁴. Something like *Customer Registration*, *Claims* or *Fraud Detection*. We're starting to see independent models that could be implemented independently, with different, relatively well-defined purposes.

I am not expecting precision and clean boundary definitions at this stage, just some emerging structure that we will improve later.

It turns out that there are already a few solutions available off-the-shelf for given portions of the flow: no need to develop them in-house unless we need to do something distinctively different.

⁴I have a special tool for that, a [removable label](#) that can be moved around just like a sticky note. I'll talk about the tooling in the [Tools](#) section.



Too big to fit into one picture, but still manageable.

At the end of the day, we filled up 18 meters of process modeling. A single wall isn't enough to contain the whole stuff, so we used the opposite wall too. We acknowledge that there were some more areas to be explored, but the overall picture of the process looks solid.

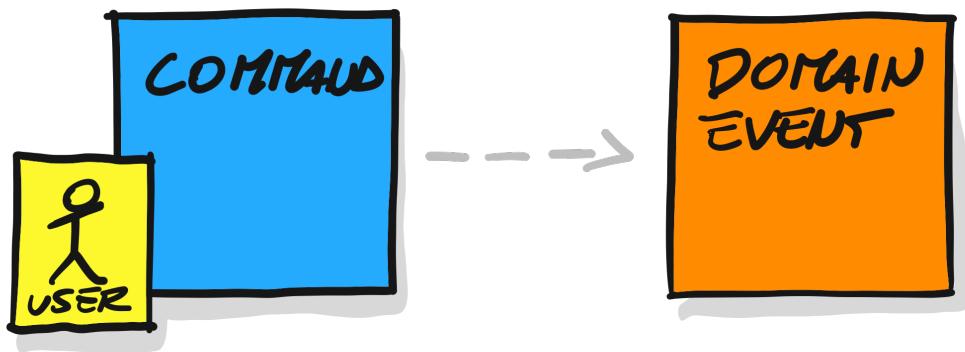
After contemplating our artifact, we head for dinner with the feeling of having accomplished a lot.

Day two

We start the session by reviewing the model we left from the day before.

Some stickies now look naive compared to our new level of understanding. We rewrote a few with more precision and discarded some of the purple question marks that were covered in yesterday's session.

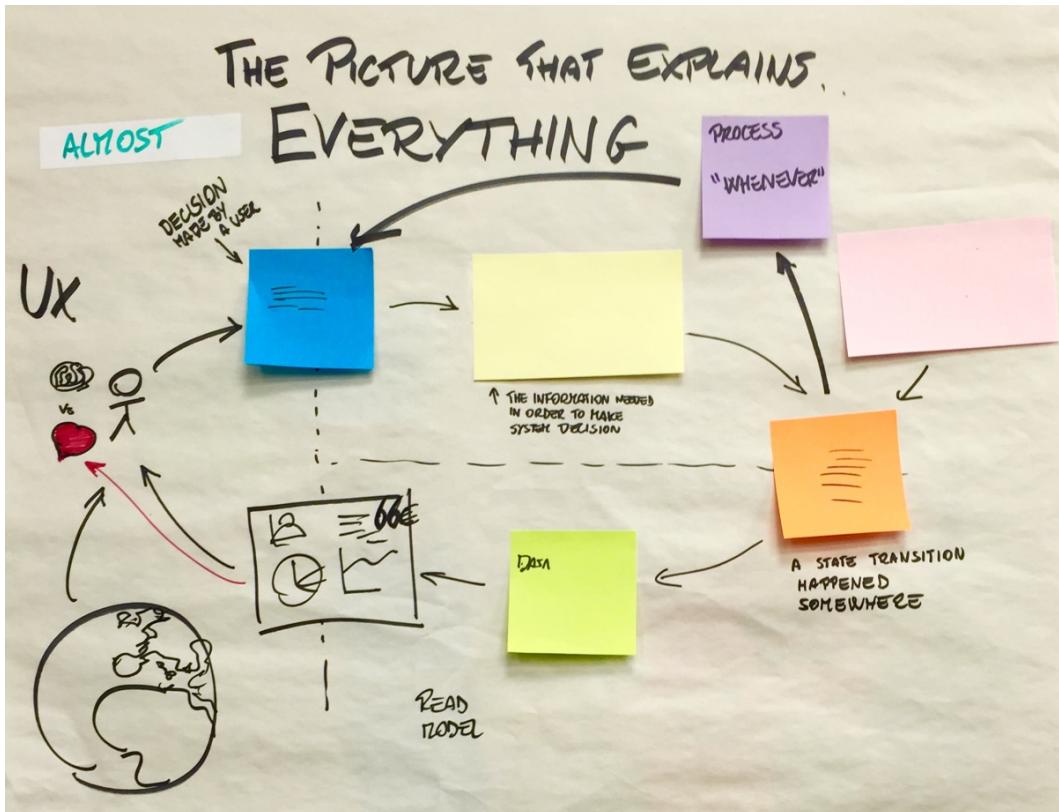
It's time to get a deeper look into the mechanics of the core components of the system: we start introducing more rigor in our process by introducing **Commands** representing *user intentions/actions/decisions* (they are blue stickies where we write something like **Place Order** or **Send Invitation**), and **Actors** (little yellow stickies) for specific user categories.



USER INITIATED ACTION

Adding the little yellow sticky can make the difference in shifting the focus towards user interaction

To provide a little more background, I draw *The picture that explains everything* (see chapter [The picture that explains everything](#) for more on that) on a flip chart and keep it as a reference.

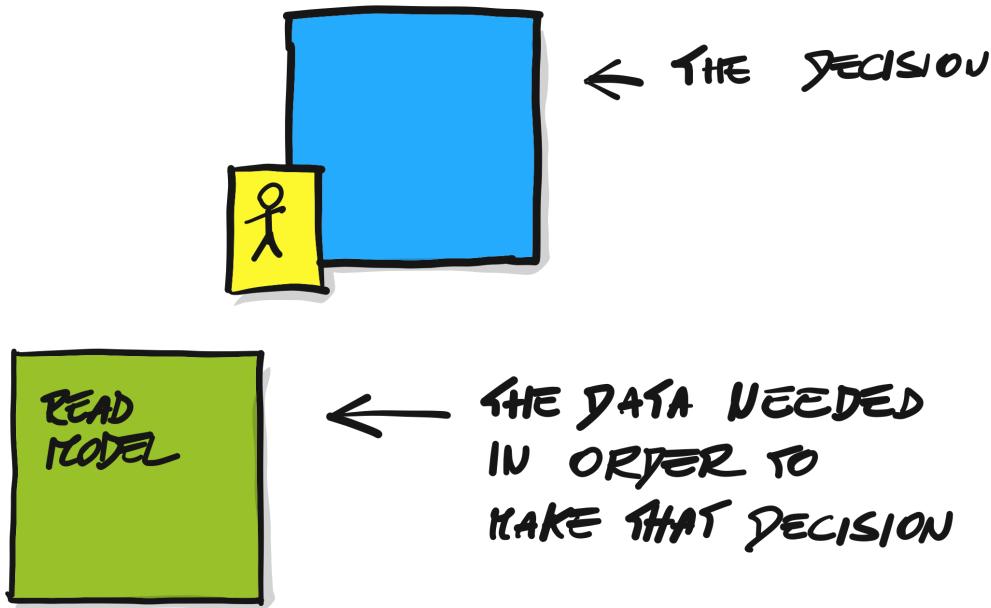


The incredibly ambitious “picture that explains everything”

Adding commands and specific actors triggers more discussions about the reasons why given users will perform given steps. Once more, some steps are trivial, while a few of them trigger deeper discussions like: “Why should user X activate the service?” which end up challenging the original assumptions.

A couple of interesting things happen around commands and actors. Commands are ultimately the result of some user decision, but thinking in terms of user decisions (*Can we make it easier? Can we make it better? Can we influence it?*) forces us to think in terms of the relevant data for a given decision step.

We capture this information in *Read Models* (green stickies in our colored dictionary), or in little UI sketches if visual are relevant for the current step, like in “we need an image here”, or “price needs to be displayed in the center of the screen”.



Read models are emerging as tools to support the decision-making process happening in the user's brain

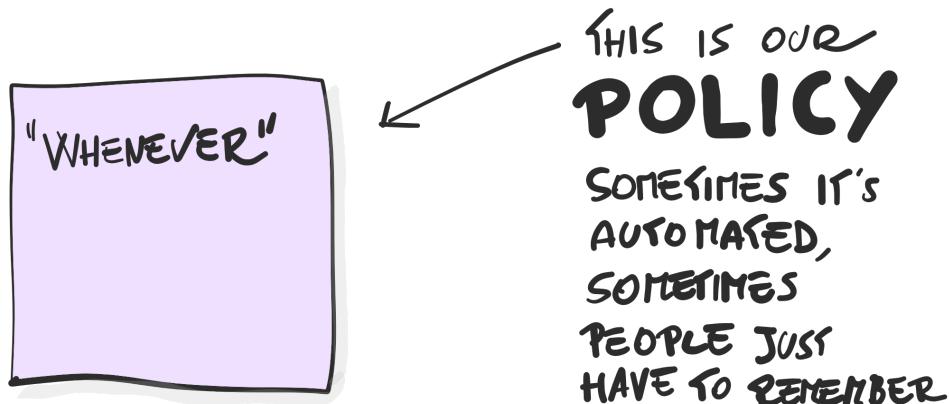
Interestingly, while exploring the users' motivation, we realize that not every user in a given role thinks in the same way. Even if the decision might be the same, the reasons behind it will vary a lot.

What used to be a simple *user* or *actor* turns out to be a more sophisticated collection of *personas*. Since we're in *Lean Startup* mode, it is nice to see this concept emerge: we might eventually use it to sharpen our MVP by focusing only on few selected personas.

However, we don't care about the exact definition. The fact that we're having this conversation is way more important than the precision of the used notation.

The more we look into local mechanics, the more we find ourselves thinking in terms of *reactions* to specific Domain Events. It's easy to pick them up since they mostly start with the word 'whenever'. It's something like "whenever the exposure passes the given threshold, we need to notify the risk manager" or

"whenever users log in from a new device, we send them an SMS warning". Lilac is the color for this reactive logic that takes place right after an event and triggers one or more commands somewhere else. '[Policy](#)' is the name we end up using in this specific workshop.



Our policy, regardless if it's manual or automatic

It's interesting to capture policies as early as possible, without making assumptions about their implementation. In a startup, some actions will have to be implemented by a system one day, but it's usually better to defer commitments (and the related expenses for licenses and fees) to the moment the customer base will be big enough to justify the investment.

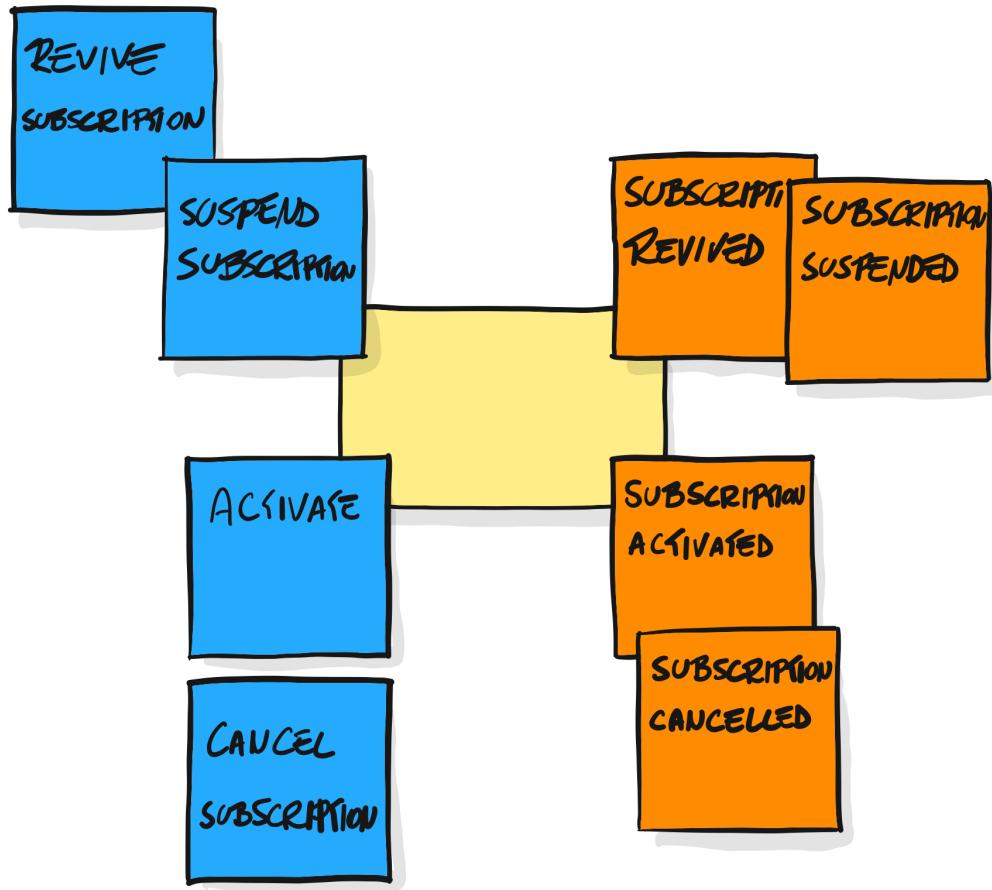
A manual and possibly cumbersome process today will eventually become a software solution tomorrow. This way, we can manage growth without precise information, market feedback above all.

Developers are getting excited because "we're getting technical" and an [Event-Driven architecture](#) is emerging from the mass of stickies. But business people aren't excluded from the conversation: the reference notation is still visible on the flip chart acting as a [visual legend](#), and we're mostly discussing the whys or providing useful insights on the tricky areas.

Eventually, while founders move to a different office, we keep exploring the model with developers. They were eager to get into technicalities like cats

smelling fish.

I agree. This is the time. Key *Aggregates* (in the traditional pale-yellow color) start to pop-up, in a responsibility-driven fashion. Given the bounded contexts have already been sketched, most aggregates look somewhat trivial.



A very simple aggregate, apparently

Interestingly, the exploration feels complete, even if it's process-oriented. We had pretty much everything sorted out without using words like *database*, *table*, and *query*. Data comes in mostly in terms of mandatory requirements or as a read model required to support a given user step. Only a few places

still look like **CRUDs**, but most of the business is described in terms of *Events* flowing in the system.

And it feels so right.

Finally, it looks like we've covered pretty much everything. What looked like an unholy mess at the beginning now looks like a reasonable flow. The team confidence is sky-high. There are a couple of areas where experiments will be necessary (mostly because we need to understand system dynamics after hitting a considerable amount of users), but the overall feeling is that development would be on track. Everybody knows the reason why given pieces are there, and a lot of typical mistakes and misunderstandings that will look stupid in hindsight just won't happen.

We are in "*the startup's twilight zone*": assumptions should be challenged with experiments, but choosing the right ones to challenge and designing the corresponding experiment is still mostly an art.

Designing a new feature for a web app

We just run a big picture workshop in the morning, but now it's time to narrow down the scope and focus on the new requirements for our app.

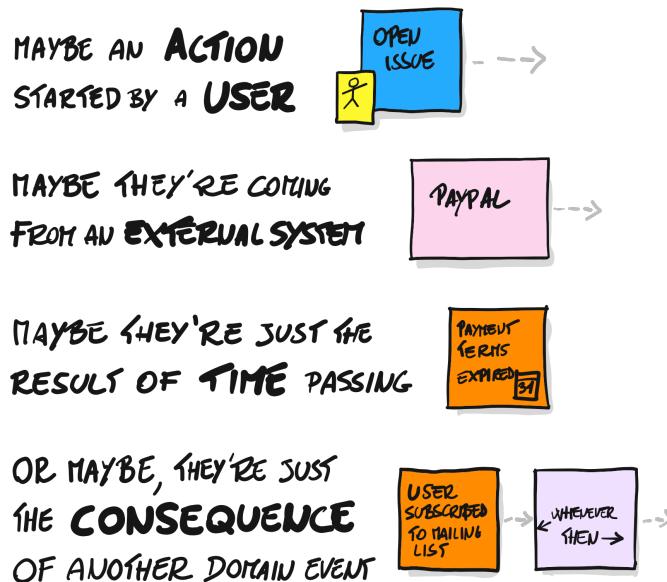
We don't need every domain expert here: the scope of the new feature is relatively clear and involves only two of them.

[FIXME: probably a little later] With the development team, we dig deeper into the semantics of the Domain Events.

It's funny to see how many times we're *rewriting* the sticky notes with different names, exploring variations or adding more precision to the picture. Even if we're throwing away many stickies, we still have a feeling of progress and increased solidity.

At this moment, we start getting deeper into the mechanics of our business process: every Domain Event should be the result of something. I sketch something similar to the picture below on the [visible legend](#).

WHERE ARE DOMAIN EVENTS COMING FROM?



Where are domain events coming from? Four different possible answers to the question.

- maybe a [Command](#) (a blue square sticky note) triggered by a given [User](#);
- maybe the Domain Event has been triggered by some [External System](#) (normally a pink larger rectangular sticky note);
- maybe it's just the result of time passing, without any particular action involved (like [PaymentTermsExpired](#));
- or maybe it's just the [consequence](#) of some other event: whenever one thing happens, then another one will happen. Well, it's not always that obvious, so we set up a lilac sticky note for that.

Some developers are puzzled. A few commands look just like the rephrasing of the corresponding domain events. It's always funny to see how developers' brain reacts to boring and repetitive tasks. In fact, that's not a problem: the whole thing is complicated, but this doesn't mean that every little brick has to be a mess. Some will be trivial.

However, in given portions of the flow, this is not happening: the relationship between an user action and a system reaction is more sophisticated than we initially thought, and can trigger different consequences.

Working with developers always brings an interesting consequence: they're wired up in thinking with alternative and complementary paths, looking for some form of *semantic symmetry*: so if we had a `ReserveSeat` command, they immediately look for a `CancelReservation` and start exploring the alternative path. This lead us to find more events and more "*what happens when ...?*" questions.

It's now time to introduce [Aggregates](#) one of the key concepts of [Domain-Driven Design](#), by looking for local responsibilities that could trigger different responses to commands. We use plain old yellow stickies for that.

It feels natural to start grouping commands and events around the newly found aggregates, and this triggers even more discussion in the hunt for symmetry. Aggregates now are starting to look like little state machines.

Some people are puzzled because the moment we started to group around responsibilities, we broke the timeline. That's fine, the two groupings are orthogonal: we can't have both. The timeline was great for triggering big picture reasoning, but now *responsibility* is a better driver for robust system design.

The picture that explains everything is our companion again, and I refer to it in order to introduce *Read models* in green to support user decisions and processes in lilac, that take care of the system reactive logic.

[FIXME: Finish!]

Quick EventStorming in Avanscoperta⁵

It's time to run a retrospective in our company. Training class sales haven't been as good as expected in the last weeks, and it makes sense to explore the problems that we surfaced along the way.

Since we advocate large modeling surfaces, we have plenty of space to model. Every available wall of our headquarter (a single 60 square meters room) is writable, so there's no need for the typical paper roll here. However, a large supply of orange stickies is mandatory.

The company core is pretty small: only 4-5 people. However, there's a significant amount of autonomy to take process decisions, and we experimented with many changes lately, so it makes sense to merge the different perceptions of the process into a consistent whole.

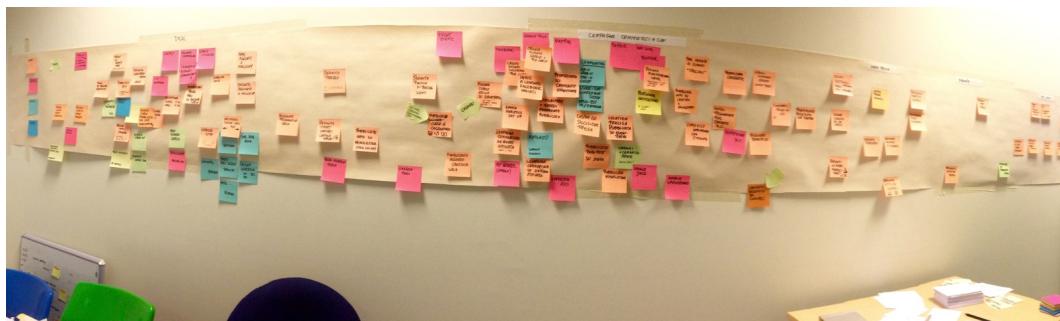
Everyone of us [gets a marker](#). We start writing *Domain Events* (short sentences like **Training Description Published** or **Ticket Sold**) on orange sticky notes and place them along a timeline, from left to right.

There is no strict consequentiality: everyone writes about the topic they know best and find the corresponding place in the flow, eventually adjusting the position of surrounding stickies when things get too packed or too clumsy.

Along the way, we realize we keep mentioning External Systems (we have the pink larger stickies for that) and something that doesn't belong to the usual EventStorming toolkit: *communities*. They are meaningful enough in our context to justify a specific notation: we pick a color (light blue) that hasn't been assigned yet and add it to our [incremental notation](#).

When the overall flow starts to make sense, we begin exploring issues, writing them down as purple sticky notes that we place close to the corresponding domain events. In our case, we had something like **Training Class Description Sucks!** and **Unclear Discount Policy**, or **Advertising Policies!!!** to highlight that we didn't have a repeatable approach to advertising. Ideas come together, and we end up with around 20 possibilities for improvement.

⁵Avanscoperta is my small company, where I try to eat my own dog-food. www.avanscoperta.it



The outcome of our EventStorming session in Avanscoperta (one among many).

When exploring on such a wide scope, it's easy for issues to pop up randomly mixing the very important things with the trivial ones, so - just like we would do in a retrospective - we'd prioritize issues, with the impact in mind: "*Which issue is going to have the biggest impact when solved?*" We decide to focus on the appeal of the product we're selling. The decision to buy a ticket for a training class - which we'll represent as a blue sticky note - is a user decision that will involve logical and emotional thinking.

On the logical side, we have a little problem with the data displayed: though the current price is currently displayed, our naming policy for discount is somewhat confusing for the users: two prices are shown, and some users wonder whether they lead to different service classes. Maybe not a big blocker, but the buying experience looks clumsy.

The big blocker stands right in our faces: the purple sticky note saying **Training Class Description Sucks!** stands right in front of us, telling us that the perceived value of what we're selling is not enough to trigger the purchase.

A quick look at the training class description of our best sellers, compared to weaker ones, confirms the hypothesis: despite good teachers and cool topics, the class as shown on the website is not triggering any strong call to action.

Now we know that we should put a lot more effort on crafting the content of the training class: it has to speak to the rational mind, but it has to be catchy too for the emotional part of the brain (or 'the heart' if you are feeling more romantic than scientific).

In the end, my brain is torn apart. As an entrepreneur, I am quite happy I've

identified problem number one on the list, and now I have an action plan towards a possible solution. As a developer, I am slightly disappointed since the solution doesn't involve writing any code.

I trust the next bottleneck to be better.

You've now got a little taste of what an EventStorming session might look like. There's something different in every single approach, and many choices are largely dependent on the context. Some similarities are visible though:

- an *unlimited modeling surface*;
- a virtually *unlimited supply of markers and sticky notes* in different formats;
- a *collaborative modeling attitude* involving all key roles and stakeholders;
- *no upfront limitation of the scope* under investigation;
- focus on *domain events along a timeline*;
- continuous effort to maximize *engagement* of participants;
- *low-fidelity incremental notation*;
- *continuous refinement of the model, or progressive precision*.

Possible formats

The discipline⁶ is relatively new (my first experiment dates 2013), but there's already some distinct established format. I like to think about it like Pizzas: there's a common base, but different toppings.

Here's my menu.

- **Big Picture EventStorming:** the one to use to kick off a project, with every stakeholders involved.

⁶I had shivers down my spine when I realized I associated the word 'discipline' with the apparent chaos of EventStorming.

- **Design Level EventStorming:** digs into possible implementation, often DDD-CQRS/ES⁷ style.
- **Value-Driven EventStorming:** A quick way to get into value-stream mapping, using storytelling like a possible platform.
- **UX-Driven EventStorming:** similar to the one above, focusing on the User/Customer Journey in the quest for usability and flawless execution.
- **EventStorming as a Retrospective:** using domain events to baseline a flow and expand the scope in order to look for improvement opportunities.
- **EventStorming as a Learning Tool:** perfect to maximize learning for new hires.

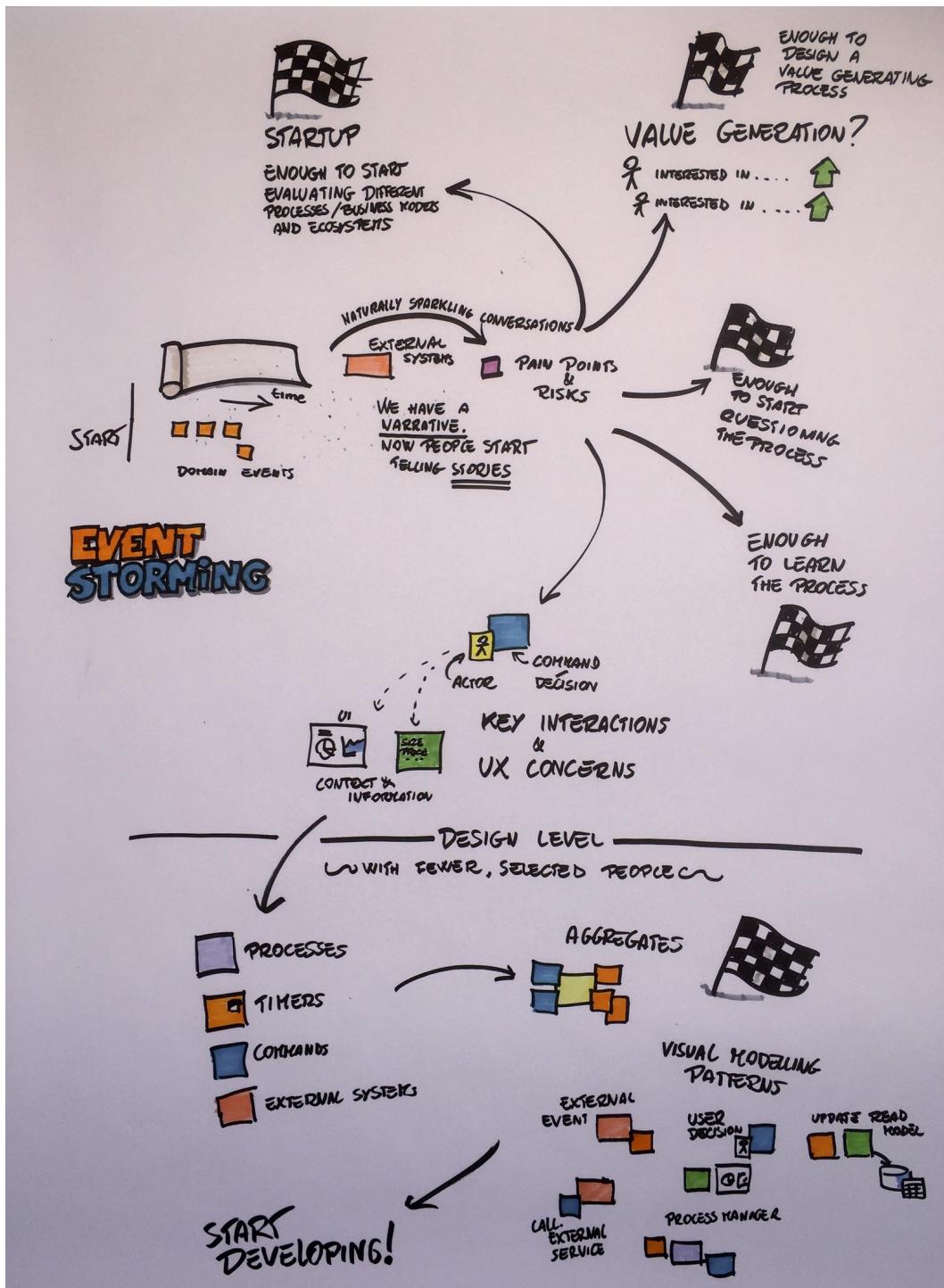
In the next chapters, we'll start from the Big Picture approach, the one that opens the way for further explorations.



Chapter Goals:

- a narrative about what happens in a good workshop
- a glimpse of what can be achieved
- a glimpse of the underlying mindset
- an anchoring about: "I want to get there!"

⁷Domain-Driven Design, Command-Query Responsibility Segregation and Event Sourcing. We'll talk about this later.



An overview of some possible different paths

A deep dive into problem space

“The only truth about human condition is that everybody lies, the only variable is about what.”

Dr. Gregory House⁸

This section digs into the nature of the problems EventStorming is addressing. They’re big, and deeply entrenched. Despite all my efforts to make this section lightweight, it is big.

Don’t look at me! It wasn’t me creating the problem. It was human nature, decades of wrong assumptions about software development, and so on. I just **need to expose the problem** in all its scary magnificence.

In Chapter 2: **A closer look into problem space** we’ll look at the typical problems that we might face when running a Big Picture EventStorming. We’ll (re)discover some classical organizational dysfunctions, and maybe highlight something unexpected.

In Chapter 3: **Pretending to solve the problem writing software** we’ll dig into the typical fallacies of software engineering and why some common approaches are unfit to attack the problems we’re supposed to solve.

⁸https://www.youtube.com/watch?v=CZR2k5c_198

The two chapters are complementary, and should be read one after another. However, If you're eager to get into the mechanics of your first workshop, you might skip chapters 2 and 3, if you promise to come back.

You won't regret it.

2. A closer look at the problem space

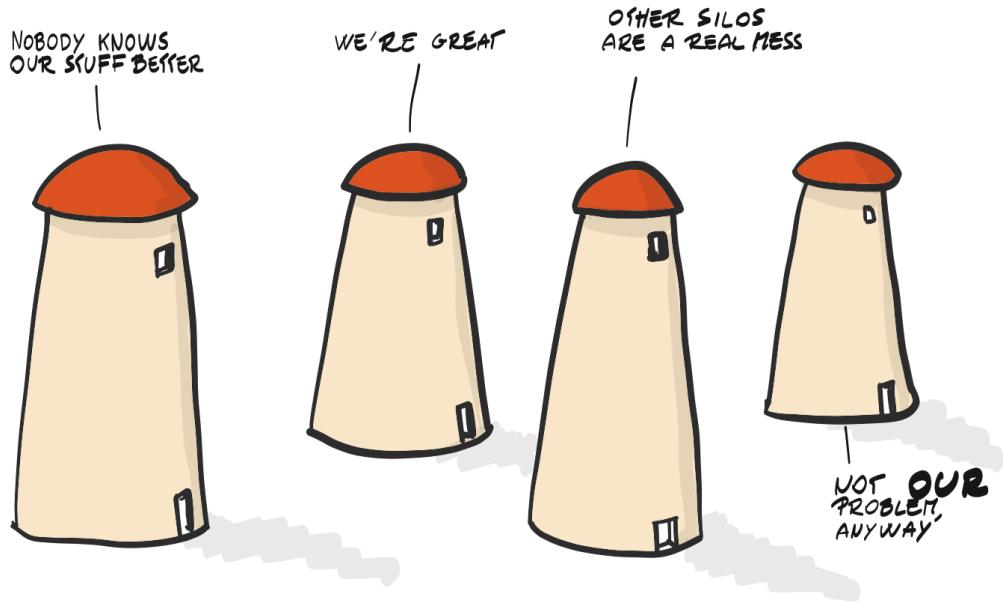
Every organization claims to be different in some ways; a few are trying to be distinctively unique. Still, from some points of view, they all look very similar. They expose similar patterns and dysfunctions. They suffer from similar problems, and they are a lot less unique than they pretend to be.

I like to call this phenomenon *organizational gravity*¹: like water is always flowing down, pulled by gravity, towards the sea, organizations are subject to similar forces, and their behavior will look a little more predictable if we're able to read those forces.

Silos

Organizational silos are the most vivid example of these forces in action. In almost every organization I visited, somebody pleaded guilty about being divided into silos. Silos create barriers to effective communication and collaboration across the enterprise; they foster rivalries, frictions, and blame games. So why are we building them in the first place?

¹The inspiration comes from Niels Pflaeging, who talked about Organization Physics during the Amsterdam Stoos Stampede unconference; you can find a pretty good summary here: <https://nielspflaeging.medium.com/org-physics-the-3-faces-of-every-company-df16025f65f8>



Everyone is a master in their silo

The answer slapped my face 12 years ago when I started my own company. In the early days, the company was just me. I managed everything: consulting services, logistics, marketing, website maintenance, and bookkeeping. I knew every corner of my business, but my life was a mess. I needed to hire somebody to help me, and bookkeeping was the obvious place to start: billing was happening on evenings, weekends, or getting procrastinated.

I hired a specialist - Claudia, a friend of mine from high school - and started delegating the entire billing and accounting cycle. It felt so good! I could finally focus on what I was doing best and start ignoring a lot of complexity because it was taken care of by someone I trusted.

It took me some time to realize that I just created the first silo in my organization. In a company of two.

Growing into silos

I felt weird. I felt guilty. But I also felt lucky to have privileged access to the brain of a person who just created the first silo in his organization. Everybody else I talked to claimed the silos were already there!

Retrospecting on my actions, I could see the pattern for creating silos in a growing organization:

1. Somebody managing many different things becomes overwhelmed.
2. They decide to hire a specialist², *ideally with the best positive impact* like taking care of the things they know less.
3. The new hires start contributing to the value delivery, taking care of *selected aspects of the business*. They'll be eager to contribute, and they'll need just the necessary information to get started.
4. The former experts will slowly drift into second-class knowledge on the area now managed by the newcomers.

Now, repeat the pattern and fast forward. What are you expecting to get?

Silos, no way out.

The thing is: *silos are there for a reason*:

Silos minimize the learning newcomers need to start contributing to the company business.

This is the fundamental evolutionary advantage of Silos: they allow us not to spend much time explaining our organization to newcomers. Somebody is going to say something like: "*That's all you need to know!*" and the new hire is now ready to deliver value, with no possible excuses.

But the grey, unexplored areas will stay. Possibly for a very long time. And employees will advance in their career path inside their silos and hire new people, perhaps telling them even less about the company.

Specialization is both a byproduct of silos and an enabler for more future silos.

²The whole recruiting process is often biased towards hiring specialists. Companies are expected to define a precise job title to match search criteria, even if you're looking for a cross-discipline flexible collaborator. You won't be found if you're not specific.

The consequences of silos

Are silos the winning breed, from a Darwinian selection point of view? Should we surrender to silos and focus our energies somewhere else? Well, not exactly. The short-term advantage of faster contribution for newcomers has a few dark sides.

- Silos promote blindness to what happens in other departments. Local expertise comes at the price of ignorance about the whole. It's not a conscious choice but mostly a byproduct of the frequency of conversation with selected people.³
- Silos promote *local optimizations*. It's easier to gather consensus (more about it later) around issues and agree on local improvements than to find a cross-team or cross-department agreement.
- Together with hierarchy, silos will also promote more silos. In growing companies, departments will inflate and split, new positions and teams will be created, and business processes will be modified accordingly.

In the long term, silos maximize ignorance about the whole.

Silos will emerge by default in any organization. They're easy to establish and very hard to remove. This asymmetry makes them thrive. They're an addiction that you need to control without the possibility of quitting altogether.

³Logistics used to be a main discriminating factor: the location of your office will make you closer to some colleagues and hardly reachable by others. Interestingly, pandemic perturbed the status quo by removing the office and the concept of physical location and nearly killed casual conversations as a side effect. In a large organization, the bubble effect of teams and silos is stronger than ever.



Why can't we see the whole?

The whole approach about hiring new people and onboarding them is based on the false premises that *it is very time-consuming to understand the entire complexity of business* and that *learning will happen anyway later, in some informal way*.

Learning is not guaranteed to happen. The curiosity about the things we don't know yet will progressively become an embarrassment about things that maybe we are supposed to know but never had a chance to learn. "Pretending to know" is the standard behavior in many organizations.

On the other hand, learning the whole doesn't have to be that expensive. Curiosity is a great driver to discover complexity, and EventStorming can be a handy tool to guide the newly hired into the intricacies of the organization, speeding up onboarding and maximizing confidence. See [EventStorming as induction](#) in the Recipes section.

Targets and goals

Let me introduce one of the most frequent elephants, a special guest in most corporate rooms I visited: *goal-setting, targets, Management by Objectives*⁴ and all the hidden mess that makes life miserable in many organizations but is rarely mentioned.

This topic isn't frequently discussed: *we need to define some goals and targets* sounds like common sense or a tautology. Yet, linking salary bonuses to reaching given goals isn't necessarily obvious or even a great idea. *Overjustification* - replacing the existing intrinsic motivation with an extrinsic one, a prize, or a sum of money - has the nasty effect of killing the original motivation. It does

⁴The original idea from Peter Drucker wasn't that terrible. But the mainstream implementations were missing the subtleties and quickly turned into secret friction generators inside the organization. The OKR approach - Objective Key Results - seems to be a step in the right direction, but we're already seeing the idea getting polluted in its implementation, again.

work with dogs, but it's already wrong with kids. If you're working with adults, maybe you should be looking for something more sophisticated.

Goals and targets are often criticized for our innate ability to game the system, but one aspect that is rarely mentioned is their secrecy. Managers will often have their targets privately agreed with their boss. And then, like in the Risk board game, targets and goals will shape their strategies and alliances within the organization. Battles will be fought, only to discover later that we were just pawns in a bigger game.

In the worst scenario, targets are defined as a part of personal salary renewal negotiation. Sometimes they're just coming out of the blue. The HR department may be aware of the financial impact of the whole bonus pot, but not of the potential conflicts that bonuses are seeding.



In a relatively small company, circa one hundred employees, the IT department was looking for an agile coach to help them improve in their ability to deliver software. There was a single development team in the company, around 12 people at that time. They were thinking about splitting, but there weren't clear boundaries yet.

The team served every department, and their backlog was full of requests from all the key stakeholders. Most of them had an expected date of delivery. The team was asking for help in meeting the deadlines.

A quick look at the numbers showed that the management expectations weren't considering the actual team's capacity. The team could not deliver everything that was required. The natural solution was to look at the backlog and remove the low-priority items.

This was not an option for the involved stakeholders. As we discovered later, renegotiating dates for the good of the entire organization meant renouncing the individual bonuses linked to a goal that was now slipping away. Interestingly, the goals were set in an *imaginary world where the different initiatives were happening in parallel*. In reality, every initiative needed the active contribution of the shared development team. Every manager thought they had rights to a 40% of the pie. But there were seven managers, and the pie was not big enough for all of them.

Individual goals and targets and the possible monetary rewards that come with them are not discussed publicly. But this means there is no safety check that the goals are compatible between themselves. Sometimes the game is rigged by design; I know at least a company where targets were deliberately chosen to favor “healthy competition” between the managers. More frequently, there is simply no notion of goals integrity or compatibility in place.

Ideally, the moment we’re looking at the whole, tough choices should become more evident, if only we could all look to the same greater good.

Decisions' lifecycle

Organizations are made of human beings and shaped by their decisions. Hiring new employees, opening a new business line, start working from home, kicking off a new team, or creating a new department, every decision will shape the organization and influence its future.

Different decision styles

There isn’t a standard way for organizations to make strategic decisions. Sometimes the top management is discussing secretly for a while and then announcing a massive shift in the strategy to the whole company in big ceremonies.

Other times, the process has more to do with *diplomacy*: the key stakeholders might have been seeking advice, adjusting their proposal, and building consensus and support before going public. A surprise move for the ones not in the loop, but a long preparation for the ones involved. The number of layers to climb to get things done is a pretty good indicator of the rigidity of the organization.

Decision-making can be even more decentralized, supporting autonomy and self-organization to a given extent, provided local decisions are not

conflicting with the organization's core values. Agile software development places a lot of emphasis on the notion of self-organizing teams.

There's a lot more to say about how the style of decision-making shapes the organization's culture. In the book *The Connected Company*, Dave Gray describes different types of organizations, emphasizing the need for clarity around the vision and purpose of the organization to allow quicker autonomous decisions.

Decisions will stay longer than necessary

Whatever is the official decision-making process for crucial decisions in your workplace, there is a common property you'll have to live with:

Decisions will pile up.

Put in another way: however exhausting was the process of reaching a decision, retracting a decision will be even more complicated. There are many reasons for that, but two stand out: as human beings, we're strongly biased towards adding instead of removing complexity, and the cost of retracting a decision can be too much to bear.

Let's see both these forces.

We're biased to add, not to remove

It turns out there is a strong bias towards adding things instead of removing them. A study⁵ proposed to many different groups problems that could be easily solved by removing pieces from a given lego structure. Yet, the vast majority of the test subjects ended up solving the problem *adding* more parts, even if the result looked awful.

Now, the experiment proved that this bias exists. Here is my hypothesis on the reason:

⁵Here is the [link](#) to the article published on Nature.

people are afraid of breaking invisible things

We're given a small lego structure, and we assume *there must be a reason for this shape*. Nobody mentioned it, but well ...let's make sure we're not making mistakes or irritating anyone.

Now, forget easy experimental challenges with lego bricks and think about processes and rules in your organization. Many people will complain about them, but very few people will have the guts to break them or even take the initiative to change them *unless they're pretty sure there won't be consequences*.

But being sure we're not making mistakes or annoying anyone comes with a high price. We're in silos, cross-silo communication is expensive, and we often decide it's simply not worth the price today. The cost of being *sure*⁶ we're not making any mistake or disappointing anyone grows exponentially with the company's size.

⁶Being sure is a logical trap. In a large organization, global consensus about the change you're suggesting is wishful thinking. There may be special places with special protocols - I am not suggesting to tamper with nuclear plants' security - but in the average company, waiting for everybody's thumbs-up is a losing strategy. More about it in a few paragraphs.



A few years ago, we used EventStorming to explore cross-department processes of a company with branches in Italy and The Netherlands.

After visualizing the whole flow with Events, Systems, and Boundaries, it looked like some apparent duplication of systems and processes was in place: so we started asking questions. The Italian team was filing some extra data into a system *for the Dutch office*. Later, the department located in The Netherlands was completing the information *for the Italians*. A few days later, somebody in the Italian branch was labeling and archiving the whole thing.

Apparently, nobody used the data anywhere. All the information was already on a newer system except for one attribute that could turn useful only in particular circumstances.

The good news: somebody fixed this issue during the workshop, adding the missing attribute to the new system. The old system was scheduled for decommissioning, and 25% of the whole process complexity vanished.

The bad news: the empty and useless ritual had been in place for years. Meanwhile, people in different departments had the illusion of collaborating because they performed useless duties for their colleagues.

The natural bias towards adding is strong and pervasive. We can affect organization agreements, but software development, law-making, and city evolution follow similar growth anti-patterns.

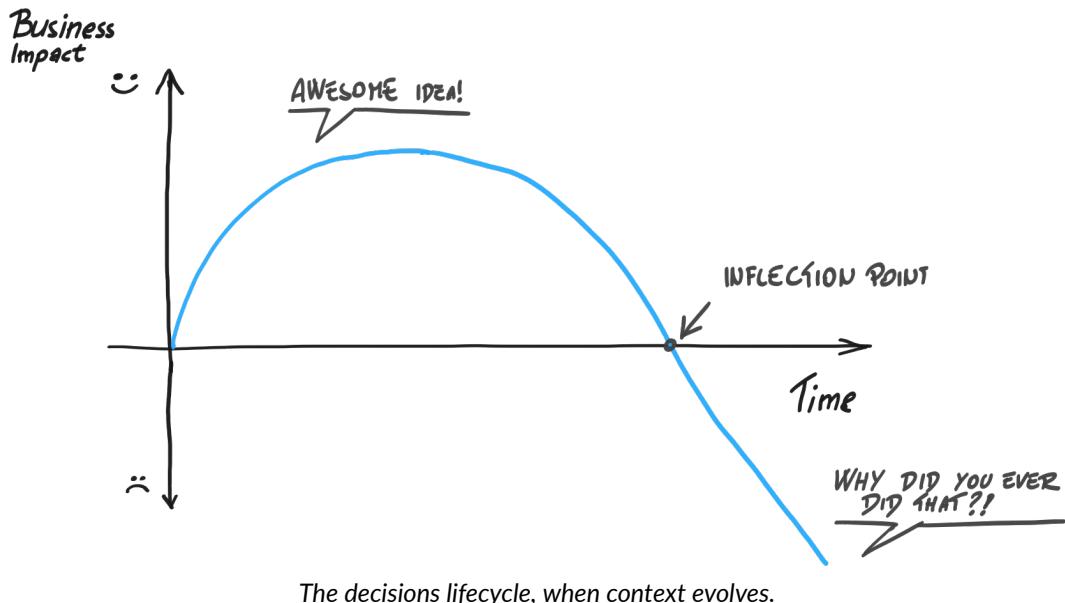
I suspect the reason has to do with *confidence*: you're not taking many risks adding one more piece to the puzzle. Removing one piece instead requires being aware of the impact of your choices on a larger ecosystem. When this awareness is hard to achieve - like in complex artifacts, siloed organizations, or untested legacy software - you enter the realm of risk-taking ...or simply stay out of it.

Admitting that we're wrong is costly

In many roles, critical decision-making is part of the role responsibility. There's a strong connection between the salary and the risk associated with the expected decisions. I am the expert, so I'll decide, and I have to be paid accordingly. For some decisions, the responsibility is specified by the law: regardless of how inclusive and collaborative the decision-making process can be, different roles will have different legal responsibilities.

There's a strong link between role, salary, expertise, and perception of self. "*I am an expert professional, and I am paid accordingly.*" is a common self-reinforcing loop⁷.

But here is a problem: we make mistakes, and we hate admitting it. Even more annoyingly, sometimes bad decisions are not mistakes. They were decisions we took years ago that didn't age well because the surrounding context has changed in ways we didn't expect. Decisions pile up, remember?



⁷The opposite is often also true: "*I am making a lot of money. This means I am good!*" but the spectrum of variations is broader, including Imposter's Syndrome.

Still, there is a decision somewhere, with our name attached to it, that doesn't look that smart anymore. And most human beings hate being wrong.

The thing is: if a past decision turned out wrong will impact our perception of self - *I made that mistake, this means that I am not the expert I claimed to be* - our brain will be suffering the pain of cognitive dissonance, and be tempted to take shortcuts, evade the issue to avoid reconciling with reality. This process isn't necessarily conscious and can span from the simple confirmation bias up to actively suppress criticism.

Matthew Syed did a fantastic job explaining these dynamics in the book [Black Box Thinking](#), and my personal experience in working with organizations is that an incredible amount of money is wasted on the unconfessable goal of allowing people not to lose face. Buzzwords and hype cycles seem the perfect tool to make some change happen because of *novelty* and not because anybody did anything wrong in the past.

The emotional attachment to the decision is not independent of the type of decision-making strategy in place. A collaborative decision-making style will allow sharing the burden of possible mistakes with the team and make it easier to revisit past decisions when facing new contexts. Tools like Architectural Decision Records⁸ can help to link a design choice to the surrounding context, making it easy to detach later on. More personalized decisions will tie the fate of the responsible person to the outcome of the decision, sometimes to extreme consequences: firing the decision-maker to make the necessary change happen.

When put in this way, it seems like collaborative decision-making is a better strategy for organizations. Every critical decision should happen this way. Unfortunately, this is not that easy. Centralized, top-down decisions still have the advantage of *speed of execution*. In contrast, collaborative decisions require reaching an agreement, and achieving it could be incredibly demanding in terms of time, energy, and coordination.

⁸ Architectural Decision Records are a way to capture important design decisions about software in the making, providing the contextual information needed to revisit them. If purpose and premises are no longer valid, it can be more natural to propose a better alternative for the current context. Michael Nygard made them popular in his blog post [Documenting Architecture Decisions](#). You can find more resources about ADRs at <https://adr.github.io/>.

The cost of agreeing

Reaching an agreement is one of the most sophisticated forms of communication. A good deal requires that the involved parties understand the problem from their point of view⁹ and understand the needs of the other parties involved. Picking the best possible tradeoff requires that the different options are shared and understood by every party involved.

But reaching an agreement, especially about decisions with future impact, takes time. People will say things like “*I am not convinced yet.*” But what they mean is: “*I still haven’t understood all the consequences of what we’re discussing.*” Lack of shared understanding will turn into procrastination.

Part of the struggle between different organization types has to do with the cost of achieving consensus. Sometimes no agreement is needed: *my way or the highway* can be applicable in some places, like “We use MSWindow laptops here” or “this is your desk.”

But when a team agreement is needed, human beings tend to enter a spiral of dysfunctional meetings that give democracy a bad reputation. Sitting around a table is not enough, and it’s probably already a step in the wrong direction.

So here are a few things that we may be instinctively aware of but deserve a few paragraphs.

Decision-making processes need design

Not all the decisions are the same; tactical and strategic are different, and they need different types of consensus.

⁹This should be obvious, but that’s not always the case. Obviousness is relative.



I used to play drums in a few bands in my twenties. Dropping my favorite song from tonight's gig playlist wasn't a problem. We could quickly vote for the song selection before going on stage. But when I realized that *I was the minority every single time* I started thinking that maybe we had a different taste for music and that one wasn't the band for me.

Choosing the playlist for the evening was an easy tactical choice. "Where are we going to be in one year?" required everybody's buy-in.

Simply talking about the problem can be enough for simple decisions. Still, when dealing with risk, uncertain consequences, and partial awareness of the problem, we might need to script the decision-making process more professionally.

Facilitation around critical decisions is necessary and challenging. Unstructured discussion can lead to half-hearted commitment, an illusion of consensus, or - worse - the feeling of being tricked into someone else's agenda.

Visualization matters

Here's one thing that drives me nuts. Some people use flipcharts and whiteboards to discuss topics *when the matter is small enough to fit into the available drawing space* and then revert to just talking if the problem is too complex to draw.

And then meetings enter a vicious circle of people mentioning related topics, things that we shouldn't forget, and suddenly no good agreement is possible in the allocated time slot.

The most concise summary of this problem comes from David Sibbett in its book [Visual Meetings](#):

Can't do system thinking without visualization

When trying to reach a consensus about system problems, the whole system is just too much to be kept inside our brains in verbal form. Without a shared visible model, we cannot guarantee that the different parties involved are talking about the same thing.

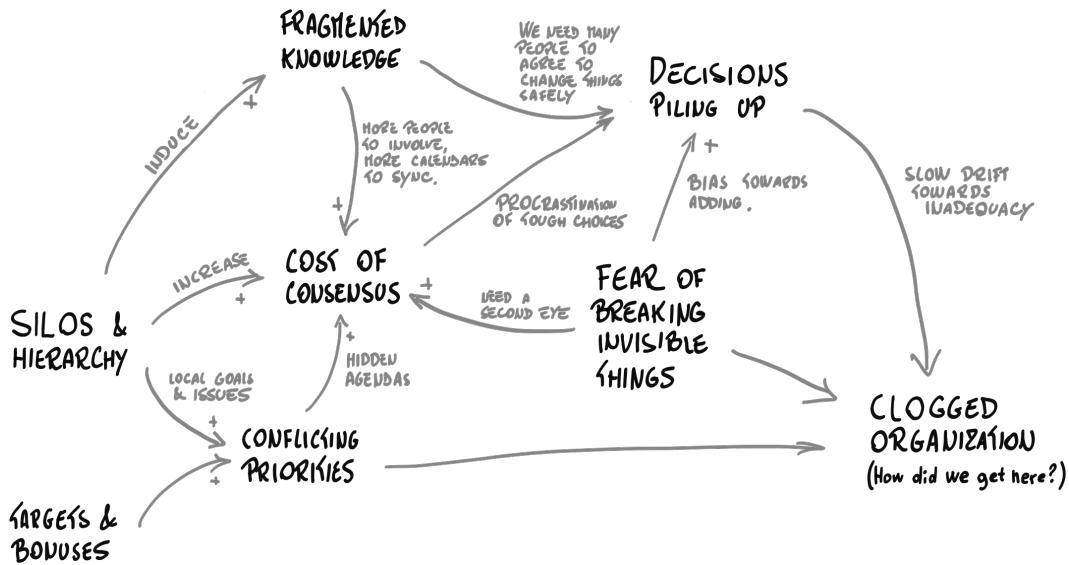
Agreeing on something means to a giving extent *seeing the problem with someone else's eyes* how can we do that without any form of visualization?

Visualization can be superior to a conversation in terms of information density and throughput. In most meetings, there's only one conversation possible in a given moment in time, while sticky notes and markers allow the magic of parallel contribution that's still accessible to everyone.

Putting everything together

Taken in isolation, silos, targets, and decision-making dynamics, our natural bias towards cautiousness in making significant changes may not seem noteworthy. Every organization suffers from the same diseases, albeit with different degrees of severity.

What bothers me is the combined effect of these patterns: a *natural drift* towards a more rigid and complacent organization. Silos will increase the organizational cost of consensus for strategic decisions, making patching and local shortcuts a valid alternative to the right cross-department agreement. *Continuous procrastination* is the silent force that ends up defining your organization. Everybody knows somebody must do something about that problem, but cutting through vagueness and sorting up priorities is not happening with the needed frequency.



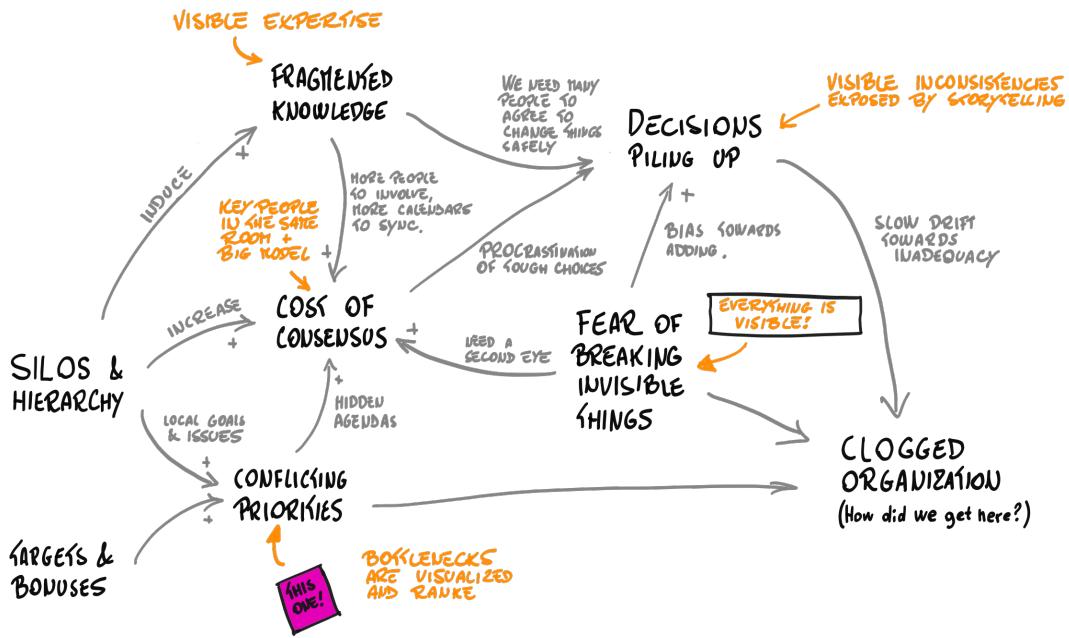
A little map of our problem space

Many strategic decisions could become a lot simpler if we could make sure we're all looking at the same reality, only from different points of view.

Can EventStorming help?

The answer is a big Yes! We can't break the silos, but we can make sure key stakeholders understand the relative points of view a lot better. Large cross-silo workshops do make strategic conversations easier and help see global problems and define priorities.

A big behavioral model provides a perfect background for strategic decision-making and makes consensus easier by making sure we're looking at the same thing. Sitting around a table with no visualization won't trigger the magic. Building together the model for strategic decision-making will reveal the different thinking processes of the people involved.



Maybe there's something that we can do about it

Throughout the years, we've seen organizations aligning in one day towards the right thing to do. We've seen sudden bursts of empathy and respect between people in different departments, that rarely had a conversation that wasn't adversarial. Every time we discovered something interesting about the interdependencies between departments and the surprising effects of local choices.

How long should you wait if you're in charge of a system you don't fully understand? How long would you drive a car that brakes, sometimes? A shared understanding of your organization dynamics is a fundamental ingredient for evolving in the right direction.

Unfortunately, organization dynamics are only one side of the story. If the solution to your problems passes through coding software solutions, there's an entire family of misconceptions and issues waiting for us in the next chapter.



Chapter Goals:

- Silos are almost unavoidable, but there's a price to pay in terms of coordination, information availability, and overall alignment.
- Hidden goals and targets can make the system hard to read and hard to change.
- Decisions and rules will pile up. Removing things is a lot harder than adding them.
- Self-organization won't happen in the large unless the system is understood.
- Cross-department consensus is costly, but we can significantly improve these numbers.

3. Pretending to solve the problem writing software - 50%

After examining a recurring set of organizational and business dysfunctions, it's time to have a look to the way these problems are approached in the attempt of writing software .

Software engineers often think they are on a mission. Software is the backbone of company operations, it's the glue that enables successful businesses. Software solved a lot of problems to make things go faster, and smoother, compared to the cumbersome manual procedures that used to be in place. And disruptive businesses platforms could not be imagined without software¹.

Well, that's not entirely true. Our software has solved some problems, but chances are it also just seeded another problem somewhere else. The goal of this chapter is to understand *where, when* and possibly *why* software developers and architect often end up making a mess, even with the best intentions.

It's not about 'delivering software'

The original sin is a fundamental misconception about the true nature of software development. Software developers have been trained and paid according to the notion that the only valuable outcome of our work is the deliverable: the working software.

Developers often tend to see themselves as builders, craftsmen, artisans. This is tempting and powerful at the same time. Developers produce things that

¹Can you imagine the paper-based version of a service like Uber? Or Ebay?

never existed before and completing a working piece of software that didn't exist, is an awesome - and *addictive* adrenaline boost.

However, despite all the complex skills and the mastery of tools needed in order to write good software, *coding* is only the top of the iceberg. As the name "software solutions" may hint, *understanding the problem* is in fact the key game changer in enterprise software development.²

It's actually closer to music: *playing the song* is not exactly that hard, for an experienced musician, but *writing it*, well... that requires talent!

To put it in a tweetable format:

Software development is a learning process,

working code is a side effect

The person who said it best is actually Dan North in his Blog article "[Introducing Deliberate Discovery](#)" clearly pointing out that learning is the real bottleneck, in enterprise software development.

It's not the *typing*, it's the *understanding* that matters. However, once you acknowledge this, a whole world of inconsistencies starts unfolding.

We've been optimizing the wrong thing!

We can now deploy serverless components on the cloud in minutes. This is astonishing, if we remember that software development started from punch-cards. We are orders of magnitudes faster in *writing code*, and of course we used this speed to insert more layers of code in the stack, moving from room-size physical computers to distributed architectures.

But at a given moment, we kept improving the coding speed, even when it was no longer the key constraint. Having a last generation IDE with awesome

²With most of the solutions falling into the 'not so exciting, once you understand them' space. More on this later.

code completion tricks is cool³, but it won't get much closer to delivering good software if we can't access the right informations.

On the contrary, it is embarrassing to notice how little we improved in terms of optimizing the learning side. It is still the norm in large enterprise software to have *segregated software developers* with only limited access to first-hand feedback and real users, and a plethora of intermediate roles to act as proxies. Learning isn't really supposed to happen.

Couldn't you just implement the specifications?

To be brutally honest, most of the common practices for organizing enterprise software development are *crap*. They focus on optimizing production, instead of learning. But this is just as dumb as somebody trying to lose weight just by *losing weight* without any look to daily habits, food consumption, sport activities and so on[^CAAIAO].

What is the value of code written on time, and on budget by someone who doesn't understand the problem?

This is both a problem - tons of resources are wasted in huge software project that will never provide the value they're expected to deliver - and an opportunity. The moment we start working around the *real* problem, we might have a chance to significantly improve the situation.

The problem with the 'invisible deliverable'

There is a good reason why the builder metaphor is so tempting and widespread. Craftsmen and builders have an incredibly rewarding feedback loop: they *build something tangible that solves problems*. Think about a bridge. A well placed one will enable exchanges between nations or simply save time to commuters, for decades or centuries. Even if you were contributing just a little, you'll be *proud of your contribution*⁴. Some software can be just as

³May VI and EMACS lovers forgive me, I like comfortable IDEs. #FlameWar

⁴In practice, *pride* is a key ingredient for successful software development. Though it can turn evil, just like the force does in Star Wars, removing pride from our daily job is a recipe for failure. Daniel H. Pink illustrates this clearly in his book [Drive](#).

rewarding, even if the more lasting bits of it, are buried in the deepest layers, far away from the attention of the man on the street.

Being *learners* instead of builders isn't that easy. Talented developers are often compulsive learners. Curiosity is their main driver, and they take pride in *solving the puzzle*. However, putting learning at the centers of everything isn't as actionable as we'd like.

- Unlike with software, there is no clear criteria or *definition of done*. When are we done learning? When is our learning enough? When should we stop learning⁵?
- How can we *measure* learning? How can we track our progress?
- How to treat the learning? Is it an *asset* or a *liability*?
- What happens to the learning after the software is released? Is the learning captured in the software, documentation or ...*anywhere*?
- What happens to the learning that didn't make it into software?
- What happens when people that had a deep understanding of our problem domain leave our organization? Is that learning gone forever?

Just measuring deliverables is a lot easier. But this oversimplification is poisonous. The value for the company is not in the software itself, it's in the company ability to leverage the software in order to deliver value.

[FIXME: there is still something missing, internal experts and speeds of execution. Plus Learning organization.]

The volatility of learning

From a management perspective, learning is quite annoying. Mostly because, if you do the mind exercise of putting learning at the center of the things, chances are you'll have to admit your organization screwed it up big time.

Did you hire contractors for a strategic project? What happens next? If code is the deliverable, you're fine⁶. But if learning is the deliverable, you just set

⁵The answer to this one is easy: "Never!"

⁶No, you're probably not.

up collaboration in order to be sure that *learning will vanish at the end of the project.*

The cost saving is actually only apparent. What happens like a reasonable strategy, is actually the shortest path to dissipation of a company competence.

The illusion of the underlying model

Nearly every person involved in writing software has a hidden agenda: they want to do a good job. This doesn't sound that scary, in fact is pretty well aligned with the famous Daniel Pink triad of *autonomy, mastery and purpose*; so this shouldn't be a problem.

The problem with programmers striving to do a good job, is that for the vast majority of them, *they have no experience of what a good job looks like.*

[FIXME: if all you do is fixing bugs, you're probably a bug fixer]

But spending too much time digging in the mud, and repeating yourself that you could have designed a better system *if you only had time*, is in fact distracting you from the danger of having this blind spot. Without a proper real-world example from the industry world, the only fall-back option available is "*what we've been taught in school*".

Oooops!

Unfortunately, most of the problems my generation was facing at the university weren't even close to enterprise complexity. They were toy projects and they were lacking some of the key inf

What universities usually forget to teach

There are some common traits between how computer science is taught in many places around the world, that don't match the real world skills needed for software professionals. This has mostly to do with the educational

format, and some institutions worked on the problem and improved a lot, but for the majority of them...

- Programming exercises are usually a matter of *turning requirements into code*: the assignment is written by the teacher and it's usually the same for every student. *But in the real world we might be required to do some real exploration of user needs, and requirements to code is so frustrating.*
- The assignment is supposed to be clear and easy to understand, in fact *ambiguity can be a problem, and th. But in the real world, requirements are never clear*
- The assignment is coming from a single teacher. *But in the real world multiple stakeholders with conflicting needs are the norm.*
- Exercises often start from scratch. No legacy previous attempt to solve the problem. No bad undocumented code to rely on or to blame in case of failure. *But in the real world, starting from scratch is a privilege reserved to a few, legacy code is usually the norm.*

Naive developers and analysts might have the illusion that the model is there, only the pieces of the puzzle are scattered around. You just have to find the pieces and put them together.

It's actually *fun* at the beginning. For a detail obsessed maniac like me, looking for clues in order to design a data model able to *represent reality* and to *solve more problems that it was originally designed for* was a rewarding secret pleasure. I was proving myself good, by *anticipating customer needs* and quickly reacting to change.

Unfortunately, it's not a *flat* puzzle where new bits of information fit together providing a consistent whole. In order to have a possibility to find a solution to a crucial problem we need to be sure that we're not pretending that the problem is something different from what it really is.

Here's the bad news.

The whole is not consistent.

As we discovered in the previous chapter, silos and specialization create a mess of independent models, each one serving a specific purpose.

Albeit not perfectly, this works in real life. People talk, and sometimes they understand each other. They might infer implicit information from the context (in a fashion show, a *model* is probably a good-looking person, in a developer meetup we'll be probably referring to some diagram instead) or have a long conversation with puzzled faces only to laugh when they discover they meant something different. They were suspecting it at a given moment, but this little unresolved ambiguity made the conversation more interesting.

Software doesn't work like that. Misunderstandings aren't funny, they're more likely mistakes that could cost a lot of money, or even human lives.

Coding and ambiguity don't play along very well. Coding is actually the moment when ambiguities are discovered, in the form of a compile error, an unexpected behavior, or a bug. Conversations tolerate ambiguities⁷, but Coding won't forgive them.

Collecting nouns will lead you nowhere

It's then ironic to realize that software engineers have been tried modeling enterprise application looking for relevant nouns. Nouns are in fact the portion of the enterprise knowledge which is more prone to ambiguity.

Remember silos? Try asking: "Do you know what an Order is?" to different department like *Sales, Packaging, Shipping, Billing, or Customer Care*.

They're likely to agree if you show them the static structure of an Order (or the printed version of it). An Order *will have an Order_ID, a Net_Total_Amount, and a Gross_Total_Amount. The Net_Total_Amount will be the sum of the Unit_Price of the Line_Items times their Quantity, minus the applied Discount. It will be associated with a specific Customer, of whom we'll need to know both the*

⁷ And actively hide them too! For many reasons, people would actually pretend they've understood even if they haven't. From the boss asking "Is everything clear?" in a threatening tone - obviously NOT, but who am I to attract the wrath and anger of a boss in bad mood? To the polite attempt not to disrupt the conversation, with a continuous request for clarification.

Billing_Address and the Delivery_Address. I stop here, we all know there's more.

You might find agreement on this definition. It will sound reasonable to everyone. Unfortunately, if you dig deeper in the system behavior you'll discover that:

- In **Sales**, a salesperson will *open a draft order, add and remove items, and apply discounts*. Then *place the order* once she has the customer agreement.
- In **Packaging**, a warehouse clerk will *pick items from the shelves, eventually updating their availability and reporting missing items* in case of surprises. Once finished, the clerk will *seal the package, and declare it ready for shipment*.
- In **Shipping**, one or more deliveries will be planned for the given order. The order is *fulfilled* once all the items are delivered.
- In **Billing**, we'll *send and invoice* for the order according to our billing policy, such as 50% open placing the order and 50% after order delivered.
- In **Claims**, customers are opening a claim about a received order, if something didn't match the expectations: broken or missing items, and so on. Of course a claim can be opened *only* if you're the customer that placed the order, and only about the items included in the order.

[FIXME: finish this]

Expert modellers in this field are probably having the creeps due to my naivety. There's plenty of things I could have modelled more precisely, like explicitly separating Orders from Packages and Shipments

1. When learning new domains, these 'mistakes' are just right behind the corner. Given a new problem, tomorrow we'll probably get fooled again.
2. Multiplicity is one main driver to discover shortcomings of naive models.
We'll need to separate Orders from Shipments because an order can take more shipments to be fulfilled, and so on.

We have a recurring problem in enterprise software development, which is knowledge unreliability, and a strategy for modeling (nouns and data first) that seems perfect for being fooled.

The Product Owner fallacy

If you embrace the idea that software development is mostly a *learning endeavor*, then some common practices begin to smell.

In Scrum, a lot of responsibility is placed upon the shoulders of the Product Owner, who serves as the primary interface between the team and the business stakeholder.

However, the interpretation of this key role is frequently at odds with the learning perspective. Often, teams are kept in isolation because the PO is taking care of all the necessary conversations with different stakeholders.

Slowly, the Product Owner becomes the only person who's entitled of learning, while the development teams turns into a mere translation of requirements into code. Everything starts to smell like the old *Analysts vs Developers* segregation that was so popular in Waterfall-like environment.

[FIXME: A picture of Product Owner like a man in the middle would help]

But if we think software development as learning, it suddenly becomes obvious that *second-hand learning is not the best way to learn*.

If your goal is to learn to ride a bike you can choose between:

- get a bike and try it,
- talk with a biker first,
- talk with a friend that knows a biker,
- read a specification document written by a friend that talked with a biker.

Choice is yours.

Single point of failures are bad

Placing the burden of understanding the whole system on a single person/-role sounds like a terrible idea even in strategic terms.

Checklist: How many people understand your system?

- Nobody -> you're probably screwed
- Only one person -> you're probably even *more* screwed, but it's harder to admit.
- A few people are reasonably competent on the whole -> safer.
- Everybody knows the whole story -> just lovely.

Re-framing the problem

What Scrum really pointed out was that a development team is very bad at managing conflicting **priorities**, and it's a Product Owner responsibility to sort them out before the development iteration takes place.

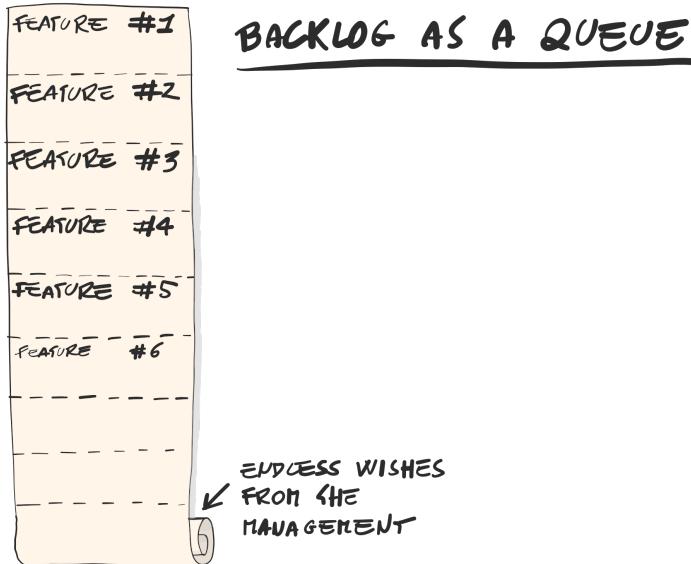
What Scrum **didn't prescribe** is that *all the learning should happen through the product owner*. This is a dysfunction that lowers the quality of the overall learning and of the resulting product.

]

The backlog fallacy [FIXME: definitely not the first one]

In 2016 I can probably assume that if you're involved in software development, you'll be doing some form of agile process, such as Scrum or Kanban, and that you're familiar with the idea of a **Product Backlog**, a collection of features to be implemented by the development team, iteration after iteration.

Once in place, a product backlog tends to look like a *queue*

*Backlog as a queue*

What is the problem with the backlog? Iterations are supposed to be a good thing.

What I don't like, is the fact that backlogs provide the illusion of *the whole project is just the sum of its parts*, which, unfortunately, isn't the case.

A backlog is optimized for *delivery*. Having a cadence and releasing in small increments works great in order to provide a heartbeat and a measurable delivery progress.

But a cadence in which every week repeats the same old basic schema of the previous one, with *planning, implementation*, and then *release* may not leave enough space for those activities that don't follow the plan.

In fact, some projects follow the plan relatively well. They're usually the project

where there's not that much of *discovery* to happen. Compliance projects are a typical example: a new regulation mandates certain requirements and we just have to deal with a checklist.

Boring

[FIXME: system sensitivity around the Bottleneck]

Breaking iteration habits

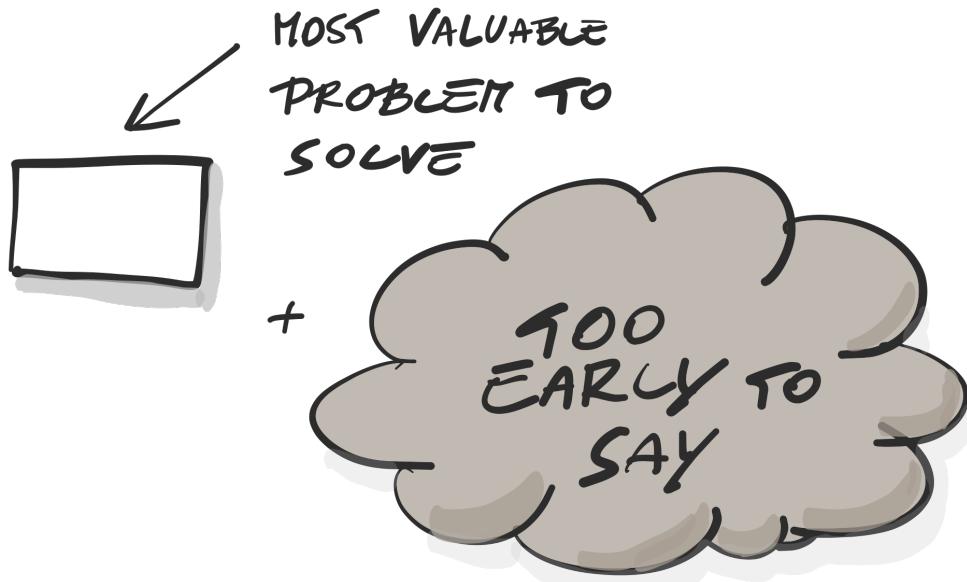
[FIXME: duplicate with next chapter. Choose a version!]

I've seen the insurgence of these habits becoming a burden towards development of meaningful products. Unconventional activities like 'going on the field to see how users are really using our software', or 'running a large scale workshop in order to better understand the problem that our software is supposed to solve', simply don't happen, because there's something more important, already planned for this week[^TADO1].

Habits are great in providing a healthy routine. But they create a lot of resistance when you need to change them, or to do something different. If your routine is *office - coffee - stand-up - open the IDE*, doing something different requires a lot of effort.

If repeatable weeks are optimized for *planning* and *delivery*. They aren't really optimized for *discovery*. In fact discovery is more likely to happen when we break our habits and do something distinctively different[^PTEL1].

Embrace Change



That's actually the backlog I like most

Embracing change is suboptimal

There's something in the whole thing of *embracing change* and of *iterative software development* that always looked like an elephant in the room to me.

Doing a thing twice costs more than doing it right at first shot.



No reason not to try to do things right *FIXME*: the elephant has only three legs.

Yes, I know. I am the same guy that talked about the backlog fallacy just a few lines above. But *iterative development* doesn't mean we shouldn't try to start right.

I have a degree in electronics[^DDPS1], which means I spent some time sweating on equations that had to be solved by *interpolation*: you choose a value for variable X, which leads to a value for Y. You then apply Y to get a more precise X, and repeat till the delta between the old variable and the new one is below a given threshold, showing that the system is converging on a given set of results. Well ...I learned the hard way that *choosing the right starting point matters*: a *plausible* pair of variable was leading to the expected result in 2-3 steps, while a wrong starting point was taking way more rounds, hence more time, severely hurting my possibilities to pass the

exam.

End of the digression, but I hope the message is clear: *iterative development is expensive*.

It is the best approach for developing software in very complex, and lean-demanding domains. However, the initial starting point matters, a lot. A big refactoring will cost a lot more than iterative fine tuning (think splitting a database, vs renaming a variable). So I'll do everything possible to start iterating from the most reasonable starting point.

I can't promise this will work. I can't guarantee there won't be surprises along the way.

In fact, I'll be extremely happy to discover *breakthroughs*[^DDPS2] to prove that my original assumptions are wrong, even if it means throwing away what looked like a brilliant idea.

I do my best to start in the right way just because *iterations are expensive* and the fewer, the better.

The revenge of the U* word?

Upfront is a terrible word in the agile jargon. It recalls memories the old times *analysis phase* in the worst corporate waterfall. Given this infamous legacy, the word has been banned from agile environments like blasphemy. But unfortunately ...there's always something upfront. Even the worst developer thinks before typing the first line of code.

This is not what EventStorming is for



EARLY
DISCOVERIES



EARLY
CONSTRAINTS

There is no reason not to anticipate learning, it's adding constraints assuming that we already learned everything that creates a mess

What about emergent design?

[FIXME: candidate for removal. Or for a box.] Somebody once told me “so you’re *against emergent design?*” ...well I am not. I just think that emergent design is a great tool to help you find your way in scenarios of great uncertainty. If you have no idea about how the outcome is going to look like, then emergent design is the tool for you.

But this is not the case when it comes to model business processes. Despite companies describing themselves like *unconventional*, processes won’t be that different. Or more precisely, *process building blocks will be exactly the same*. Rediscovering them from scratch is just like watching a monster movie, pretending that we don’t know already who’s gonna be the hero that survives.

It might be fun to apply emergent design principles to a problem that has

already a solution, but it's flushing money in the toilet.

Enter Domain-Driven Design

Among all approaches to software development, [Domain-Driven Design](#) is the only one that focused on *language* as the key tool for a deep understanding of a given domain's complexity.

Domain-Driven Design doesn't assume consistency of the different areas of expertises. In fact, it states that consistency can only be achieved at a model level, and that this model can't be large.

When modeling large scale system, we shouldn't aim for a large "enterprise model". That's an attractor for ambiguities and contradictions. Instead we should aim for 2 things:

- multiple, relatively small models with a high degree of semantic consistency,
- a way to make those interdependent models work together.

A small, strongly semantically consistent model is called [Bounded Context](#) in Domain-Driven Design. That's basically

A good old-fashioned Bounded Context example

I am Italian. According to the stereotype, I should love coffee. The problem is what I call 'coffee' is probably not what you'd call 'coffee', unless you're Italian too.

When talking about coffee, everybody pretend they understand what you're talking about.

But if you drill down into the implementation, you'll discover that 'coffee' for an Italian usually maps into what foreigners call 'Espresso'. Something to drink *quickly* in a small cup, while *standing* at the bar. In other countries (particularly colder countries), a coffee is associated with a *mug* and the idea of drinking it *slowly* while *sitting* at the table, or even a working desk.

This is what I ask for when I am traveling: “An espresso, please.” This is not what I ask when I am in Italy. In Italy, I just ask for “A coffee, please.

If I ask for an espresso in Italy, I get exactly the same thing, plus a raised eyebrow from the barista: *only foreigners call it espresso*.

If I am looking for precision - and working software doesn't really like *ambiguity* - it's my job do define the boundaries of conversation that can happen without any doubt about the real meaning of the terms used.

A **Bounded Context** is exactly that: a portion of the model which we must keep ambiguity free. Every word in the model has exactly *that precise meaning*.

[FIXME: context map example]

The context map will resemble the areas of expertise. But there's a crucial difference: we can't assume internal consistency in an area of expertise, while that's our primary goal within a bounded context.

The backlog fallacy (rewritten)

Agile approaches such as Scrum and XP tell a lot about how a software development project should be managed by turning the stakeholders expectations into *Features* or *User Stories* and splitting delivery into a sequence of *iterations*. I actually love this stuff. But I still have a question mark.

My question mark is about “*how do we start?*” I actually like the fact that there is no strong *prescription* about how to initiate an agile project,

Delivery cycles ...really?

What I do like about iterations

- **Frequent feedback:** for a team needing to understand whether they're on track or not, *feedback is the highest value currency*. This is what they need, whether they like it or not.

What I don't like about iterations

- **Iterations tend to repeat:** team estimate, based on velocity. Velocity is calculated on past iterations. This is an implicit driver to make an iteration comparable to the previous one, maybe just to show that we improved a little.
- **Little space for doing things differently:** there is a strong driver to turn frequent delivery into a *habit*. This is powerful, but suboptimal. There are iterations where you should really do something different than Sprint Planning, design, implementation, delivery, demo, etc. Things like "*Hey, this week we took a couple of days on the field to see what users are really doing with our software.*" ...aren't really in the cards.

Let's be more explicit: repeating things week after week is *boring* and

Boredom is the arch enemy of learning⁸

If learning is our primary goal, the we should systematically remove every impediment on the way of better learning, and repeating empty ceremonies, iteration after iteration isn't probably the best idea.

Modeling is broken

A model is just a tool towards deeper learning

⁸The sentence above is valid in schools too. *Being boring* is the ultimate sin for a school teacher, especially when one can count on an infinite source of curiosity, like a kid's brain.

Requirements gathering is broken

Enterprise Architecture is broken

If we're thinking large scale, then sooner or later the words Enterprise Architecture will start peeking out of discussion.

Treating it like an ecosystem

Data-based modeling is resilient

Don't take the statement above as a compliment. It's not. It's just a matter of entropy.

Take two boxes of Lego. Open them. Now mix the pieces. Now separate them.

[FIXME: there's something in the middle missing]

Does it feel stupid? Weird, because I've just described the most common enterprise architecture on planet Earth, which is basically (in technical terms) *a database filled up with ambiguously defined data, plus some layers on top of it*.

There are historical reasons why this architecture is so common. And right now engineers are getting a degree from universities without having a clue about why this approach is wrong. However, in statistical terms this is the most common architecture.

Model Splitting is expensive

Splitting established model in a Database-centric architecture is among the most expensive refactorings in software development. Quite often the risks are so hard to evaluate that initiatives are killed before the start.

Even teams embracing agile, these refactorings tend to float in the backlog in a loop of continuous procrastination, while bugs emerging from *nobody knows where* always get the top priority lane.

I have no definitive solution for this problem[^DDCTES].

The EventStorming approach

There's a connection between the different problems we've just highlighted. If you remove the context from the picture it all boils down to a very few distinguished things.

1. *See the system as a whole.*
2. *Find a problem worth solving.*
3. *Gather the best immediately available information.*
4. *Start implementing a solution from the best possible starting point.*

This is what we do in EventStorming: we gather the best available brains for the job and we collaboratively build a model of a very complex problem space.

4. Running a Big Picture Workshop - 98%

In the last two chapters, we saw how many organizations end up sharing the same dysfunctions and how there is no easy way out without a shift in the mindset. In fact, most of today's problems originated from yesterday's solutions.

Writing software on top of the existing dysfunctions can only make things worse. The more expensive the software, the harder it will be to dismiss it later. The unfortunate consequence is that the next needed change would be more laborious and more costly too.

In a perfect, imaginary, organization, everybody would have a clear and precise idea of what they're doing, and they would be able to provide the right information to the software development team to have the best possible software delivered.

In practice, no organization is flawless. Despite official claims, processes, people, technology, and tools will have weaknesses and holes and will need improvements.

Pretending to solve the problem, assuming that the rest of the system won't change in the meanwhile, is simplistic at best, and dangerous in most cases.

In a changing world, everything is evolving: technology, people, the organization itself, the surrounding business, and the job market too. Assuming that one of these ingredients will be immutable during a nontrivial change initiative is not a legitimate simplification: it's just plain *naïve*.

However, there is one thing that we can do: we can take a snapshot of the current reality and ensure that all the key players are looking at the same thing.

Whether the goal is to write a piece of critical software for the organization, or to design the next implementation of a business flow for a startup, or to

redesign a fundamental business process for an existing line of business, this means having *a clear, shared understanding of the problem landscape and of the possible solutions.*

Our recipe to achieve this result is straightforward:

Gather all the key people in the same room and build together a model of the current understanding of the system

Unfortunately, decades of boring dysfunctional meetings have taught us that just gathering people, without a specific format, will lead you nowhere. Good news is we *do* have a way for addressing this problem, and it's called **Big Picture EventStorming**.

A Big Picture EventStorming is one single large scale workshop that involves all the key people that we expect to cooperate to solve critical business problems.

If *understanding the system* is the crucial ingredient to choose promising solutions and eventually implement the right software, then learning as much as we can, before wasting money on the wrong initiative, is the way to go.

In this workshop:

- we'll build a behavioral model of an entire line of business, highlighting collaborations, boundaries, responsibilities and the different perspectives of the involved actors and stakeholders;
- we'll discover and validate *the most compelling problem* to solve;
- we'll highlight the significant risks involved with the status quo and possible new solutions.

Key ingredients for a Big Picture EventStorming

Here is a list of the fundamental ingredients for a successful workshop.

- invite **the right people**, we are looking for the perfect blend of curiosity and expertise, bound by the common goal of improving the system;

- *a suitable location, possibly a room large enough to provide the illusion of an unlimited modeling space;*
- *at least one facilitator in charge of providing guidance and making sure everything runs smoothly;*

That's it! And since the participant's time is precious ...everything will have to happen in just a few hours!

Now, let's try to describe the steps needed to run a great big picture EventStorming session. Of course, there will be plenty of tips about how to put it in practice, and explanations about [why this approach works](#), to make the magic happen.

Invite the right people

To run a successful workshop, you'll need to have the right people on board: a mix of knowledge and curiosity, but most of all you'll need *people that care about the problem*.

Diversity in background and attitude is crucial. EventStorming provides a solid foundation for meaningful conversations across silo boundaries, and a flexible format (see [fuzzy by design](#) and [incremental notation](#)) that allows collaboration across multiple disciplines. Business experts, lean experts, service designers, software developers can all be part of the same conversation.

Getting all these people together in the same room at the same time can be itself a hard mission to accomplish. We'll talk about it in details in the [managing invitations](#) section, in the next chapters.

Room setup

We'll need a special room arrangement for the workshop.

A typical corporate workshop involves about twenty people, but numbers can rapidly grow. Participants won't be sitting around a table; they'll be moving around to have conversations with different people facing different portions of the modeling space.

Startups will involve fewer participants, have different workshop dynamics but will use roughly the same amount of modeling surface.

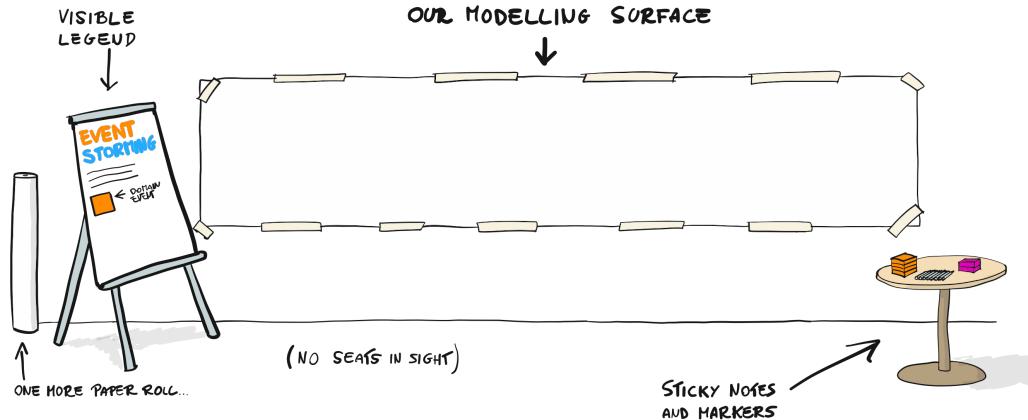
To let the magic happen, we'll need to hack the space on our favor and provide an environment with no impediments to the ideal workshop flow. We'll talk about this topic in detail in the [prepare a suitable room](#) section.

For now, let's assume that a few criteria are met.

- The room has a **long straight wall** where our paper roll can be placed as our modeling surface. Eight meters is the minimum. The more, the better.
- There's **enough space for people to move** by the modeling surface. People will need to see the forest and the trees.
- **Seats are not easily available**¹. They'll be needed after a couple of hours, but they're just terrible at the beginning. Stacking them in a corner is usually a good enough signal.
- The **paper roll** is put in place on the long straight wall.
- There is a flip-chart or an equivalent tool to be used as a **legend**, for the workshop.
- There is **plenty of sticky notes and markers** for everyone.
- There's enough **healthy food and beverages** to make sure that nobody will be starving.
- There is a **timer**: some phases will need to be time-boxed. A visible clock might come in handy.

Before the workshop, your room should look more or less like the picture below.

¹Be ready to handle exceptions: some people might have very good reasons to need a seat. My policy is to be *soft on needs, be hard on laziness*.



Good summary of a room setup

Is everything in place? Great job! That's all you need to get started.

Workshop Structure

The action will take place in phases of increasing complexity. We'll keep things easy at the beginning, adding more details as long as people are getting confidence with the format.

We'll leverage the idea of [incremental notation](#) to keep the workshop in a perennial “Goldilocks state”: it has to be *not too challenging, not too easy, just right!*

To give you the exact feeling, I will not anticipate the structure or the list of the phases. But I promise you'll get a [good summary](#) at the end of this chapter.

Phase: Kick-off

The room is ready. Participants are in. It's time to kick-off the workshop.

I usually start the workshop with a short informal presentation round, to discover everyone's background, attitude, and goals, and to allow everyone to introduce themselves. It has to be quick (because a boring round robin of all participants can be really expensive), but I suggest not to skip this part: a wrong check-in can actually backfire later².

You might want to **explicitly set the goal**: “*We are going to explore the business process as a whole³ by placing all the relevant events along a timeline. We'll highlight ideas, risks, and opportunities along the way.*”

I do warn participants in the beginning about things that can make them uncomfortable: the workshop is going to be *chaotic*, mostly stand-up, it's going to feel *awkward* at given moments, *and this is all expected*.

It's going to be unusual for most of the participants, we'll be taking them out of their comfort zone, and they have to be reassured that they won't be doing anything wrong. Remember that the more workshop you run, the more confident you'll become, but there will always be a person in the room participating for the first time.

I also inform everyone that my explanation upfront is going to be very short. Some people tend to expect very long introductions and detailed instructions. The distinct flavor of boredom at the beginning of a dysfunctional meeting can be reassuring for some. Others, possibly used to *lead* those meetings, might find incredibly annoying not to be in the driver's seat⁴.

I find it more productive to get into action as soon as possible. This usually means that somebody will feel like ‘thrown in the swimming pool’, your job is

²If participants don't know each other at all, then an explicit ice-breaking game might be necessary. If they already know each other... we still need to allow every participant to introduce themselves, and to make their status and expectations explicit, you may also want to check [the usual suspects](#) as an icebreaker.

³I am reluctant to fall back to the usual *from the beginning to the end* because, as you'll discover during exploration, the whole idea of beginning and end in a business process is a myth. Feedback loops and returning customers are what keeps your business alive.

⁴We'll talk about [the godfather](#) behavior and how to deal with it in the anti-patterns section.

to communicate the “*Don’t worry, I am here to help!*” feeling. They’ll be happy in a while, but, well... *nobody likes to be thrown in the swimming pool!*

My friend Paul Rayner likes to run a time-boxed warm-up exercise, by collectively modeling a well-known story (*Cinderella* is one of the favorites) so that participants get familiar with the basics of the method, without worrying of their problem space first.

In short: take care of people’s feelings. It’s not machinery; it’s *people*. You won’t regret it.

What I don’t do now

Despite how much I like my creature, I try hard not to pitch the method. EventStorming is cool, but even in the trendiest startups, it’s just a tool, not the final goal. I don’t even explain the method much before the action: every explanation calls for one more question that is stealing time from the workshop goal.

So ...don’t talk, *show*.

Make it happen.

If you do a good job, you’ll get plenty of questions at the coffee machine, later.

Phase: Chaotic Exploration

The first step will use the simplest possible notation: we'll name orange sticky notes *Domain Events* and place them along a timeline to represent our whole business flow.

Most of the people in the room won't be familiar with the concept of Domain Event, so a little explanation would be needed.

Usually, it all boils down to three basic concepts:

1. it has to be an **orange** sticky note⁵;
2. it needs to be **phrased at past tense**, as *item added to cart* or *ticket purchased*;
3. it has to be **relevant** for the domain experts.



THIS IS A **DOMAIN EVENT**

- **ORANGE** STICKY NOTE
- VERB AT **PAST TENSE**
- **RELEVANT FOR DOMAIN EXPERTS**

Everything you need to know about domain events

The term “*Domain Event*” comes from software architecture and isn't the most inclusive one in some situations. I sometimes call it simply “*Event*” and it works fine.

The Event will be the building block of our business-related storytelling. We'll build our narrative as a sequence of related events.

⁵Why Orange? It's entirely arbitrary, but sticking to a consistent color convention will make every picture more readable. The whole story may be read [here](#).

Using a verb in the past tense will sound arbitrary to some. There are a few good reasons to use this phrasing, but they won't be evident before the action takes place. I try to play variations of "trust me; I know what I am doing" not to get swamped in lengthy explanations before the action.

Making the notation explicit from the beginning in a [visible legend](#) will surely help.

Getting into a state of flow

I expect the first minutes to be awkward: even with the perfect explanation a few people won't know what to do and will look around, to get some clue from their peers, in a stalemate situation.

This is also the hardest moment for the facilitators, people will look at them for guidance, but their job is to support, not to lead actively.

An [icebreaker](#), the person that places the first sticky note somewhere in the middle of your modeling surface, is your best ally. Their first sticky note will signal to everyone else in the room: "*It's not that hard. It's really just writing a sticky note, with a verb at past tense and place it somewhere.*" But even more important is the implicit message: "*You can do it too. Nobody is going to get hurt.*"⁶"

When this happens, praise the icebreaker. Rewarding bravery will show other participants, that *just doing it* is an appreciated behavior in this workshop.

If there is no bold icebreaker in sight, it might be the facilitator's duty to get past the deadlock, placing an example Domain Event somewhere in the middle. I tend to resist it, since it may put other's participants in passive mode, and then rely too much on the facilitator for the next steps. If I do, then I move away immediately from the modeling surface: "*Now it's up to you, not me.*"

⁶it is interesting to note how kicking off the workshop is a lot harder in corporate scenarios. Startups are usually a piece of cake, culture tends to be very experimental, and there should not be so many past mistakes to worry about. In corporate environments, you can tell there are a lot of scars and past blames in the room, implicitly suggesting: "*let someone else make the first move.*"

Once the ice is broken, the workshop ignites⁷. It's funny to see how it turns into a chaotic, massively parallel activity where everybody is contributing to the model at a surprisingly fast pace.

Rephrasing to use past tense

I don't expect everybody to perfectly follow the initial 'verb at past tense' prescription. We declare it at the beginning and make it visible on the legend, but I try not to stress participants about it. Some people have a hard time re-framing their internal narrative with verbs in the past tense, and confidence and engagement are more important than precision or compliance to an arbitrary standard, at this stage. So, I might just let it go for now and come back on the notes later⁸.

[FIXME: picture]

However, a different phrasing, using an active verbal form like Place Order instead of Order Placed is a minor issue at this moment, while using phase names like Registration, Enrolment or User Acquisition will filter out too many details from the model. Some people are tempted not to dig deeper into those phases, but we do care about the details.

We provided an unlimited modeling surface *exactly to be able to see these processes at the right level of detail*. And the right level is Domain Events. Phases will eventually emerge later anyway.

Growing the timeline organically

During the chaotic phase, there's no common denominator on people's behavior. In fact, observing the way people self-organize for the modeling activity can tell a lot.

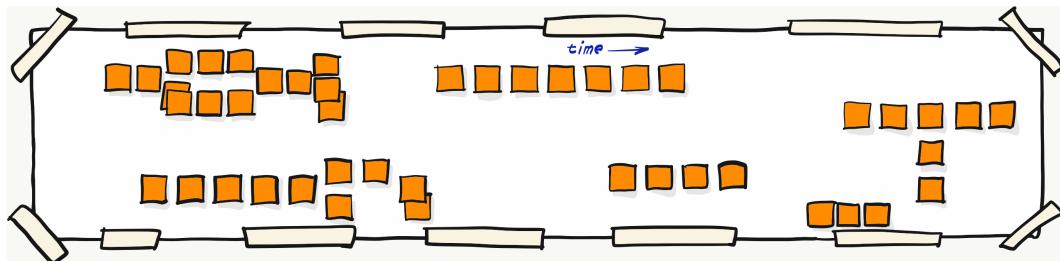
⁷Dan North once compared kicking-off an EventStorming to starting an old chainsaw: ...wrrrr, ...wrrrr, and then all of a sudden ...WRAAAAAAAAAAAAAAMMM!!!

⁸Most of all, I try not to use the word wrong. Keep in mind that you're asking professionals to get out of their comfort zone, to try to model their own business in a counter-intuitive way. Punishing them for a genuine effort can backfire.

- Some might form small **committees** trying to agree on a common phrasing. The facilitator should politely step in and break the ring, since discussing to reach an agreement on every single sticky note, before writing it would kill workshop throughput and hide *exactly the contradictions we want to explore*.
- Some might **work mostly alone**, dropping the bulk of their expertise in a single strip of orange sticky notes, ignoring the surrounding world.
- Some might have no idea about what to write, and they'll need to be reassured that **guessing** is a legitimate action in EventStorming.

I am not expecting many conversations at this stage. After breaking the committee circles, people will eventually start working on their own: I call this phase *quiet chaos*. The model begins growing quickly and organically in a loosely controlled fashion.

The resulting model will usually be big and messy. Dozens of sticky notes, maybe hundreds. Some duplicated, many not in the correct order, plus some unreadable ones. No worries, we weren't aiming for perfection.



Different actors might have created different locally ordered clusters in a disordered whole

More precisely, I am expecting to have *locally ordered clusters in a disordered whole*, and the timeline constraint to be broken in a few places.

No problem, we'll sort out this mess in the next step.

Cool down

Eventually, the crowd will stop adding stickies to the wall and will take a more contemplative position, looking at the big picture more than to their own

stickies, and walking a few steps back⁹.

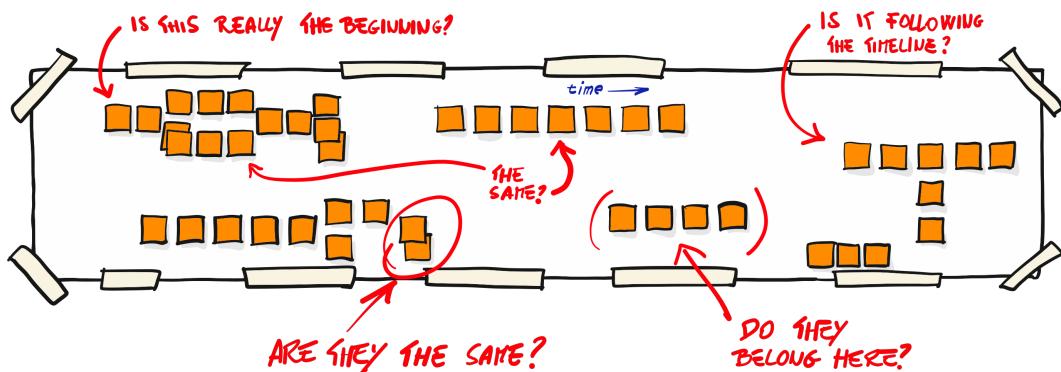
This is a perfect moment to praise participants for the great result, allow for compelling questions, and to take a break. The next steps will require a lot of energy.

⁹The typical Chaotic Exploration phase is usually a sequence of *panic (the stand-off)* -> *icebreaker* -> *quiet chaos* -> *contemplation*.

Phase: Enforcing the timeline

During *Chaotic exploration*, we asked participants to place domain events along a timeline. We shouldn't expect the outcome to be perfect.

If the exploration phase has been chaotic enough, you should now see a rough timeline, with duplicated sticky notes, and locally ordered clusters hidden in a messy flow.



Different actors might have created different locally ordered clusters in a disordered whole

The more parallelism (which is good for speed and information), the messier the result. Experts may just take a marker and write down everything they know about the domain, and place everything on the wall in a single batch, while the ones trying to keep the whole timeline consistent will give up at some point.

Room layout plays a vital role too: not enough walking space in front of the modeling surface, means that people won't easily move around, and will focus on performing their task first, and look at the whole later¹⁰.

Now our goal is to make sure we are actually following the timeline: we'd like the flow of events to be consistent from the beginning to the end.

This is when the discussion gets heated: local sequences - “*this is how it works in my own silo*” - have to be merged with somebody else's view on the same

¹⁰Room layout has a massive influence on the outcome of the workshop, even the best facilitators can't beat lack of oxygen or walking space, so don't underestimate room selection and arrangement.

event. And the whole thing needs to make sense. Inconsistencies start to get visible, and once they're visible ...somebody will talk about them!

Key conversations usually simply happen. This is a moment where your team's ability to self-organize may surprise you, but the facilitator's guidance might be necessary to provide some structure.

Provide Structure

Just 'sorting out the events' to enforce the timeline isn't as simple as it sounds. Participants will try to swarm over the modeling surface, attacking *that sticky note that didn't fit*, in a legitimate attempt to sort out the mess, only to discover that brute force isn't the most efficient strategy.

Make sure there's enough space available

The main impediment to efficient sorting is the availability of empty space: sorting out a surface with too little slack becomes a puzzle on its own, and we don't need that extra complexity.

This is an excellent moment to [add more space](#), maybe sticking one more paper roll below the original one if the orange-to-white ratio is too high. If that option is not available, you may want to look at [Chapters Sorting](#) in a few pages.

Choose a sorting strategy

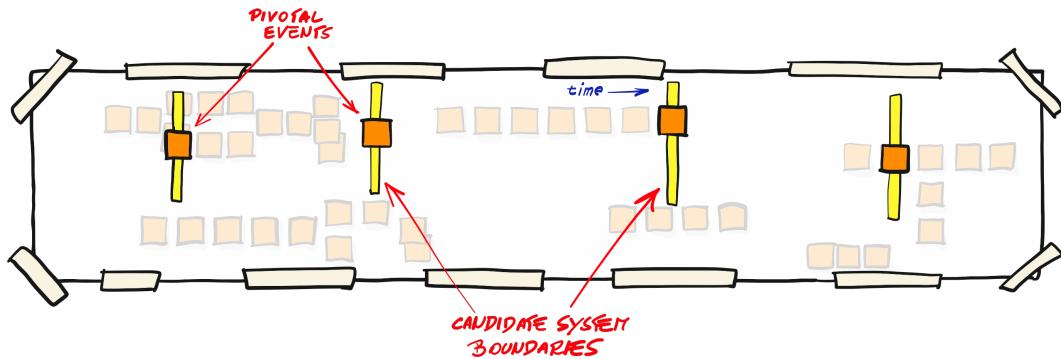
Brute force approaches to sorting don't work very well on a huge messy set. More sophisticated strategies may be needed; here are a few recurring ones: *Pivotal Events, Swimlanes, Temporal Milestones, Chapter Sorting* and *The Usual Suspects*.

You might want to start picking the most promising one, given your context.

Pivotal Events

With **Pivotal Events** we start looking for the few most significant events in the flow. For an e-commerce website, they might look like Article Added to Catalogue, Order Placed, Order Shipped, Payment Received and Order Delivered. These are often the events with the highest number of people interested (an Order Placed can trigger reactions in the billing department, and in shipping too, not to mention fraud detection or loyalty points).

My favorite tool here is a colored label tape, that I place below the pivotal event sticky note, as a boundary between the different phases of the business flow.



Highlight pivotal events to allow simpler sorting of what's in between

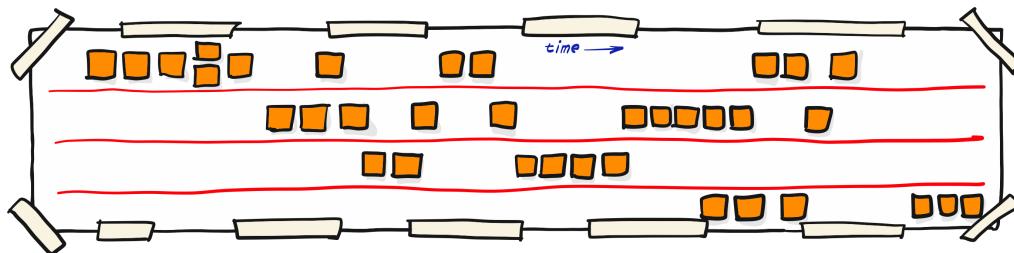
I wouldn't spend much time looking for a perfect choice of pivotal events. Bear in mind that at this moment we're just trying to speed up the sorting operations, so preserving flow is more important than reaching consensus.

Usually, 4-5 key events are enough to allow quicker sorting of the remaining events¹¹: people will easily place their flow inside the corresponding portion of the flow, and eventually start a conversation with their neighboring peers.

¹¹if you have a background in software development, this might feel like shifting from *Bubblesort* to *Quicksort*.

Swimlanes

Separating the whole flow into horizontal **swimlanes**, assigned to given actors or departments, is another tempting option since it improves readability. This seems the most obvious choice for people with a background in process modeling.



Horizontal swimlanes provide better readability, but they end up using a lot more space.

Unfortunately, readability comes at a price: every swimlane will occupy a significant portion of the vertical space, which is limited.

We'll never have only 3 or 4 swimlanes. We're not mapping a single process: we're mapping many processes at the same time. This means:

1. more actors involved, and so more swimlanes to be stacked up vertically;
2. more white space along the swimlanes because of the synchronization between the flows.

In general, swimlanes play very well in a single process scenario, or for a few distinct processes that tend to happen in parallel to the main business flow.

For us, this means that it's often more efficient to apply swimlanes only after a temporal structure has been established, with *pivotal events* or *temporal milestones*.

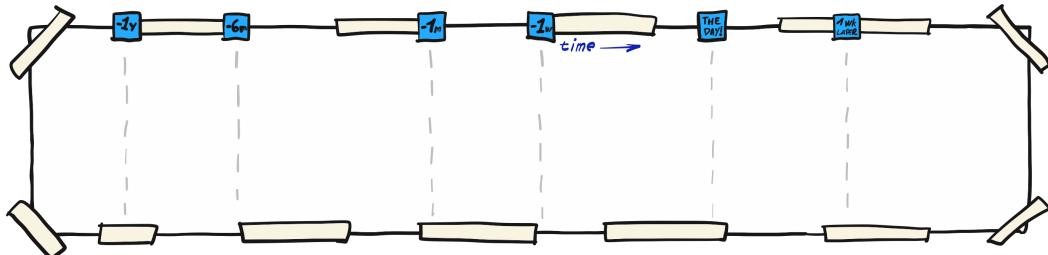
On a smaller scale, I like using horizontal labels to name the parallel processes. A little less readable than real swimlanes, but more space-efficient.

Temporal Milestones

For some businesses, establishing key events may not be the best option. There might be many concurrent processes (organizing a conference is a typical example) or too much misalignment about *what comes first*. In these situations you may favor **temporal milestones**: making the temporal frames roughly visible on the surface so that everybody can place their items *more or less* where they belong.

I usually place blue sticky notes on top of the modeling surface with some time indicator like 1 year before, 6 months before 1 month before and so on (usually choosing smaller intervals the more we get closer to the core of the process).

This helps placing events *more or less* where they belong. Keep in mind that we don't know yet how much space should be used for any given activity, so be ready to shift the milestones or to replace them if you discover something more precise.



Time might be a better splitter than events in some cases

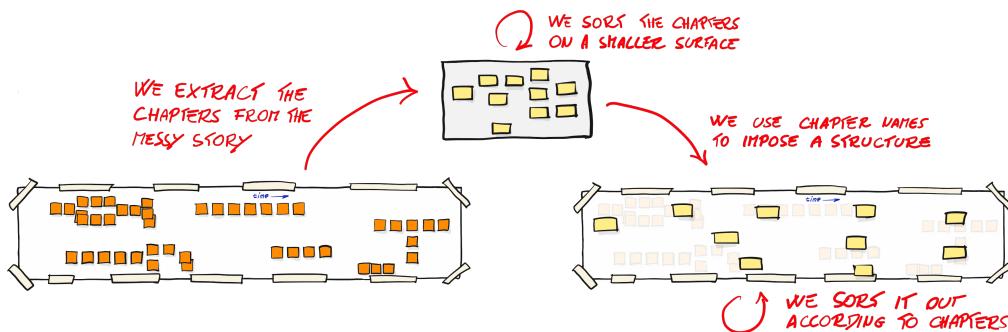
Of course, we're not interested in the trivial ordering. What we do care about is the conversation that emerges from the not so trivial ones.

Chapters Sorting

How do we sort out things if there's not enough maneuvering space? Like too many orange stickies and too little slack space and no possibility to **add more space?**

My last resource is **chapters sorting**: instead of sorting out the whole thing, we do this instead.

1. We run a quick extraction round of the key Chapters¹² of the whole business story. This will usually lead to 15-25 chapters (usually I write them on larger yellow stickies).
2. We quickly sort the chapters on a different surface (often a window), resulting in a skeleton of the desired structure of the flow.
3. We then apply the structure of the chapters on the main flow and remodel everything accordingly.



Chapters sorting in action: sorting a few chapters on a clean surface takes less energy than sorting the whole thing. Once we see the structure we can apply it to the real model.

"But ...why didn't we start from chapters from the very beginning, before being swamped with events?" Well ...we couldn't be sure about the chapters, before the chaotic exploration.

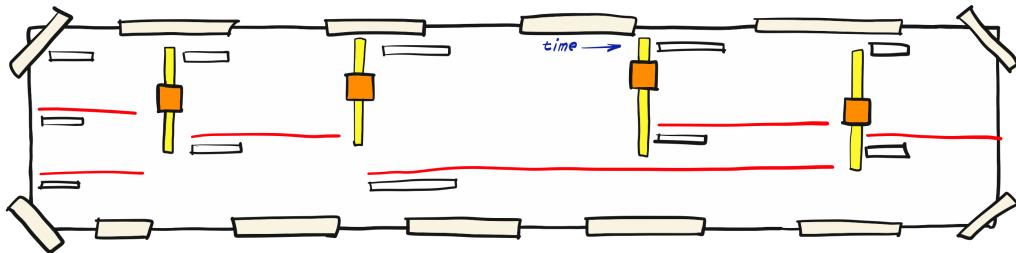
Put in another way, I just don't trust the official version.

¹²Why do I call them chapters? Reason number one is that I am trying to use the consistency of business storytelling as a gluing factor.

Combining multiple strategies

It should be clear now that a single strategy is not enough to rule the complexity of the whole thing, and that you'll have to combine different approaches.

Here's an example of how the structure skeleton might look like at the end.



You can combine different approaches in something more sophisticated, but it's hard to define the structure upfront.

I might be able to detect the structure relatively quickly. I've seen a few now, and business narratives start to look like horror or monster movies: the ones where you can tell the survivors after the first 5 minutes. But the structure must emerge from the team's hard work.

It has to happen step by step so that everybody can master it. It has to be the result of a collective effort so that everybody deserves a reward.

I am also skeptical of "we already modeled every flow" objections. More often than not, the modeled flow and the actual one diverge. And a messy starting point leads to more interesting exceptions than modeling according to the "official version".

Highlight inconsistencies with Hot Spots

Enforcing global consistency won't happen without frictions. In fact, we expect most of our inconsistencies and misunderstanding to emerge during this phase.

This is when the role of the facilitator becomes crucial. While everybody is

busy trying to make sense of the orange sticky notes, the facilitator should look for places where the discussion is getting hot and marking them with a purple sticky note.

[FIXME: picture]

Having these places - I call them *Hot Spots* - highlighted is super useful.

I like to leave HotSpots for the facilitator during this phase. An explicit call for problems too early in the workshop can create a flood of problems with a very low signal to noise ratio. We'll make hotspots accessible later in the [problems and opportunities](#) section.

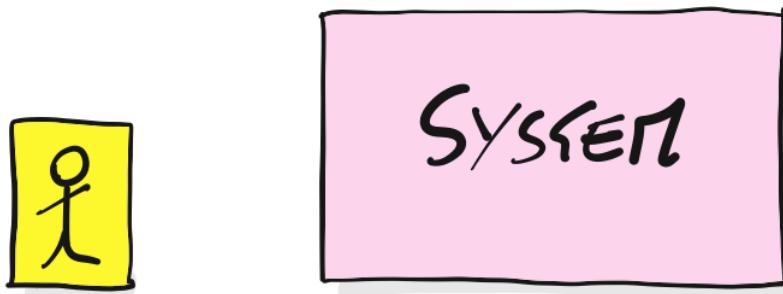
A safer target for finger-pointing

HotSpots capture comments and remarks about issues in the narrative, and I am expecting to find quite a few of them. In fact, EventStorming provides a safer environment for going hard on the problem (which is now visible on the wall) while being soft on the people.

People and Systems

Events don't happen in a vacuum. We'll need to include *people* and *the external world* in our model, to better understand the existing forces and constraints.

We'll use little yellow stickies for people, and large pink stickies for external systems.



People and systems notation.

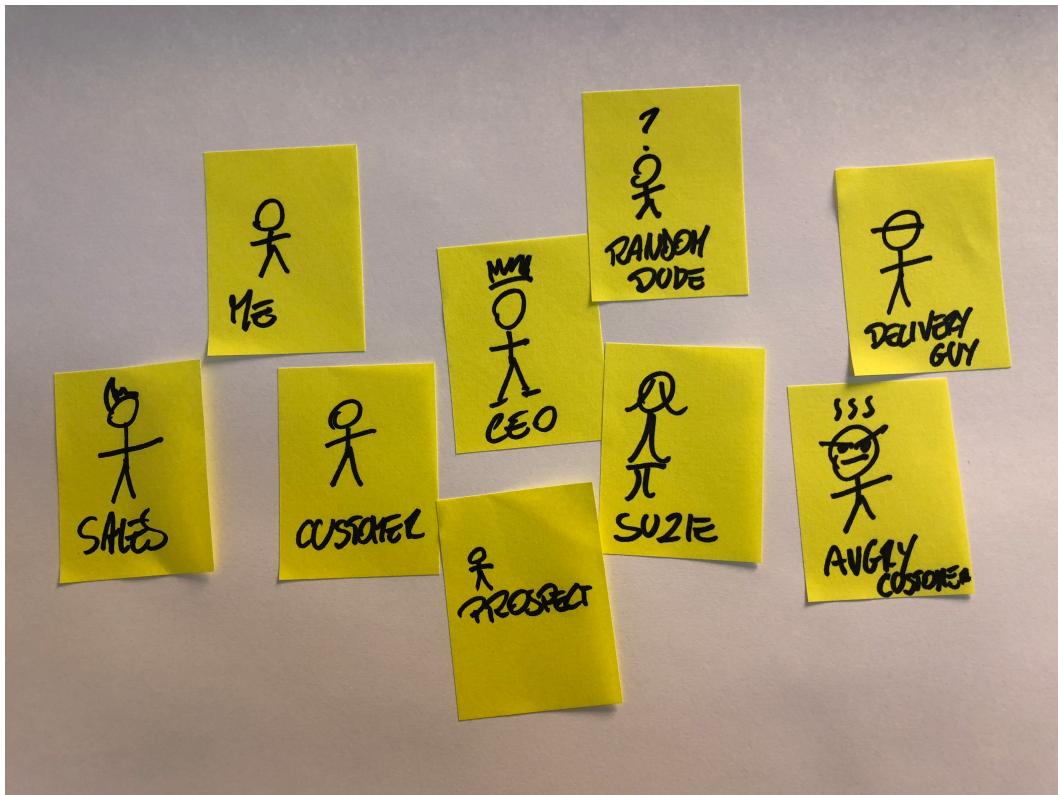
And we'll place them on the modeling surface, wherever they play a role in the event flow.

Fuzziness in action

I prefer to use the term *people* instead of *actors*, *users*, *roles* or *personas* since it's not tied to any specific system modeling approach.

Fuzzy definitions allow every participant to be part of the discussion, without a specific background. Experts in a particular discipline, like user experience design or business process modeling, might give away some precision in exchange for a more inclusive, background-neutral conversation.

This fuzziness will lead to a wide range of possible representations, from the most generic User to ultra-fine grained users like John and Amy, passing through all the possible variations of New Customer versus Returning Customer and so on.



Variations on the people notation are welcome!

The goal is not to match the right yellow sticky note to every event in the flow. Adding significant people adds more clarity, but the goal is to trigger some insightful conversation: wherever the behavior depends on a different type of user, wherever special actions need to be taken, and so on.

Don't be worried if these conversations are disrupting your current model. *This is a good thing!* It just means that you're starting to dig deeper and learning more. Precision would progressively replace fuzziness.

External Systems

External Systems are the next significant ingredient of our model. A business doesn't happen in a vacuum, and to see the whole system we need to look at

its moving parts, and the neighborhood too.

An external system is a piece of the whole flow, which is outside of our control. Once more, we'll leverage fuzziness to trigger some reaction: some systems can be internal (they're developed by our own organization) but external too (we're not the authors, just the maintainers, and we actually *hate* maintaining them), and these clarifications are usually really revealing.

An external system can also be something entirely different from software: a different department - *maybe the one that hasn't been invited to the workshop* - or an external organization.

In order not to make it formal - *and to make sure nothing will be excluded from our exploration* - I usually provide the following **fuzzy definition** for an external system.

"An External System is whatever we can put the blame on"

This may lead to some awkward, and apparently useless, sticky notes. A couple of times "Bad Luck" was modeled as an external system, we had "Europe", "Brexit", and "GDPR" too!

There's nothing wrong with that. In fact, this approach turned out quite useful: modeling Bad Luck prompted someone to write stickies for the unlucky events that could disrupt the flow, like Plane Missed in a conference organization scenario. Some of the critical risks were now visible.

Whenever in doubt, and you feel there's something that might fit or not fit the picture, just put it on the wall. Something hard to categorize, like "the market", might sparkle some interesting thinking. If it just adds noise, well ...we just wasted a sticky note. No big deal.

Is this an external system?

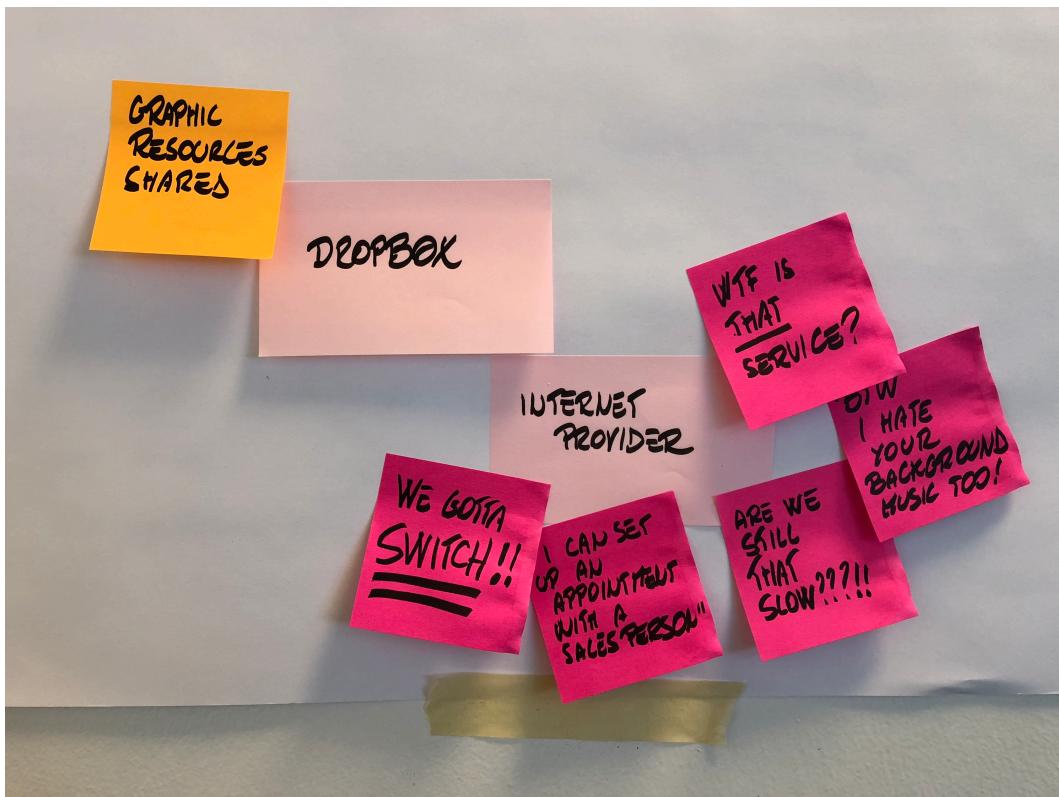
Fuzzy definitions will also push people into categorizing their own: "*Is this an actor or a system?*" can be an interesting question to ask (people might not care about the personality of the systems, a little more about humans)¹³.

¹³In practice, I don't care whether a player in the system is categorized as a system or human, as long as it's visible. But I am really interested in the discussion.

It's also funny to see developer's behavior over a piece of legacy software: sometimes it's *external*, sometimes this piece of software is *us*. Little language nuances will tell a lot about the real ownership, and the level of commitment or disengagement with software components.

One more target for safe finger-pointing

Once systems become visible, it becomes hard to ignore them. Local cultural nuances and attitudes might influence this step, but I am usually alert for spontaneous comments (usually sarcastic complaints) that we should capture with *Hot Spots*.



There will be no mercy for external systems.

Adding new systems usually triggers the need for more events regarding things that may happen around those systems, like the need to renew licenses

or the mundane activities that occur on the boundaries.

With multiple systems involved, I prefer not to summarize too much: if space is running short is quite frequent to see people writing something like **Socials** instead of the more explicit Facebook, Twitter, LinkedIn, YouTube and so on, possibly hiding significant details from the conversation.

The same goes with events, if this extra information is enriching your model, just add the corresponding events!

Phase: Explicit walk-through

Now, a more structured version of the flow is slowly emerging, probably still messy and blurry in a few places, but the whole picture doesn't feel solid yet.

A great way to enforce consistency during this phase is to ask someone to walk through the sequence of events while telling the story that connects them.

When I say 'walk through' I actually mean *literally*: talking about events while walking in front of the modeling surface will, in fact, trigger some modeler's superpowers.

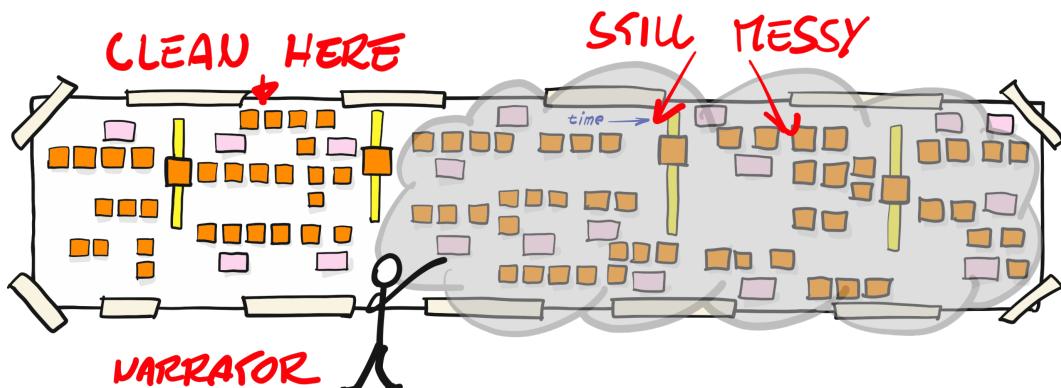
Our voice will try to tell a consistent story: "*A user will visit our website, looking for special offers on the homepage...*" At the same time, your body will slowly try to walk forward, making you feel weird if the flow is not consistent yet and you have to move back and forth in order to touch the corresponding event.

However, [speaking out loud](#) to tell the story will force your brain to think twice before saying anything, or to have some more thinking later¹⁴.

In practice, you'll be likely to experience further thoughts like "*Wait a minute! How will the user know about our website? Ouch, we forgot to consider the promotional campaigns and Search Engine Optimization!*"

It is a good sign if your storytelling is bumpy and continuously forcing you to add more events. Your brain pain means that it's actually working.

¹⁴I have stolen the idea of talking out loud straight from Eric Evans and [Domain-Driven Design](#): merely thinking about a sentence isn't enough to trigger the magic. But the act of speaking aloud, better if in front of some audience, will.



The narrator “defragging” the overall flow.

It also means that it takes a lot of energy to be in the narrator’s seat because everybody in the room can (and *must*) interrupt you to challenge the ongoing storytelling.

It is a good idea to change the narrator, in a relay race fashion, once we reach pivotal events *“and this is where Mary’s team takes over”* offering the possibility to see the experts in action in their own territory.

While the narrator’s on stage, the facilitator should make sure that the spoken storytelling is aligned with the model: missing events or systems can be added on the fly.

Manage discussions

Some discussions cannot be solved during the workshop. And narrowing the focus to one single issue might not be the best use of everybody else’s time. When a conversation is getting non-conclusive, I mark it with a Hot Spot (signaling that it won’t be forgotten) and move on.

On the other hand, some discussions *are* interesting for everybody, and the workshop might be the one chance in a lifetime to get a long-awaited clarification.

There’s no default strategy on how to handle discussions on the spot. I like to observe participants’ body language - it usually tells a lot ranging from “Oh,

please not again!" to "Grab the popcorns; this is finally it!" - and/or to explicitly ask what they would like to do.

It doesn't make sense to kill a long-awaited discussion just to follow the facilitator's schedule. Big Picture is a *discovery workshop*: we can't expect what surprises are going to look like, and we should be ready to discard parts of our plan, should we discover something more interesting.

Telling the story backward

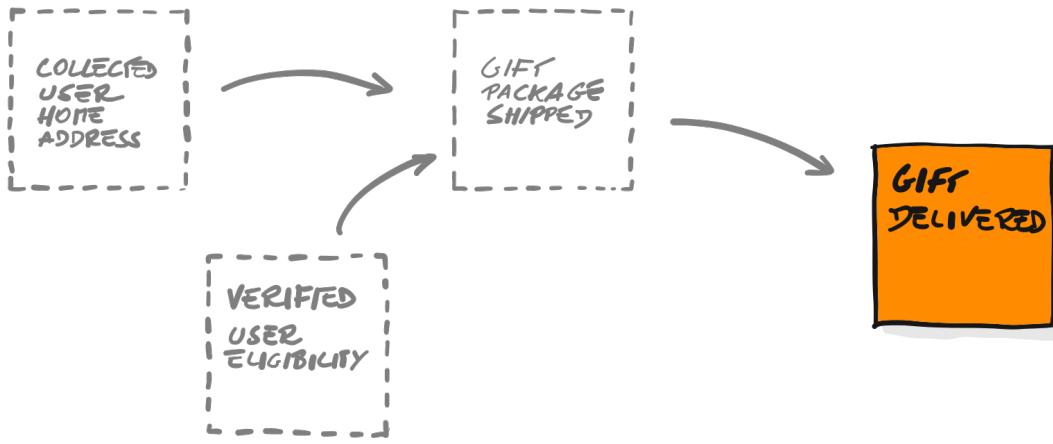
Making sense of the whole flow merging the independent stories is probably the most demanding activity of the Big Picture workshop. Usually, it needs to be rewarded with a break ...because we aren't finished yet.

The whole flow should now look meaningful and reasonably sound to participants. Their contribution to the overall flow is now visible in the big picture. Unfortunately, this is still not the actual story. The narrative that we just streamlined with the walk-through isn't yet capturing the whole complexity.

It's now time to challenge our model with a different way of thinking: a little trick called *Reverse Narrative*. Here is the idea:

1. Pick an event from the end of the flow, then look for the events that made it possible. The event *must* be consistent: it has to be the direct consequence of previous events with no magic gaps in between. Once again, *speaking out loud* will come in handy, exposing inconsistent assumptions.
2. If some step or piece of information is missing, we'll need to add the corresponding event or sub-flow to our model.
3. Every other event needs to be consistent as well so you may want to repeat it *ad libitum*.

REVERSE NARRATIVE ←



Reverse narrative in action

You might want to challenge the audience asking something like “So [Event A] is all it takes to have [Event B]?” or “What needs to happen, to have [Event C] happen?”

Here is a little example from my company domain.

Our company organizes public workshops, and we'd like to provide attendance certificates to our students.

Starting from the end, we bump into a Certificate Delivered event. Our paper certificates will be signed off by the trainer but will need to be printed before the workshop. This calls for a Certificate Signed by Trainer and a Certificates Printed, but we ain't finished yet: certificates are personal, and we need to acquire the attendee's name before printing the certificate.

“We have them in the ticket information!” somebody says, but it turns out that this isn't always true: individual tickets provide this information, but group ticket purchased by large organizations may not be assigned to participants or can be reassigned at the very last minute.

In practice, this means that we have a few more events: Participant Name

Acquired or Participant Registered which is a direct consequence of Ticket Sold but can also be an independent event. Of course, we might also need a Participant name changed in case a company transfers the ticket to somebody else. Hmm... I actually like the wording Ticket Transferred more.^a

^aThe obsession with naming and rewriting is so Domain-Driven Design! You'll have a lot more of it in [running a design-level EventStorming](#).

Reverse Narrative is a powerful tool to enforce system consistency. Even if we think we're done with forward exploration, we usually discover a relevant portion of the system (around 30-40%) that was buried under the optimistic thinking.

Explicit Walk-through and *Reverse Narrative* may take a lot of time. It's usually time well spent: it provides many insights and a feeling of solidity that was missing in the previous steps. But if you're under strict time-boxing constraints, you might decide to sacrifice the depth of these phases, to complete the next steps.

Picking candidate events

Some events are natural candidates for backward exploration: *terminal events* (the ones at the end of the flow that seem to "settle everything") are a natural fit for this role.

I also like exploring from the *pivotal events* (the ones closing specific phases) that often cover a check-list like structure.

Bonus phase: Add the money

Whenever I run a workshop with software developers, they invariably tend to neglect the money part of the flow: suppliers are not paid, invoices are not received or sent, and a large portion of the system that has to do with money is often overlooked or skipped.

I suspect that, for software developers, money lies somewhere in the intersection of *obvious* and *boring* problems. There's always something more exciting than having a look at the payment cycle unless you are exploring the business flow of a *fintech* or cryptocurrency-based company.

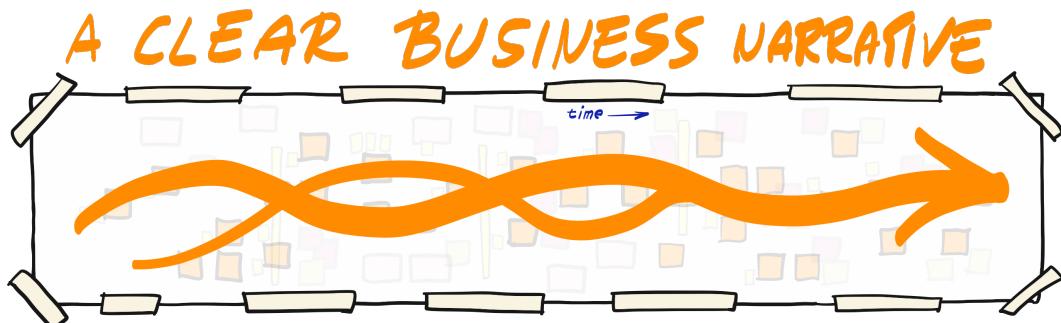
However, understanding money mechanics is vital for an organization's survival, and possibly even more for a start-up striving to achieve sustainability. If the exploration looks naive, or if invitations didn't manage to bring the money persons in the room, it's a good idea to call a short exploration round focused on the money flow, in order to balance the blind spot.

To be fair, money is only one among the many different value currencies that could be victims of selective blindness; we'll talk more about it in [playing with value](#) chapter.

An emerging consistent narrative

Every step in our exploration brings clarity, details, and consistency to our understanding of the business dynamics. There's a lot of value in the emergent structure of the model: the shape of the map will stick in our brains for a long time, mainly because we struggled to achieve it.

The exploration process ultimately led to interesting conversations. People that were only partially aware of the flow mechanics and constraints now finally see the whole thing, in the form of a consistent business narrative. The entire thing is all but perfect and shiny, but it should now make sense from the storytelling perspective.



A clear business narrative, delivering value to the key players in the system. This is what I am expecting to "see" at the end.

Well ...that's the intention! The effort on the storytelling should have also highlighted inconsistencies in the flow, which is now officially challenged and scrutinized.

Some steps might lack a clear motivation, look obsolete, or unnatural. The larger the organization, the longer past solutions will survive even if the original problem they were supposed to solve is now gone forever.

Other steps will look like a pain, especially if the existing legacy processes and software are forcing customers and employees to extra activities whose payoff is not in sight.

I can't anticipate what you're going to find, but you'll know that you've found it when you'll see that. Discovering inconsistencies might be embarrassing, sometimes. It's better to focus on the opportunities that an exposed flaw in our storytelling might lead us to.

Phase: Problems and opportunities

Once we've included people and external systems, and we commented on them with sarcastic hot spots, we have reached a very interesting intermediate goal.

The whole system should now be visible

[FIXME: picture of a stretched landscape]

We might not be particularly interested in the mechanics of what happens inside the external systems unless their internal mechanics are vital for our organization (imagine a company whose market is heavily regulated, they usually care a lot about what happens inside the regulator's organization).

What we mostly care about is what happens at the boundaries between us and the external systems. And a bit of "the other side" needs to be visible, to see the boundaries, and the no-mans-land in between.

Now it's also an excellent moment for spontaneous insights. Assuming that everything is visible, might also mean that somebody is still not seeing what they're expecting to see. In some workshops, this feeling might lead to an extra phase that scrutinizes value created and destroyed along the flow. This step is so important it deserved a [chapter on its own](#).

Looking for key impediments

At this stage, the grandiosity of our business flow, with constraints and impediments should now be visible in all its magnificence. It's time to choose what to do with that, but before choosing our next action, it's better to provide everybody one last chance to have their opinion visible.

To do so, I now officially offer a 10-15 minutes time-box to add **Problems** and **Opportunities** to our model. Problems are represented with our familiar

Hotspot notation, while opportunities will balance purple with a more optimistic green.



Balancing problems and opportunities: a purple problem flood might seem overwhelming, but ...we have a lot of green ideas to the rescue!

I expect most of the problems to have surfaced already, but this phase provides a safe chance to make your opinion visible without raising an explicit conflict, so it works very well in corporate scenarios or where interpersonal attitudes are an issue. I expect this phase to be relatively quick and quiet, but to offer some interesting surprises.

Green opportunities provide a perfect counterpart to the possible flood of problems. We have *solutions*, and problem-solvers in the room too! There's hope!

Phase: Pick your problem

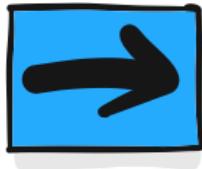
In a typical session, you should now have a few dozens of problems and opportunities on the wall. Nobody will be able to solve everything quickly, and nobody will be able to pursue every possible opportunity. So we'll have to find a way to guide our way out.

Time might be running short - this is the closing activity - but we might still need to quickly browse and eventually cluster the latest adding to the model before voting.

Arrow Voting

My favorite closing action for a Big Picture EventStorming is a round of Arrow Voting.

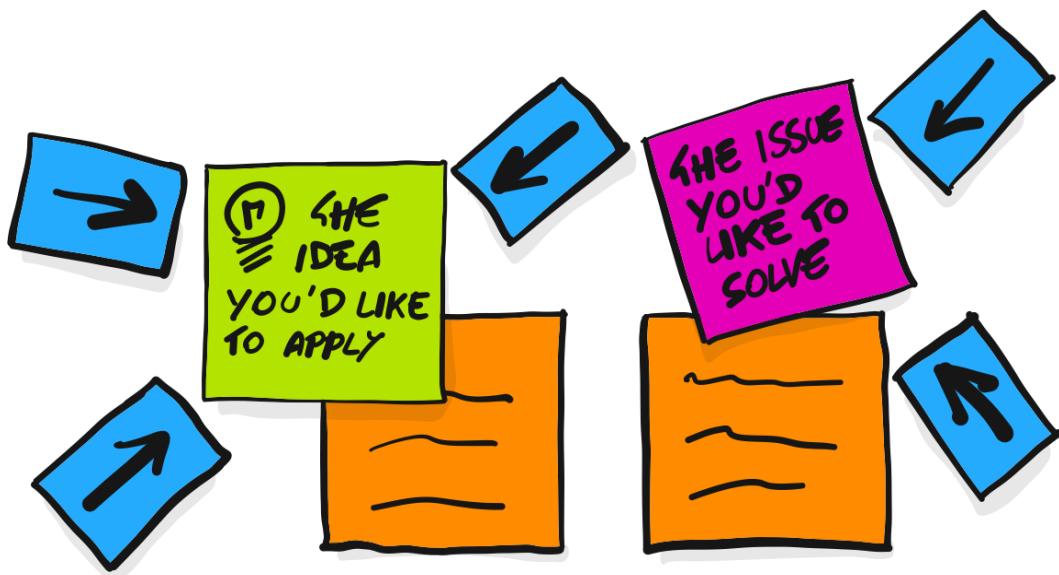
If you're familiar with agile retrospectives, you probably already know the practice of Dot Voting: arrow voting is very similar, ...just more expressive!



*THE ARROW IS YOUR VOTE
IT MEANS YOU CARE ABOUT
THE TARGET*

Arrow voting in action, pick your target!

1. Any workshop participant can cast two votes. Votes are little blue stickies with an arrow.
2. Arrows should point towards a purple problem or a green opportunity. Everybody should be free to choose their voting criteria. I tend to use the words "*most important problem to solve*", knowing that 'important' is a subjective term. Votes could be pointing to the same target or to two independent targets.
3. Voting happens more or less simultaneously, no voting catwalk.



Arrow voting in action, pick your target!

I am expecting a quick (usually a couple of minutes) round, where participants are again swarming on the modeling surface, choosing where to place their arrows. Once again, body language can be an interesting source of insights.

The facilitator should make sure no power play is happening during this phase (especially in corporate scenarios), i.e., gently asking the leading influencer in the room to wait for a little before casting their vote, not to influence other participants.

Once people are detaching and getting in contemplation mode, it's the moment to wrap it up.

Seeing through the fog

After all this work (we started from an unsorted mess, we added some structure, we included people and external systems, we explored inconsistencies in a forward and then backward fashion) we should now have a clear indication of what to do on the next morning.

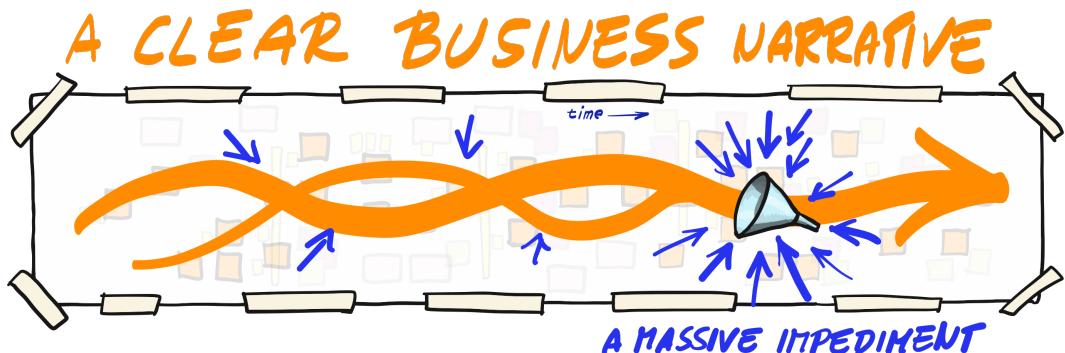


A picture of the outcome of a Big Picture workshop. More stickies than you ever imagined...

Apparently, we now have a wall filled with colored sticky notes (a person just joining now, to see *the outcome* wouldn't understand much) but there's a little more to it.

We put together different expertises and perspectives, we achieved a deeper level of awareness about our organization structure, purpose, and mechanics, and we voted (and highlighted with blue arrows) the most important issue to focus on.

Put in another way, this is what I am expecting to see through the fog.



A picture of the outcome of a Big Picture workshop. More stickies than you ever imagined...

This is the place where we should concentrate our efforts the next morning.
Thank you, guys! This has been a long day.

Should we always be voting?

Well ...no! Voting should only be triggered when you are prepared to manage the outcome accordingly. Here are a few reasons why voting shouldn't be called:

1. Wrong people mix in the room: A single partisan perspective could be a trusted source of opinion, but not a system-wide diagnosis.
2. Wrong scope: exploring the whole was beyond our reach. We might vote, but the real key constraint might be hidden somewhere else.
3. Non-disclosure constraints: in a pre-sales requirements exploration scenario, an organization might be open to exploration, but not to explore their vulnerabilities.
4. Just too early: a start-up in inception phase doesn't have real impediments yet, just a list of assumptions to be challenged and questions to be answered.

In general, there are a few interesting variations over the Big Picture format, and context might drive us towards a different schedule. We'll go deeper on that topic in the [Big Picture Variations](#) chapter.

The promised structure summary

- **Invitations:** make sure you have the right people in the room, the ones who know and the ones who care.
- **Room Setup:** provide enough maneuvering space for your little crowd to work on the modeling surface in the smoothest possible way. Don't forget the basics: food, light, and fresh air.
- **Kick-off:** make sure that everybody feels aligned with the workshop goals, possible warm-up round.
- **Chaotic Exploration:** everybody frantically starts adding the domain events they're aware of, to the modeling surface. Some interesting conversations can pop up, but people will mostly work in a quiet, massively parallel, mode.
- **Enforce the timeline:** let's make sense of the big model. Restricting the flow to a single timeline forces people to have the conversation they avoided until now. The structure will emerge from the common archetypes. More events will be added, but most of the work is *moving* events to achieve a meaningful structure. This is also the moment where *Hot Hots* appear.
- **People and Systems:** which are the key *roles* in our business flow? Making people and systems evident, we are reasonably sure that if there are impediments to the flow, they are visible to everyone else in the room. This round is also another hot spot detonator: once everything is visible, people can't stop commenting.
- **Explicit Walk-through:** different narrators will take the lead in different portions of the system, describing the visible behavior and accepting the challenge of other participants.
- **Reverse Narrative:** if we're confident with the overall flow, we can ask people to think in reverse temporal order, or in strict *causal order* if you prefer. Quite a few events get added to the model, and the original flow becomes a lot more sophisticated than the original one.
- **Problems and Opportunities:** time to allow everyone in the room to state their opinion and ideas about the current flow.
- **Pick the right problem:** once everything is visible and marked with a hot spot, it may make sense to choose the most important problem(s) to

solve. Sometimes you have clear consensus; sometimes you'll vote and have surprises.

- **Wrapping up:** take the final pictures, manage the closing conversations, do the needed clean-up, or postpone it if you can.

[FIXME: here, a picture would be just perfect.]



Chapter Goals:

- Know the basic mechanics of *Big Picture EventStorming* and the different phases.
- Understanding what can be achieved in a single workshop.
- Be ready for surprises that can happen during a massive discovery workshop.

5. Playing with value - part 1 - 95%

Optional Step

Sometimes, the standard recipe laid down in [Chapter 4 - Running a Big Picture Workshop](#) is not enough to unveil more profound inconsistencies in the organization.

The main narrative usually focuses on *what, when and how* key events happen but may let us blind about *why* are we doing what we do on a daily basis.

Organizations should exist for a reason: in a very simplified fashion, companies should be able to deliver value possibly to the best combination of customers, stakeholders, employees, and partners.

The whole discussion about whether companies should maximize shareholders value, or prioritize customers over employees or vice versa is too vast to explore here. I'll focus on showing how EventStorming can help you to discover inconsistencies, or to find the perfect harmony.

Explore Value

Once the flow is adequately clear and consistent to everyone (usually after [People and Systems](#) and [Explicit Walk-through](#)), you may want to start digging into when and where *value* is delivered.

Green is usually the obvious choice for a positive signal (and we shouldn't have played [Problems and Opportunities](#) yet), so we can use it to tag specific moments when any value is created along the flow, or more generally where positive things happen.

Bad things can happen too! Value can be destroyed in many phases, so we need a counterpart for specific moments where value gets destroyed. Red

seems the most obvious choice for that¹.

Discover multiple currencies

When the first exploration starts, usually everybody will be looking for something closely related to *business value*. Money is often the most obvious choice.



The most obvious value to look for, if you're in a money-driven business

Things start getting interesting once we open up the possibility for other value currencies than money to be displayed in our model. Let me be more explicit with an example.

In a conference organization scenario, candidate speakers will submit talk proposals to have their talks evaluated and possibly accepted. Some speakers will receive rich compensation; others will only get a chance to be on stage; in some conferences, they'll have to pay for speaking. On average, expenses will be reimbursed. However, money itself is not enough to explain the whole behavior of submitting a talk.

¹When I say 'usually' I mean 'in the western world', colors have different connotations and meaning, depending on the culture. In Europe, the green color implicitly means *good* or *safe* while red is usually associated with *danger*. In China, red instead has a positive connotation, and green a bad one. You may want to keep this in mind, to choose the best suitable combination for your audience.

*Knowing that a Call for Paper is open generates a little value for the candidate, probably in terms of **awareness** and clarity around the conference themes and goals might help. Submitting a talk can be a painful experience instead: obscure forms and mysterious questions on clunky websites, can waste some **time**, while hermetic response messages could instill a little **anxiety** ("Have you received my submission?").*

*Waiting for an answer can slowly increment **stress**. It will be forgotten quickly, once you discover that your talk has been accepted. The reaction can be a legitimate **pride**. It may get even better for your **reputation** once your picture is visible online close to the one of a more famous speaker.*

The more we dig into values, the more the initial focus on money starts looking way too simplistic. There's a lot more going on: different types of rewards like safety, status, reputation, and pride, or ...you name it!

Unsurprisingly, once you signal that we can actually talk about something else than just money ...people start to talk! And the complexity of the ecosystem starts unfolding under our eyes.



Money is clearly not the only currency in the game, there's so much more under the hood.

Should you care about this all-new perspective? Well, if you care about your product and services, if you care about the ecosystem in which your organization operates, and in general if you care about *improving*, then the answer is clearly: _ "Yes!"_

Contrasting perspectives

A given step may be generating value for some parties while being a loss for somebody else. In a payment, one side may be giving money to the other one. But that is the obvious scenario. In many steps, you may have non-symmetric exchanges between different currencies, and this may lead to interesting conversations. You may think of having the whole spectrum of possibilities, from win-win to win-lose, at your disposal on a multidimensional space.

Ticketing is a very context-specific activity: when buying a train ticket, people may be happy with just a digital artifact granting the right to take a seat on a given train. A printed ticket will be a little more cumbersome (travelers don't usually travel with printers) but will provide some safety, in case your phone battery runs dry when the train controller is asking you to show your ticket.

*When buying a concert ticket, instead, the dynamics are different. The ticket itself is *valuable*, it may be a collectible to be framed after the show, or a present to your beloved one, if you bought two tickets as a surprise. Just printing the .pdf file won't just work in the same way. However, physical delivery may take some time, and may turn out risky on a last-minute ticket, so better send also the less shiny digital ticket, just in case.*

Most of the time, the opposing sides are in typical customer-supplier roles, and you might want to investigate whether your side is inflicting unnecessary pain to your users².

More interestingly, some situations are revealing of unresolved internal conflict between different departments. I recall a web agency where the arrival of a new prospect customer was seen as an *opportunity* by the sales department in the prospective of signing a new contract and as a *nuisance* by the technical team, because of the unplanned technical support they have to provide to write the proposal.

²Or citizens! As a person grown experiencing the malice of Italian bureaucracy, I can tell you that the space for improvement in relieving the unnecessary burden on the citizen is as vast as Siberia.

Diverging perspectives

Other conversations might happen when the type of value generated cannot be easily determined without getting into an *it depends* loop. Let's get back to our conference organization example.

Apparently, attendees are just buying tickets to join the conference. But nobody joins a conference just for the sake of it. Some people are looking for learning opportunities, or to keep themselves up-to-date. Some are looking for networking and job opportunities, while others are mirroring the same behavior but with recruiting in mind. Some others just need a conference as a moment of belonging. Talks and speakers matter only up to a given point: sometimes the only thing that really matters is feeling part of a cool community.

Does this matter? Yes!

We start with the idea of **attendee** in mind, to discover that we have more sophisticated categories to play with. They may match with *customer segments* or *personas*: once again I prefer sticking with **Fuzzy Definitions** instead of precise ones, but I like to have the whole team being aware of it.

Different needs and different values mean also that we probably can't improve the system in a one-size-fits-all fashion. In order to improve the system around these steps, we'll probably need to separate strategies and eventually make some tough choices if different categories have competing needs.

Explore Purpose

Sometimes talking about value isn't as obvious as expected. Failing to find a real reason why users should perform a given action can quietly kill a start-up idea before wasting millions. Or at least suggest us to run a cheap experiment to validate the assumption, and eventually kill the initiative.

As sad as it may sound, it's not nearly as bad as finding yourself trapped inside a long-living organization that has lost its purpose.

While running an EventStorming session in a large enterprise, I asked participants what was missing from the picture, in order to steer the discussion where it mattered for them. A voice said: "I don't see the purpose!"

With a hint of imposter's syndrome, I asked: "Do you mean the purpose of this workshop?" "No, I don't see the purpose of our job."

Oh, shit.

In that specific context, the situation wasn't that desperate. But many key people were trapped in a maze of competing goals and local optimizations and lose sight of the deeper purpose of the organization³.

Or you may have awesome surprises. I had the luck to facilitate a few workshops where the discovery of the process mechanics was blown away the moment the people in the room realized they had a greater goal than just managing a subscription or a shopping cart, or simply 'improving revenues'. The day started with puzzled co-workers that didn't know much about what their colleagues were doing in other departments and ended with an army of game-changers with a clear mission in mind.

Last but not least, your organization may have a clear mission statement. Once we found a suitable color and added it to the modeling surface, only to discover that most of the decisions along the flow were contradicting the now embarrassingly empty official mission statements. You guys have to talk. Seriously.

What are you optimized for?

Playing with multiple value currencies can help some reflections about what is the real type of value that our organization is delivering and try to optimize

³This issue is embarrassingly frequent and may tell a lot about your organization. *Hidden competing goals* set up by management or HR hoping to instill some *healthy competition* inside the organization often end up being a terrible idea, poisoning the whole organization ecosystem. Dave Gray does an excellent job of describing different types of organizations in his book [The Connected Company](#), particularly showing how a clear company purpose can unlock autonomy and self-organization in the employees.

accordingly.

Instead of focusing on the trivial revenues, you may discover yourself improving revenues by focusing somewhere else, like improving *simplicity* or *speed*, or even *good mood*.

Other value currencies also provide interesting opportunities when the pricing and cost schema are locked. The price of an espresso cup in Italy is more or less the same everywhere. You don't choose the coffee place for the coffee price, but for the warm atmosphere (if the coffee is just good enough).

Just like you don't lose weight by just losing weight, you won't improve revenues by just improving revenues.

Isn't it just Value Stream Mapping in disguise?

The moment we put the accent on value, the moment someone will point out similarities with Value Stream Mapping, a powerful tool, coming from the *lean management* field for visualizing the whole value production chain.

There's clearly a lot in common, and I've enjoyed playing with that format in a lo-fi fashion, in the past. The real thing is that EventStorming could be a really good Value Stream Map or not: starting from Events and adding layers to our exploration makes EventStorming a really flexible tool, able to respond to your findings in real-time without necessarily committing to a specific goal upfront.

When should we apply this step?

Given enough time, this value-driven exploration is often a game-changer. It can sparkle the conversations that should have happened long ago, and nobody dared to start. It can trigger deeper insight on *why* are we doing given things in our organization and shifting assumptions that haven't been changed in years.

But of course it requires the right people in the room. Questioning organization values with a handful of rebels can be interesting sometimes, but can also turn out pointless. In general, it requires both the right people in the room and the implicit acknowledgment that *we can open that door* and that the organization is ready to deal with the consequences.



Chapter Goals:

- Discover how to explore value on top of an EventStorming session.
- Explore alternatives to the standard recipe.
- Be prepared to ask and answer difficult questions.
- Be ready to choose what organization you want to be.

6. Discovering Bounded Contexts with EventStorming¹

There's plenty of outcomes from a Big Picture EventStorming, the most obvious being the collective learning that happens throughout the workshop. However, learning is not the only one!

In this chapter, we'll see how to leverage EventStorming to discover candidate bounded contexts in a complex domain.

Why Bounded Contexts are so critical

Among the many ideas coming with Domain-Driven Design, Bounded Contexts have been initially hard to grasp, at least for me. It took me a while to realize how powerful and fundamental this concept is.

In 2004, I was probably too good at building monoliths, or maybe I just hadn't seen anything different yet. In a few years, after seeing a few consequences of mainstream architectural practices, I radically changed my mind.

Now I consider "*getting the boundaries right*" the single design decision with the most significant impact over the entire life of a software project. Sharing a concept that shouldn't be shared or that generates unnecessary overlappings between different domains will have consequences spanning throughout the whole sociotechnical stack.

Here is how it might happen.

¹The original version of this chapter appeared as a standalone chapter on "[Domain-Driven Design: the first 15 years](#)" and then I brought it back here, with minimal editing. More editing will be necessary to fit this book's narrative, but the chapter content was frequently asked, and this is not a perfect book anyway, so forgive me for some inconsistencies: it's *still* work in progress, but hopefully valuable.

- A common concept (like the `Order` in an e-commerce web shop) becomes vital for several business capabilities, raising the need for reliability and availability, up to the unexplored limits of the CAP theorem, where buying more expensive hardware can't help you anymore.
- Security and access control get more complicated: different roles are accessing the same information, but *not exactly the same*, hence the need for sophisticated filtering.
- Changing shared resources requires more coordination: "*we have to be sure*" we are not breaking anyone else's software and plans. The result is usually more and more meetings, more trade-offs, more elapsed time to complete, and less time for proper software development.
- Since everybody now depends on 'the Order', be it a database table, a microservice or an Order Management System, changing it becomes riskier. Risk aversion slowly starts polluting your culture; necessary changes will be postponed.
- Developers begin to call the backbone software "*legacy*" with a shade of resentment. It's not their baby anymore; it's just *the thing that wakes them up in the middle of the night*.
- Adding refactoring stories to your backlog becomes a farce: since there is no immediate business value to be delivered, refactoring is being postponed or interrupted. Your attempts to explain "*technical debt*" to your non-technical colleagues always leave you disappointed.
- The time it takes to implement changes to the core of your system is now unbearable. Business departments stop asking changes in those areas and are implementing workarounds by themselves.
- Now your workplace isn't just that fun anymore. Some good developers that made it great are now looking for more challenging adventures.
- The business isn't happy either: delayed software evolution caused some business opportunities to be missed, and new players are moving on the market at a speed that is inconceivable with your current software.

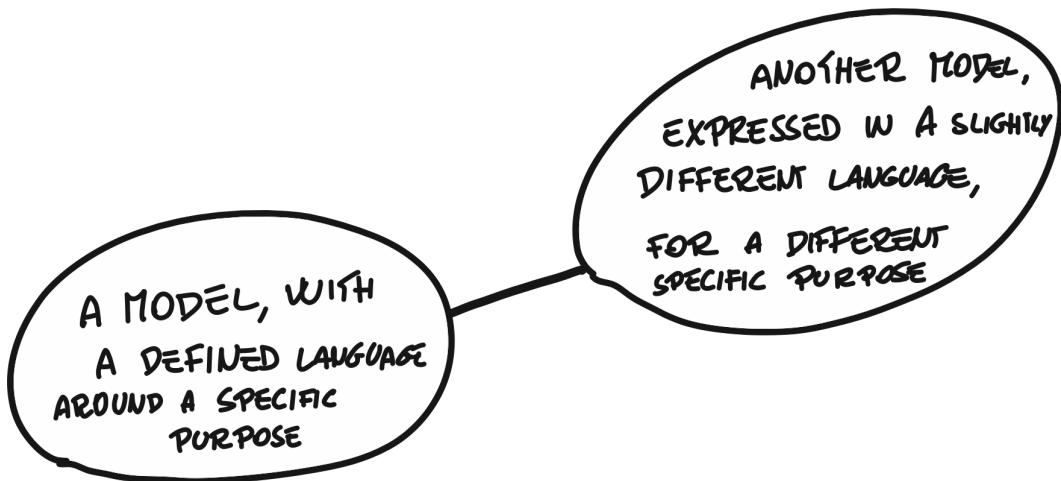
So here you are, yelling at the sky, asking yourself: "*What did we do wrong?*"

And a likely answer is: "*We didn't get the right context boundaries.*"

Finding bounded contexts

Ideally, a bounded context should contain a model tailored around a specific purpose: the perfectly shaped tool for one specific job, no trade-offs.

Whenever we realize a different purpose is emerging, we should give a chance to a new model, fitting the new purpose, and then find the best way to allow the two models interact.



Two distinct purposes should map to two different models, inside different bounded contexts.

Unfortunately, *a single specific purpose* is not a very actionable criterion to discover boundaries in our model. The idea of 'purpose' is too vague to draw actionable boundaries: developers might be looking for a clear, well-defined purpose, while business stakeholder might be a little more coarse-grained, like "I need an Employee Management Solution²."

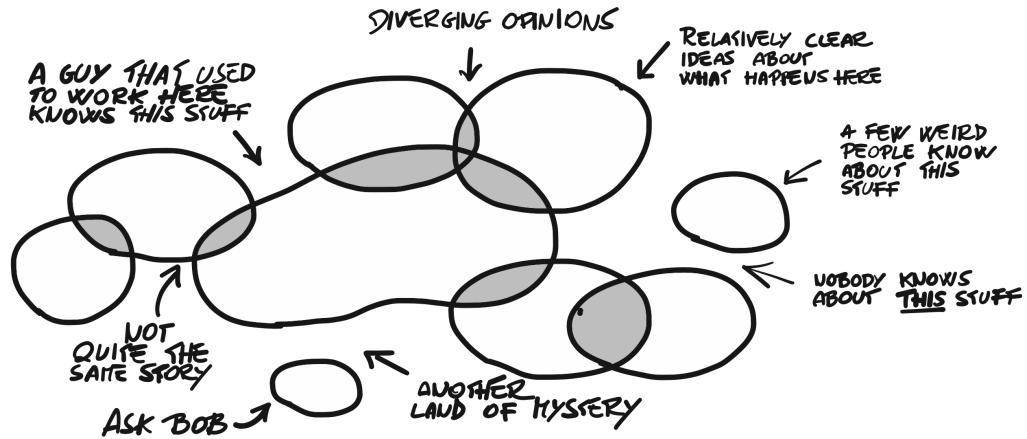
In general, we can't assume the business side to know about bounded contexts. BCs are mostly a software development issue, and the learning loop about them will be closed in software development first.

Put in another way, the business stakeholders are not a reliable source of

²Management is not a purpose. This is true on so many levels, but talking about bounded contexts this is especially true: *planning, designing, tracking, running, supporting, choosing* are more fine-grained purposes, that often require a model on their own.

direct information about bounded contexts. Asking about bounded context will get you some information, but the answer can't be trusted blindly.

It's our job as software architects to discover boundaries in our domain, and this will be more an investigation on a crime scene than a *tick-the-checkboxes* conversation.



The knowledge distribution in an organization: a weird combination of knowledge and ignorance.

Nobody knows the whole truth. Let's stop pretending somebody can.

Enter EventStorming

EventStorming is a flexible workshop format that allows a massive collaborative exploration of complex domains. There are now several recipes³, but the one that better fits our need to discover context boundaries is the **Big Picture EventStorming**: a large scale workshop (usually involving 15-20 people, sometimes more) where software and business practitioners are building together a behavioral model of a whole business line.

At the very root the recipe is really simple:

³The best entry point to start exploring the EventStorming world is probably [the official website](#).

- make sure all the key people (business *and* technical stakeholders) are in the same room;
- provide them with an unlimited modeling surface (usually a paper roll on a long straight wall plus some hundreds of colored sticky notes);
- have them model the entire business flow with **Domain Events** on a timeline.

In an EventStorming workshop, domain events — or just events — are not software constructs: they're short sentences written on a sticky note, using a verb at the past tense.



THIS IS A **DOMAIN EVENT**

- **ORANGE STICKY NOTE**
- **VERB AT PAST TENSE**
- **RELEVANT FOR DOMAIN EXPERTS**

The simplest possible explanation of a domain event

With a little facilitation magic, in a few hours, we end up with a big behavioral model of the entire organization: something like the one in the picture below.



The output of a Big Picture EventStorming, on a conference organization scenario

A massive flood of colored sticky notes, apparently. But, as the adagio says, it's the journey, not the destination: the process of visualizing the whole business flow, with the active participation of all the key stakeholders, is our way to trigger critical insights and discoveries.

Structure of a Big Picture workshop

To make things clearer, let's see the main steps in the workshop structure, focusing mainly on the steps that provide critical insights to Bounded Contexts discovery.

Step 1. Chaotic Exploration

This is where workshop participants explore the domain, writing verbs at past tense on sticky notes (usually orange), and place them on the wall, according to an ideal timeline.

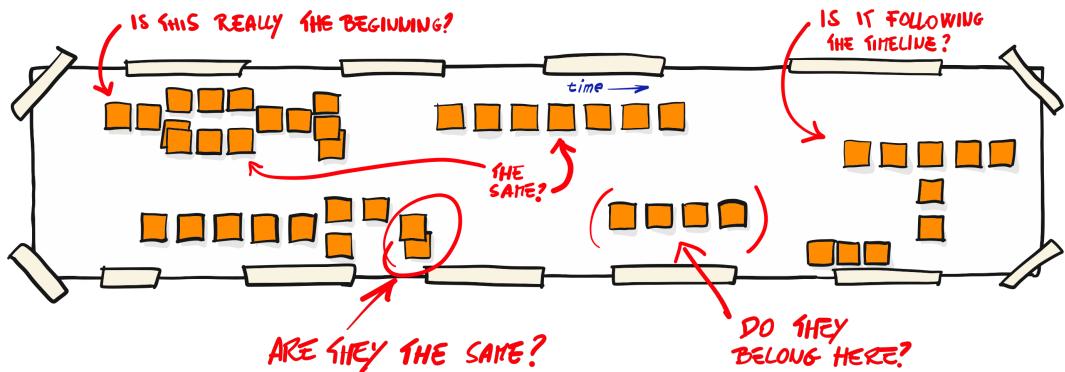
The key trick here is that nobody knows the whole story. Imagine we're exploring the domain of conference organization⁴: there will be roles that know about strategy and market positioning, others specialized in dealing with primadonna speakers, plus a variety of other specialists or partners dealing with video coverage, catering, promotional materials and so on.

If you know one job well, you probably won't have time to know every other job at the same depth. This fragmentation of expertise is exactly what we're expecting to find in every business: local experts, masters of their silo, with variable degrees of understanding of the other portions of the business.

The more participants, the harder it is to follow a timeline: diverging perspectives and specialized view on what the business is really doing will usually lead to **clusters of locally ordered events, in a globally inconsistent whole**.

Far from perfect, but a good starting point. Now we see stuff.

⁴Conferences are a little mess, but they are interesting because they often employ fewer people than the required roles: a small team is taking care of various activities spread around months, with a peak of intensity during the conference and the days before. The need for specialization is continuously at odds with the need of having to sync as few people as possible. At the same time, I've never seen two conferences alike, so I won't be revealing special trade secrets here.



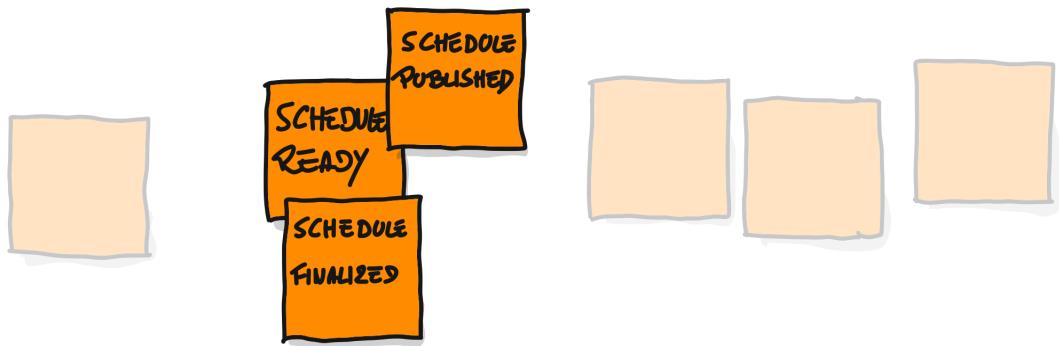
The possible outcome of a chaotic exploration round in a Big Picture EventStorming.

Moreover, this first step is usually *silent*: people will quietly place their brain-dump on the wall, wherever there's enough space available. Not so many conversations are happening. Next steps will be noisier.

Divergence as a clue

Actually, we want this phase to be quiet: people should not agree yet about what to write on sticky notes. The facilitator should make sure that there is plenty of markers and stickies so that everybody can write their interpretation of the flow independently, without influencing each other too much.

As a result, we'll end up with a lot of *duplicated* sticky notes, or *apparently duplicated ones*.



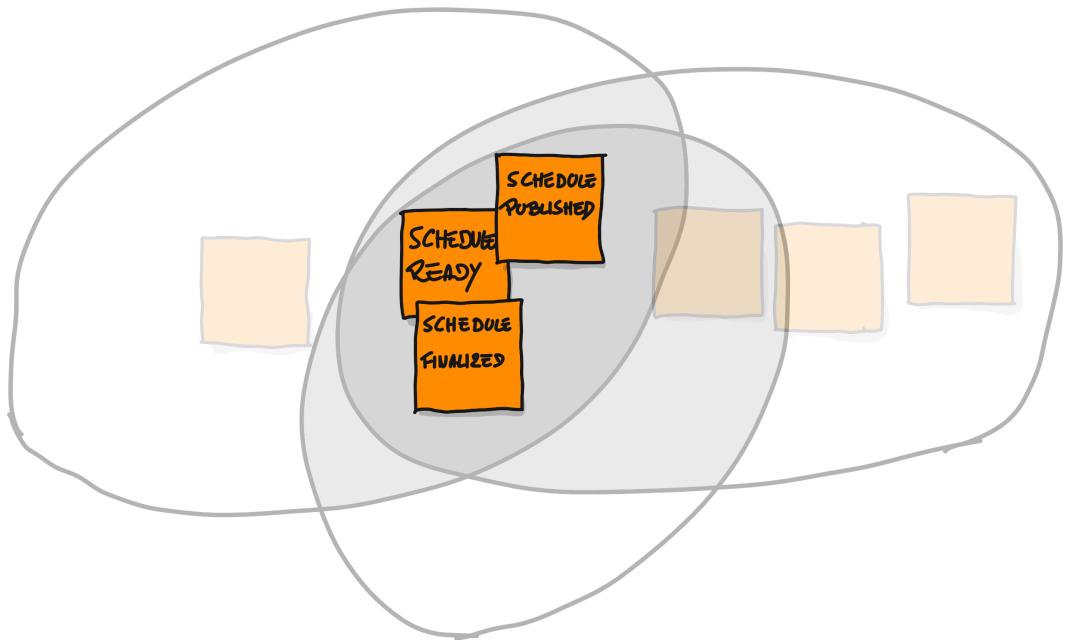
Different wordings are often a clue of different underlying meanings.

It's usually a good idea to resist the temptation to resolve those duplicates and find and *agree* on a single wording choice. Different wording may refer to different perspectives on the same event, hinting that this might be relevant in more than one Bounded Context, or that the two or more events aren't the same thing.

Getting back to our conference scenario, we might expect to have a few domain events referring more or less to the same thing, with different wording. Something like: Schedule Ready, Schedule Completed, Schedule Published and so on.

This discordance is already telling us something: this event (assuming or pretending there's only one event here) is probably relevant for different actors in the business flow.

That's cool! It might be a hint of multiple overlapping contexts.



Different meanings may point to different models, hence different contexts.

I didn't say "bounded" because the boundaries aren't clear yet.

Step 2. Enforce the Timeline

In this phase, we ask participants to make sure there is a consistent timeline describing the business flow from a beginning to an end.

It won't be that easy: there'll be parallel and alternative paths to explore. Even big-bang businesses, like conference organization, tend to settle on a repeating loop, usually repeating every year.

The need to come up with one *consistent view* of the entire business triggers **conversations** around the places where this view is not consistent. People start asking questions about what happens in obscure places, and they'll get an answer because we made sure the *experts are available!*

At the same time, we'll have diverging views about how a given step should be performed. Some conflicts will be settled — after all it's just a matter of

having a conversation — other will be simply highlighted with a **Hot Spot** to let the exploration flow.

HotSpots clarify the underlying approach of our exploration: we're not here to *solve everything*, there is just no time for that. However, we can try to *visualize everything* including things that are unclear, uncertain or disputed.

The Big Picture EventStorming will deliver the **snapshot of our current collective level of understanding of the business** including holes and gaps.

Emerging structure

Simply talking about problems and moving sticks around won't do justice to the insights and discoveries happening during this phase. This is where participants often look for a more sophisticated structure, to sort out the mess they just created.

There are a few strategies to make the emerging structure visible. The most interesting for discovering bounded contexts are *Pivotal Events* and *Swimlanes*.

Using Pivotal Events

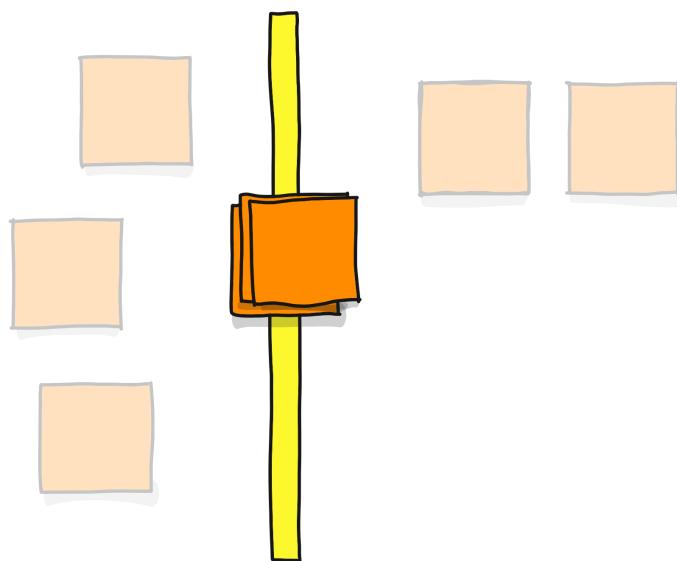
Pivotal Events are specific events which are particularly relevant for the business and mark a transition between different business phases.

In our conference organization scenario, we might spot a few candidates.

- Conference Website Launched or maybe Conference Announced: this is when you may start to sell tickets, but at the same time you can't easily withdraw anymore.
- Conference Schedule Announced: now, the speakers are officially in and ticket sales should start.
- Ticket Sold: on one side, here is a relevant business transaction, with money finally coming in; on the other one, we now have a *customer* and/or an *attendee* and a lot of specific communications that we'll have to manage.

- Conference Started: this is where attendees are expecting to get some value back from the ticket they purchased. Same goes for speakers looking for insights or contacts, and sponsors.
- Conference Ended looks like an obvious one. The party is over, let's deal with the aftermaths.

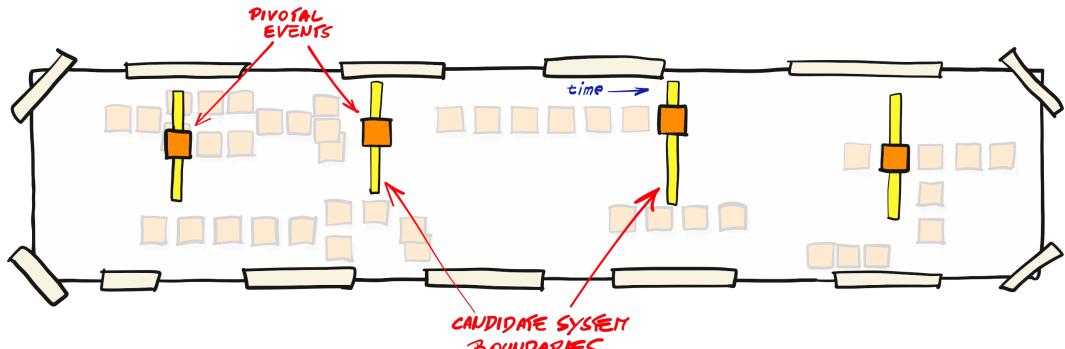
I usually mark the candidate events with colored tape, so that they're visible and we have a visible hint of distinct phases.



A piece of colored replaceable tape is my favorite tool for marking pivotal events.

It doesn't matter to pick the right ones, so I often keep this discussion short. I look for 4-5 candidate events that seem to fit that role. Mostly to sort out the internal events faster. We can still improve the model later if needed.

After highlighting pivotal events, sorting becomes a lot faster inside the boundaries, and a more sophisticated structure starts to emerge.



Pivotal Events are a great source of information.

Using Swimlanes

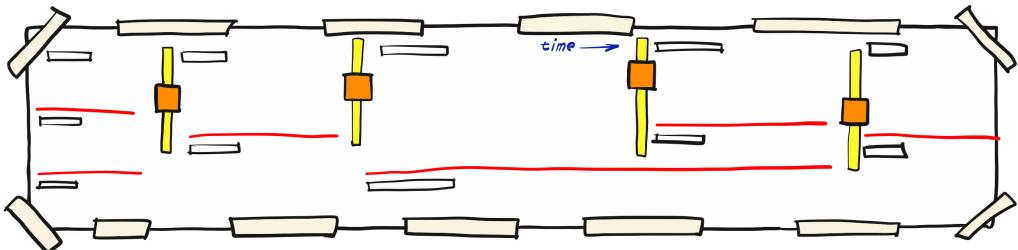
Even in the most straightforward businesses, the flow is not linear. There are branches, loops and things that happen in parallel. Sometimes the touch points between different portions of the flow are well-defined, like *billing* getting triggered only around the events of a sale, or maybe a cancellation. Other times, the relationship can be more complicated: announcing some famous speaker can boost sales, sales can attract sponsors, sponsorships can allow organizers to afford the paycheck for more superstars speakers, which can trigger more sales and eventually trigger a venue upgrade.

Horizontal Swimlanes is a common way to structure portions of the whole flow. It usually happens after pivotal events, but there's no strict recipe here: the emerging shape of the business suggests the more effective partitioning strategy.

In our conference scenario, we can spot a few main themes that happen more or less in parallel: a *Speaker Management Flow* dealing with theme selection, call for papers and invitation, logistics and accommodation; a *Sales Management Flow* dealing with ticket sales, advertising, logistics and everything needed to welcome attendees, a *Sponsor Management Flow* managing the other revenue stream; and last but not least a lot of not so ancillary areas, from venue management, to catering, staffing, video recording and so on.

Our replaceable tape comes in handy also to give a name to these parallel flows. The underlying structure backbone will now probably look something

like this:

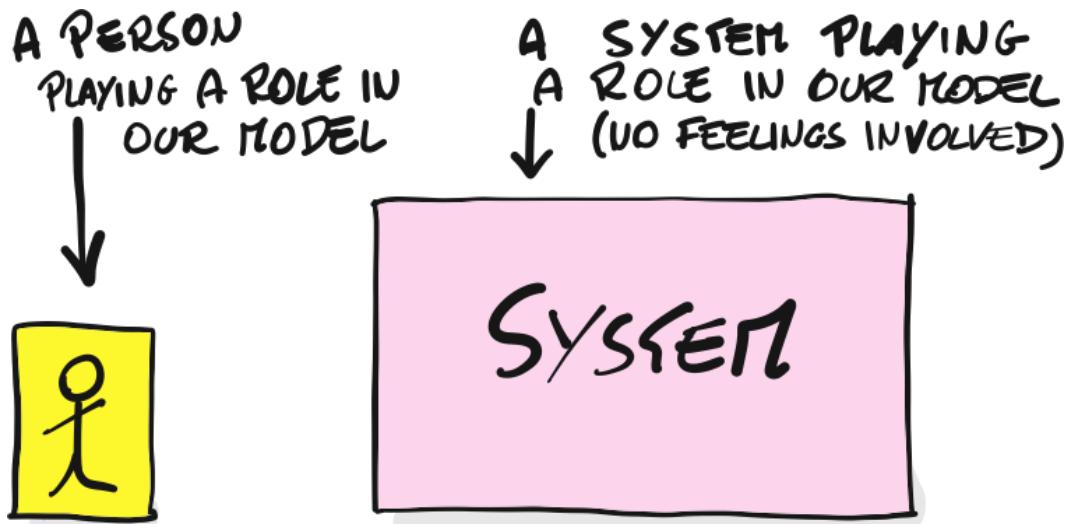


Pivotal Events and Swimlanes provide an emergent structure on top of the flow of Domain Events.

Everybody now sees the different *phases* of the business and the key relevant issues at every step.

Step 3. People and Systems

In this phase, we start exploring the surroundings of our business, explicitly looking for **people**: actors, users, personas, or specific roles in our system; and **systems**: from software components and tools to external organizations. Nothing excluded.



Here's the incredibly simple notation for people and systems.

Visualizing different actors in our system — in practice, we don't call them *actors* just *people* — helps to dig into the different perspectives. We might discover specific responsibilities and roles, or differing perceptions: all speakers are submitting talks, but the treatment can be different if we're talking about a superstar guest, invited as a keynote speaker, an expert or a newbie. A puzzled look during this exploration phase may end up in opening an entirely new branch or making different strategies more visible and readable.

Systems usually trigger a different type of reasoning. On the one hand, they make our boundaries explicit. We won't be able to deliver value in a vacuum, with self-contained software: tools, integrations, and collaborations are needed to complete the flow. Payment management systems, ticketing platforms, social media platforms, video streaming, billing software, and whatever comes to mind.

Systems can also be external entities like government agencies, or something as vague as “the weather” (which might be a severe constraint if you are organizing a conference in extreme regions, or if you're so lucky to get a snow storm the day before).

From the software perspective, an external system calls for some integration strategy (maybe our all-time favorite: the Anti-Corruption Layer), but from

the business perspective, external systems often impose constraints, limitations or *alibis*, a free scapegoating service if anything goes wrong.

Step 4. Explicit Walkthrough

Every step triggers some clarification and prompts writing more events. Even if we added some structure, with pivotal events and swimlanes, and had some interesting conversation on the spot, the whole thing still feels messy. Probably because it is still messy.

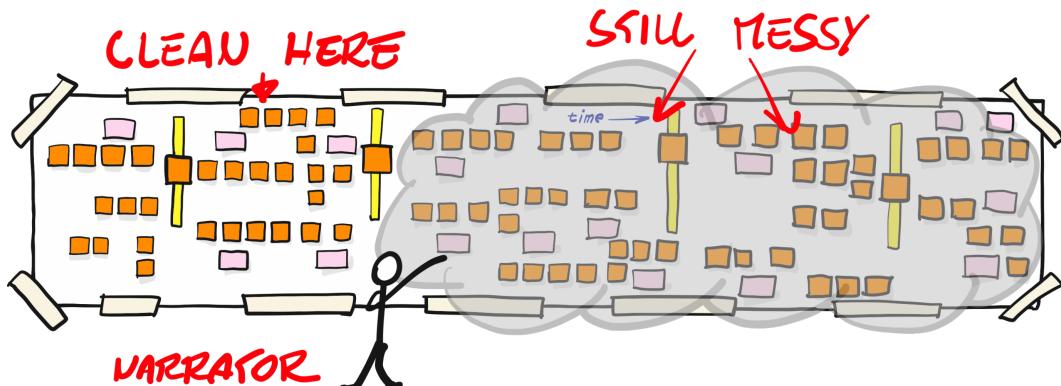
It's now time to validate our discoveries, picking a *narrator* trying to tell the whole story, from left to right. Consistent storytelling is hard, in the beginning, because the narrators' brain will be torn apart by conflicting needs. Narrators will try to tell the story using the existing events as building blocks, but at the same time, they'll realize that what seemed *good enough* in the previous reviews is not good enough for a public *on stage* storytelling session.

Now our model needs to be improved, to support storytelling. More events will appear, others will be moved away, paths will be split and so on.

The audience should not be passive. Participants are often challenging the narrator and the proposed storytelling, eventually providing examples of corner cases and not-so-exceptional-exceptions.

The more we progress along the timeline, the more clarity is provided to the flow, while the narrator is progressing like a *defrag cursor*⁵.

⁵If you're old enough to remember what *defrag* used to be. ;-)



An explicit walkthrough round is our way to validate our understanding.

Extra steps

There are a few extra steps that might be performed now, usually depending on the context, that may provide more insights. I'll describe them briefly.

- We sometimes explore the **value** that is supposed to be generated or unfortunately *destroyed* in the business flow. We explore different currencies: money being the most obvious one, often to discover that others are more interesting (like *time, reputation, emotional safety, stress, happiness*, and so on).
- We explore **problems** and **opportunities** in the existing flow, allowing everyone to signal issues that didn't surface during the previous steps, or to make improvement ideas visible.
- We might challenge the status quo with an **alternative flow**: once the understanding of the current situation is settled, what happens if we change it? Which parts are going to stay the same and which ones are going to be radically changed or dismissed?
- We might **vote the most important issue** to leverage the clarity of collective understanding into political momentum to do the right thing⁶.

⁶This area might be what your *Core Domain* looks right now.

All this stuff, plus more, is usually awesome! But most of the information needed to sketch context boundaries is already available if you take a closer look.

Deriving this information from our workshop is now our job as software architects.

Homework time

Once the workshop is officially over, and participants left the workshop room, we can start talking software, ...*finally!*

I used to draw context maps, as a way to *force myself to ask the right questions early in the project*, now I run EventStorming workshops, and I engage stakeholders in providing the right answers without asking the corresponding questions.

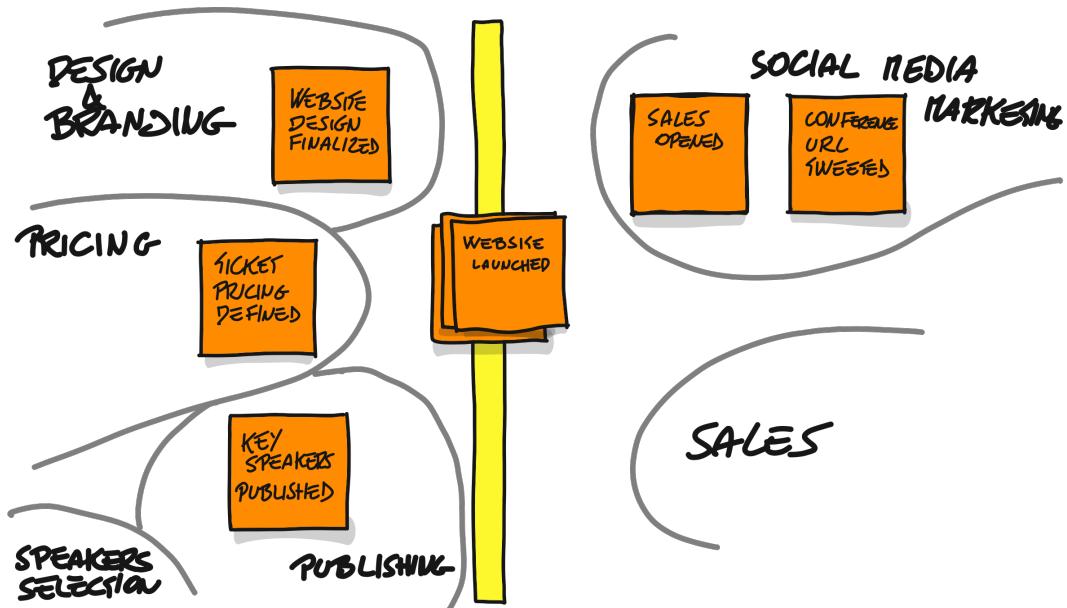
There's a lot of Bounded Context related info that comes as a byproduct of our discussion; we only need to decipher the clues. So, here we are with some heuristics⁷, that may come in handy.

Heuristic: look at the business phases

...or like detectives would say: "*follow the money!*" Businesses grow around a well-defined business transaction where some value — usually money — is traded for something else. Pivotal events have a fundamental role in this flow: we won't be able to sell tickets online without a website, everything that happens before the website goes live is *inventory or expenses*, we can start making money only after the Conference Website Launched event.

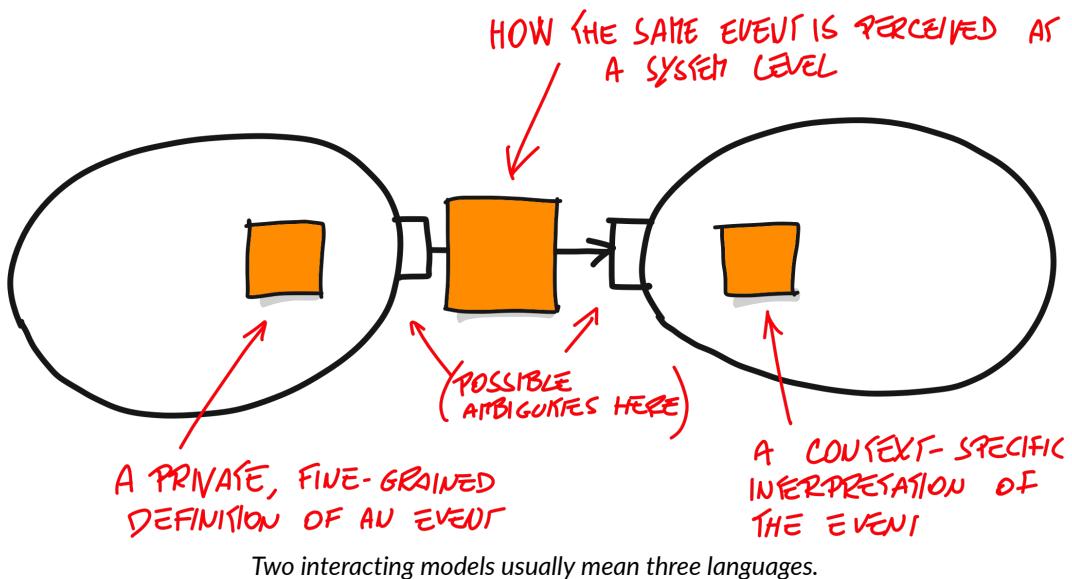
Similarly, after Ticket Sold events, we'll be the temporary owners of attendees' money, but they'll start to get some value back only around the Conference Started event. But the tools and the mental models needed to design a conference, are not the same tools needed to run a conference.

⁷I might have used the word 'heuristic' here only to make Mathias Verraes happy.



Interestingly, boundary events are also the ones with different conflicting wordings. Here is where the perception of bounded contexts usually overlaps. A key recommendation here is that *you don't have to agree on the language!* There's much more to discover by making disagreements visible.

Moreover, keep in mind that when two models are interacting, there are usually *three* models involved: the internal models of the two bounded contexts and the *communication model* used to exchange information between them.

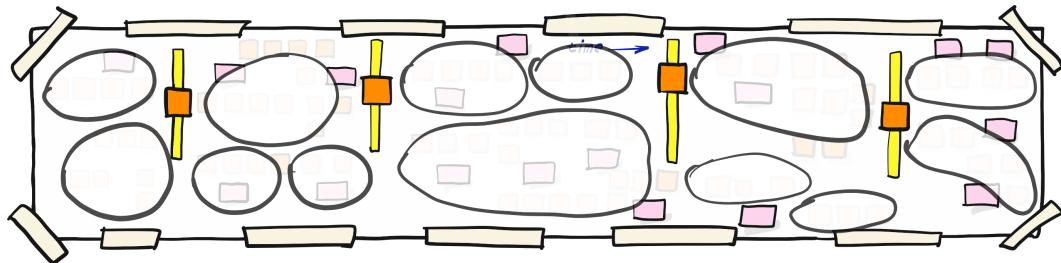


Two interacting models usually mean three languages.

A simple example: I am trying to communicate with my readers using the English language, but I am not a native English speaker. My internal reasoning model is sometimes English too, and sometimes Italian. But readers shouldn't be able to tell (I hope). At the same time, this text is not intended for British and American people only, every reader will translate into their mental model, possibly in their native language.

In general, **different phases** usually mean **different problems**, which usually leads to **different models**.

Pivotal Events are usually part of a more general *published language* shared between the different parties.



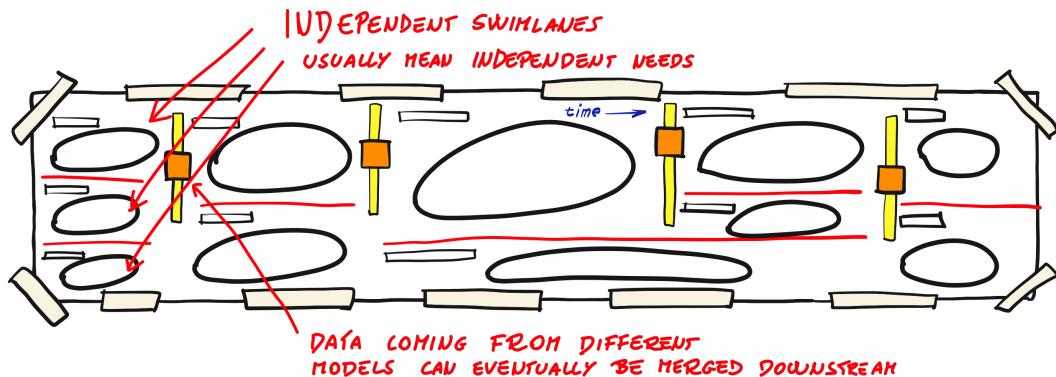
Emerging bounded contexts after a Big Picture EventStorming.

The picture above shows more or less what I am seeing when looking at the flow with Bounded Contexts in mind.

Heuristic: look at the swimlanes

Swimlanes often show different paths that involve different models.

Not every swimlane is a Bounded Context, sometimes they're just an *if* statement somewhere, but when swimlanes are emerging for the need to highlight an independent process, possibly *on a different timeline*, then you might want to give a shot to an independent model.

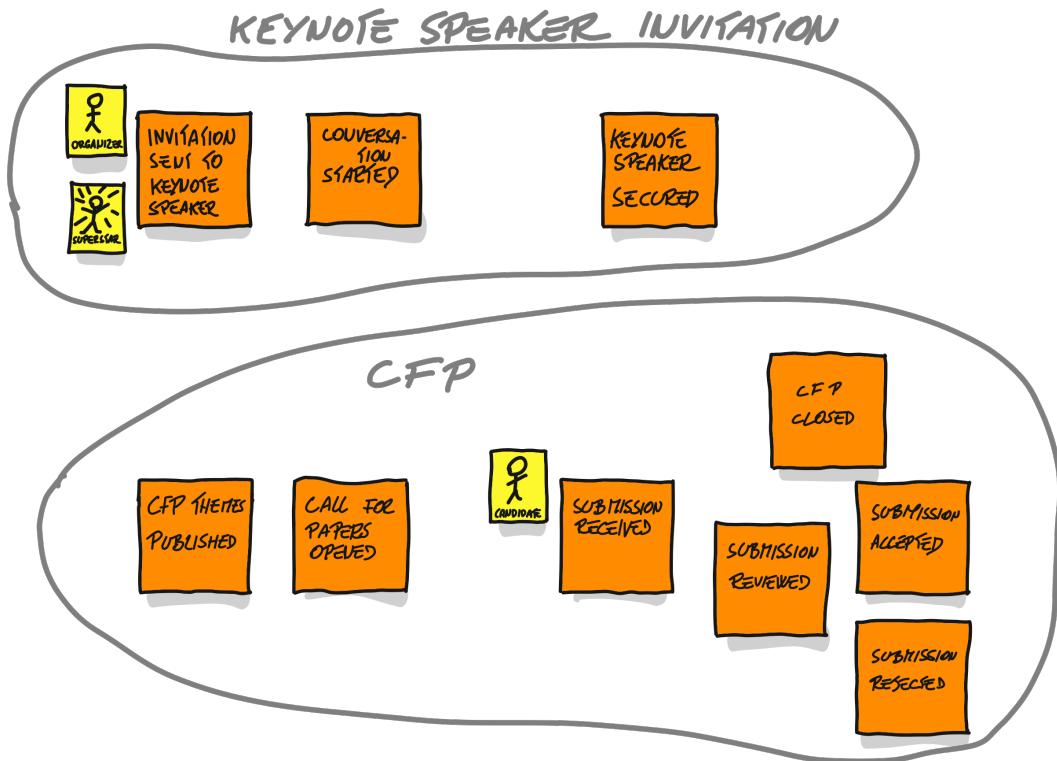


Swimlanes are usually a reliable clue for possible different bounded contexts.

Heuristic: look at the people on the paper roll

An interesting twist might happen when dealing with different *personas*. Apparently, the flow should be the same, but it's not.

Conference organizers or track hosts can invite some speakers, while others submit their proposals in the Call for Papers. The flows can be independent in the upstream part of the flow (you may want to skip a cumbersome review process for a superstar speaker). Downstream they're probably not (on the conference schedule, you want the same data, regardless of how you got it).



Two parallel flows may require independent models.

Some organizations are well-equipped to think in terms of *roles*: they'll recognize that speakers and keynote speakers are different in the left part of the flow, but they'll have a similar badge during the *registration process*, and they won't be different from regular attendees during lunchtime, when

their role would be a simple mouth to feed.

Heuristic: look at the humans in the room

This is so obvious that I feel embarrassed to mention, but here we are: the people. Where people are during the exploration is probably giving the simplest and powerful clue about different model distribution.

Experts tend to spend most time hovering around *the areas that they know better*, to provide answers or to *correct wrong stickies*⁸ that they see on the paper roll. Alternatively, they comment around *the areas that they care about*, maybe because the current implementation is far from satisfactory.

Different people are a great indicator of **different needs**, which means **different models**.

The fun part is that this information – where people *are* – will never be documented, but will often be remembered, through some weird spatial memory.

Heuristic: look at the body language

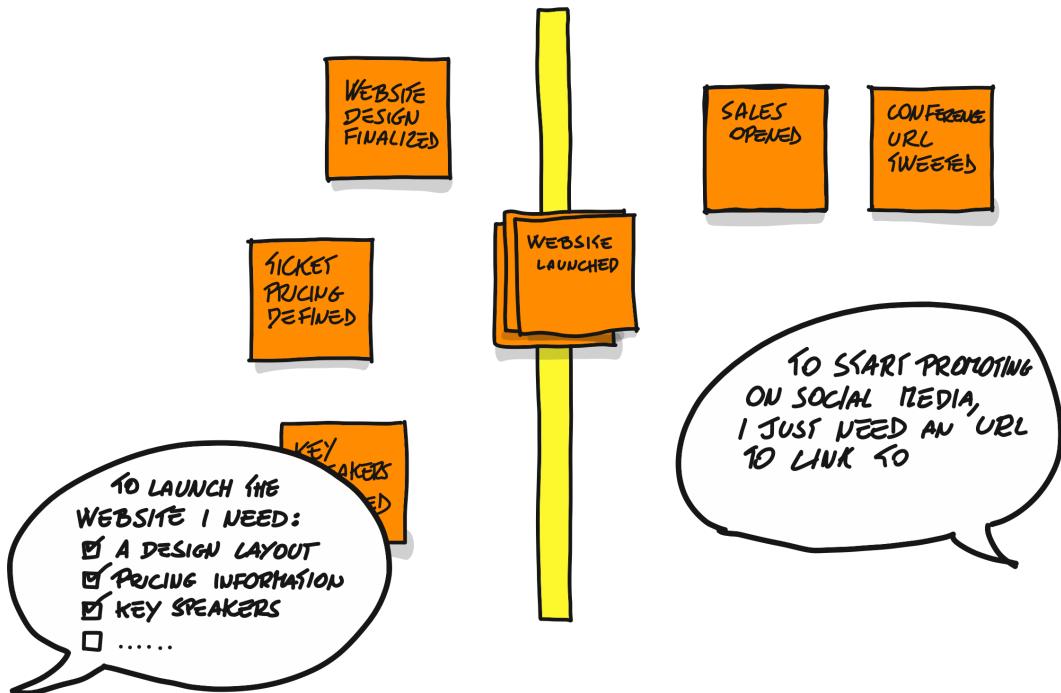
People's body language can be another source of information: not every dissent can be verbal. It's not infrequent to have people from different hierarchy levels to have different views on *apparently the same problem*. Shaking heads, or eyes rolling are a clue of conflicting perspectives that haven't been addressed.

Domain-Driven Design has a fantastic tool for resolving these conflicts: it's not "*we need a model to solve these issues*", it's "*we need a model to solve your problem and we need a model to solve your boss' problem*", it would be up to software architects to find the perfect way to interact.

Once again: **different needs mean different models.**

⁸Nobody can resist this temptation: *somebody is wrong here!* I have to point it out immediately! EventStorming leverages this innate human behavior and turns into a modeling propeller.

It doesn't end here. A typical conversational pattern often happening around pivotal or boundary events is the one in the picture below.



A typical competence clash, the persons on the left usually know all the mechanics involved in a given step, while the ones on the right only care about the outcome.

There is complex knowledge about everything is needed to complete something and it's often similar to a task list. On the downstream side of the pivotal event, this complexity should vanish: people usually don't care about the how, but only about the what.

In our scenario it may be something like: "I don't care whether you used WordPress to publish the website, I just need to know whether the URL is reachable or not" or "I don't care how did you decide those prices, I just need to know the amount for every ticket type".

Heuristic: *listen to the actual language*

This is probably the trickiest tip because the spoken language will fool you. The language kept fooling us for decades, and that's one of the reasons why Domain-Driven Design exists.

If you look for central terms like `Talk`, you'll discover that they're used in many different places.

- A `Talk` can be *submitted*, *accepted* or *rejected* in the call for papers.
- A `Talk` can be *scheduled* in a given slot, of a given track.
- A `Talk` can be *assigned* to a given presenter or staff member, to introduce the speaker.
- A `Talk` can be *rated* by attendees.
- A `Talk` can be *filmed* and *recorded*.
- A `Talk` can be *published* on the conference YouTube channel.

...are we sure we're talking about the same `Talk`?

The trick here, is that *nouns* are usually fooling us. People tend to agree on the meaning of *names* by looking at the static data structure of the thing: something like "A *talk* has a *title*." which is an easy statement to agree with, but doesn't mean we're actually talking about the same thing.

In the list above, we're talking about different models: *selection*, *scheduling*, *staffing*, etc. The thing has probably the same name, and needs to have some data in common between the different models ...but *the models are different!*

Looking at *verbs* provides much more consistency around one specific *purpose*.

Putting everything together

Compared to traditional, formal requirements gathering, the amount of information that we can achieve during an EventStorming session is not only superior: it's *massively overwhelming*.

People's behavior and body language can never fit into standard documentation. However, this non-formal information tends to find its way to a good model because ...*we've been there!* We've seen people in action around *their problem* and some stupid things like mixing things just because they happen to have the same name, won't happen!

It doesn't require that much discipline, or rules. It simply feels incredibly stupid to mix things that shouldn't, because they don't belong together. They were meters apart on the wall!

I hope the heuristics I just described will help you to sketch your models, but, more importantly, this will give you the chance to understand the deep purpose of your software, and maybe of your organization too, in a compelling call to do the right thing.

In a single sentence, the whole idea is really simple:

Merge the people, split the software.

In retrospective, I still wonder why we wasted all those years doing the opposite.

7. Making it happen

Managing Participant's experience

The facilitator is the primary responsible of the workshop user experience. His duty is to keep eyes open for impediments to optimal flow and remove them in the smoothest possible way

Postpone precision

The initial requirement (orange sticky notes plus verb at past tense) is apparently really simple. In practice, it's never met in the first round.

I am usually strict in enforcing the color scheme (if more colors are available, there'll always be someone picking a different color), but more relaxed in dealing with domain event in the wrong form.

The color problem is easily solved making sure different colors are not in sight. Wrong phrasing is a different matter. It will be an issue later, because it might hide some crucial complexity, but during the ignition phase is vital that participants don't feel under examination, especially in corporate scenario.

So I usually survey the model, and let it go initially, as long as wrong stickies are not the majority.

Unlimited Modeling Resources



The hidden cost of a depleted marker

You're just about to start a meeting. Ten busy colleagues join. After a quick welcome, you grab a marker and start writing the meeting goal on a whiteboard. Well ... that was the plan. The marker is in its 'end-of-life'. Totally useless. You look for other markers... there's the red one, but it isn't in better shape. Hrmpf. A volunteer leaves the room looking for more markers.

He's back in a couple of minutes, but in the meanwhile some vibe is already gone: you don't want to say anything important since one person is missing, but at the same time, people don't like just being idle. Some start a casual conversation, others quickly check their smartphones, in order to get some stuff done.

Your colleague comes back with some new markers, telling a story of the embarrassing questions he had to answer in order to get them. You try the new ones, just in case. Ten minutes behind schedule, you're ready to start, but one person is still engaged in the messaging thread that started while waiting. The room was booked for one hour, and you wasted 16% of that precious time. Counting 8 people in the room, this amounts to 1 hour 20 minutes of the average hourly cost. Way more than a marker. Even more annoyingly, the loss of focus and purpose can make the meeting even more ineffective. There's linear correlation between the time spent and the hourly cost, but the relationship with the generated value is more related to *focus* and *engagement* than the time spent. A disengaging setup could make the meeting pretty useless.

Visible Legend

Making it sure everybody knows what they're doing is crucial for the workshop's flow. Keep in mind that most of the workshop participants *are doing it for the first time*, so they'll need as much safety as you can provide. They're

already far outside of the comfort zone, let's not make things harder than necessary.

A **Visible Legend** where the current notation is visible and clear to everybody might come in handy to avoid impediments in the flow of thoughts (like *what did that pink thing mean?*).

It will also help a

Capture definitions

While everybody is busy adding events to the model, facilitators can leverage their own ability to ask stupid, oops ...obvious questions.

If everybody in the room mentions a mysterious term an acronym, and you have the feeling that in the organization specific domain, this term means something really *precise*, that is obvious to everybody in the room except you, well ...just ask for a definition and write it, then place it at the bottom of the flow.



I use different stickies for the definitions, so that they don't get mixed with the core notation. In this case, everybody was talking about Investments, but the meaning wasn't obvious to everyone

More often than not, the facilitator isn't the only one person wondering what an Investment really is, but others may not feel confident enough to ask. If you get a silent nod of approval, you've done a good job.

Incremental Notation

Notation shortcomings

While trying to make sense of the whole thing, participants will soon realize that enforcing a timeline is tricky and probably simplistic. It does serve the main purpose of enforcing long awaited conversation, but it has some common shortcomings.

Can't we use Arrows?

Arrows would be just perfect in an EventStorming session. Unfortunately stickies can be replaced, and static pads can be shuffled, but arrows are drawn. This means that once you write something (and the paper roll is damn tempting) you can't easily erase that.

Not a big deal apparently. But it will quickly make your problem harder: the surface will look messier and dirtier, adding extra work for your brain in order to separate the signal from the noise.

More annoyingly, once an arrow is drawn, your brain will try to model the flow *without moving sticky notes* in order not to invalidate the existing arrows. This is a little instance of the *Sunken Cost Fallacy* that has the same dynamics: it will push you into more expensive mistakes in order not to admit the past ones¹.

I've found that people can get along quite well without arrows once a timeline is visually well represented. In the few cases where *proximity* and *temporal order* are not enough to imply consequential coupling between events (maybe because they're distant in the model) we can be more explicit and add a little note on the consequence event, or duplicate the originator event and place a copy close to the distant consequence in order to simplify readability.

[FIXME: this calls for an image]

¹We'll discover that Sunken Cost Fallacy is our personal arch-enemy, whose influence spans from the lazy temptation not to rewrite a sticky note, once we find a better wording for it to the irrational affection towards blatantly flawed portions of legacy code.

Timeline is too strict

Time is the perfect baseline for narratives. But not every business flow fits easily into a strict sequence. Usually, during this phase, some recurring questions might be: “How do we manage recurring events?” or “Where do we place events which aren’t strictly related?”

A timeline is a great way to force some degree of integrity between overlapping narratives, but strict compliance to the timeline is not our goal: it’s just our best tool to enforce some consistency into the conversation.

However, here are a couple of modeling tricks that may be interesting for the picky ones.

Time-triggered events

Some events just happen, because it’s time. Some financial closing operation might happen at the end of the month. Some more detailed report might be needed at the end of quarter, or end of year.



A time-triggered event, even if it's hard to envision it

If time is in the days scale, I like to use a calendar-day icon. One doesn’t need to be an artist in order to draw it, but it delivers the message.

In general, when things happen ‘at the right time’ there’s an implicit time-triggered event waiting to emerge. Introducing this concept as an explicit

event could make the whole process a lot clearer.

[FIXME: another picture, maybe]

Recurring events

Some events might happen repeatedly. Even the just mentioned time-triggered ones may in fact occur at given intervals. If repetition is a relevant detail for a specific domain event we might want to annotate our domain event accordingly.

[FIXME: little picture of recurring event]

There is no main sequence

No business is just a timeline of things that happen in a strict sequence. There always will be feedback loops and things that happen at a moment disconnected from the main flow.

But the timeline is the best tool available to enforce consistency of the independent perspectives, and to trigger meaningful conversations. It makes the whole story consistent. And humans are very good in understanding stories.

The more I look into it, the more I realize that EventStorming is basically a support for *business relevant narratives*. As analysts or software developers, we should encourage domain experts to tell us *stories*, and ensure the building blocks of our model allow us to tell the same story, without inconsistencies.

Managing conflicts

A Big Picture EventStorming is not a workshop for those that like to sweep the rug under the carpet. In fact, its more of a *let's have a look under the carpet party*.



Chapter Goals:

- The role of the facilitator
- Tips for resolving conflicts
- Different people make a different party

8. Preparing the workshop - 30%

Choosing a suitable room

Too many times, I've seen the best intentions turned down by the wrong setup.

Unfortunately, you don't have to do much in order to have a wrong setup: it's usually already in place in your organization.

Your building was probably designed and built around the wrong stereotype of worker. Even if you had the privilege to design your office space around your needs, most of the times meeting rooms end up being optimized for a different purpose (which usually boils down to "*run ineffective meetings, so that there'll be the need for another meeting*").

As Sun Tzu would put it:

Every battle is won before it's ever fought.

Your meeting room is your battleground. It doesn't provide you an advantaged position. In fact, usual room setup, people habits and inertia, will drive you to run just another long, boring, ineffective, exhausting meeting just like the dozens you had before. People will take a seat, and set up their laptop, starting to do something else while the somebody else runs the show.

You'll have to do something different this time.

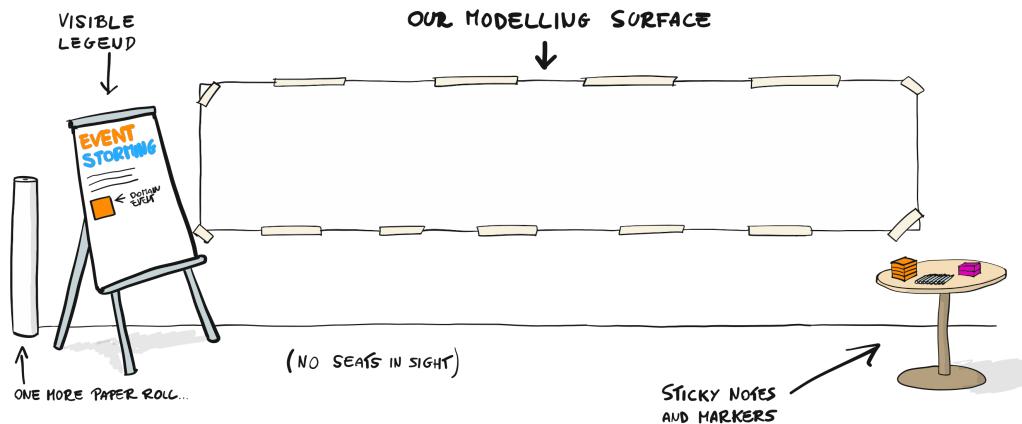
It's your duty to *hack the battleground* in your favor, creating a special environment where individual and corporate habits won't get in the way. Your mission is to *find the right problem to solve*, not to *find the right problem to solve despite all the constraints of a hostile environment*.

Instead of preparing yourself an alibi ("we were given the wrong room to run the workshop"), let's take control before the battle, like great generals do.

Here are a few key actions, that you have to consider, whether you're given a meeting room on your own premises, or if you have to rent a special one.

- **Provide an unlimited modeling surface:** usually this means placing as much as you can of your plotter paper roll to the longest straight wall. Be sure to have a strategy for expansion, the problem might turn bigger than you expected and what looked like *unlimited* in the beginning will become constraining later.
- **Provide a visible legend:** most of the people will be *new to EventStorming*, so be sure to always provide some guidance. You'll need a separate surface which is not interfering with your working surfaces. A flip-chart is usually fine.
- **Remove chairs:** You might want to have them available, later on, but definitely not at the beginning. Taking a seat invites a *passive listening mode* and a disengaged behavior¹ during the meeting, and having people stand up, after they took a seat is *really hard*.
- **Move tables aside:** Tables are normally a little harder to move away, especially those huge meeting rooms ones. We'll need some small table, in order to write on the sticky notes. Tall, smaller tables are a perfect match.

¹"I am sorry, I can't read from here...", it's hard not to say a word, sometimes.



What the room is going to look like



Breaking Corporate Habit

In large corporations, people are so used to dysfunctional meetings that their Pavlovian reaction is to assume your workshop is going to be dysfunctional too. Around the meeting time (with all the typical cultural nuances²) participants will start to arrive, grab a seat, open the laptop and wait for the meeting to begin.

Don't let it happen! During these types of meeting the stakes are high and you'll need to use all the weapons available; and weapon number one is to turn the environment at your advantage.

In general, every time you hack the space before a workshop or a meeting, you have a sort of '*surprise effect advantage*': many people coming to the meeting will notice there's something unusual and will be more curious about what's going to happen next³.

This curiosity will be your best friend.

²the world-famous '*Italian punctuality*'.

³to be honest, no guarantees here. You might as well bump into people whose attitude is "*Where the hell is my seat!?*", but ...that's life.

Provide an unlimited modeling surface

In the previous chapter, we've talked about the effect of silos on the distribution of knowledge about key stakeholders. This ends up in problems which are hard to visualize on traditional supports like flip-charts and whiteboards.

EventStorming tackles this problem providing an [unlimited modeling surface](#): a modeling space so big that it doesn't mandate any *scoping* before the action starts.

In practice, this often means the availability of paper rolls to be placed on a long straight wall.

[FIXME: image of the floor plan]

Too many times, our discussion has been constrained by the size of the available modeling surfaces. To discuss really big topics, the available space matters *a lot*. To overcome the problem, in my company every wall is now writable and finding a surface to model large problems is not an issue anymore. However, most working environment don't have that privilege, and calling a painter first, is probably not the best starting move⁴.

[FIXME] More on this in the [Breaking the space constraint chapter](#)

100% Focus

An interesting side effect of the *no tables policy* is that there won't be space for laptops.

I am so sorry for that.

...No I am not. In fact I am just ensuring that people will be fully engaged in the workshop. It will happen anyway, EventStorming is way more interesting than checking corporate email, but there are also a few more dysfunctional effects of having laptops in the meeting that should be actively discouraged.

⁴we'll cover that topic in detail in the [tools](#) section.

Valuable conversations will be sparkling. An open laptop is anchoring a key person to be disengaged. Some conversation simply won't happen because somebody is busy discussing reimbursement of a taxi ride.

Some people might keep the laptop open as a reference, in order not to forget anything. While the professionalism is admirable, the result is not. The implicit communication will be something like *there's no need to waste time discussing, I've already done the exploration for you*. Which I consider to be a very annoying statement.



Maybe you don't need a meeting room

Sometimes, the problem of finding a *suitable room for an EventStorming* didn't need to be solved. A large enough corridor might just work as fine:

- no seats, *by design*;
- a long straight, wall;
- no table.

In this case you might want to provide a small table, for writing, but that's basically it. Moreover, not having a room provides a lot more visibility, allowing for somebody else to join the party.

Keep in mind that light and temperature also play a role, and that a stand-up only meeting can't last more than one 60-90 minutes without entering some form of *fatigue* state.

Keep the possibility of leaving stuff around

Choosing a temporary meeting room for running the workshop might not be the best idea, especially if you have to wrap up quickly to leave the room free for another meeting.

Even if the workshop is officially finished, there's still value in having the visible outcome available for a few days. Not every conversation or stream of

thought that sparkled during the workshop could be time-boxed, and there will be invisible thinking that need just a safe place to land.

Moreover, the workshop is optimized for extroverted people, but introverted participants might have something very interesting to say, in a calmer setting, so prepare to leave stuff around and stay close to the modeling surface for a few hours after the workshop.

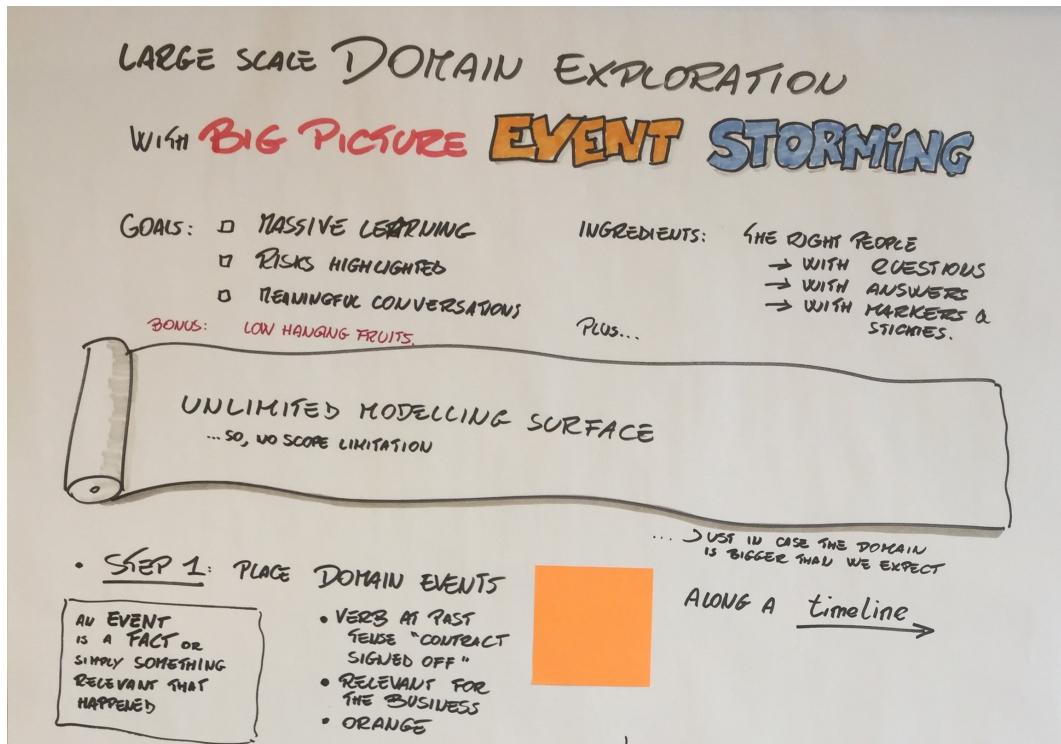
The morning after is usually really valuable, for afterthoughts. The ideal scenario would be to have the place available for one day and a half. But I said ‘ideal’, so trade-offs are part of the game. I’ll tell more in the wrap-up section.

Provide a visible agenda

People are more inclined to join open-ended activities if they feel that facilitators are using their time wisely. Remember: the more important the people you’re talking to, the more important will be the thing they’re postponing because they joined your workshop.

A visible agenda is your best friend in order to make them feel comfortable, that someone knows what to do.

Here is a picture of a visible agenda from one of my workshops.



The starting agenda for a Big Picture EventStorming

I usually try to highlight the goals, even though I am aware of the intrinsic fuzziness. But the main goal is to provide an asynchronous reference available so that nobody gets stuck.

If the time constraints are strict, you may want to set an explicit plan for the different activities, and timebox them. However, keep in mind that Big Picture is a *discovery* activity, so surprised will override the plan. However, when this happens make it an explicit, and if necessary call a quick voting session.

Seats are poisonous

Managing invitations

There are three types of people you want to be part of your Big Picture EventStorming workshop:

- *people with questions*,
- *people with answers*,
- *a facilitator*.

That's the *ideal* mix of people. But just like in parties and gigs, each one has its own alchemy. Let me clarify a little.

People with questions

Ideally, this description should include whoever is involved in designing and implementing a solution⁵ to the problems we'll be discovering. For non trivial projects this involves a mix of organization, service design, software development, maybe product development.

Curiosity is the driver. The genuine desire to learn is the best reason to join the workshop. Whether you are the commander in chief and you want to grasp what is really happening under the hood, or you're the last person hired by the company but need to understand what's going on in order to contribute to the solution, you'll have plenty of good reasons to join the workshop.

⁵In the early days of EventStorming, when it looked like a great tool for speeding up software development, the term 'people with questions' seemed to match perfectly with the software development team. Later, EventStorming became a more general purpose tool that helped people coming from different backgrounds to have a better conversation around a shared artifact. Service designers, user experience designers, and whoever is involved in transforming the status quo into something different became welcome.

People with answers

Having all the experts in the right place and in the right moment is probably the nirvana of requirements gathering.

Gathering curious people is easy by definition, if they recognize an opportunity for massive learning, they'll show up like cats when you're opening the fridge. But when it comes to *domain experts*, those legendary creatures expected to share their wisdom with software developers in order to create great software solutions, well sometimes getting them on board might not be that easy. At least, not all of them at the same time.

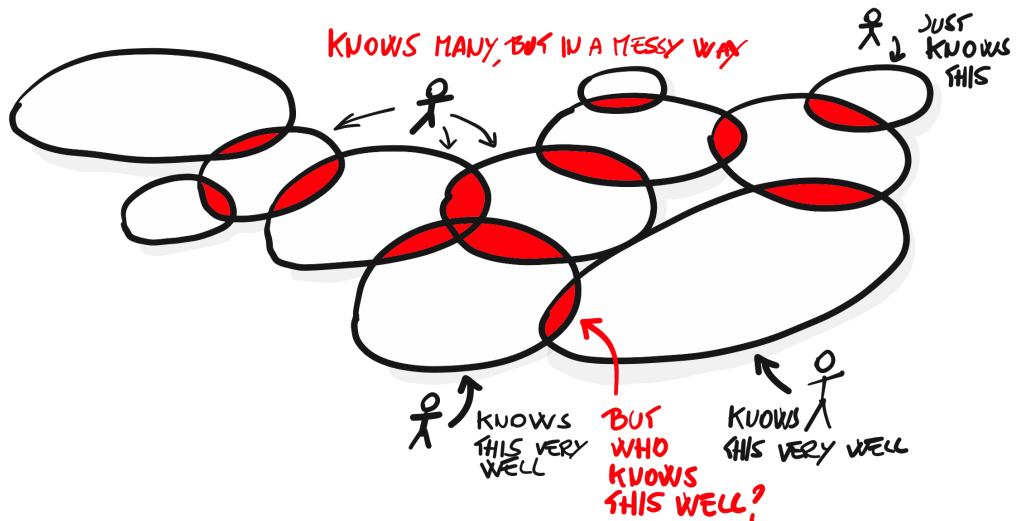
Well ...invite them anyway. If they care, they'll show up.

People with *conflicting answers*

We already found in Chapter three that there won't be a single source of wisdom.

Let's recap.

There won't be a single domain expert, with deep knowledge of several aspects of the domain, but many people each one with partial, possibly outdated, conflicting views of the problem domain.



Areas of expertise will overlap, but of course experts would not agree on broader definitions

The red areas, these overlapping, possibly conflicting, areas of expertise are exactly what we expect to find. A few people, with different stories to tell, each one telling a bit of truth, and discoveries to be made by asking the right questions to the right people. These are exactly the places that usually hide the best opportunities for improvements.

So don't be reluctant to invite people with strongly different opinions. Managing conflicts, clarifying them and making them visible, is one of the key outcomes of EventStorming, so ... invite that person too.



You probably realized that I was trying to fool you

The distinction between people with questions and people with answers is very likely to be fake and artificial in practice. Nobody knows everything and intelligent people will be curious and have questions, no matter what! In a good workshop every single person involved will learn a lot.

But the workshop hasn't happened yet. People will be skeptical into investing their precious time into a weird activity, and the bigger their ego, the smaller the appeal of the words *collective learning* will be to their ears.

So the dichotomy *people with questions vs people with answers* only serves the purpose of extending the range of the people to invite, to everyone whose presence can be beneficial to the whole group.

The real story is that, at this moment we have no idea what "the real problem" is going to look like, so introducing early constraints on the solution shape wouldn't make much sense. Is it going to be more software? Or removing a piece of legacy software which is now in the way? Or just a different process and working agreement? We don't know yet.

Maybe, instead of the false dichotomy of people with questions and people with answers, it would be better to just invite *people who care*.

Facilitator

There's a lot of behind the scenes work that happen during an EventStorming workshop. And there's going to be some disagreement, that could lead to stalemates.

Since we'll be targeting problems lying under the carpet for ages, it's better to rely on somebody which is in the position to manage disagreements without much emotional burden, or a predefined position on the matter.

Facilitator duties will include workshop preparation, providing all the necessary stationery and the illusion that everything is under control.

Yes, I said illusion.

"If everything is under control you aren't going fast enough"

Mario Andretti

Tech People or business people?

"Who should we invite? The technical people or the business people?"

Crossing hierarchies

I am not a big fan of hierarchies, especially if they are a roadblock towards a solution. EventStorming provides a common ground between people that see local solutions and people that need to see the big picture.

There is no need to make a classy distinction between *elite meetings* and *poor people's meetings*. However, in many organizations, the chasm is there, and it won't disappear easily.

The funny thing is that organizations where organizing a cross-department/cross-hierarchy is a pain *are exactly the companies that would benefit most from it*. But of course they won't know it in advance.

Preparing the agenda

It's very hard to convince people to join an uncontrolled meeting. So be ready to have something that looks like an agenda and set up a time-boxed structure for the different phases. But in practice, the facilitator will have to ignite a somewhat chaotic exploration with a very loose grip.

Conversation will sparkle. Some will be incredibly interesting: something the entire organization has been waiting for ages, and the facilitator will just have to *observe and take notes*. Others will be poisonous: the repetition of a disengaging ritual that will make somebody's eyes roll, and the facilitator will

have to find a way to stop or re-frame them, in order to keep the workshop valuable.

Invitations won't be perfect

There is no perfection in the invitation process. Or maybe I simply couldn't find it.

- The more people we invite, the harder it will be to find a suitable time to have all the key people in the same moment in the same place.
- The more we wait, the more we let the status quo rot.
- People will be skeptical about new weird stuff by definition. They will be pleased by the outcome later, but invitations are supposed to be done before the workshop⁶.

Best scenarios I've been in were the ones where a sense of *purpose* was already in place. The whole organization was aware there was the need to do something, only they were confused about what to do.

But that's the workshop purpose.

The mess in the invitation is telling you something

If your organization is so complicated that putting together the key representatives of the independent silos is a daunting effort ... *you have a clear metric of how much your organization structure is constraining learning.*

Is it a trade off you can live with? The answer is all yours.

[FIXME: Finish]

Manage expectations

⁶With the notable exception of Stephen Hawking's Time Travellers party, where the invitation was published after the party happened. No time travelers showed up, if this is proving anything.

9. Workshop Aftermath - 20%

If your goal is to solve the problem by writing software, your job isn't finished when the workshop is officially over. As a member of software development team, you probably just had a unique chance to see the business side of your organization in action, with all their contradictions and frictions.

This is just awesome, because there is simply no way to turn a contradictory understanding of the business into good software.

[FIXME: finish this section]

Cooperating domains



An emerging subdomains structure from my company's public trainings line of business.

When to stop?

I'd be happy to say something like: "You can stop once you've achieved a satisfying level of understanding about the underlying domain" or "the workshop is over when every flow is completely modeled on the wall". Unfortunately, that's not the case: the dominant constraint for a big picture workshop is *key people availability*, so, unless you provide very high quality refreshments and beverages, the expected timebox is around two hours.

This re-frames our goal: we should maximize the value of the output, considering that we won't be able to finish the whole stuff. Our major concern would be to ensure we explored the more critical stuff in depth [FIXME: a clarifying picture here would be great], while not losing focus for the overall picture. Easier said than done, we'll dig deeper into this topic in [FIXME: link]

How do we know we did a good job?

Let me state it clear, the model we're building on the paper roll isn't the goal.

The model is basically two things:

- an *excuse* to trigger the right conversation with the right people,
- a *tool* to improve the quality of the emerging conversation.

Feelings

If an EventStorming goes really well, you won't need any checklist. A great session ends with people happily tired and a feeling of accomplishment.

You can actually catch yourself in a contemplating mood. Looking to the walls filled with colored sticky notes and a "there is nothing left to add" feeling. I like to call this moment:

"This mess is us!"

OMG it was awful!

If the feeling is different, it does not necessarily mean the workshop didn't work. A blind date isn't necessarily the beginning of a love story.

In fact some of the most effective EventStorming didn't deliver exactly what was expected.

In company X, getting the conversation to happen was extremely hard. The company owner acted as an Über-Domain Expert, and his subordinates didn't dare contradicting him. The workshop turned into a dysfunctional conversation with a silent audience.

Should I label this as a failure? Actually I was pretty happy: it took me less than two hours to have all the information needed in order to quit a project that was doomed. With so many personal issues involved, the possibility for a development team to deliver good software *regardless of the hostile environment* was nil.

In company Y, a key stakeholder interpreted the workshop in his own way. While everybody started placing domain events on a flow, he was putting his own stuff on a separate portion of the modeling surface. The disconnection was striking. We managed to merge the two models together but it felt awkward at most.

In this case, the problem was visible *before* the model. Body language and visible interactions showed us that there was a chasm between key stakeholders. Do you we think you can solve this problem writing good software? Good luck.

Even if the workshop outcome was somewhat bumpy, we had a clear idea about what to do next, that was *addressing the personal-political issue*. Starting the problem pretending everything was going to be all right, was not an option.

Visual Check

[FIXME: add an image with visual checks.]

Here's a little list of the things I visually check to be sure we dug deep enough.

1. Do we have **hot spots**? Did we have a good discussion about what looks like the most interesting problem to solve? Did we mark it as such with a purple sticky note? No conflicts and no problems doesn't mean honeymoon: it means somebody was missing, or maybe *lying*.

2. How many **Domain Events** emerged during the discussion? For a two hours workshop 100 to 200 is probably a reasonable number. Less than one hundred is telling that you only scratched the surface. A special case might be if you're [working with startups](#).
3. Did you capture all the **External Systems**? They're usually sources of variability and trouble. If they're not displayed on the modeling surface, then you haven't been exploring large enough.
4. Did you check for "*what is missing from this picture?*" explicitly? Without an explicit offering for it, people might just skip some vital details, just because they might not look relevant.

Wrapping up a big picture workshop

Even if it looks like the party is over, people are leaving and it's you and a couple of colleagues cleaning a room full of markers and



Book the room a little longer

In some companies, reserving a slot in meeting room could be a messy task. If you're in one of such companies, and quitting is not an option¹, be sure you reserved enough time for the cleanup. There's nothing more devastating than another group of people knocking at your door, telling "We've reserved the room", while you're in the heat of the discussion or in thoughtful contemplation. You'll need time to *physically* wrap up, to cool down and analyze ideas, and you'll need to do it *in the room*. A good EventStorming usually triggers a lot of conversations and insights, and not each one of them has a proper closing during the workshop. Body language information also cannot be annotated during the workshop, but double checking the signals with a colleague at the end is very important, not to miss or misinterpret the implicit messages.

¹Think about it, if you end up postponing problem resolutions due to the scarcity of adequate meeting rooms, you have a problem. If you're lowering down the [FIXME: finish the note.]

What should we do with the modeling artifact?

[FIXME: Image, the secret move to fold EventStorming]

Keep it around for a few days

If you have the possibility to keep the artifact, just do it. There are a few good reasons for leaving the big thing around for a few days.

- It provides a visible reference for people that didn't join the workshop. Those that weren't invited, or that declined the invitation because it sounded *just like another meeting*.
- It provides a visual anchoring for the ones that joined the workshop. Given the amount of information processed in a large workshop, it is very likely that some afterthoughts will happen away from the office. Having the model in place the morning after will help capturing and eventually discuss them.
- It may trigger new reasonings or spark new conversation: the model is intended to be *readable*. If more people want to join the conversation, that's usually a good thing.

Archive it

Manage psychology

[FIXME: weight the chapter, it could be included somewhere else.]

Let's start from the big picture model, the one that encompasses the whole business flow without getting deep into the design artifacts.

Managing the big picture artifact

The real outcome of an EventStorming session is the *cooperative learning*. Even if getting finally to the big picture felt exhausting, the real outcome is

that you've been there, had the discussion and created the model. Don't fall too much in love with it: the model is still wrong. The workshop environment makes it easy for participants to spot mistakes in the exiting model - leveraging the wisdom of the crowd - but some inconsistencies could only be spotted by coding and testing the model in the real world, possibly with real users.

Focusing on the hot spot

Sometimes, the exploration of the model draws the attention towards some hot spots. Long lasting problems are usually the topic of some colorful conversation. If there's consensus around a hot spot (on the problem location, finding the right solution is a completely different matter) there should be no excuses, let's start exploring the problem a little more and work on it. The worst thing one can do is to spot the problem, gather consensus on it and then lose all the momentum by *doing something else instead*. This approach comes straight from *Theory of Constraints*: once you spot the bottleneck in your system, this is the area where every little improvements counts.

Usually, I tend to keep the model around for some time (a week, maybe) to leave some space for afterthoughts and possible refinements of the model. But once the big picture view is captured, the value of the visible model decreases, and there might be better uses for the square meters of visible surface. Most of the time, we take a picture and fold the roll. This makes us feel safer, because we're not loosing our work, but the real story is that we seldom look back to the model.

However, you have to consider that I developed this ascetic detachment from material artifact after several sessions. Your workshop participants are nowhere close to that, so don't force that detachment by thrashing the model. It will take some time for them to realize they actually didn't need it any more.

So, again, take pictures for digital use (a panorama for the whole flow, and some on-the-spot for better readability), roll the paper again preserving all the stick notes, and store the paper roll in a safe place, to be used just in case.

Multiple hot spots

If many hot spots have been marked on the model, it's probably a good idea to keep the roll around for some time, in a "Ok, what's next?" fashion. Once hot spots are removed or displaced by new implementations of the process, the team might look to the next bottleneck in line or to the new one that just appeared. The roll becomes a nice place to have a periodic discussion about the intermediate results achieved in an effort to improve organization performance. Of course, the roll won't be enough: spatial and colorful representation is a good thing, but real measured data is more than welcome.

Prioritizing hot spots

No hot spots

Having troubles is not always necessary. If no particular pain points are highlighted on the roll, then just capture the knowledge about the process structure. Now the main goal is not in removing visible impediments but in catching opportunities like implementing some new feature or adding some variation in the existing process.

Documenting the outcomes - TRICKY

Emerging structure

What are we looking for?

How do we know that we're heading in the right direction? We'll see later in [When to stop?](#) that our workshop will probably be limited by external factors such as people and room availability, so we won't have the privilege to decide when the workshop is over.

However, we'll need a way to understand if our discovery is heading in the right direction: baking a cake might be easier if you already have a good idea about how the finished one is going to look like.

Multiple Models

- Models should be **internally consistent** in terms of language

If you have a software development background you'll probably recognize two familiar concepts from *Domain-Driven Design*:

- **Ubiquitous Language**
- **Bounded Contexts**

However, the spirit of the workshop is not to introduce new concepts to domain experts, so, *please*, resist the temptation to start explaining Domain-Driven Design to your boss and just *use it* to your advantage.

The bare minimum boils down to 2 concepts.

- *Language is revealing*: stay alert for *differences* and *synonyms*. Things are often not exactly the same.
- *The whole thing won't be consistent, only small portions will*. Stop trying to transform it.

10. Big Picture Variations - 50%

In [Chapter 4 - Running a Big Picture Workshop](#) we ended up with a possible standard road-map for a Big Picture EventStorming. Now I have to confess that most of the time, I don't follow that sequence step by step.

Big Picture is a *discovery* format, and what we find along the way can be more interesting than the original plan. Good news are that we have a fall-back plan, just in case.

In this chapter we'll explore a few variations on the default format.

Software Project Discovery

The typical scenario involves two organizations: a software development company is engaged to develop custom software for another company, and they need to explore the project landscape.

Apparently, there are a few conflicting interests here, so don't expect preparation to be perfect: the software company would probably try to reach the key stakeholders in the customer organization, to maximize learning and risk awareness, but the key people wouldn't probably be so easily available¹.

Political issues and power play have a place too, but the trickiest problem has to do with the customer organization's maturity: if they're used to a waterfall approach to software development project, or merely strict budgeting and scope definition, it will be hard to convince them of the need for a workshop instead of the traditional specification document.

To add one more impediment, sunken cost fallacy will play a role too: if resources have already been spent to explore the problem domain, exploring

¹to make things worse, the real value of the workshop might only be appreciated after the fact. Before the workshop the response to an invitation might be a "Oh, no! One more pre-sales meeting!"

it again will look like a waste of time and money².

Often the best approach is *to not even mention EventStorming*, but just to bring stickies and paper roll with you and then run a small scale workshop, “just because we’re used to seeing things in this way”. This way you may skip the effort of convincing somebody to do something they don’t know anything about, and possibly can surprise and engage them.

Or you may want to call an explicit workshop as the gateway condition to pick the project: it’s a significant risk reduction effort on both sides, but the perception around it may vary a lot given the relative market placement of the two parties involved.

In general, invitations are not a perfect science, so be prepared to trade-offs, and to get the best of what is reachable, while seeding the ground for a *perfect workshop* next time. A workshop embedded inside the pre-sales negotiation cycle will invariably suffer from all the dysfunctions of negotiation in the complex domain³.

Core problem or just Supporting?

The software company would probably challenge the customer organization, to better understand the problem they’re facing and the overall scope. This would allow achieving the most significant impact.

As we’ve seen [FIXME: explicit reference], not all problems are born equals: some can be game changers[FIXME: make sure the concept is clarified before], some mere gateway/enablers. The software company ultimate interest might be to look for the best fit given their strengths: some projects require special people (possibly with an explorer/pioneer mindset) and can boost revenues, others will just be mandatory gateways to stay in a given market, but they’ll be mostly budget driven.

²To tell the whole story, the real waste is usually the specification document itself. If one sees software development as *learning*, then clearly a long, boring, specification document isn’t the best way to convey information.

³My friend and colleague Jacopo Romei explored the space around knowledge work negotiation deeply in his book [Extreme Contracts](#). [FIXME: Links]

Unspoken conflicting goals

Many times, the project scope to be explored is just a portion of a bigger scenario:

Organization Retrospective

Induction for new hires

A few companies started using EventStorming as a way to quickly bring new hires up to speed. I am doing the same in my own company and works amazingly well.

However, there are a few meaningful differences from the standard format, which are worth mentioning.

1. Can't invite the whole team *again*. If the company is in a hiring frenzy with new people joining the company on a weekly basis, you can't simply re-run a Big Picture workshop. Good news is "*If you already ran a Big Picture workshop, then every participant already has a better understanding of the whole*" so being a proxy expert in a downsized workshop isn't much of a risk.
2. It still does make sense to re-discover the whole thing. Just showing the outcome of a previous session won't work very well: for the explainer, it will be a summary and a good reminder of conversations that happened during the workshop, but for the newcomer that wasn't there, there won't be any memory to attach to.

The recommendation here is to run the workshop, giving the leading role to the newcomers, starting to model the system based on their guessing and assumptions, and progressively correcting them. The way we do it is to ask "Let's start modelling what you think it's happening in this organization!"

and see where it leads. There shouldn't be any expectation of correctness - people are too fresh to know everything - but having their wrong assumptions visible is an interesting starting point. The senior member of the team will be expected to explain to justify the correction, and together they should evolve the model accordingly.

11. Big Picture in remote mode - 80%

The big picture format suffered the most casualties during the pandemic. A value proposition starting with “*put all the key people in the same room*” looked doomed, no matter how you would finish the phrase.

However, corporate problems are not getting solved because of pandemic and remote working. In fact, they’re mostly getting worse. Yet there are tools and strategies for strategic remote modelling. In this chapter we’ll see which formats better adapt to the new emerging standards and some patterns to better manage your remote workshop.

Main changes

At the cost of being tedious, let’s make the obvious explicit. Here are some of the main changes that will affect you when moving from in person workshop to their digital remote counterpart.

- **No physical presence:** which means no eye contact, no physical contact too, but also no body language.
- **No room booking:** organizers would probably be happy not to get into some logistic nightmare, like: “*please, find a room with a 10 meters long straight wall*”.
- **No travel involved:** no expensive hotels and flights to be booked, and less resistances on the budget size.
- **Digital Artifact:** this is a game changer, since *every single action will now taste different*. Some actions will be a lot easier, like sticking a paper roll to the wall, not to mention resizing a sticky note or switching colors. Others will be less rewarding, like *looking at the magnificence of our model*.

- **Remote Connection:** video conferencing tools are now part of the stack. And your home internet connection is now part of the stack too. And your family too.

Some unexpected consequences

And here are a few of the harder to predict consequences of the paradigm shift.

- **Lower commitment:** the big expense upfront for room, hotels and flight helps creating a sense of mission: *we must not waste that money* that was a key ingredient to make the magic happen within the available time-box. Even moving the workshop to a later date is easier, now it's only a matter of finding another spot in our calendars.
- **Easier procrastination:** nobody has a plane to catch, and tomorrow will be just one more day of remote working and boring meetings, so even the sense of *urgency* that used to help completing impossible tasks within the day is gone.
- **No full-day involvement:** Zoom fatigue is real¹. Asking, or worse *forcing* people to participate in an online workshop for the whole day is way too much. And we might have to find viable trade-offs between different timezones, so half-day sessions becomesz the norm.
- **No peer pressure:** leaving the workshop, answering phone calls, is usually frowned upon in a physical meeting, but who cares when you're online. Just mute your mic and you'll be fine.
- **No connection time:** travelling for a workshop, often means *being available after office hours*. For a change agent, this space is vital. It's connection time! We are not supposed to talk about work in the evening, but *something would be told* anyway. And sometimes these conversations are really important. If everybody is participating remotely, home and family duties play a stronger role than in the special time of a physical workshop. There is no proximity after we exit the virtual meeting.

¹The video conferencing tool doesn't really matter, the fatigue is there regardless of the tool. But maybe Zoom managed to become popular also thanks to this term becoming viral. ;-)

- **Disrupted body language:** there was so much readable information in the way people moved, gathered, and this was an unvaluable source of information especially for assessing **risks and viability** of critical projects. Body language was also vital to adjust the format on the fly, adapting to the team's mood. *Interpreting pauses* isn't the same thing. The lack of eye contact can also put your body language out of control: I remember being "visibly disappointed" while listening someone else's presentation, without realizing that my camera was still on. Ooops!²
- **Invisible politics:** without body language, politics are far less readable. Most of the signals (silent nodding, raised eyebrows) will be unreadable, and there won't be space for immediate clarification, or casual space at the coffee machine.
- **Digital divide is back:** we got rid of UML, chose a simple human friendly notation to reduce the modelling frictions down to a minimum, and now we're back with a digital tool than only 20% of the room participants will master. There was almost zero friction in writing sticky notes, and now frictions and micro-impediments are part of the recipe. From "*my screen is too small!*" to "*my laptop is overheating*", we can't guarantee that a modelling workshop will be a nice experience. It can actually be a torture for some, and this would be really hard to realize for the tech-savy participants with a last generation laptop, panoramic screens and a stand-up desk. Moreover, the ones in need wouldn't be helped easily, and empathy would not increase size or resolution of your laptop screen.
- **Spontaneous conversation won't happen anymore:** 30 people in the same room, means a lot of parallel chatting. 30 people in the same remote meeting means only one person is allowed to speak at the same time. Conversations now require a lot more discipline and often some upfront agreement.

²That isn't necessarily a disadvantage: I saved a lot of time that I'd have spent on useless diplomacy or looking for edulcorated synonyms of 'bullshit'.

What role for a Big Picture?

In general, looks like most of the tricks that made a Big Picture workshop an interesting opportunity were based on human behaviour and are now gone.

Most annoyingly, the cumulated impediments made it almost impossible to deliver something in *just one day*. This was a key ingredient of my value proposition as a consultant so you can imagine how disappointed I am.

However, this is not the end of the story.

Reading the new landscape

Entire organizations turned remote in the last months, because of the pandemic. Soon it became evident that coordinating a distributed team and a distributed organization could be way more efficient if everybody shared the same vision. Surprise!

Clarity of vision means a lot less communication overhead in making sure everybody is on the same page. This was somewhat masked by physical proximity, but forced remote exacerbated the need for clarifications and guidance.

EventStorming ingredients - human-friendly storytelling based on events and no space limitation - can still deliver a behavioural model for the organization that can serve as a reference for deeper discussion, or for a localized one too.

If you feel that people in your organization are *just doing stuff*, without a clear idea about where and how to improve the system, and getting trapped in siloed blame game, then you may still lead a large scale model of your organization and line of business.

Designing new businesses

During the emergency months, my company had to redesign business channels and services quickly. We used to deliver immersive workshops, and they

were gone (technically: temporarily suspended), public trainings and they were gone too, not to mention conferences and meetups.

We badly needed a way to redesign our services without getting in panic mode, and EventStorming turned out really useful in providing the background needed to say: “*Yes, we can do it!*” but also: “*This is the most compelling problem to solve right now, we can see these other problems too, but they can wait a couple of weeks.*” involving **every key role in the organization**, and **closing the gap between vision and operations**.

We adapted quickly. Rebuilt two business lines from scratch in a few weeks, and started imagining others. We also ended up having a specific recipe for designing new businesses. One that put together strategic views such as Business Model Canvas and/or Wardley Maps with our Big Picture to make sure the vision was grounded from multiple perspectives.

Interestingly, the boundaries between big picture and process modelling formats started to get a little blurred. Space isn’t a constraint in the digital world, and we found ourselves seamlessly moving into the Process Modelling grammar, to introduce some robustness to our initial exploration round.

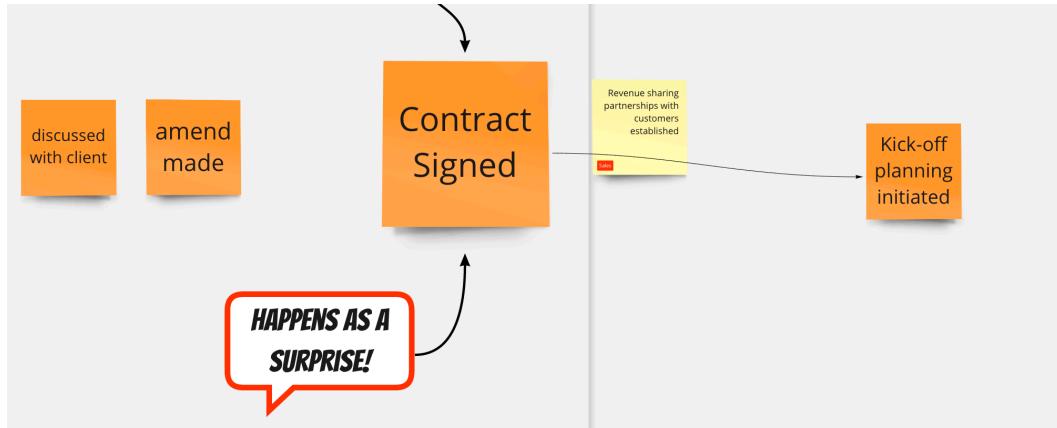
Looking for Bounded Contexts

If your main driver for running a Big Picture EventStorming is to detect the natural boundaries for your next generation software - microservices anyone? - then most of the principles described in [Discovering bounded contexts with EventStorming](#) still hold, except for reading areas of concern by body language and physical positioning.

Notation would be slightly different.

- **Frames** can help highlight candidate bounded contexts and also make them *portable*.
- I use **larger stickies** for pivotal events.

- We can use arrows³ to connect an event to listening subsystems, making the event fan-out even more visible.



A larger sticky note as a closing event for a given phase.

If all you need is Bounded Contexts, having all the business in the same room at the same time seems sort of overkill. Maybe you can leverage a different workshop format, possibly [splitting the workshop](#) without betting your political influence on a big workshop.

Of course, if you're smelling inconsistencies on the business side, the show-down may be just postponed. As a technical professional I wouldn't blindly follow a guidance I can't trust or understand.



Using frames for Bounded Contexts can sometimes make your detection work look too easy. Like every *role has their frame and this frame will be a bounded context*.

It's not that simple.

Frames and roles are just the easiest starting point to start exploring the *language consistency inside* a frame (remember: Bounded Contexts were units of language consistency), and precision of purpose are still the main driver for a deeper investigation. We created a good starting point for further refinement, but our job is not over.

³Someone will probably throw a party right now. In all these years facilitating, the most disappointing sentence has always been: "You can't have arrows, sorry."

The power of a validated narrative

Interesting possibilities open on top of achieving a **validated narrative**, the way to get there isn't much different from the physical counterpart. We still need

- a **designated narrator**, to *tell the story*;
- a **scribe**, to make sure the story is reflected in the model;
- an **engaged audience** to make sure the story matches with reality.

The interesting part happens later: it takes seconds to make a copy of the Validated Narrative and play more sophisticated rounds using the narrative as a background.

- **Problems and Opportunities** is an old time classic,
- **Playing with value** can actually be played in more rounds and a deeper discussion.
- **Arrow Voting** can still happen on top of Problems and Opportunities.

... but having an easy copy of the current validated narrative literally opens opportunities for more sophisticated modelling.

In our organization we could quickly map all the impacts of the pandemic, on *every single step of our value creation* and used it to design an alternative way to deliver services.

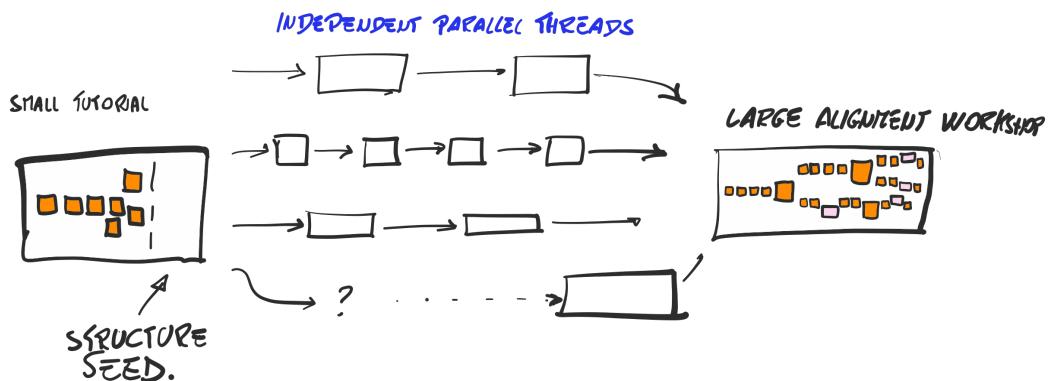
Patterns For Remote Big Picture

Split the workshop

We can't make the whole workshop fit in one day. And some activities will be slower anyway, so maybe we should accept this as inevitable and split the workshop in different chunks.

- Some portions might not involve the whole team;
- some activities might happen in parallel;
- some activities can even be unsupervised.

We run some open format workshops that were a mix of individual participation, and group synthesis.



You can split the workshop in smaller parallel threads, provided an expert is available for facilitating

However this approach comes with a few big warnings.

1. An introductory session at the beginning is necessary, to properly teach the approach.
2. Some structure needs to be seeded (see later **anticipate structure**)
3. Some expert needs to be available for format clarification, there always will be someone not so familiar with tools and notation, and in general you don't want people to be puzzled when you're not around to help.
4. If you think this approach is going to make you faster, think again. Most people will wait for everybody else to be in the same meeting to repeat the concerns they already wrote in some comment. People still need to have their voice heard. We're just moving the writing part outside of the main workshop, but the discussion will stay synchronous⁴.

⁴Yes, I've read 'Remote' by Jason Fried and David Heinemeier Hansson, and while I agree with a lot they say about their organization, you'll be running the workshop in yours, with your current state of digital maturity. Things will surely evolve over the years, but the mainstream isn't there yet.

Anticipate Structure

Chaotic exploration was one of my favorite phases in traditional workshops. The *make a mess -> sort it out* was a great way to trigger some deeper learning. Unfortunately the sorting mechanics aren't playing in the same way in the digital world. Spatial references are gone, most people are looking to a large messy board through a small screen and the resulting experience is way less interesting.



If you start Chaotic Exploration in the traditional way you invariably end up in the possible worst case of locally ordered clusters in an inconsistent whole.

The different constraints produce a radically different output: if you let people explore by themselves, they'll only braindump their local story - which you'll need - without paying attention *at all* to the global ordering. This is putting us in the *worst possible starting point* for sorting, and *this happens every single time* when you're in digital. I guess we should look for some alternative.

Seeding a skeleton structure works a lot better: just a few Events (possible candidates to be **Pivotal Events**) and/or Frames to provide some structure before the activity starts.

This can happen before the workshop, maybe with a small selected team so agreeing on the seed structure doesn't take ages, or it can happen during the workshop under the framing of a strictly timeboxed discardable experiment.

Colors as a signature

You won't have handwriting in digital format, but we can make a more creative use of colors in our modelling process.

I like to start having participants picking their own color, so this gives a little more contextual information.

However, we won't have infinite colours available and they won't be easily distinguishable in large numbers anyway.

therefore

We can use colors as a personal signatures, often connected with a personal visible avatar somewhere, but this would be a temporary connotation. Later stages will need to make heavier use of colors to establish a more sophisticated grammar.

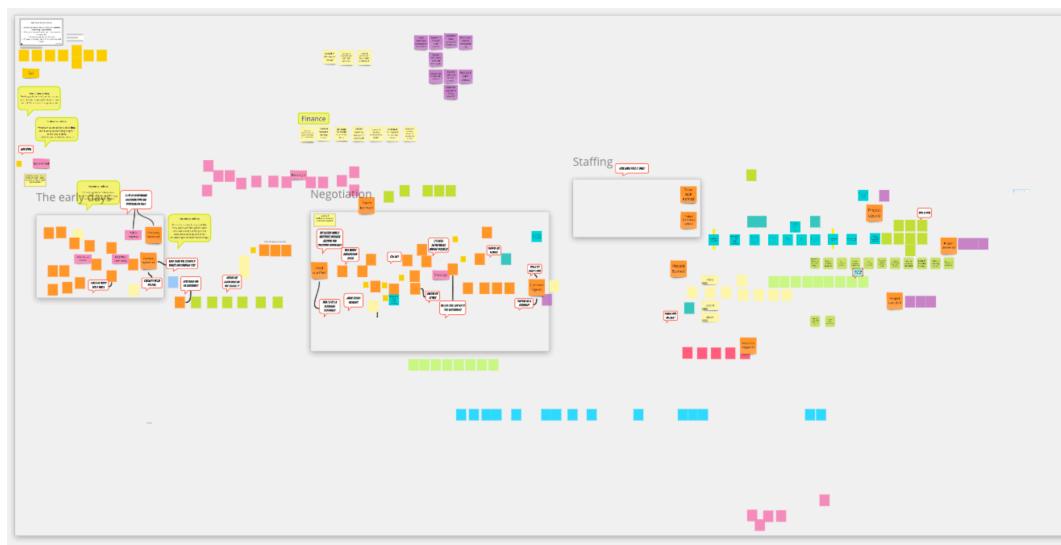
But if we do [iterate on copy](#) and [make modelling log readable](#) then the colours can give some interesting information to start from.

Colors as progress indicator

If we've been using [colors as a signature](#) and left one color unassigned, and the unassigned color was **Orange**, then we can now have a marker for progress.

therefore

Keep one colour unassigned if you used [colors as signature](#), you can use it to track progress when you get in the [explicit walkthrough](#) phase.



Orange is now the official color of the peer-reviewed events. You can now see how much it has already been discussed, and how much is left to explore too!

This way, you just have to turn orange every single event that has enunciated by the narratore and validated by the audience. This is a visible measure of progress in the validation of the whole thing.

Iterate on Copy

Digital tools make copy and paste operation way faster than in real life. Copying the entire content of a paper roll is not viable in real life⁵, but it just takes seconds on a online modelling tool.

So why not taking advantage of this features and make them part of our modelling experience? In fact, the ability to copy a modelling surface is making modelling mistakes a lot cheaper: we might explore a different modelling strategy “Let’s visualize all the actors!” only to realize that this is making the model less readable or less manageable.

In a complex adaptive system - like 20 people modelling something big together, for the first time, *remotely*, we won’t be able to precisely anticipate

⁵Even if it can take less than 10 minutes, in practice you’ll be facing a riot.

the outcome of every modelling step. Some ideas won't play out so well. So let's just accept that every step is an *experiment*: it may work or not, let's make it safe and cheap.

therefore

- Start every step in a fresh copy of your current modelling surface. *Frames* can help you a lot, see [be adjustment friendly](#).
- Set a strict time-box for your modelling experiments, 5-10 minutes are often enough to see if we're going on the wrong path.
- At the end of the timebox, quickly as for a thumbs up/down type of feedback.
- In case you want to roll back to the previous step, move the failed experiment frame away from the main path, but add a note about the reason (see [Make Modelling Log Readable](#)).

Be adjustment friendly

When using digital tools people get annoyed doing operations that take unnecessary clicks. For some mysterious reason there's a lot more tolerance in spending 5 minutes moving physical sticky notes than in wasting 2 seconds selecting a set of stickies for a cut and paste.

However being somewhat prepared for such adjustments does help. *Frames* can be an easy way to drag a specific portion of the model around without wasting time in selection.

At the same time, *arrows* can quickly become cluttered, so i recommend to use them sparingly.

Make Modelling Log Readable

A lot of decisions during the workshops will be experimental and maybe happening on the fly. There's nothing wrong with this as long as you're able to make your decisions explicit, visible and readable by a future participant.

You might have had a plan or not. But make sure people can follow your track.

Exploration report	
Idea - hypothesis:	It would have been cool to connect actors with actions through all the flow
Outcome:	It now looks like an entangled mess, very hard to manage
Decision	We rolled back. Good idea, didn't work in practice

If you're abandoning a branch make the reason visible.

Keep in mind that some ideas that seems not to be working are not necessarily bad, they're often just applied in the wrong order. Finding the right balance between manageability and readability is the essence of designing an online workshop.

Make interests explicit

Body language is gone. Did I mentioned it already? However, everybody acknowledges that something is lost in digital format. But instead of *inferring interest by body language* why not just *asking*?

The way I like to do it is to ask to make people concerns visible on top of the Validated Narrative, by placing their name, picture or avatar nearby, and add an arrow pointing to the issue or event they care about.

Arrows are not easily moveable, so keep this step close to the end. It feels

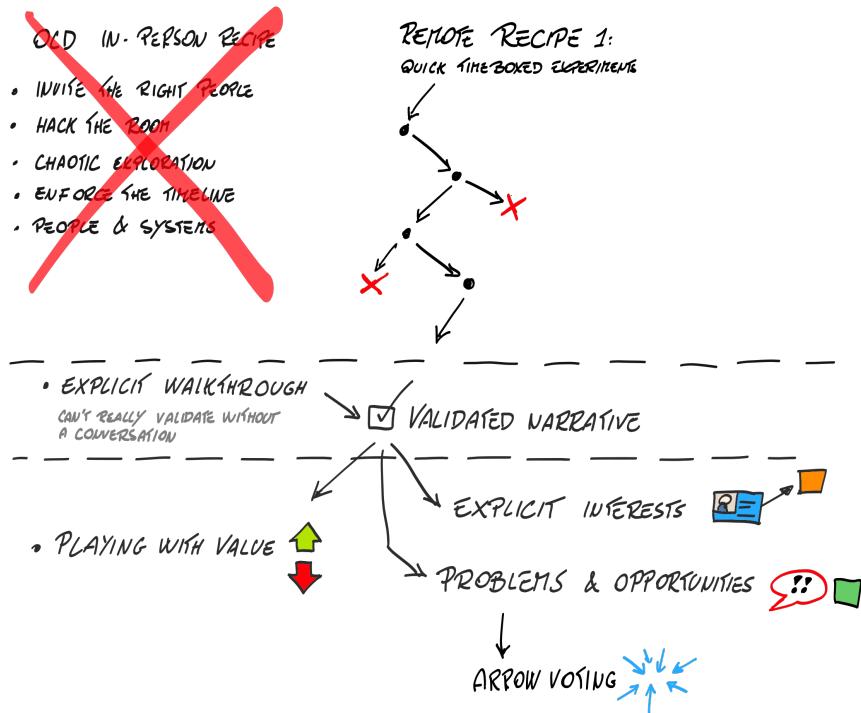
weird, but most of the time people are just *glad* that you asked.

Do we have a recipe?

Yes and no. The change has been massive in the transition from in person to forced remote, and things haven't settled down yet. Tools are evolving quickly and individuals are familiarizing with the needs of remote collaboration.

So the best recommendation is not to look for a prescriptive recipe, but to embrace a policy of small timeboxed experiments to lead your modelling party where they need to be. Being explicit about it can make the difference. People are the greatest source of variability in these experiments, so what worked in a tech remote meetup won't necessarily work in a professional consulting scenario.

However, ideas for experiments do not come out of the blue and I hope the patterns described in this chapters can come in handy.



When the old recipe doesn't work, maybe all that we're left is trial and error...

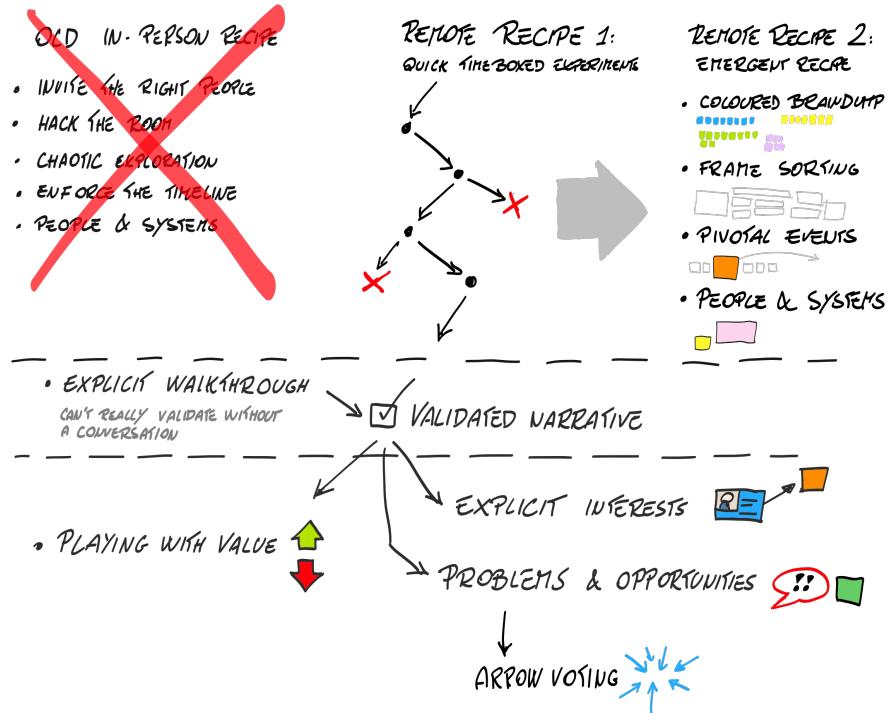
I do have some sort of sequence that tends to work better than others.

- **Colored Braindump:** let people braindump their sequences using colors as signatures.
- **Frame Sorting⁶:** put individual braindumps in frames and sort them, including advanced moves like stretching, merging and splitting according to the emergent learning.
- **Pivotal Events** can be highlighted with larger size, and connected with arrows to the interested downstream frames;
- **People and Systems** can now be added to the mix, no major changes here.

⁶a relative of the old **Chapter Sorting** that I used in emergency situations in the old times of in-person workshops.

Then you'll merge into the original flow with an **Explicit Walkthrough**. It will be different, but it would still be necessary.

Validation without a conversation is an illusion.



The state-of-the-art recipe for remote Big Picture EventStorming

Why is it working?

It took me a little to make it work. It took me ages to understand why it was working.

12. What software development really is - 40%

Few people have done more harm to software development as a profession than those advocating that “software development is like building a house”.

Software development is writing code

This basically stating the obvious: *everybody knows that software development is writing code*.

That's the reason why we use frameworks to write less code and speed up software development, and we deliver in days what used to take months.

That's the reason why senior developers are more efficient than junior developers: they type faster and know more keyboard shortcuts, making them more productive.

That's the reason why pair programming is a scam: if only a person in two is typing, software will be delivered at half speed.

That's the reason why adding more people to a project guarantees earlier delivery. The more people involved the better. Type like the wind, dudes!

That's also the reason software development is *so predictable*. We only need to estimate the lines of code to write to have a high-quality / high-reliability projection of the delivery date.

By now, the level of sarcasm in my writing should have reached disturbing levels. Every experienced software developer knows that the above sentences are crap. Unfortunately the story isn't that simple.

Developers aren't the only people thinking about software development

Every other development in your company is thinking about software development in this way. Probably including your boss. Your customers are thinking about software development in this way too. Chances are that you're thinking in this way too, when thinking at someone else's software or when presented with a new cool code generation tool.

Even if you reached a level of consciousness that makes you avoid that thinking trap, there will always be somebody around you thinking in this way.

Sometimes software development *is* just typing

Unfortunately, you can spend ages convincing your boss that software development is something more complex than just typing, and finally one day you bump into one of this task which is just plain labor. Not repeatable enough to justify a script, but dumb enough to provide somewhat linear estimates: "*it took me 2 hours to clean up that page, it will probably take me 3 days to clean up the remaining 15 pages*".

What many managers don't get is that this is just an exception to the normal flow. Software development isn't repeatable. When it's repeatable, we can replace it with a script. But linear projections look so computable. They look so *clean* in an Excel spreadsheet (sarcasm level rising again).

Software development is learning

The real story is that software developers are spending a relevant amount of their time *learning*, in order to do things they don't have a clue about. This is not only related to a technology or a programming language¹, but also to

¹When was the last time you thought you knew everything about your programming language? For me it happened only in 1983 working with ZX Spectrum's Basic language. Because all the keywords were visible.

problem domain, context and so on. Differently from other professions, we're doing things for the first time, most of the time (even if it looks like the same old typing from the outside).

In practice, this means that we can achieve the unicorn-like state of flow mostly when we know enough of the domain to proceed solving problems one by one without getting stuck (assuming that we are somehow free from interruptions).

But it also means that many times, when we embark on a development task *we have no damn clue about what the solution is going to look like*

The sweet spot of programming

[FIXME: something] Think about that: if the problem hasn't been solved, then it's worth writing some lines of code. If it's not

When we're looking more productive, it's probably the moment we're not adding that much value².

Can you estimate learning?

Seriously, can you? Take a book, for example. Yep, take the beloved *Domain-Driven Design, tackling complexity at the heart of software* and answer these two questions (assuming you haven't read it): 1. Can you estimate the time needed in order to *read* it? 2. Can you estimate the time needed in order to *understand* it? The first answer is relatively easy. A simple projection of a mechanical task: reading a dozen of pages every evening before sleeping will make you through the book in a reasonable time. But what about the second one?

²Many years ago, in a project full of folkloristic behavior, there was a developer that had really long, silent and mysterious coding activities. However looked like he was in a state of flow, most of the time. Taking a closer look I discovered he was adding *getters* and *setters* manually to DTOs and domain classes. When I asked him why he wasn't using the IDE built-in code generator, he said: "*I prefer this way. It gives me peace of mind.*"

[FIXME: somewhere in bold working code is a side effect]

The unconfessable truth of institutional learning

The whole idea that *coding* is actually learning, and that real world programming is actually a hunt for a moving target is totally missing from institutional learning. Coding exercises are defined against a well-defined assignment, which is clearly written, and doesn't change along the way. I have the feeling this approach might be e

Self taught programming anyone

Across the years I've come to recognize a different breed of programmers: those guys that felt in love with coding and moved way beyond the expectations. It can happen in many ways. A pet project is the classical form. As a teenage programmer I had started a few video-games. But even in university assignments I often ended up adding more stuff to the coding exercise, just because it was cool. However, in pet projects, you are both the programmer and the stakeholder. You change your mind, you'll need to make trade-offs. And both roles learn along the way.

This doesn't happen in institutional learning, and we're swimming in the consequences.

Software development is making decisions

This is a tricky one, and probably the one which is making the software development profession so close to *creative writing*. We're taking decisions all the time. We're taking *trivial* like how to name a class, a method or a variable (which can anyway have severe consequences in the long term), but we're also taking *nontrivial decisions* like how to implement a given solution, which library, component, product or even programming language to choose for the next project, up to the spectrum of

Oh come on, everybody is making decisions!

Software development is waiting

Yes, that's every developer's dirty little secret. We wait. We wait a lot. We wait for the compiler to finish the build. We wait for the customer to send us a clarification. We wait for the test suite to complete the test run. We wait for the sysadmins to grant us permission to pass through a firewall. We wait for the meeting room to become available for a conference call, or a modeling session. We wait for a new supply of markers and stickies. We wait for the boss feedback that could destroy a month worth of efforts.

We wait. A lot. Every day.

But that's not the worst part.

The worst part is that we're so ashamed or bored of waiting that, while we're waiting for something that we *start doing something else in the meanwhile*.

Chapter Goals:

- Our mental model about software development is mostly wrong
- We've been trying to optimize the wrong thing
- Have a look at Kanban
- Have a look at Theory of Constraints

Modelling processes and services

In this section we'll see how a different flavour of EventStorming can help interdisciplinary teams to design better services, features and products.

13. Process Modeling as a cooperative game - 100%

Designing processes and services is a different beast from a Big Picture exploration. Big Picture was all about discovery, and the goal was a representation of our current understanding of the systems, including inconsistencies and holes.

We'll need a different type of interaction in the solution space: exploration will progressively blend into a more structured process of *collaborative modeling* to factor individual contributions into a shared solution.

Context

We're making a few assumptions about the context, let's make them explicit.

- We'll be designing a new **business process**: maybe on top of an existing one (which may be broken or solely in need of a redesign), or possibly something entirely new.
- The problem we're addressing is **relevant** and deserves our attention. If we're working on an existing system, it's typically the bottleneck we highlighted during the arrow voting step.
- We'll be dealing with a **limited scope**: we're now *focusing* on a single end-to-end process, but still we'll want to explore all the implications (although this may not be entirely true with start-ups, where we may explore many processes together and their interdependencies).
- We're talking with a **smaller number of people**, usually with different backgrounds, collaborating towards a solution. There are possible variations and tricks to make this activity scale, but during big picture discovery we didn't need to converge towards a solution, now we do.

- we're **not designing software yet**: the dynamics for software design will be similar, but software has peculiarities that deserve a specific treatment, and dedicated chapters too.

Converging on a solution requires different dynamics, *reaching an agreement* is probably the most sophisticated form of human communication, so we need some specific strategy to achieve our goals, especially in a room filled with experts with large-sized egos.

Cooperative games to the rescue

It turns out that *games* are great tools to enable collaboration: especially a specific breed of games called *cooperative games*¹, where players are not competing against each other, but cooperating towards a common goal. You still have to *win*, but the opponent is "*the problem*", not another human being to be defeated.

The dynamics of cooperative games are interesting: often, the rules are simple², but finding a winning strategy is non-trivial. Also, setbacks and retries are definitely in the cards.

I used the cooperative game principle a lot, to explain modeling dynamics in training and workshops, but then I realized the metaphor also works to describe the interactions that happen in real modeling sessions.

Dropping your guns at the saloon entrance

The main trait for successful collaboration has to do with giving up some of our specialties to unlock the team's potential.

¹The link between software development and cooperative games is not new. I was exposed to the idea a long time ago, reading *Agile Software Development the cooperative game* from Alistair Cockburn, that influenced me a lot in these years.

²Cooperative games are often used as a team-building exercise, in training and workshops. Some games are meant to be used only once: once the puzzle is solved, there's little fun left. Other games can be played repeatedly, and the magic is still there. Some team games also offer a combination of collaboration inside the team and competition against other teams.

In the software world, this usually means to give up our specialized jargon because it the technical jargon of software developers, or UX experts and sometimes the business experts themselves. Technical jargon, notations, and tools create invisible barriers that prevent other people from joining a collaborative session.

EventStorming positions itself somewhere in the middle of the field, dropping some technicalities from the software world, embracing a simplified version of UX concerns and allowing to speak the business language around event-based storytelling.

Turning an occasional group of strangers, into a performing interdisciplinary team is a fascinating topic. You can find useful insights in Amy Edmondson's work and her [TED talk³](#) about extreme teaming.

Game Goal(s)

So how do we win at the EventStorming process modeling game? Usually, the game ends when we have a process that solves the problem under examination. In other words, this means that these four conditions should be satisfied.

1. All process paths are **completed**, leading to a stable state where no immediate action is required.
2. The **color grammar** is preserved, with no holes or gaps.
3. Every possible **Hotspot** is addressed.
4. All the stakeholders involved in the process are **reasonably happy**.

Let's look at these conditions in detail.

³https://www.ted.com/talks/amy_edmondson_how_to_turn_a_group_of_strangers_into_a_team?language=it

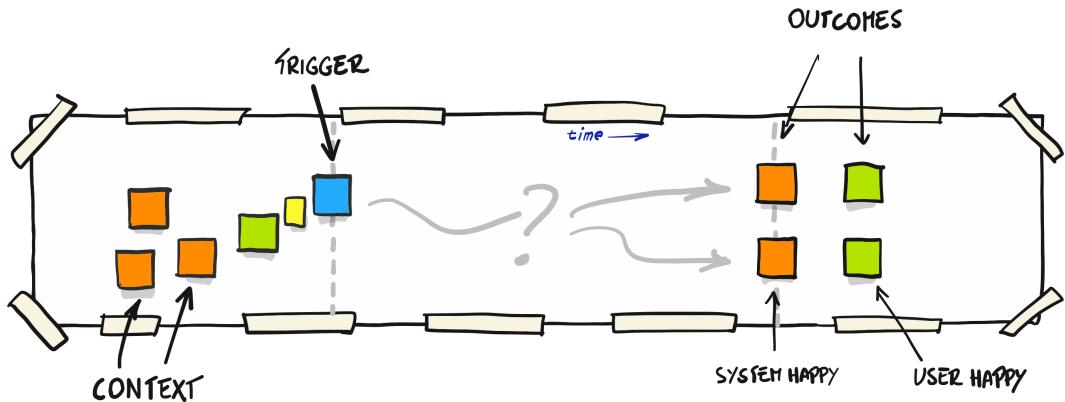
Completing every process path

Business processes are never just a sequence of steps from a given beginning to the end: every step will carry the possibility of alternatives and variations, not to mention sub-processes. Some of these alternative paths will eventually merge into the mainstream, while others will terminate with different exit conditions.

For example, to register a new user on a website, we'll have to consider the possibility of the user e-mail address to be already in the system. An on-line purchase will need different paths for different payment methods. An inquiry on a past purchase will be handled differently if the purchase is ten minutes, ten days or ten years old, and so on.

User registration can also trigger a few other actions, like the opening of a virtual account in the background, or some background checks on the customer, adding the new user to a mailing list and so on.

We're expecting processes to start from a given *trigger* (usually a *Command* or an external *Event*), and to finish with a combination of *Events* and *Read Models*.



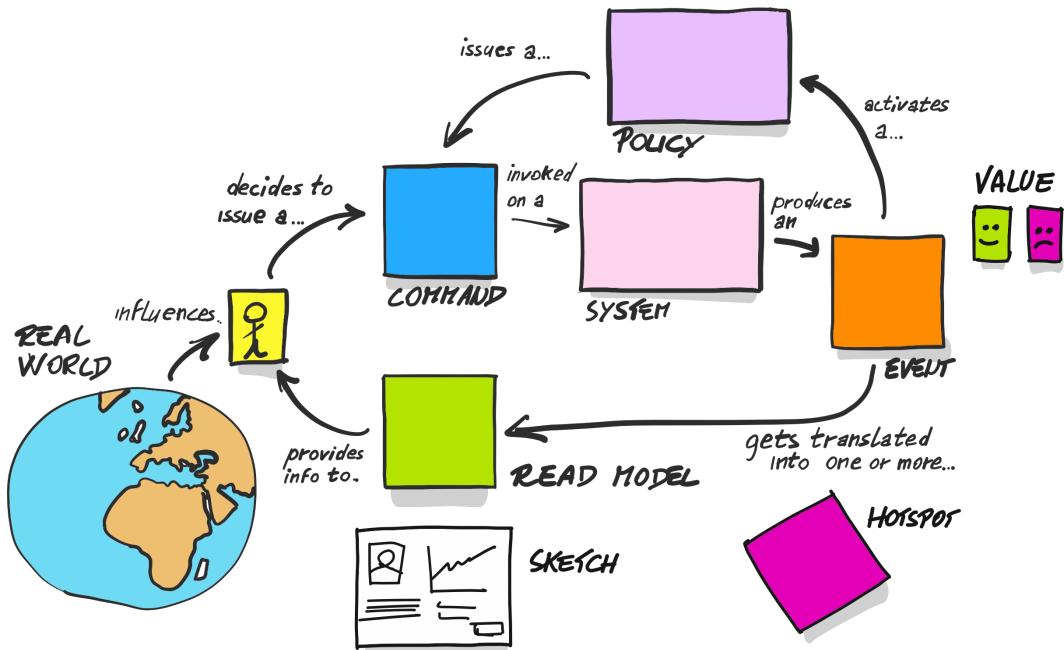
The expected frame of a process modeling session

There is a reason for this apparent duplication: termination events are putting the system in a stable state, but human users usually need to see the outcome somewhere, to perceive the process as complete.

As a shortcut, I often define **System Happy** the state when no further action is necessary, and **User Happy** the state when the involved users are aware of the process completion.

Color Based Grammar

The picture that explains everything is the reference for our color grammar. It doesn't really explain everything, but it's a good summary of the basic building blocks needed during a process modeling session.



The process modeling version of "the picture that explains everything"

A simple explanation of the picture above may be the following (with a pizza delivery example in mind):

A given user will decide to start a flow, based on information coming from the real world - something like: "I am hungry, and there's money on my bank account" - and a (green) **Read Model** probably including the available pizzas, their ingredients, and pricing.

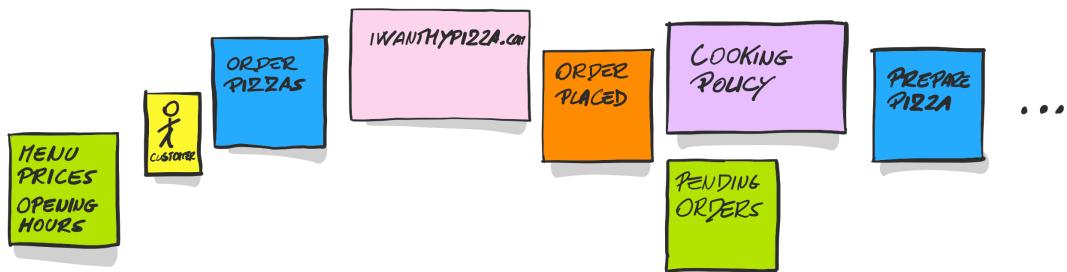
The user decision becomes concrete when clicking on some button - like Place Order, this (blue) **Action** will be handled/Performed by a (pink) **System**, resulting in an (orange) **Event** possibly Order Placed.

The consequences of this event need to be readable for other actors in the flow, thus populating other **Read Models**, like an internal Order List for the pizza maker, or an Order Summary for the customer.

Of course there has to be some reaction to the event. We can capture reactive logic with (lilac) **Policies**, like "Whenever we receive an order, we add the corresponding pizzas to the backlog."

Linearized version

The "picture that explains everything" works well as a visible legend, but a different format can be more readable, to model complex processes. The image below shows the linearized version, tailored around our simple pizza delivery example, with the beginning of an order processing flow.



The linearized version, with the beginning of the pizza example process.

It's easier to get familiar with the color sequence on the linearized version. You may want to think about the guidelines for modeling processes to be something like:

There has to be a Pink System between a Blue Command and an Orange Event, there has to be a Lilac Policy between an Orange Event and a Blue Command.

That would be our grammar. It's simple enough to be grasped quickly by novices, but applying it everywhere won't be trivial.

I like to use both pictures. The round version is more conceptual, and shows that every process exposes something like a repeating, somewhat fractal structure; the linear one better fits our modeling on a paper roll as well as our event-based storytelling approach.

Addressing hotspots

Finding a satisfactory solution for every stakeholder involved will be difficult. Several brains, several egos, several perspectives will quickly turn an initially linear path into a branching festival, possibly flooding your team with alternatives.

Hotspots will be your best friends to visualize dissent, objections, and issues that we should not address immediately. Workshop participants would be endlessly diverging with questions like “*What about custom pizza recipes?*” or: “*Should we accept coupons?*” and we’ll need a way to say: “*Not now, let’s complete a baseline and play variations.*” without forgetting the issue.

Hotspots will be visible place-holders for problems not solved yet. Ideally, every incremental improvement of our model will allow us to get rid of one or more sticky notes.

If the open hotspot count reaches zero, then we’re done.

Making the stakeholders reasonably happy

The last requirement for winning at the process modeling game is to ensure that every stakeholder is reasonably happy. We could have been more ambitious and aimed for *absolutely happy* instead, but in real life not every process terminates necessarily with a happy ending, or has a happy starting condition. Nevertheless, scenarios like ‘order cancellation’ or ‘customer refund’ are part of nontrivial business domains, and have to be designed and managed accordingly. *Reasonably happy* means that we’ll do our best to maximize the resulting value for all the parties involved, given the starting conditions and the existing constraints.

Little green and red stickies will come in handy to represent the different value currencies involved in the process and enable a more sophisticated conversation between the stakeholders.

The moment we can't play around with value, reduce frictions, and increment the value delivered to the involved parties, we're done.

Coming soon

In the next chapter [Process modeling building blocks](#) we'll take a closer look at the building blocks involved in process modeling, and to the basic game moves.

Later, in [Process modeling game strategies](#), we'll have a look at the opening moves and see which strategies perform better and under which circumstances.



Chapter Goals:

- Understand goals and scope of an EventStorming Process Modeling session.
- Process Modeling as a cooperative game: winning conditions and basic rules.
- The basics of the color-based grammar.

14. Process Modeling Building Blocks - 90%

In Big Picture EventStorming we're expecting many participants to be first-timers, and we embedded the on-boarding process in the workshop sequence by relying on [incremental notation](#) and [visible legend](#).

The same principles may apply here, but Process Modeling can happen more frequently, making the need for baby steps less mandatory.

However, the *grammar* for this specific format is slightly different and probably deserves more in-depth exploration.

In this chapter, we'll examine the building blocks and the role they play during a process modeling session.

Fuzziness vs. precision

If you're looking for a precise definition of the building blocks, you're going to be disappointed: I am not providing one. Colored sticky notes with an agreed meaning are going to be building blocks of a structured conversation around a process, but not precise enough to be translated 1-1 into implementation.

I'll be explicitly using [Fuzzy Definitions](#) here to provide a common ground for an inclusive conversation.

Some sticky notes will have multiple names, and you can use a different one if the default one is not resonating with your current modeling team. The precise meaning of any color won't be precisely defined either.

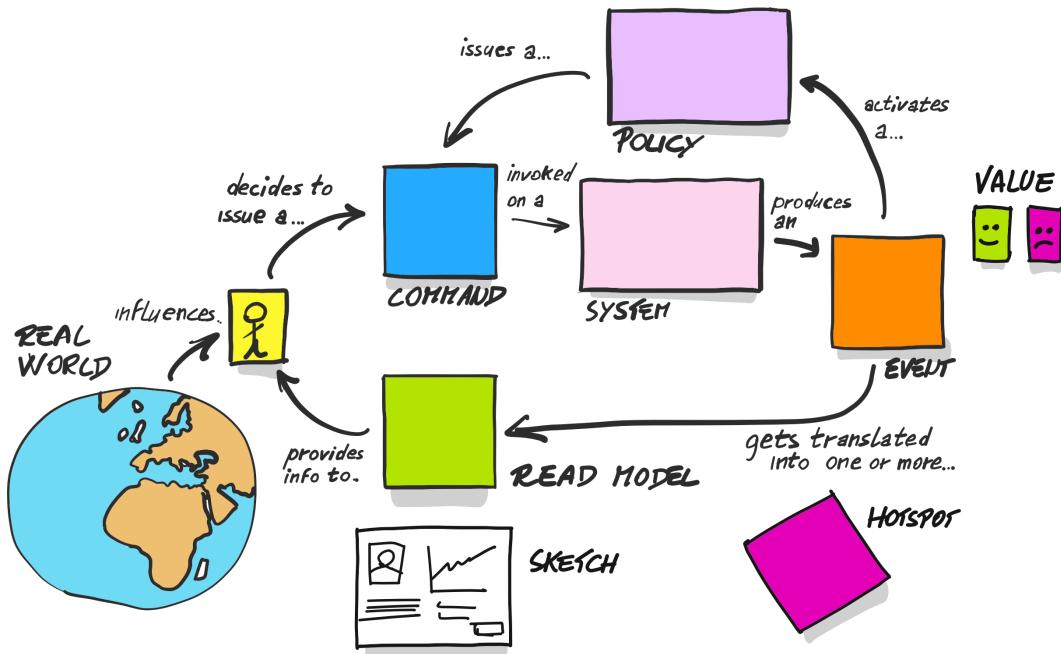
This approach is weird but instrumental in achieving two goals.

1. We want to make sure to allow an **inclusive conversation** between specialists from different fields, and precise notations can get in the way, creating a barrier that prevents contribution from the ones which are not familiar with the notation. We want to be conversation-friendly more than implementation friendly, and we'd like our modeling session to be as inclusive as possible.
2. We want to make **everything visible quickly**. A little discussion about the exact semantic of a sticky note can be useful, but can also drive the modeling team into a rabbit hole. A less precise conversational approach should allow the team to sketch the process baseline quickly.

Precision is not a bad thing: precision will be necessary; we'll be introducing it gradually.

The Picture That Explains Everything

We've already seen the process modeling version of "The picture that explains everything" in the previous chapter:



The process modeling version of "the picture that explains everything"

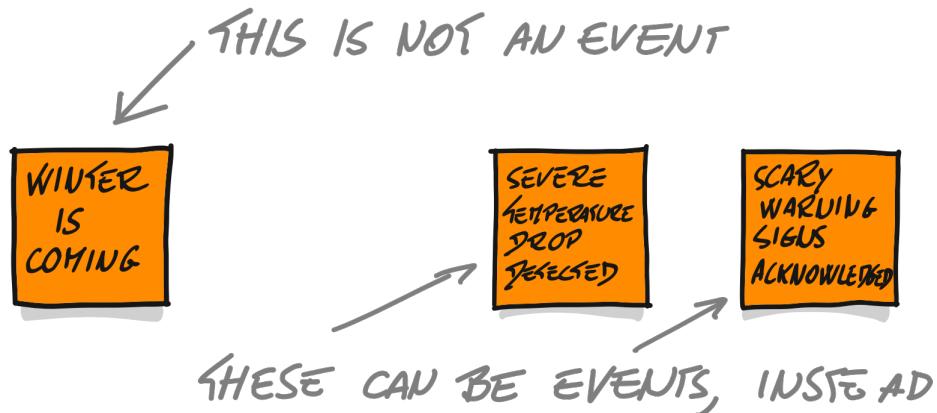
During workshops, I keep it visible as a reference to make sure everybody is on the same page. Sometimes it can be necessary to build a new version on the fly, for situations where the standard set of colors is not available.

Events

Once again, Events will be the building blocks of our storytelling, but since we're now building an objection-proof business process, we'll need to be a little more formal.

Events will need to be *state transitions*, and during process modeling and software design sessions, the phrasing will be strictly mandatory.

You should not worry too much if the initial wording isn't perfect, but be ready to rewrite your events many times: different rounds will increase semantic precision, and probably require more events.



We may need to rephrase some events, to inject some precision

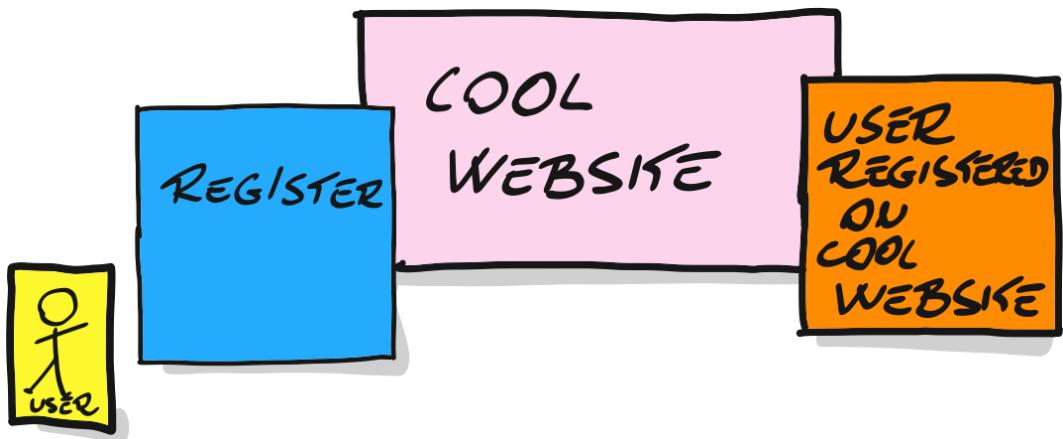
Events won't pop out of the blue, but they'll always be the result of four different situations:

1. they can be the result of some **User Interaction**;
2. they may be triggered by some **External System**;
3. they may be triggered by **Time**;
4. they may be the result of some **Cascading reaction**.

Let's see the different situations more in detail.

Events from user interaction

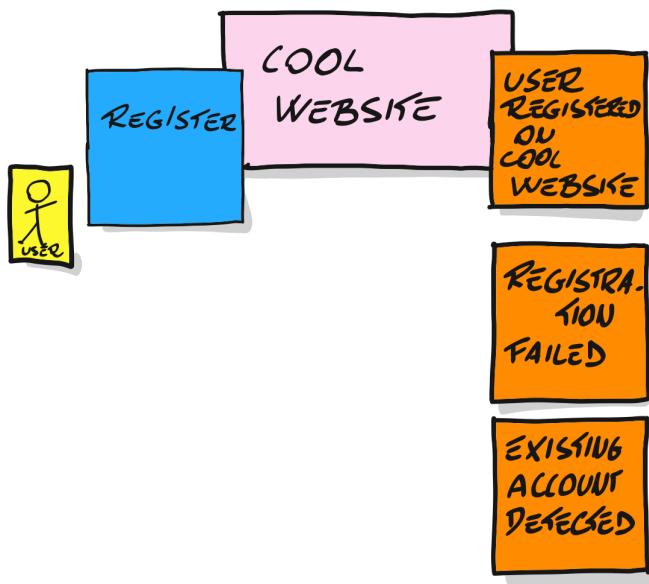
Events may be the result of some *user interaction* with a system. This one is the most straightforward interaction.



The simplest case: a user interacting with a system will trigger an event

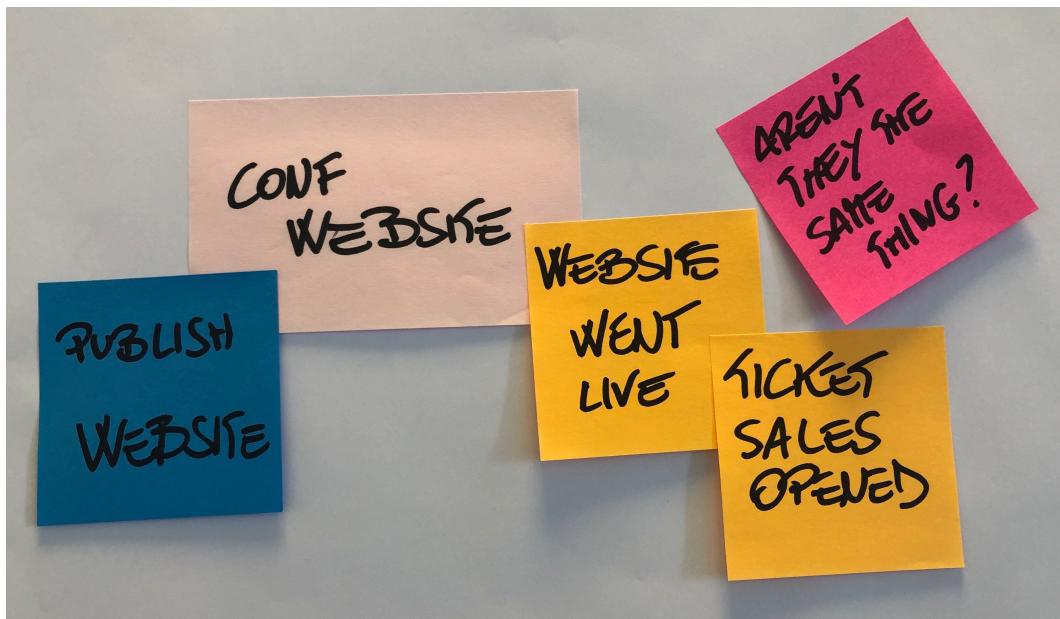
Of course, a system may still be many things, from a piece of software - possibly the system we are designing - to an external organization.

One single user interaction can trigger multiple events. They may be the result of *alternative outcomes*. An emergent pattern in this situation is to position the happy path on top and less frequent alternatives below.



Multiple events as alternative outcomes of the same interaction

Alternatives are not the only reason to have multiple events: sometimes, they are the result of different level of granularities or perspectives.



Different perspective can suggest different naming for the same event, or is it really the same?

Different meanings from the same event are not a bad thing: but you should resist the temptation to reach a premature agreement on the matter. Different wordings can mirror different concerns and perspectives, and apparent language inconsistencies are often an indicator of multiple **Bounded Contexts** within the same process.

In a conference organization scenario, website launched and ticket sales opened can refer to the same event, but they're not the same. We'll see that the relationship between the more technical website-related event is probably mediated by a *Policy* and *this means that* is only true if we rule out the possibility of private sales before activating the website.

Events from external systems

External Systems can trigger events. A typical example occurs when you have distributed *sensors* somewhere: something like Temperature registered or Perimeter violation detected, or when you simply don't want to investi-

gate more in-depth on the event origin¹.



Events can be triggered by external systems, or is this one just another type of user interaction?

If you want to investigate, you might discover that temperatures are sampled at fixed intervals (so with a possible *time-triggered event*) or that perimeter violations may be the result of some user or animal action, but usually, there's no need to dig into the rabbit hole.

Time-triggered events

Time can trigger events. You may think of time as a particular category of an external system, but time is so pervasive than visualizing it everywhere can end up cluttering our model more than necessary.

Time can play a role on a small scale, like a 10 minutes reservation timeout, and on a larger scale too, like a thirty days payment due date starting from invoice date. I like to visualize this connotation with different glyphs in the

¹The rise of Internet of Things is one more good reason to start thinking in terms of Events, a significant portion of the communication coming from distributed devices is semantically just a stream of events, often combined with some filtering, to separate the interesting signals from the background noise or the status quo.

sticky notes: a clock for hours, minutes and seconds, and a calendar for days and months. It's not a game-changer, just my taste.

Some events are also recurring: some processes are happening every day, maybe at a given hour, or less frequently.

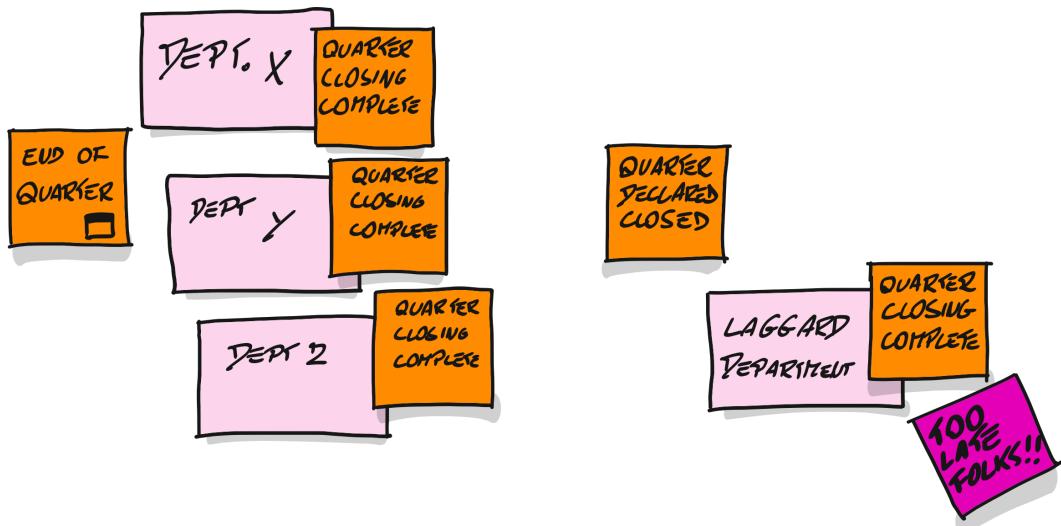


Time triggered events on different time scales. End of quarter is recurring, so I added the corresponding symbol.

Many processes are happening periodically, and we may want to visualize the implicit trigger.

I like to have specific events like End of day or End of financial quarter to be used as triggers for the associated process. The moment we make these events explicit, we usually discover that the actual trigger can be a little more sophisticated.

For example, End of quarter may trigger the beginning of an organization performance review, but not *immediately at April 1st 00:00 AM*: there's usually some buffer to allow last-minute corrections, pending paperwork to be completed and so on. The actual review won't probably start before a more semantically precise Quarter declared closed which may be the result of a little process itself, like waiting for every department to finish their homework, maybe with a Quarter closing complete in department x event. One department may be unrecoverably late. In this case, probably somebody will declare the quarter closed anyway, and label the corresponding data as missing, or unconfirmed.



Once we start investigating deeper into time-triggered events, we can discover that the actual mechanics are a lot more complicated.

We are still missing some building blocks to tell this story, **policies** will play a key role in visualizing a trickier process like this one.

Events which are not happening

How do we model situations where events are not happening? Expected events that are not happening become tricky because they may *not happen* at any moment in time.

There is some nerdy philosophical reasoning here: if we consider events to be state transitions, then they happen at given moments in time, often we can put a *timestamp* on the event. However, the occurrence of not happening is a *continuum*, which is a lot harder to model. Luckily, we don't need to define a precise theory of time; being aware of the shortcomings of an event-based modeling strategy is usually enough.

In practice, we're looking for a way to visualize the *unfulfilled expectation* for an event to happen, and this is where time-triggered events come in handy.

Suppose today is your friend's birthday, and you forgot to send birthday greetings. Well... *forgetting* is not easily mapped as an Event: there is no

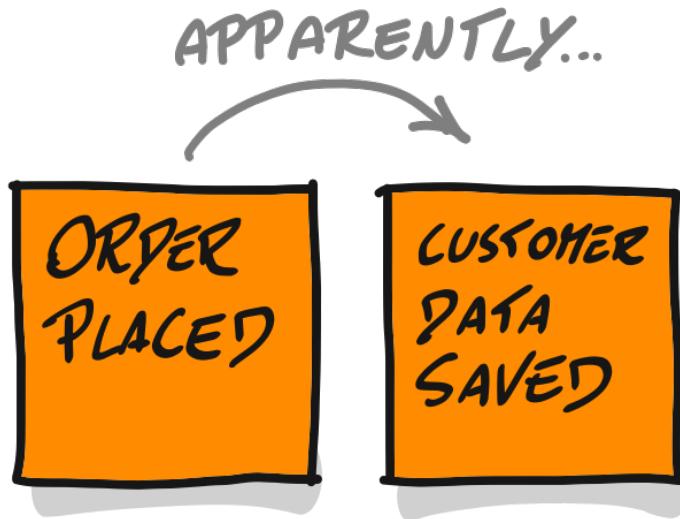
precise state transition here, and the act of forgetting cannot be easily observed from the outside.

What we can observe from the outside is that *a day has passed without receiving any greetings*. Modeling-wise, the event End of day happened before the Greeting received event.

When modeling business processes, events are usually *not happening* within a given time-frame: making the time-frame explicit can lead to interesting insights.

Cascading reactions

Some events appear to be the direct consequence of other events, something like “*whenever this happens then that happens*”, sometimes the overlapping between the events is so tight that it’s hard to distinguish the two: they look like two faces of the same coin.



Apparently, this is a cascading reaction.

We’ll see quickly, that *there is no such thing as an implicit cascading reaction*, but we’ll try to make the connection visible by adding a *policy* and a few other stickies in between.

Commands, Actions or Intentions

Blue sticky notes are *Actions* happening in your system. If you can accept the fuzziness of my definitions then you might also consider them to represent *intentions* or *user decisions*, software architects might like to call them *commands*, instead. That's the wording I used initially, and I'll stick to it for simplicity while writing.

There's a lot of little semantic differences here: Commands, Actions, and Decisions are similar concepts, but they're definitely not the same thing. However, in our process modeling game, it's more efficient to focus on the visible traits of a Command: they're *blue*, and they have an action written in the present tense, written on them.



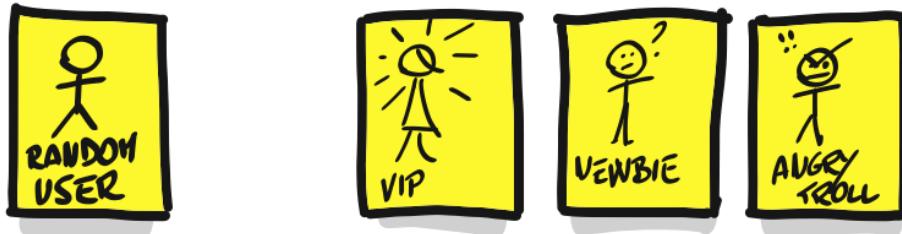
A simple example of a command in action: here the command is associated with a customer operating on the pizza ordering website.

Another important semantic distinction is that the command does not imply completion, Events will eventually contain its outcome(s), but commands can still fail or be rejected.

People

There shouldn't be many surprises around our little yellow sticky figures either: you just need to place one to have the ball rolling. As we said before, we're still enforcing **Fuzzy Definitions**, so I won't precisely define what *people*

are. They can match with different concepts like *Users*, *Actors*, *Roles*, *Personas* or even specific persons with name and surname, but to get started we can agree that little yellow stickies are just representing people that need to do some stuff.



You can get more specific than a simple 'user' or 'customer' if that helps the discussion.

During the exploration, you might discover that different types of people have different interests and motivations in different steps:

- maybe they do *the same thing but for different reasons* like buying a train ticket for a job trip or for a holiday;
- maybe they need *alternative or extra steps in the flow*, and the reason for branching depends on the customer type, like New Customer or Returning Customer;
- maybe they do the same thing *but they need different information* to start or complete the task.

This may be an excellent opportunity to evolve the notation, adding more types of people to the game. It's a common practice to start generic and start differentiating when shortcomings in the generic model become evident.

Lightweight Personas

Personas is a common tool used in User Experience design to represent specific user/customer behaviors and needs. Unfortunately, they're part of a specialistic jargon.

So, if you already have some Personas in your toolbox, you may want to add them to the game. However, if this is disrupting the discussion or pushing some participant in the back seat, or if it doesn't quite resonate with the audience, be ready to step back and to eventually re-discover personas later, when they can relate to different visible behavior in a specific situation.

Our little yellow stickies can be great placeholders in the meanwhile.

Internal users

When designing processes, much attention is usually devoted to external users - or, more specifically, *customers* - while internal users are usually mapped to their roles.

This approach matches the business focus - customers are the ones generating revenues, so obviously we should care - but doesn't necessarily match reality: different category of internal users may expose different behavior or apply different principles.

In general, I've found it useful to have a more in-depth look to internal users behavior instead of stopping at the role categorization. You may want to be ready for some interesting discoveries when looking at this portion of the problem space.

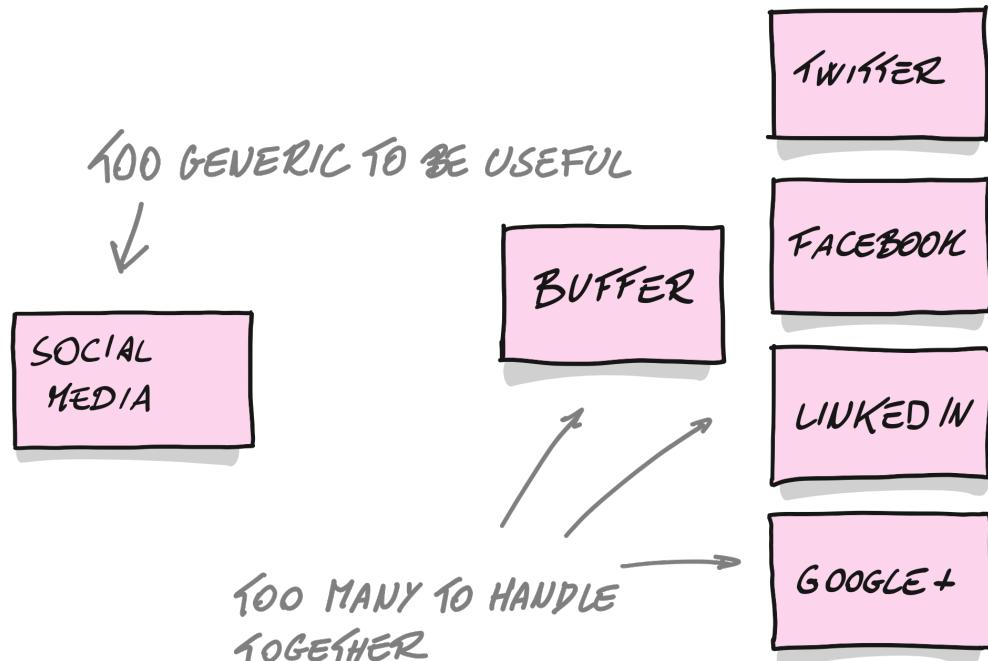
Systems

While modeling processes, we may progressively need something more sophisticated than the original definition: "*whatever we can blame*".

We are still looking for inconsistencies and corner cases, and we should progressively inject precision into our discussion. However, the color grammar is still consistent: a (pink) system can receive (blue) commands and generate (orange) events.

Generic systems?

Sometimes workshop participants will try to make things simple, by making systems *generic*. Just like we did in Big Picture, I suggest resisting this temptation by making every specific system explicit.



The generic system dilemma: a generic one is simplifying things and hiding complexity too; many specific ones will make things look too complicated.

Different systems have different strengths and pain points. Generic systems, don't. In Big Picture, a detailed system representation tends to trigger more system-specific hot spots, but in Process Modeling, it may also trigger slightly different paths.

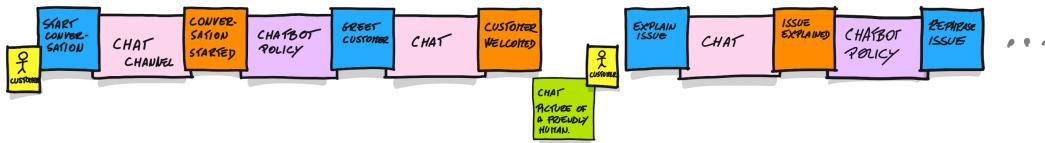
However, displaying every system might confuse our modeling teammates, it's usually a good idea to pick a representative, and use **HotSpots** as placeholders for the specific systems we're not yet exploring.

Conversational Systems

Systems like phones, email, chats can host a more human-friendly interaction, but conversational systems are somewhat harder to model in an event-driven fashion.

Some conversation can last hours without reaching a clear decision, ...*maybe there is no decision to be made at all!* Other conversation may end abruptly, without an end state, like when your phone battery goes down. Or it may be hard even to determine whether the conversation was actually finished: if you're familiar with *Slack*, channels are hosting a perpetual, endless conversation between different team members.

This is interesting, but the real problem for us is *how do we model these things?* The most obvious observation is that a sequential approach doesn't really work well here, in terms of space management.



Modeling a conversation with events can take up a lot of precious modeling space without leading you anywhere.

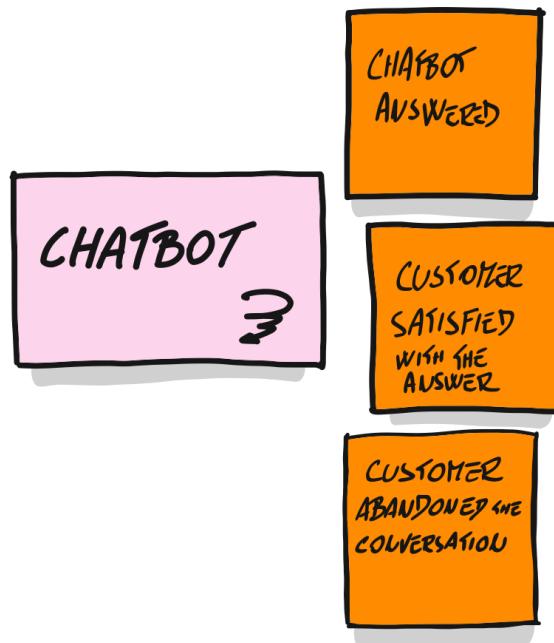
In a few sessions, I observed the tendency to try to *script the conversation*. This is not necessarily the best approach, nor the most *natural*: many conversations happen without a script and may wander around a little before getting to the point².

My way to address the problem is a combination of special notation and modeling approach.

²There's a whole universe of cultural differences here that I am deliberately not exploring here. Just be aware that there is no such thing as 'a typical conversation'.

A specific notation for conversational systems

The visualization trick here is to label the system in use as conversational, with the implicit assumption that we'll stay on the system for a while. I use another little glyph for this purpose, but once again this is just my personal taste.



The 'conversational' glyph is telling us that the flow will stay in the conversational system, until some terminal event.

Focus on the outcome

Since the intermediate steps are lost in the nuances of natural language, which is not a good fit for an Event-based approach, we'll need to play some trick here.

I usually look for the *termination condition*, or the *final outcome* of the conversation: "What will make this conversation end?" Conventional education would make us look for some closing words like goodbye, but when modeling with events, we might look into something *the goal of the conversation has*

been accomplished, or sometimes the opposite: this conversation is clearly going nowhere.

In doing so I often embrace the perspective of downstream actors in the process flow, that can be something like “*I don’t care how you reach the deal, I only care about the deal details.*”

This dichotomy between a fuzzy portion of the process and a more mechanical one downstream is likely to happen often in your modeling. Looking at the **pivotal events** here can help a lot³.

Policies

A policy is a lilac rectangular sticky note, sitting in between an orange event and a blue command.

Policies capture the reactive logic of our processes. Verbally, we can express this logic like:

Whenever [event(s)] then [command(s)]

‘Whenever’ is the keyword. It helps us highlight the expected system reaction whenever a given event, or a combination of events, happen.

³Draft and Executable Models are a frequently misunderstood topic: I’ve found quite a few software systems that ended up crippled because of the lack of separation between the two phases. This is a major issue in many enterprise systems, I’ve frequently talked about it, you may want to have a look at “[Why do all my DDD apps look the same?](#)” and to “[“What lies beneath”][FIXME: upload the presentation].



A simple policy in action. You can read it as: "Whenever a registration is completed, we send a welcome pack to the new user." Or: "Whenever a registration is completed, our welcome policy is to send a welcome pack to the new user."

We look for policies like the missing glue between a domain event and the resulting command. Put in another way: "*there must be a lilac between an orange and the blue*".

I tend to be really strict in the implementation of the color grammar when it comes to policies because *there is always a business decision between an event and the reaction*. Sometimes the underlying decision is too obvious to be noticed; the mandatory lilac is just there to force your modeling team to think.

Name and implementation

Policies have a dual nature: ***name*** and ***implementation***.

I recommend you not to waste too much time looking for a good name: sometimes I leave it blank, or I write a tentative name without worrying too much whether it's good or not.

Instead, I try to infer the implementation from the events and commands surrounding my policy, and I say it loud: "*Whenever we receive a clarification request sent to our commercial account we answer it*".

This usually triggers some discussion and clarification. Once the implementation of the policy is agreed, usually the name becomes obvious. How would you name a policy like this one?

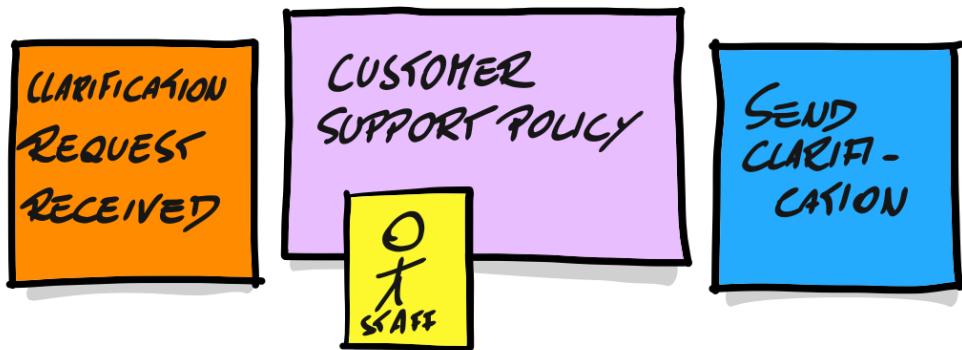
"Whenever we receive a clarification request from a known customer, we try to answer or to open the conversation with the desired specialist within one working day."

Maybe Customer Support Policy is a good bet, while First Contact Policy might be a good candidate for our organization's way to deal with new contacts, which can be possible leads, spam or ...who knows.

Asking experts, *"How do you call this policy?"* won't help you, and may even create some unnecessary frictions. Some people do things without giving them a name; it's our duty as modelers to make things visible and possibly unambiguous.

Software or people

A policy can be seen as a placeholder for a decision happening in the organization, triggered by a given event (or combination of events). Sometimes this reaction to an event is automatic, other times it is managed by people. When this is the case, we place the relevant person on the corresponding policy.



A simple policy, that is managed by one or more human beings

Policies represent business decisions, organization reactions to given events, and our stickies can represent different stages of maturity.

In a just launched business, the owner may be the person answering phone calls and incoming emails. Later on, a dedicated person would be hired, to

handle incoming calls and emails, and maybe a multiple-step process would be in place. In a few years, auto-responders will possibly be necessary to handle the traffic of incoming calls, and perhaps they'll turn out to be a mistake because humans prefer talking to humans instead of machines.

Policies tend to be the first thing that needs to change when the business context changes. Policies are the flexible glue between the other building blocks of business processes.

Policies as lie detectors

In the real world, the transition between two different implementations of a policy can often get unnoticed. Before hiring a dedicated person, the owner of the small business probably shifted from being always available to *we'll call you back within minutes* to *we'll call you within days, to try again, I am too busy right now*. There weren't meetings and public announcements of a policy shift. It just happened.

Large companies are no different in terms of policy reliability: there may be codified rules stating behaviors and service level agreements, but different employees are not necessarily following the same policy. There are rules, there is the interpretation, and there is the reality.

I was part of the organization of a conference some years ago. I and other co-organizers didn't agree on a standard policy for discounting: after a while, we realized that a few customers were phoning to each one of us, basically *polling*, and choosing the most favorable conditions. On our side, we had more coordination efforts, wrong numbers, and fewer revenues. A fantastic lose-lose scenario.

The interesting bit here is that *policies is where people lie*. Discovering the real implementation of an existing policy is an investigation game: people will not tell you the real story at first attempt.

This is the main reason why I recommend to be strict on the color grammar: the lilac sticky note is a placeholder for a mandatory conversation on the topic

more likely to be controversial. Good modelers should love it like bears love honey.

Here are a couple of tricks that will help you to get to more accurate information.

Speak out loud

I've mentioned already that we can leverage spoken words in order to get some feedback from our modeling team. Now, let me get into how this little trick works.

Suppose we're modeling a small bed and breakfast business, and the scenario we're dealing with is a person asking the owner to hold the room for one day, before the real booking. Here is the first draft for our exploration.



Apparently, “Whenever we receive an email from a customer asking to hold a room, we just do it.”

Once the policy is visible, I read it aloud “Whenever we receive an email from a customer asking to hold a room, we just do it.” ...and the moment I pronounce the words usually two things happen.

1. I can't even finish the sentence, because I will **sound stupid** saying so, and my brain will start trying to correct me in real-time. Come on! We'll be at the mercy of every possible untrustworthy person on the Internet.
2. Somebody will correct me because *this is not the way they're working*.

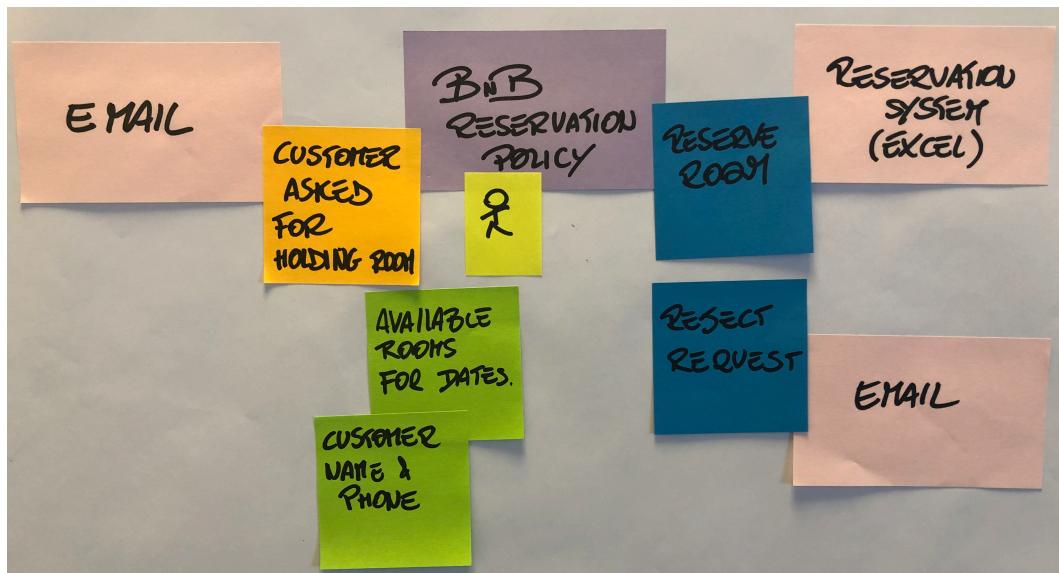
The first thing to do is to capture the feedback with hotspots.



Hmmm... looks like that's not the whole story here.

You may have an easy solution for these objections: add some read models that will allow you to check if there's availability for the selected dates and make sure you have collected the needed information about the customer.

Now you can read aloud the policy like “Whenever we receive a room hold request, if the customer provided their full name and phone number, and there's room availability for the selected dates, we just do it.”



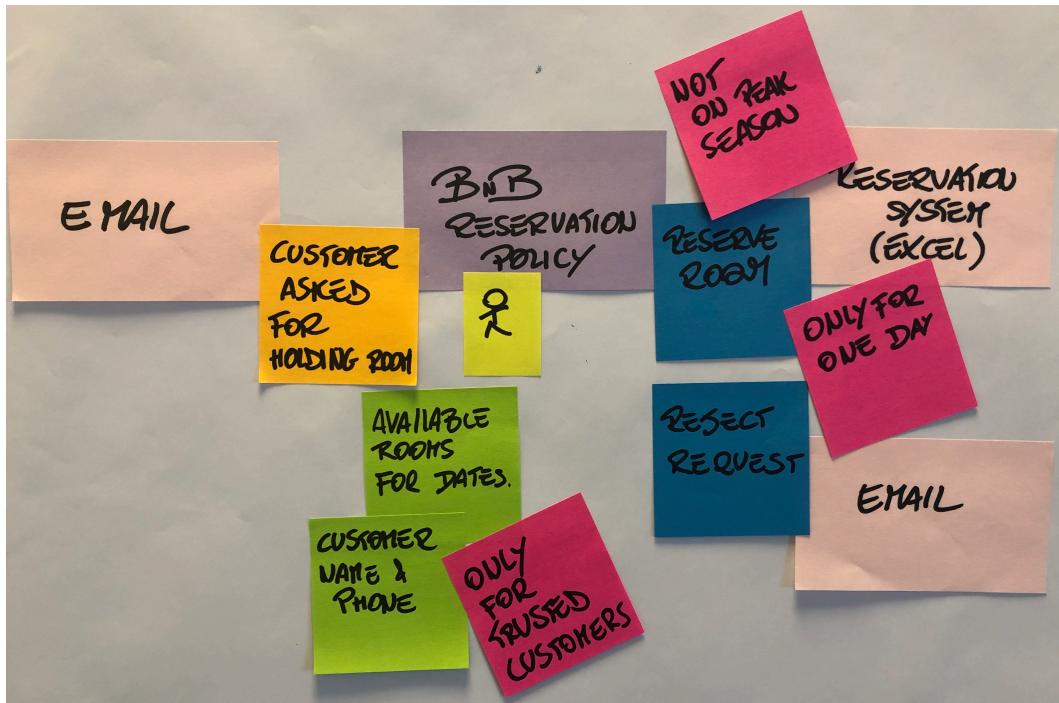
Now this is a little more realistic, but not yet the real story.

The magic keywords

It's now time to challenge the audience with two magic keywords. The trick is simple and powerful at the same time: you repeat the same sentence adding the words **Always** and/or **Immediately**, then you enjoy the show.

Once again it may be you, correcting your very own words in a desperate attempt not to sound like a stupid in front of an audience, or it may be somebody in your team suddenly coming up with some exception or corner cases⁴.

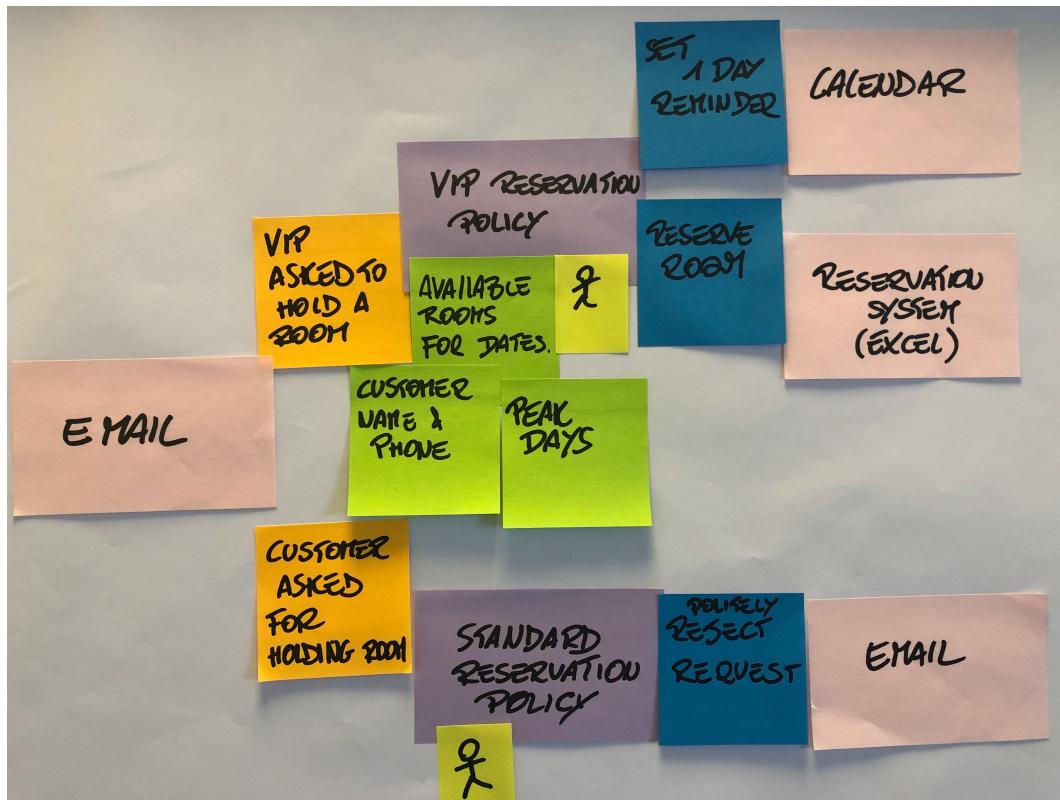
⁴This is also a place where Example Mapping fits incredibly well, the more you can get specific and sometimes even *personal* with an example - "That's not what happened when your friend asked last time!" - the more you will discover the real nuances of your policy.



The magic words triggered a few objections, let's see if we can address them.

Looks like that the possibility to temporarily keep a room on hold is not for every customer. In fact, only a few trusted regulars can enjoy the opportunity, while the default policy for standard customers is a polite no.

Now, it looks like there are two competing policies, so let's make them visible!



The resulting model, after we split the policy in two, and took care of the open hotspots.

We also added a command to set a reminder, to address the temporary lock objection, and the peak days in the read model.

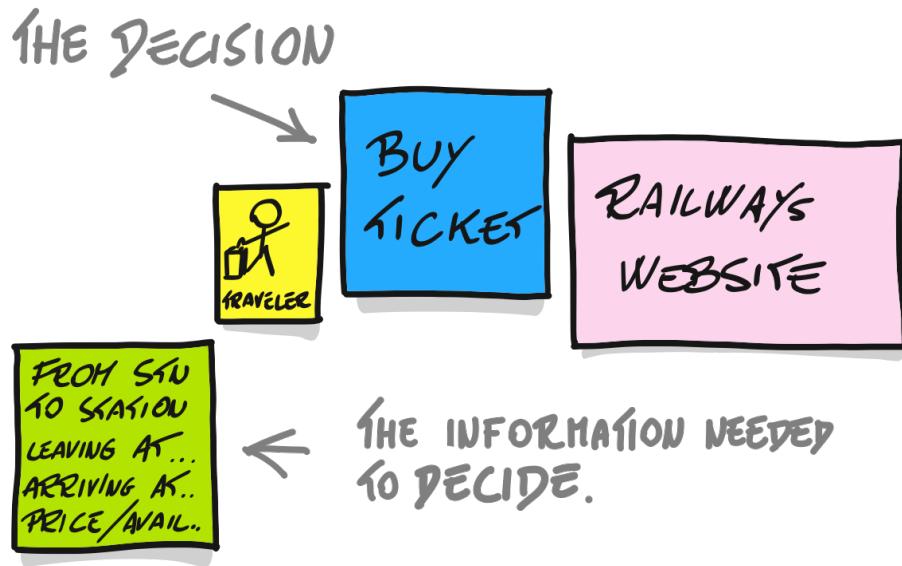
Now it feels like there could be a few more exceptions, like “if we’re in low season, and the BnB is empty, let’s make a possible customer happy anyway”, but I hope the dynamic of the exploration is clear.

Reading out loud is a powerful tool, and becomes really powerful when combined with simple little words like ‘always’ and ‘immediately’.

Read Models

Read models are *the information that needs to be available to take a given decision.*

A traveler purchasing a train ticket on the web would look for trains looking from the *nearest station* and arriving at the desired *destination*. *Departure and arrival time* also matter, so do *availability* and *price*.

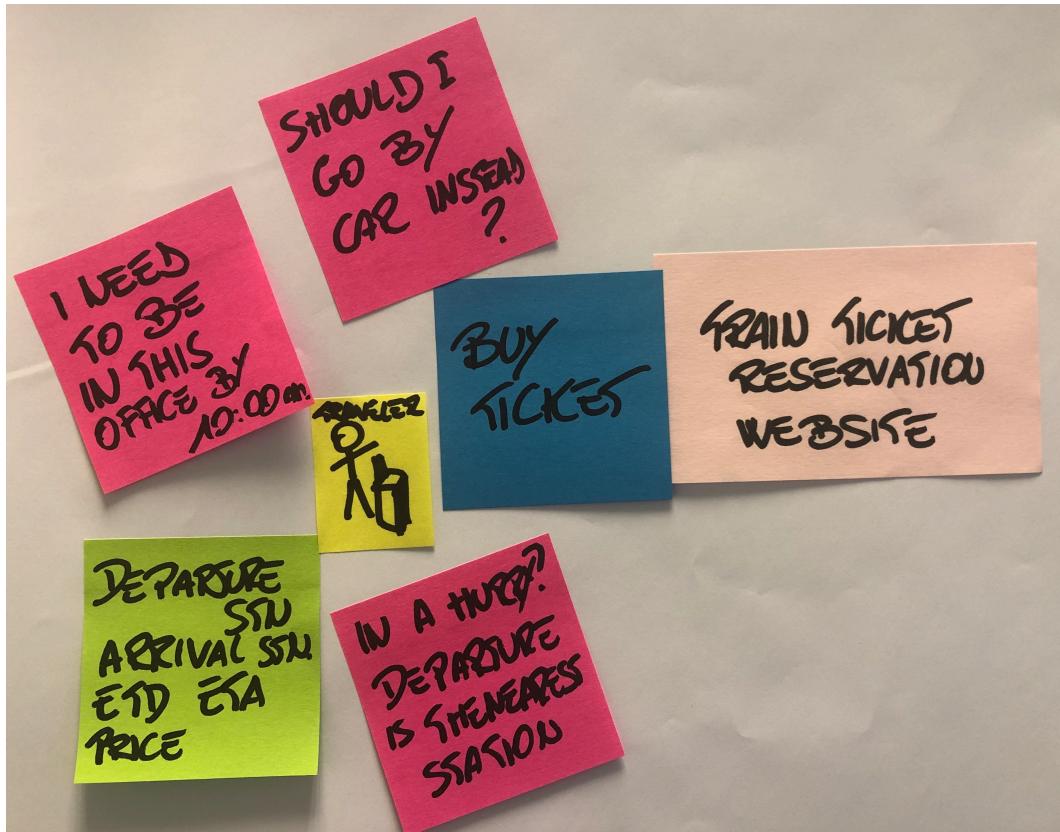


We can write the relevant information to support a user choice in a green read model

By writing this down, you may discover that there are a few assumptions that can be challenged here, like:

- Does the traveler know what is the nearest station, or should a mobile app suggest the nearest one?
- People rarely take the train just for taking the train, most of the time they want to go from place A to place B in the most convenient way, and the train happens to be the most obvious choice, but not necessarily the only one.

- The real destination is probably not a railway station, so the time needed to go from the railway station to the actual destination may play a role too.



A few comments from our modeling team needed to be visualized

I use read models to visualize constraints on the data that needs to be available to implement a process, but I use it also to visualize the assumptions behind the decision-making process and eventually challenge them. In the software design session, we'll see how this approach allows much freedom in the implementation of smart software solutions.

Fetching the information

In EventStorming I explore Read Models *starting from the decision*: the decision needs data; hence, the data needs to be available, and I capture it in a read model.

I've seen many people that need to verbalize/visualize their inner sequence like "*I need to get the list of available stations, then I can set departure and destination. Then I need to get the available departure times...*"

I try to avoid this because this sequence is not real: many times is just one of the many possible combinations to get to the set of data needed to make your decision. Can we get to the same data just listening to the voice of a user? "*I'd like a ticket for the first train from Milan central station to Bologna*" could be everything we need to have a voice-activated service running.

Some implementation need sequences, and the sequence matters, but many times, fetching data is not a process step: it's a piece of one possible solution leaking into the problem space.

Wireframes and sketches

Sometimes, the list of relevant information is all you need to understand the flow. But this is never the whole story: the way information is presented can improve readability, signal to noise ratio or subtly influence user to react in a given way⁵.

Whenever it adds value to the discussion feel free to be explicit and add screenshots of existing pages (if you're digging into a legacy process), or wireframes and sketches for new ones.

⁵There are good and bad arts here. Some dynamics of how our brain reacts to different information have been exploited up to the point of becoming a threat to public health (in gambling) and to democracy too, but the same dynamics can also be part of laudable initiatives. As a modeler, you should be aware of these dynamics, and choose responsibly.

Value

[FIXME: step by step value]

Hotspots

We've met hotspots already while describing the dynamics of a [Big Picture EventStorming](#), and you can keep using them to capture inconsistencies, frictions, questions, etc.

In Process Modeling and Software Design EventStorming, they turn out useful also to help you with the branching nightmare that may swamp your team.

Hotspots will come in handy to keep track of the branch you're not exploring right now, the problem is there, but we won't be solving all of the issues together at the same time. We'll need a more systematic approach called [Rush to the goal](#), more about it in the next chapter.



Chapter Goals:

- Understanding the building blocks for an EventStorming Process Modeling session.
- Policies as placeholders for a mandatory conversation.
- A more sophisticated role for value stickies.
- Hotspots as a tool from smart procrastination.

15. Process modeling game strategies - 50%

Like in most games, being familiar with the rules is only the first step. The more you play, the more you'll shift your focus from following the rules, into developing a more sophisticated set of moves that will allow you to win the game.

In this chapter, we'll take a look at some more sophisticated game mechanics, that may help your team to succeed at the modeling game.

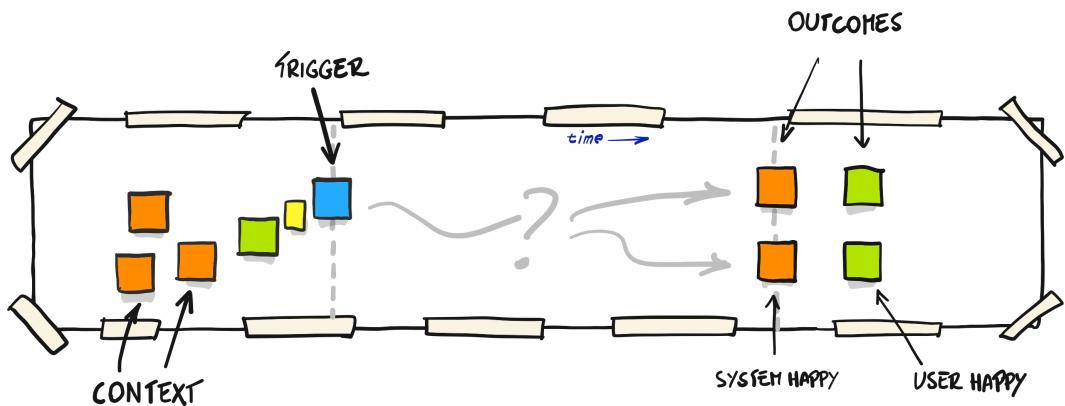
Kicking-off

How do we start a modeling session? There are a few ways, not as many openings as in chess, but enough to raise some questions.

Framing the problem

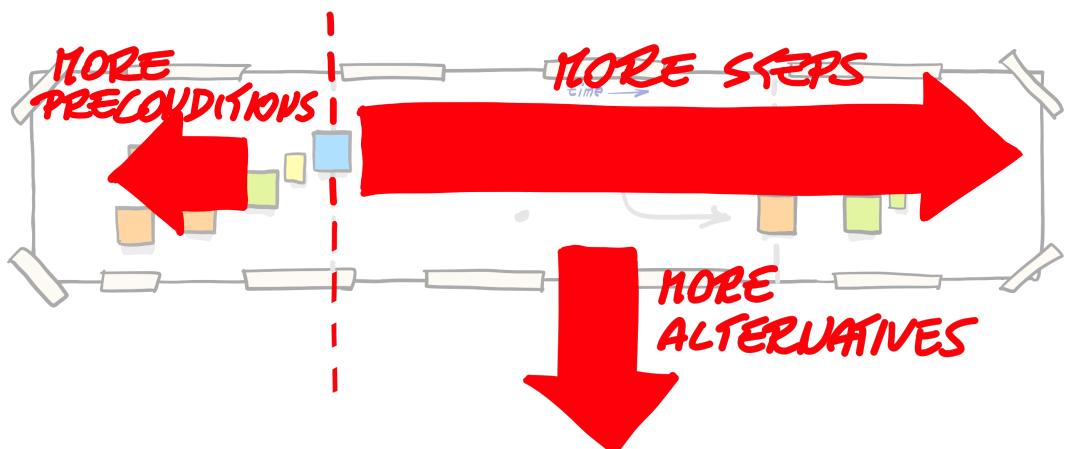
Before starting, you may want to frame the expectations a little: there's going to be a little more structure than in Big Picture EventStorming, and you may want to visualize it.

You may want to keep the following picture visible as a reference.



You may also want to adjust the modeling space accordingly: 6 meters is a reasonable size for process modeling, but some processes are full of surprises in terms of length (detail and number of steps), and depth (number of branches).

You should also leave some empty space before the trigger, because often some unexpected preconditions pop up, and you'll need some space to accommodate them.



The directions your modeling space is going to expand; be sure to have more space available

Providing too much space upfront can be scary for somebody "Are we really supposed to fill up all this space with stickies? but at the same time, people

start taking shortcuts when they are afraid of hitting the boundaries of the modeling surface. The best trade-off is to start with a reasonable size, and be ready to **add more space** with minimal effort, whenever is needed.

Opening moves

Once the problem is framed, somebody is going to make the first move. The main opening strategies are:

- **start from the beginning**, and then proceed step by step towards the termination event(s);
- **start from the end** and systematically use reverse narrative and the color grammar to build our path from the outcome the start condition;
- **make a little mess** or run a chaotic exploration first, and then use the color grammar to connect the dots.

Every choice has advantages and disadvantages. Let's look at them in detail.

Start from the beginning

Ideally, you want to set up your modeling space starting from the process trigger: a user initiating a process (so a *Blue Command*) or an *Event* coming from an external source.

The color grammar is the strongest driving force: if the trigger is a Command, it'll have to go to a system and produce one or more Events as a result. We'll build our colored railway till we hit the desired outcomes.

As long as we proceed we'll discover more precise events, more complex policies, more outcomes and constraints we were not completely aware before starting, and probably more dependencies from past events and data.

Pros and cons

- **Matches natural storytelling:** the way we tell stories is usually from the beginning to the end, and this is true also for domain experts whose knowledge is often self-centered “*I do this, then I do this, and then I do that.*”
- **Easy to grasp for newbies:** if your team is not experienced with EventStorming, this is the easiest way to move your first steps in terms of the cognitive load needed.
- **Maximizes branching:** unfortunately, after a few steps, an unexperienced team is more likely to get flooded by many opening alternatives and what-if scenarios. Many alternatives aren’t necessarily a bad thing: it means you *are* exploring, but you need a strategy to avoid getting lost. [Rush to the goal](#) is going to be your best friend.
- **Challenges expected outcomes:** you may have entered the modeling session only with a rough understanding of the outcomes, that may turn out to be simplistic along the way. The process you discover can be bigger than the process you had in mind: you just wanted an item to be dispatched at home, and suddenly you discovers that there are documents to be printed, fees to be paid, and bookkeeping to be in sync.

Start from the end

This strategy enforces [Reverse Narrative](#) and applies it from the very beginning of our process modeling.

We should quickly collect the desired outcomes of our process and sort them vertically according to some priority.

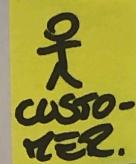
For a simple scenario like purchasing a train ticket the outcomes can be something like:

- The customer has received a ticket, in a valid format.
- The corresponding seat has been reserved on the selected train, for the chosen journey.

- The purchase has been completed, so money has been debited on the selected payment channel.
- A legally valid receipt has been sent to the customer.
- An event has been added on the customer's calendar (optional but useful).

Eventually, you may already emphasize with value stickies why those outcomes are important and for whom.

TICKET
RECEIVED



SEAT
RESERVED

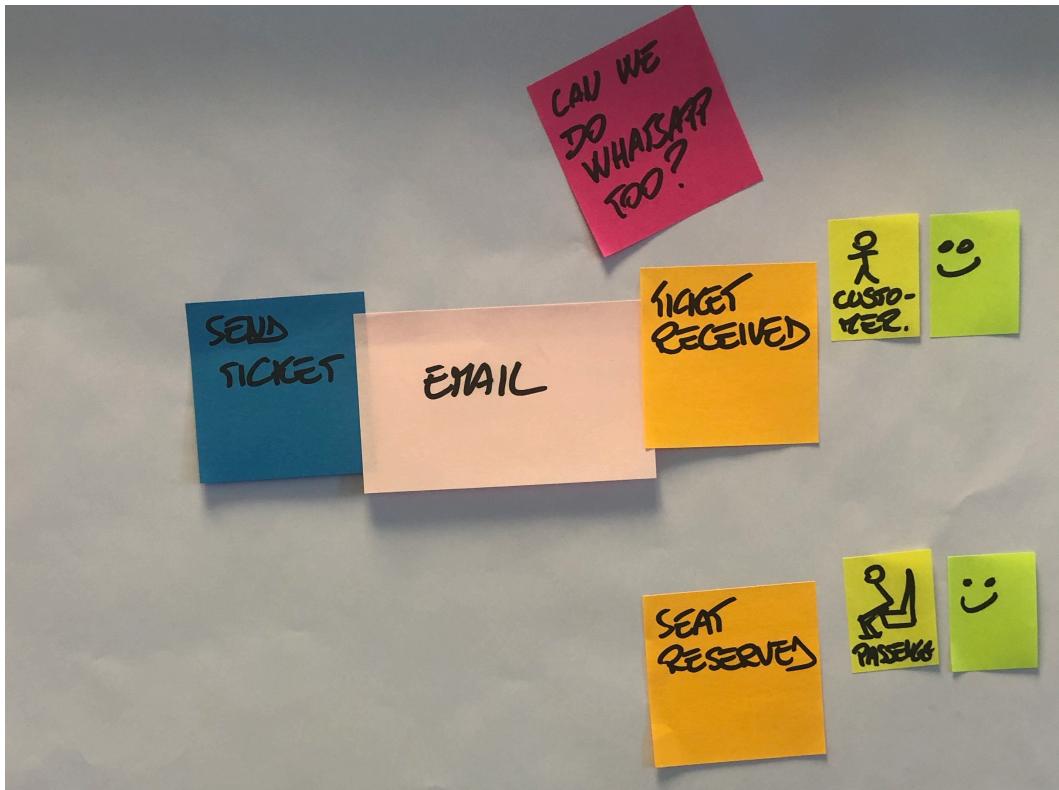


PURCHASE
COMPLETED



We can't manage all of the outcomes at the same time, so we pick the first one: probably a `Ticket Received` event. Moving to the left, I'll need a pink System: `Email` looks like the most obvious candidate, but someone says "What about `WhatsApp`?"

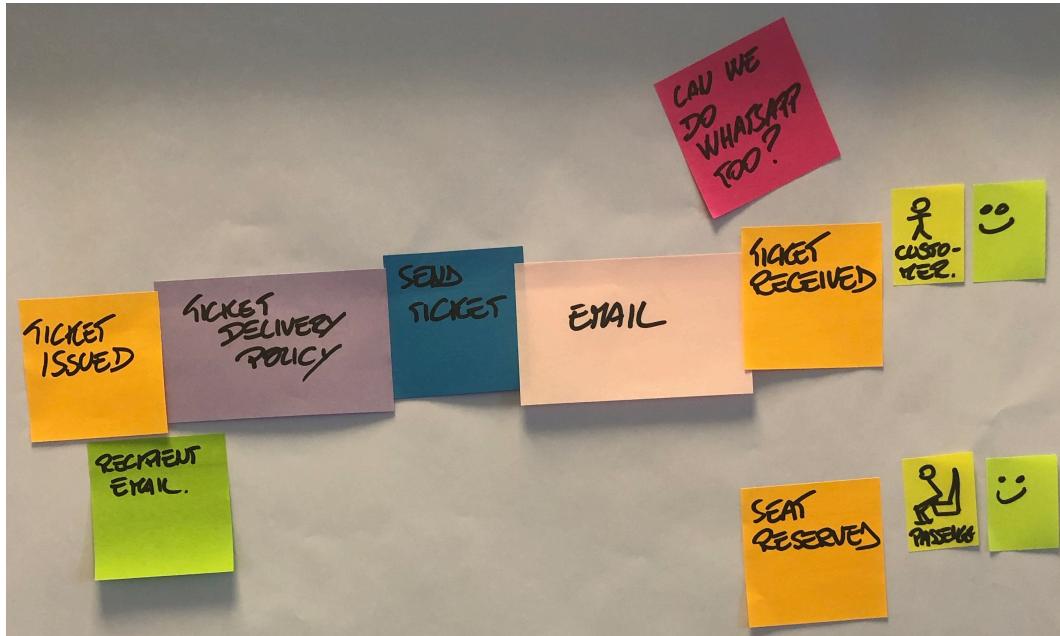
You don't start a discussion, but write a hotspot instead, and move on. Now you need a Blue, right before the `Email` system, `Send Ticket` via `Email` seems the way to go.



We picked the most important outcome and started moving backwards: somebody's gotta send us some tickets!

Now a policy is needed, we just know that it's going to be "Whenever [missing event] we'll be sending the ticket via Email" so we can try a tentative name, and start looking for the trigger event. `Ticket generated` seems a good fit, but someone says `Ticket issued` and sounds more professional. At the same

time, we cannot send the ticket without a valid email, we write it down in the policy read model, but we need to make sure that information is collected somewhere.



We just used 50 cm, now the next question is “Which system issues the ticket?”

We'll then need a pink system that could issue tickets: do we have it already? Are we designing a new one? And so on.

Pros and cons

- **Very lean:** it's easier to isolate the minimal portion of the system that provides the desired value, ideally this exploration style should provide the shortest path to satisfaction.
- **Mentally demanding:** this kind of reverse reasoning requires more energy, and can be a really tricky approach for inexperienced modelers.
- **Assumes known outcomes:** this is a very good strategy if the expected outcomes are clear, but maybe not the best one if you want to challenge them.
- **Facilitator can take over:** there's an extra burden in rephrasing the story

from the end, and usually only a few people in the team are comfortable in leading with that approach. This can result in sessions which are more heavily led by a facilitator.

Make a little mess

The third option is to start from another (smaller) brainstorming around the process scope, limited to the orange Events. They should be spaced enough, so that we could use the other colors to connect them. Once the skeleton of the process is in place, we can start enforcing the color grammar, from the beginning or from the end.

Pros and cons

- **Massive challenge to the status quo:** a brainstorming phase can quickly put all the contradictions between the different expectations in sight. If you're curious about the different needs, this is the way to go.
- **Really quick to have a skeleton:** if there is no discussion, you'll have a skeleton in a few minutes. You're going to discover quickly that your skeleton is wrong and probably every single sticky note needs one or more rewrites, so don't fall in love with it.
- **Can easily get out of control:** if this is your first Process Modeling session after a Big Picture EventStorming, you may get too much enthusiasm this round, because people think they know what they're expected to do. And they can start explore the whole thing again, so make sure you clarified the scope (but leaving space to discover holes), and to strictly timebox this phase.
- **Sorting is harder:** there is a lot of value in sorting, but keep in mind that in this approach you're losing the privilege of a clean slate in seconds, and then you'll be finding your way in a cluttered space.

Which strategy for me?

There is not a clear winner, and one strategy doesn't rule out the others. I've found myself often starting from the beginning, and then turning to reverse narrative to get out of a rabbit hole.

No strategy is perfect, be ready to react to the signals from your team and eventually switch to a different one.

Once again, I will stick to the game metaphor: the rules of the game won't change, but your strategies will evolve a lot over time.

Mid-game strategies

Whichever was your opening, now the ball it's rolling, ... but we're far from completing our task. During these years I've observed a few teams starting right and then getting swamped in between: it took me a while to realize that there were a few extra tricks that made a lot of difference in the way the discussion was happening.

I've seen other practitioners also developing their own strategies and styles, and it works too, so please take the next ones as recommendations, not rules.

Recognize the rabbit hole

Let's make one thing clear: we are going to get swamped at a given moment. The complexity of the problem was the first reason we were supposed to use a collaborative modeling approach, so nobody promised it was going to be easy and straightforward.

It becomes important to be able to recognize when we're entering the rabbit hole, or getting sucked into a discussion that we're not able to finish. Here are a few symptoms.

- People start detaching from the modeling surface. In a good discussion we can finger point the steps, but suddenly people stop looking at the modeling surface.
- The topic of the discussion is not visible on the model.
- Sentences start with “Yes, but if ...” prompting that we’re now solving more than one scenario at the same time.

Quickly you’ll stop adding stickies because you don’t know what’s the right thing to do. It’s probably also a good time to have a break, so maybe let’s grab some coffee and tea and come back with a different strategy and a fresher brain.

Keep everything visible

The first trick to make sure that

we don't talk about invisible things

Everything that we talk about should be represented on the surface. Hotspots are perfect even for things that are not clearly mapped into our grammar.

This is probably the main responsibility for the session’s facilitator. It’s going to be hard if they’re involved in modeling the solution (puzzles are addictive), but somebody is supposed to be responsible for that.

Keeping everything visible is also your secret weapon to make sure that you and your colleagues are talking about the same thing. You’ll never be *completely sure*, but the more things are in the invisible/implicit portion of the discussion, the higher the probability of misunderstandings.

It doesn’t stop here: if issues are not visible, people who are worried about possible risks will start assuming the worst possible situation of the spectrum, and make every discussion more complicated[^WIECDT].

[^WIECDT] “*What if every customer does [something stupid]?*” you’ve heard it too. And yes, some users will do something stupid, but *every single one et the same time* is often more a symptom of fear, than a valid argument.

Keeping everything visible will also help you pick up the discussion, after the coffee break.

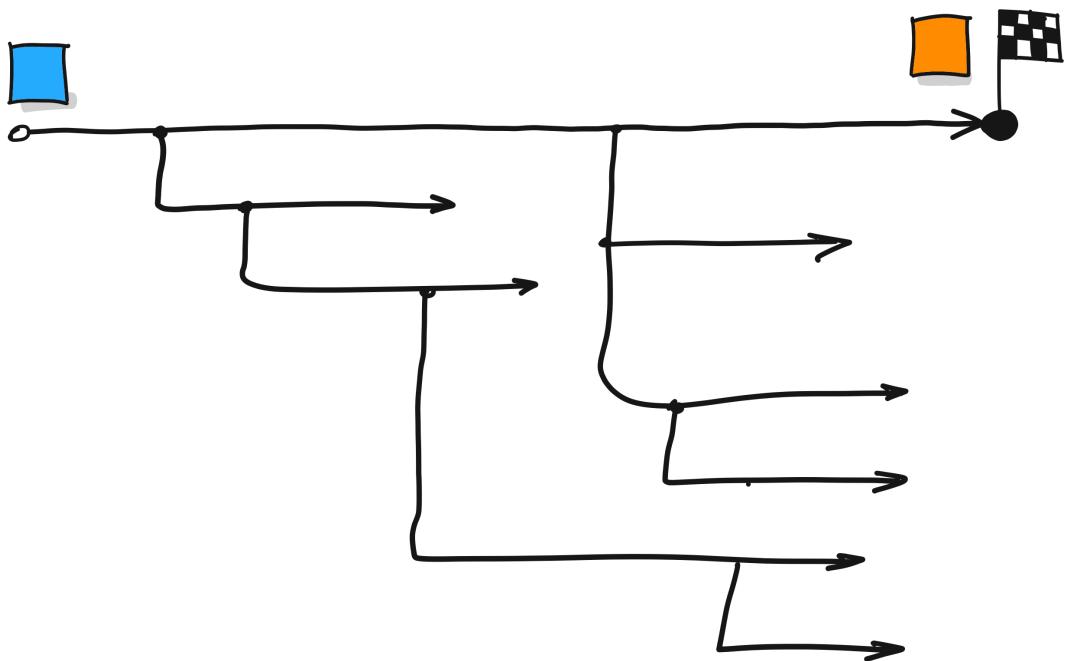
Managing branches

Before starting the modeling session we might have the illusion that the process we're going to model should be approximately linear.



The illusion of a linear process, we just need to discover the steps

Unfortunately, that's never the case (and you wouldn't need EventStorming to agree on a trivial process). Instead you should be prepared to handle a continuous explosion of branches and alternatives opening before you.



What you should expect instead: many branches opening before you.

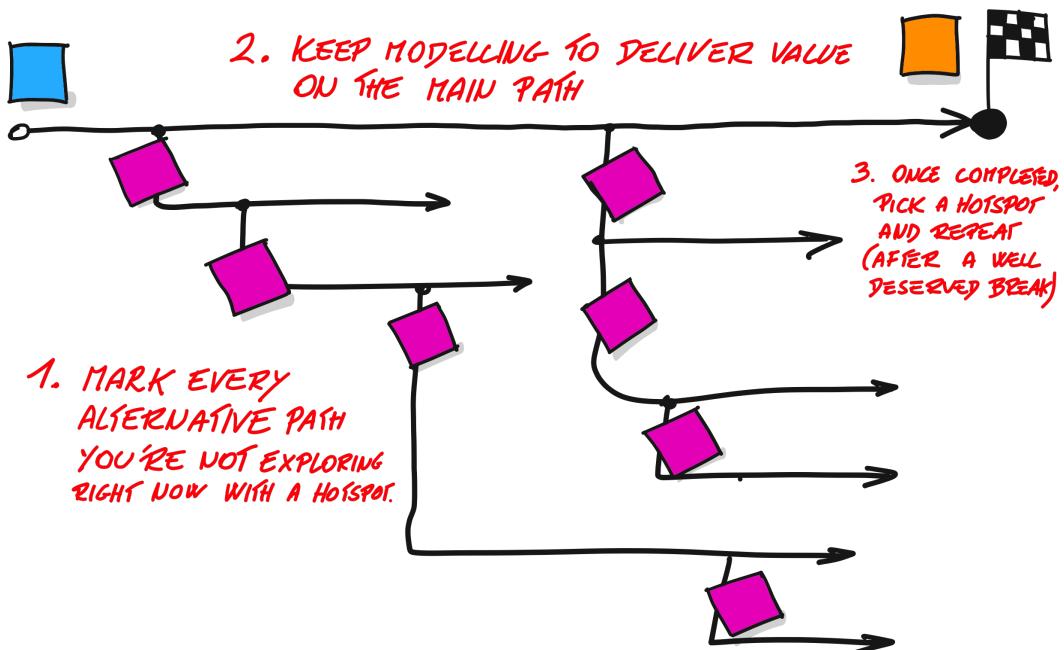
We should have expected that, but even if we did it quickly escalates into a problem: now your modeling team that was trying to solve *one* problem, is trying to solve *two* and then *many* problems at the same time.

And the hard truth is that *it's very hard to solve two problems at the same time.*

Hotspots to the rescue

Hotspots will quickly become your best friends here. You should use them to visualize every branch you're not exploring right now. This way we're making sure that the problem is visible, and will be taken into account. Rule N.3: "*Every possible Hotspot is addressed.*" and we're not going to cheat.

At the same time, we make sure that the work in progress of our discussion is always limited to one issue. Issues will pop up, we'll have a team of explorers and troublemakers, but we can sort them out, *one by one.*



Hotspots will become your best friends when dealing with many open branches at the same time

Rush to the goal

I do have a strategy for these situations: I try to follow the color grammar and build a baseline path to the desired outcome as quickly as I can. I speak out loud in the process so that sounding stupid will eventually trigger some objection. I don't discuss, I don't try to reach an agreement on the perfect wording of a sticky note, before reaching an outcome state.



I just try to pretend I am here, for a while...

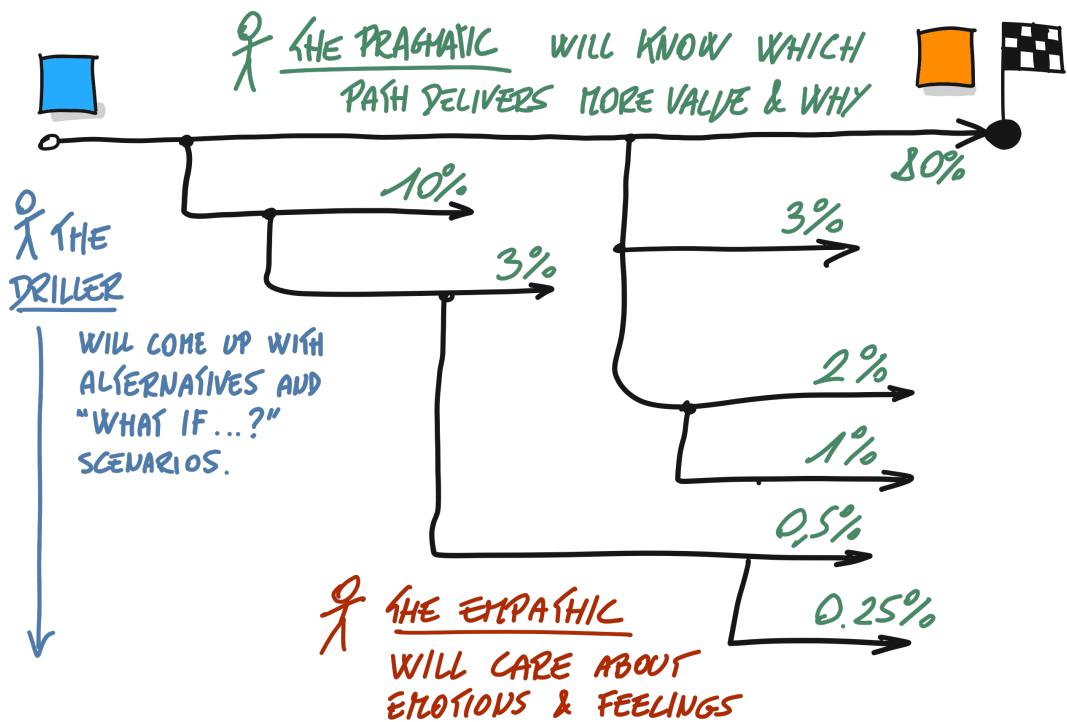
Once the end state is reached, I do something weird: I flood my model with

Hotspots, capturing everything I don't like about it.

The problem is too hard to be able to find the perfect solution at first attempt, so I don't even try. I just need a solution, not a good one. Then I'll improve it till it makes everybody happy.

Team dynamics

Balancing personalities



Different personalities and styles will play different roles, and each one of them is precious!

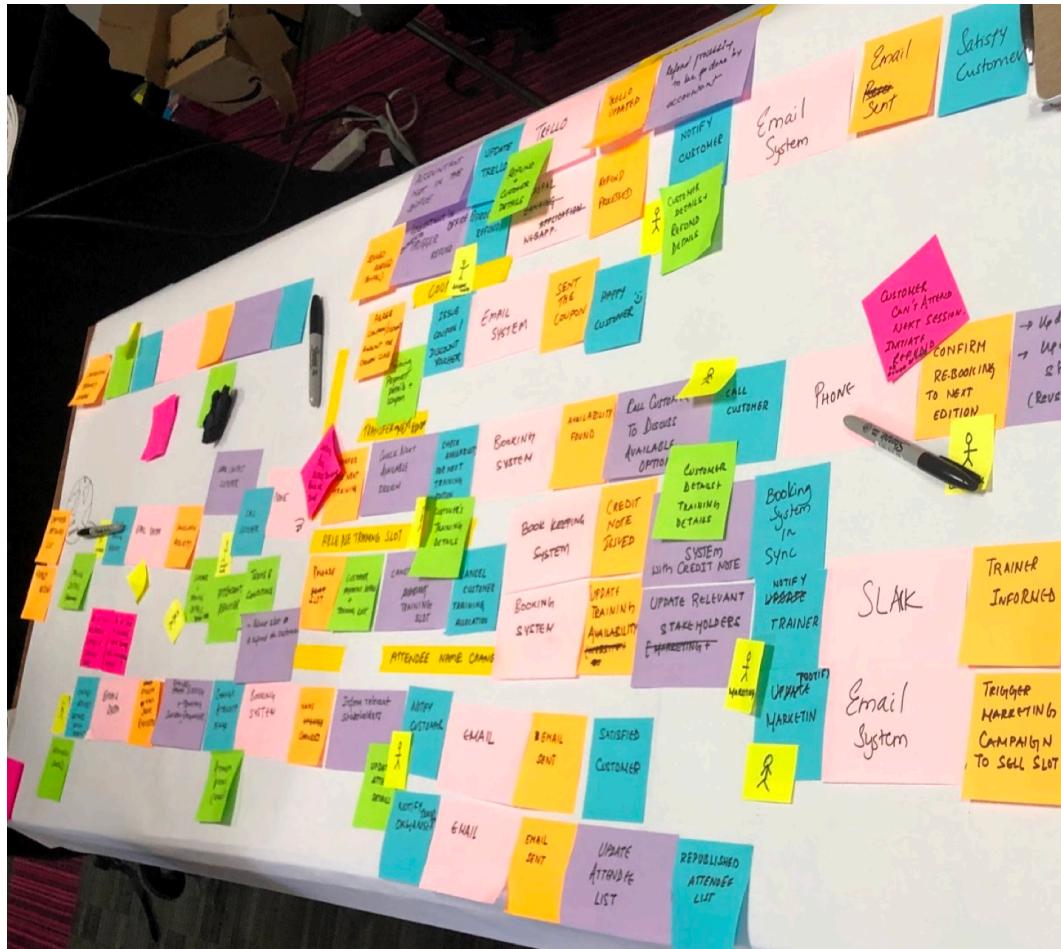
Split & Merge

Sometimes the different personalities in your team can have a hard time working together. There's a universe of possible reasons, coming from outside the modeling session - like people resisting the whole idea of designing a new process - but also the possibility of style clashes, like a single person dominating the session leaving no space for dissent or different style of reasonings.

If the room provides enough space (here we go again) you can split your teams and attack the problem from two different angles. Maybe somebody need to be in solo mode for a while in order to see their model before facing the rest of the team in a discussion.

The good news are: if you followed the same color grammar it will be easier to spot parts which are very similar on both sides and the ones that diverge. Then you can have an educated discussion with the possibility of touching both solutions and make a more informed choice. It's never fair to chose between *the visible model we built together* and *the invisible one this person is talking about*.

Are we done?



This is how a process can look like.



Chapter Goals:

- Familiarize with the main kick-off strategies of an EventStorming Process Modeling session.
- Survival strategies for successfully modeling complex processes.
- Survival strategies to deliver with complex teams.

16. Observing global state - 10%

Banks are so worried about eventual consistency. But every time I transfer money I see money disappearing in a wormhole and reappearing somewhere else a couple of days later.

The transaction obsession

Every business transaction can be seen as a process of reconciliation, filling a gap between current and desired state.

I might be feeling hungry while walking by John's Street Food van. If the smell is good and I have money in my wallet, this situation might just trigger a business transaction - me buying a hot dog, maybe - and the necessary actions to satisfy the need.

However, this transaction doesn't happen *atomically* like database transactions would. I won't handle a 5 € banknote with my left hand, releasing it to John only after I have managed to eat my hot dog with my right hand only, possibly in a single bite.

In fact, I will just ask for a hot dog, and pay for it, leaving John the possibility of running away and start a new life with my shiny 5 €, without serving me the hot dog I just paid for. For about one minute I will experience the thrilling possibility, of losing my money. Or maybe not, because 5 € is not tempting enough and, assuming John is a reasonable person, it wouldn't make more sense to run away with my banknote hoping to never meet me again¹.

¹It turns out that most of our social conventions rely on not having a strategy for dealing with guilt. We're assuming there are rules, and playing by the rules makes sense. It would be extremely embarrassing for John to meet us again a week later, after running away with our 5 euros, unless John has some kind of strategy like: "What the hell do you want from me now?" that would usually make the righteous one completely freak out. If you're getting good with this, then you'll lose friends, but ...politics is your career.

A Transaction is just a process

If we zoom into business transactions, we'll discover that they're never *atomic* but they're rather a sequence of states which are somewhat inconsistent. Let's explore more in detail a slightly different scenario, where I take a seat, and pay my hot dog before leaving.

1. I am hungry, there's money in my wallet, John's is open and the hot dog smell is in the air. The price list is visible, I can afford the hot dog.
2. I say hi to John, now he knows I might want to order something. He won't ignore the next part of the conversation.
3. I order a hot dog, and a bottle of water. Now John knows what I want, and I know that John knows it.
4. John hands me a bottle of water and tells me to get a seat. Now I have a bottle I haven't yet paid for, but I don't have my hot dog.
5. I hear John yelling: "*One hot dog!*" before talking to the next customer. I am now confident somebody is cooking my hot dog.
6. I open the water bottle and drink a little. This is clearly a non-reversible action. I won't be able to return the bottle, now. Or maybe I will but I am just too educated to try.
7. A couple of minute pass, and I start getting impatient. You don't mess with me when I am hungry, and 2 minutes is more than sufficient to prepare a hot dog.
8. My hot dog has been prepared, but I can't see it from my table. Even if I look nervously towards John. This is a very unfortunate configuration, because every second lost here will cool down my hot dog (decreasing its value), and increase my impatience. Making me wait a lot for serving me a cold hot dog is a suicidal strategy.
9. My name gets called. Now I know I will have my hot dog.

[FIXME: complete]

The transaction pitfall

There's more to consistency than it's apparent to the eye



Chapter Goals

- See consistency from a different perspective
- Designing more robust processes and keeping them user friendly
- Inject precision in our modeling process

Modeling software systems

[FIXME: finish]

17. Running a Design-Level EventStorming - 10%

Scope is different

Big Picture workshop tried hard not to focus but to embrace the whole complexity and maximize learning. Now the starting point is different: * we can assume we have a shared better understanding of the underlying domain here the focus is on *implementing software features that are solving a specific problem*

People are different

During Big Picture workshop it is normal to have a high number of people coming from the business side (the format fits nicely also when no software development activity is planned),

Outcome is different

Knowledge or learning is the most valuable outcome of a Big Picture EventStorming. We also realized that the biggest constraint is time availability, so there's a known risk of running out of time before finishing, whatever *finishing* means.

But that was fine: we weren't interested in *every* hot spot, just in the most critical ones, the ones worth investing time and money do find a solution.

Here we are trying to find one or more solutions to a problem worth solving. This means that the workshop isn't over until we have something that looks like a robust candidate solution.

What do we do with the Big Picture Artifact?

- It contains a *good enough* dictionary of domain events
- It highlights - usually as a hot spot - an indication of the problem we're trying to solve.
- it shows the current level of understanding of the external contexts we're working with.

Start from scratch

This is the cleanest option, it means that we have the privilege to [add more space](#)



Work on the existing model



When does it work best?

Modeling processes, injecting new concepts on top of the existing artifact works well in small groups scenario and/or when you have the possibility of a full-day (or more than one day) workshop. In such a scenario, the memory of the big picture exploration is still vivid, so there's no need to *recall* or look back to the big picture as a reference. Remember: the big picture was a model of *our current level of understanding*, by digging deeper into key interaction we are already making it obsolete.

Where are Events Coming from?

In a business system there are 4 main sources for domain events:

- User actions
- External systems
- Time
- other domain events (via *some form of automatic reaction*¹)

Let's examine the different situations in detail.

User Actions

A `Ticket Purchased` event might be the direct consequence of a `Buy Ticket` action, performed by a `Customer` actor.



Why can't we just use UML names?

Some readers might be disappointed with my *lack of precision* when it comes to define the key concepts of the EventStorming location. Well ...this lack of precision is *intentional*: I have been working a lot with UML and case tools in my past, and I've been also *teaching UML*². My problem with UML is that it doesn't help having the right discussion. In fact *using UML severely harms the possibility of this discussion to happen*; that's also the main reason why we started using **Incremental Notation** during workshops.

[FIXME: ...]

¹This is an intentionally ambiguous definition. Please forgive me, more on this later.

²Can you imagine the boredom? I mean, I added jokes and everything possible to make this experience enjoyable, but can you remember the time people actually paid to learn a notation?

Discover Aggregates

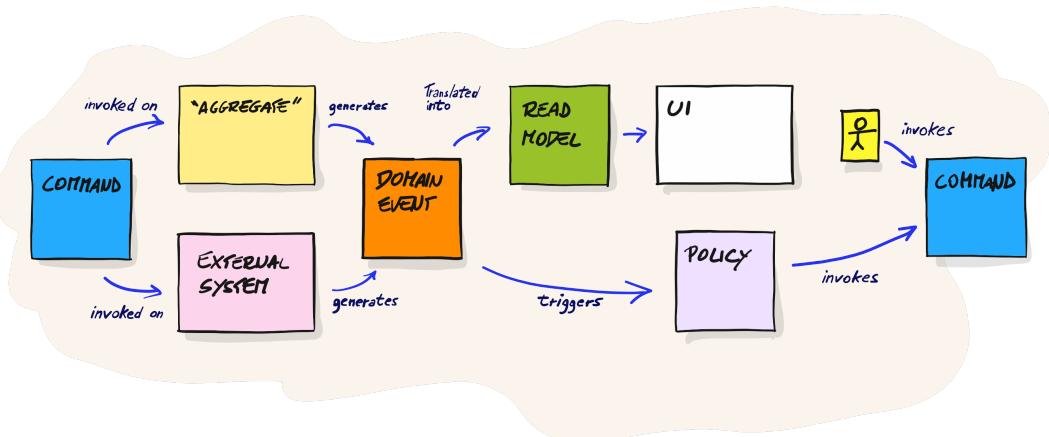


Postpone Naming

One of the most interesting tricks is to try to postpone aggregate (or big yellow stickies, I am trying to postpone *that* too) naming. This is hard, because at this moment everybody is thinking they have a good name for it, and the *habit* of naming things is really too strong. Try the other way round: - Look for *responsibilities* first what is this yellow sticky responsible for? Which are the system's expectation towards it? - Look for the *information needed in order to fulfill this responsibility*. - Once this is sorted out, ask yourself: _ "How would I call a class with this information and purpose?".

[FIXME: add image here]

How do we know we're over?



Once flattened, this is what we're expecting in a consistent flow.



Chapter Goals

- The mechanics of a Design-Level EventStorming
- Enforcing progressive consistency
- A process not to get lost in the mess

18. Design-Level modeling tips

What happens in a Design Level EventStorming is a lot different from the massive discovery typical of the Big Picture Workshop. Even if many principles are shared, here we're trying to collaboratively *design* a solution.

Dynamics are now a lot different: in GameStorming terms we're now more in a *converging* phase. We're still open to discoveries, but we'll need to agree on a possible solution.

That is going to be hard: a design session involving software architects and senior developers can easily turn into a bloodbath. Choosing a solution can quickly turn into a competition for leadership:

Make the alternatives visible

I won't promise miracles: it is not guaranteed that you'll *agree* on a solution at the end of the session. But I can guarantee that you won't agree on a solution before modeling it.

Whenever you're trapped in a [Religion War](#) [FIXME: Finish]

Choose later

Pick a Problem

After a large scale chaotic

Rewrite, then rewrite, then rewrite again.

The more you drill down into your flow, the more you'll fill the need to rephrase your events and commands.

It will look like waste, but keep in mind two things:

1. This is not software yet. The *sunken cost fallacy* will still be present in our brains, but we're only thrashing sticky notes. If we're in **unlimited supply** mode, this shouldn't be a problem.
2. Once released in production, Domain Events have a very annoying cost of update, due to their high number of potential listeners. Renaming a domain event in order to increase precision, might require many other software components to be updated. As every Domain-Driven Design practitioner knows very well, *naming* is an incredibly hard problem, so anticipating the mess, while the model is still only paper is probably a good idea.

So ...be prepared to rewrite stickies like there's no tomorrow.

Hide unnecessary complexity

After solving a tricky problem, the solution will usually look more sophisticated than the original understanding. Our exploration led to a deeper understanding, and to discover that the underlying model was more complicated than we expected.

However, this does not mean that the *visible* model should reflect the underlying complexity. As system designers we had the privilege of a deeper exploration, but average users won't have this privilege.

Instead of exposing this complexity to the user, we might find a way to keep it simple on the outside¹. [FIXME: finish this one]

¹The obvious example is the Google search user interface: incredibly complex behind the scenes, but incredibly simple on the surface.



Events won't be perfect but...

If you're taking the EventStorming workshop to the extreme consequences of implementing an Event-Driven software, you probably already know that changing domain events signature, might have high ripple effect, especially if you rename things and you have multiple subscribers.

Symmetry might not be your friend after all

During the first round of coupling commands with Events

Internal and external events

Postpone aggregate naming

19. Building Blocks - 20%

Why are Domain Events so special?

Domain Events are easy

I've seen too many dysfunctional meetings where developers spent time trying to make sense of their own UML diagram while other participants ended up disengaging, without a possibility to provide relevant feedback on the current modeling session.

But more than this, ...I haven't seen these meetings happen anymore. Since collaboration wasn't really happening and stakeholders time wasn't happening in a productive way, I saw those pretend-to-be-collaborative meetings slowly disappear,

A key principle of EventStorming is to *maximize engagement of all participants*[FIXME: do I list principles clearly? Do I include this one?]. Domain Events work pretty well compared to more formal techniques with a higher threshold to join the conversation.

In fact, when kicking off an EventStorming workshop, no previous experience is required by the vast majority of participants. Yet, we can make it work really well. The secret? Domain Events are deceptively simple: *something relevant that happens in our business, written on an orange sticky note with the verb at past tense*. Even if workshop participants never had a previous exposure to modeling, they'll quickly realize it's simple enough to join.

In fact, I am looking for a workable definition, that becomes immediately *actionable* once the [Ice Breaker](#) writes the first sticky note). We'll see later how domain events will help us to *inject precision* in our model, but we have to keep in mind that introducing precision too early might not be a good idea. [FIXME: more on this later]

No previous experience required

Differently from traditional modeling techniques, that referred to a specific notation (be it UML, BPMN, E-R diagrams or your favorite one) in EventStorming we are keen on *not sticking to a specific predefined notation*. The actual notation is going to be collaboratively defined on the fly, one element at a time.

This is how we keep participants engaged in the discussion: the simplest possible notation will allow everyone in the room to actively participate. In every workshop there's going to be somebody that hasn't been in a previous EventStorming: those people are probably bringing the most interesting contribution. It's our job to make sure noting gets in the way.

Every feedback is welcome!

EventStorming is an act of collaborative learning. We don't know who holds the truth. In fact we know that *nobody holds the whole truth*. The only hope

Can we make them even easier?

The term [Domain Event](#) can resonate with a specific audience. It comes originally from the Domain-Driven Design community where Greg Young and Eric Evans made the pattern originally formalized by Martin Fowler¹ popular.

¹The available online definition dates 2005 on Martin Fowler's bliki:
<http://martinfowler.com/eaaDev/DomainEvent.html>



What if Domain Events don't click with my audience?

Despite being deceptively simple, sometimes domain events don't resonate with some audiences. In a few cases, this happened because the term *Domain Event* might sound like a technical term², putting non technical people into a defensive mood.

It's a facilitator responsibility to enable everyone's engagement: if sticking to the term *Domain Event* turns into a problem, let's use *Fact* or *Thing that happened* instead. Agreeing on the *precise* meaning of the orange sticky may not be relevant at this stage (but odds are that there are technical people in the room for whom this is *really important*), keep in mind that in the early minutes, engagement is way more important than precision.

Anyway, providing a live example is way more useful than finding a proper word. If the audience is puzzled, the one that puts the first sticky on the wall is your best ally.

Events are precise

The importance of the verb

In my professional life, the sentence with the highest value-per-character is probably this quote from Greg Young:

"Use a verb at past tense"

No implicit scope limitation

Events are *facts* happening in the domain. There's no implicit filter on the source: in fact, they can happen for different reasons:

²Or worse, in Italian the word *Domain* translates into *Dominio* that means also *Domination* with possibly bizarre consequences.

- they might be the consequence of some User Initiated Action,
- they might be coming from some external system,
- they might be the result of time passing,
- they might be the direct consequence of some other event.

WHERE ARE DOMAIN EVENTS COMING FROM?

MAYBE AN ACTION
STARTED BY A USER



MAYBE THEY'RE COMING
FROM AN EXTERNAL SYSTEM



MAYBE THEY'RE JUST THE
RESULT OF TIME PASSING



OR MAYBE, THEY'RE JUST
THE CONSEQUENCE
OF ANOTHER DOMAIN EVENT



Where are domain events coming from? Four different possible answers to the question.

In practice, this means that we're not focusing on user interaction only - like it would happen when focusing on Commands or User Actions - but **on the whole system** instead.

Choosing **Domain Events** as a starting points help us to remove a blind spot

Domain Events as state transitions

Using a verb at past tense also forces us to explore the whole domain with the focus on *state transitions*, meaning *the exact moment something changes*. This may provide a formally different semantic to our reasoning. Imagine we are collecting temperature information from an external system, a first DomainEvent candidate might be `Temperature Raised`. A closer look might show that this isn't exactly the thing that happened; in fact we might need to have a combination of `Temperature Registered` from an external source and a `Temperature increment` measured as a consequence, and realize that the initial writing, despite being correct, was actually closer to weather smalltalk than to system design.

To tell the whole story, this doesn't mean at all the initial writing is *wrong*. It's absolutely fine, especially if it triggers further reasonings. Please don't try to make it precise too early (see also [Embrace Fuzziness](#) in the patterns section).

What if my language has no past tense?

A colleague [FIXME: recover name] made me notice that the apparently trivial requirement to use a verb at past tense, could be tricky to implement in some languages. For example, Mandarin Chinese has no past tense. I can't point to a specific solution in this case, but my recommendation is to make sure that

Domain Events are triggers for consequences

The forest and the trees

A common question when explaining domain events is: "Aren't we going too much *into details*?" People are usually concerned that an event-level analysis

would pull people down the rabbit hole and miss the big picture.

There's clearly a facilitator duty here in softly managing diverging conversations (more about it in [FIXME: reference]).

Domain Events are leading us towards the bottleneck

If you're into [Theory of Constraints](#), [FIXME: finish this one.]

Alternative approaches

Start with Commands

Start with People

Focus on Key Artifacts

[FIXME: describe the document-based technique by Greg Young]

Wrapping everything up

Let's try to summarize the reasons behind the preference for Domain Events, just in case someone explicitly asks for it:

- They're *easy enough* to be grasped by everyone in the room.
- They're *precise enough* to remove a whole lot of ambiguities from the conversation.

- They're *meaningful*, by definition. If no one cares about a sticky note, maybe it's not that relevant in your system.
- They represent *state transitions* to which reactive logic can be attached.
- They can point us towards the *bottleneck* of our current flow: probably the most relevant problem to solve.
- They can *support different narratives and modeling techniques*: conversations from very different backgrounds can sparkle from the very same model.

Commands - Actions - Decisions

Blue sticky notes are the key ingredient for user interaction. They're the result of a user decision (which might have required some sophisticated thinking) and are the trigger of some computation on the other side. If you focus on human behavior, you might see them as some action that a user is performing, like *registering on a system* or *placing an order*. If you focus on system implementation instead, the blue sticky note can represent a command you've received, and that your system has to fulfill.

This lack of precision in the definition of the *exact meaning* of the blue sticky note might disappoint you.



Chapter Goals:

- pros and cons of choosing domain events as building blocks
- the potential for precision
- leverage domain events to model you progress in a lean-agile way

20. Modeling Aggregates

In *Domain-Driven Design*, Aggregates are defined as units of transactional consistency. They are groups of objects whose state can change, but that should always expose some consistency as a whole.

This consistency is achieved enforcing given *invariants*, properties that should always be true, no matter what.

Consider the simple example of a `ShoppingCart`¹ for an on-line shop: we might want to *add* or *remove items*, and obviously we expect to have the items count, and the amount subtotal to reflect the current status of the cart. What we clearly don't want, is to allow users to change the quantity of a given item, without affecting other calculated values.

The actual invariant could be expressed like:

The Cart subtotal will always be the sum of each article quantity multiplied by the corresponding unit price.

[FIXME: Explore math notation in markdown]

In other words, in our software there would be no way to have inconsistent reads while accessing different portions of the aggregate. A `subtotal` property or a `getSubtotal()` method of our `ShoppingCart` will always return a value consistent with the current list of `items` in the current `ShoppingCart`.

If developers can play by these rules, they can then decide whether to calculate values on the fly, *whenever someone is accessing it* or upon change and then storing the result in some variable. Aggregates are in fact an elegant way to define a behavioral contract with a given class, providing freedom of implementation on the internals. Some may call it *encapsulation*. ;-)

¹May the gods forgive me for choosing a trivial, boring, somewhat simplified and over used example.

Discovering aggregates

There is no mandatory way to discover aggregates in Domain-Driven Design, but of course I have my preferences.

Looking at the *data* to be *contained* in the aggregate isn't the best way to go. We've seen how data and the static structure of a class would drive software stakeholders into *misleading agreements*: everybody would pretend to agree we need a container for the data, and the data will need to be used (or *reused*) in many places.

Let's see this treacherous thinking process in action.

A shopping cart must be associated with a Customer.

Sounds obvious, ...but it's not entirely true. In practice, a ShoppingCart will need to be associated with a WebSession that may be associated to an authenticated User ...*or not!* We'll need a Customer in order to create a valid Order starting from the ShoppingCart, and this would force the current Users to log in if they started adding items in some anonymous session.

A shopping cart will include the list of the items to be purchased, with the associated quantity and price.

Bread and butter, apparently, except that we now should be asking ourselves whether we need to include the ItemDescription in the ItemInCart. Feels like we should, because we'll need to display the ShoppingCart info to the customer, in order to review the cart before proceeding to checkout "*is this really the stuff you intended to buy? Have you looked at the grand total?*". Things might get awkward when starting to consider events like ItemPriceUpdated or ItemDescriptionUpdated, that should have us thinking whether we should include a copy of the entire description of the selected item, or just a reference to the Item in stock.

Hmmm... not. Sorry for the detour, but these are not the aggregates we're looking for. "*data to be displayed to a user in order to make a decision*" will be a **Read Model**. Aggregates are something else, but we have to be aware of this vicious temptation of superimposing *what we need to see on the screen* on the *internal structure of our model*.

They're not the same thing.

Aggregates as state machines

What I am really looking for are *units of consistent behavior*, and given all the corporate dysfunctions that we mentioned in chapter 2, I am not expecting consistency to scale much.

21. Event Design Patterns - 5%

[FIXME: Or should it be Event Discovery Patterns?] [FIXME: candidate to be killed]

Discovery strategies

Most significant events have what tech guys call a “*high fan-out*” meaning that the number of *listeners* or *consumers* of a particular Domain Event is higher than the number of producers.

In our *public training* domain, a `TicketSold` event might be interesting for many departments: classroom capacity will need to be updated, as well as numbers for lunch and coffee break; an eventual loyalty management system will be interested and the trainer will probably like to be notified as well.

During EventStorming exploration, I prefer listening to the needs of the downstream domains:

Is it a domain event?

The term *Event* is overloaded: there are

Composite Domain Event

Sometimes



Chapter Goals

- Domain-Driven Design wording obsession in practice
- Sometimes it is necessary to be redundant
- Overcoming some common stalemates in Event-Based modeling
- Closing the loop with Enterprise Integration Patterns book

22. From paper roll to working code

Managing the design level EventStorming artifact

After the discussion with the small group when you decomposed the problem in Commands, Events, Aggregates, Processes and Read Models, you have an artifact which can be used as a living support for implementation. The visible model provides some interesting information in form of visual pattern matching, colors provide some form of balance and an easy symmetry. It's not infrequent for domain experts without knowledge of the notation to jump in and ask: "Why is this orange thing without the yellow one?" The threshold for contributing to the discussion is way lower than with traditional UML.

Modeling interactions with Event-Driven CRC cards

The great advantage of EventStorming is that it promotes a collaborative form of modeling, while the whiteboard may be inclined to a "let me show you" type of approach. However, when design starts to focus around roles, responsibilities and message passing, a very efficient way to model interaction is to simulate behavior with a variation of the CRC cards. - Humans may take the role of Users, Aggregates, Processes and Projections. Put in another way: humans are representing the decision makers in the system.

- Commands, Domain Events and UIs are represented by cards. Cards will carry the information written on them. To model a process, every human can produce an output only based on the information available. To make things more interesting, and to model the system in a tell don't ask fashion, humans can't ask, only tell. This way we can normally sketch the necessary communication patterns needed for a component to work seamlessly in an event-based solution.

Coding ASAP

As colorful as it could be, a post-it based model *does not compile*, nor it delivers a green bar. We shouldn't put too much emphasis on doing EventStorming right:

the roll is not the deliverable, it's just a way to get to the right implementation faster.

So as soon as you have a reasonably good idea about the underlying model... start coding it. There's nothing better than a good prototype to discover flaws in our reasoning. Depending on your existing infrastructure, writing a simple prototype can also be very fast, at least for the domain model part.

Being on a fast-track

We must not forget that the whole cycle started with the assumptions of discovering what was the most urgent matter for the whole organization. If that problem called for a software solution, there are very few reasons to slow down.

Even if the workshops are conceptually divided in stages,

23. From EventStorming to UserStories - 5%

A placeholder and a better conversation

Defining the acceptance criteria

Events

Read Models

User Interface

This is where things gets trickier: both Domain Events and Read models had a *black-or-white* completion criteria. With user interface, this is not always the case. Users need to find the UI *usable* or *beautiful*, [FIXME: finish this one]

It's no secret that the original article [Link] from Jeff Patton had a great influence in the way my brain works. To be honest, more than the article, it was the pictures. They were using a huge amount of space. They were using all the space needed.

EventStorming and User Story Mapping

It's no secret that the original article [Link] from Jeff Patton had a great influence in the way my brain works. To be honest, more than the article, it

was the pictures. They were using a huge amount of space. They were using all the space needed.

However, having had a chance to peek into

Scope

The first main difference is in scope. User Story Mapping focuses in the understanding needed to *develop a new product*, while EventStorming has a broader scope, not necessarily tied to product development.

Tasks first

User Story Mapping starts from User Actions

Tasks / Actions are easier to grasp

Domain Events have a broader scope

Focus on the Minimum Viable Product

How to combine the two approaches?

EventStorming and User Story Mapping both leverage the availability of key experts and decision maker in order to trigger meaningful conversation. A *lot of these conversations will be the same* and, to be brutally honest, this is more due to the dysfunction of the existing approaches than to the merits of the two formats.

However, some parts of this conversation will

[FIXME this calls for a Venn like diagram.]

Chapter Goals:

- it's all about the conversation
- being sequential is actually suboptimal
- too many good ideas in the same space

24. Working with Startups - 2%

- too early to have corporate silos;
- people are more likely to admit they don't know something;
- there are things that nobody in the room knows;
- not so many competing activities: creating a cool product-solution is the most important thing to do.

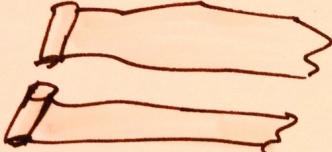
The focus is not on the app

Leverage Wisdom of the crowd

Multiple business models

EVENTSTORMING STARTUPS

GIVEN A BUSINESS MODEL, WE CAN EXPLORE THE RESULTING PROCESS QUICKLY

- CREATING ALTERNATIVES ...

- CHOOSING WHETHER ..
 - TO IMPLEMENT SOME SOFTWARE
 - TO BUY SOME SOFTWARE
 - TO DO IT MANUALLY

.... DOES IT SOUND FAMILIAR?

Explore multiple business models, the results might surprise you.



Chapter Goals

The coolest app isn't enough EventStorming is second best Validate the assumptions Learn, and the learn more

25. Working in corporate environment - 5%

Invitation is crucial

The privileges of being a consultant

Being '*the EventStorming guy*' provides certain advantages over the normal developer within a corporation. Many times I am invited in a company *just to run an EventStorming session*, so that I have some degrees of freedom in asking special requests for the workshop day, and I leverage it. After all, I'll be there only for a given amount of time, and wasting that special day seems really stupid.

But that's my privileged position of being a consultant coming once in a while. I try asking for 'all the key stakeholders', and I may get them. But I know that if I was a normal employee instead, things would not be that easy.

So, keep that in mind, and be prepared to a softer, slower, iterative approach when managing invitations as a corporate employee.

Convincing is waste

Be aware that *running an EventStorming workshop* is nobody's goal. *Discovering key impediments* might be somebody's goal. Even *learning about the domain complexity* isn't necessarily a selling point, since the experts you are trying to convince might not consider themselves in need of learning: *they're experts!* Learning is your problem, not theirs.

However, if you're spending a lot of time describing what is going to happen in a workshop, keep in mind that it will be really hard to make a compelling case just talking about it. Just doing it is by far the better strategy.

Of course, if your experts have spent countless hours and long boring meetings in order to produce a specification document you might have just one more reason not to run the workshop: "*I've already spent a lot of time writing the specs, can't you just read them?*"

[FIXME: Finish]

A trap fro domain experts

The best way to hunt for domain experts is to set up a trap for them. EventStorming is actually close to perfection in this sense, a *big colourful artifact placed in a visible location* will attract domain experts like honey attracts bears.

To make the trap [FIXME: Finish]

Invitation as an iterative process

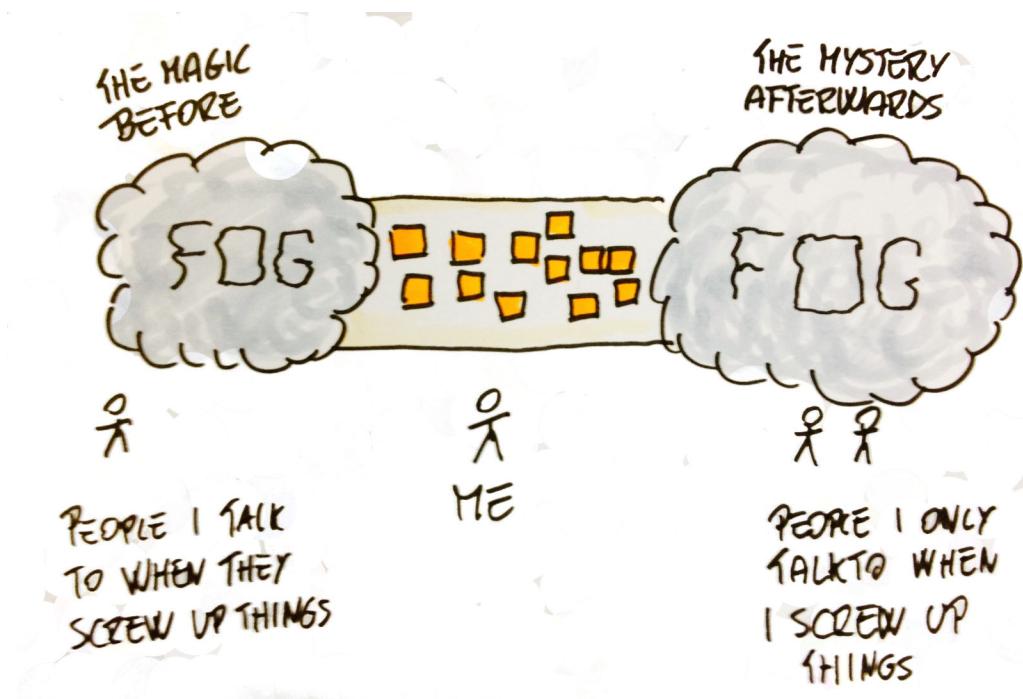
The harsh reality is that people will understand what EventStorming is only after practicing it. This creates a stalemate with no easy solution, unless we break the assumption that we have to run only one session.

As a consultant I might try to optimize costs by running avery intense and brain demanding

Mixing high and low intensity

Manage check-in process

The fog-me-fog model



The fog-me-fog model

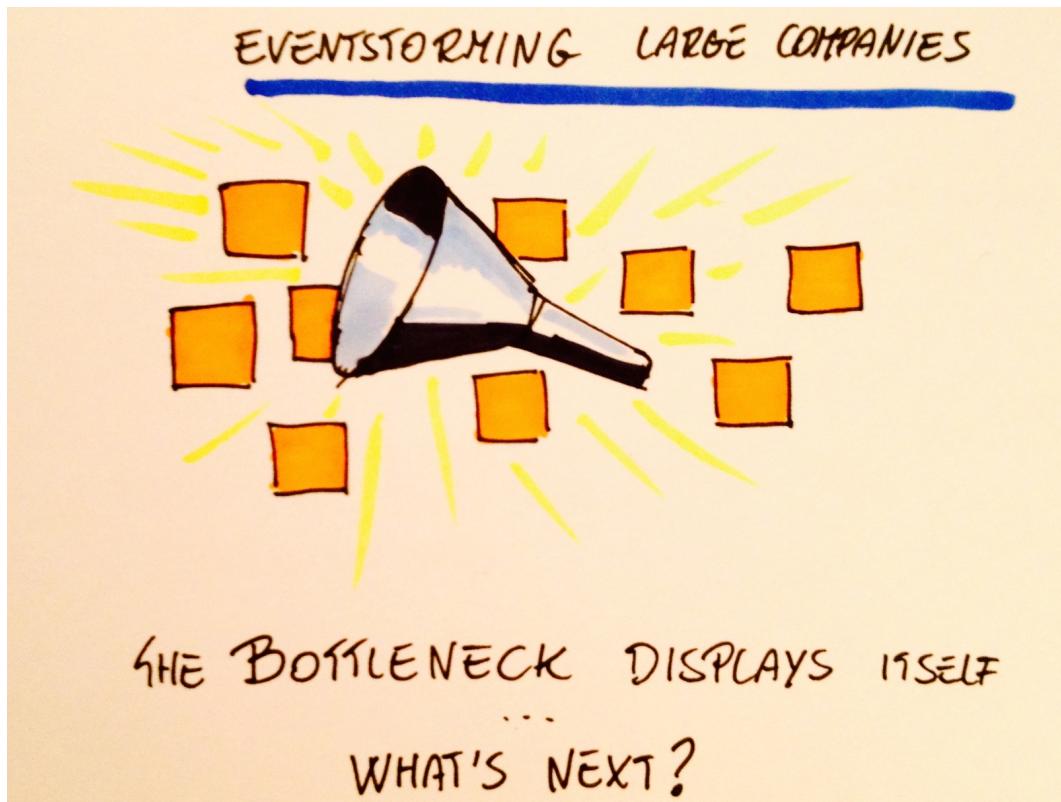
Nobody wants to look stupid

Wrapping up

What happens next?

Corporate Dysfunctions

Managing the bottleneck



The bottleneck, revealed

Deliverable Obsession

Can't we have it remotely?



Chapter Goals

- Calibrate expectations
- Politics is king
- We're still humans, after all

26. Designing a product

This is not a tailored solution

The bottleneck might be somewhere else

Matching expectations

Simplicity on the outside

Adjustable complexity

Flexible policies

27. Model Storming - 0%



Chapter Goals:

- Understanding the difference between Model Storming and Event Storming
- Having a glimpse of what can be achieved when the rules are released
- Seed the will to experiment

28. Remote Event Storming

This section intentionally left blank

Ok, seriously

Honestly, I didn't want to write this chapter. I've been asked about "remote EventStorming" many times, and my answer was invariably

There is no such thing as Remote EventStorming

... and no. I haven't changed my mind since then.

But I've realized that this is a legitimate beginner question, and providing a

User Experience

I've been doing Google Hangouts, and conference calls, and Skype conversations. I still do a lot of them. Sometimes my microphone is not working. Sometimes is somebody else's headphones. Sometimes we don't know exactly which one is not working. Sometimes we switch back and forth different tools for minutes just to get the conversation started.

Yes, I am sure you have more professional corporate tools to manage online meetings. But let me tell you one thing: *every single tool introduces some friction*. And in designing the workshop we put so much attention in removing every friction point (remember [one man/one marker?](#)) in order to make the relevant conversations possible, that switching to an online tool feels like toothbrushing before eating marshmallows.

No Big Picture

Tool vendor will try to impress with cool features like zoom and an infinite board size. But there's one thing that you have to keep in mind.

Your screen is small

Which boils down to a sad conclusion:

You can't have Big Picture and Readability at the same time

No People interaction

Wrong attitude

No parallel conversation

Screen size is not the only

Downgrading expectations

Probably, what's disappointing for me is that people keep talking about "Remote EventStorming" which sounds like *blasphemy* to me. If the question was something like "*do you know any cool way for remote modeling?*" then the answer may be "of course I do,"

Patterns and Anti-patterns

"The 7 most expensive words in business are: 'We have always done it that way!'"

Catherine DeVrye

29. Patterns and Anti-Patterns - 75%

Add more space

(Pattern)

Even if we start the workshop with the *promise* of unlimited modeling space, we will quickly hit the boundaries of our modeling surface.

Then, something unexpected will happen: everything will start to feel harder and people will lose momentum and speed. This happens because your brain is actually trying to solve too many problems at the same time: *modeling the next piece of the system and finding an empty spot on the modeling surface, or moving other portions of the systems without making a mess*.

[FIXME: Picture here]

Unfortunately, our brain is not very good at framing this situation: you'll probably feel the stress of getting stuck in a harder problem. In fact, the problem isn't harder than the ones you just solved. It is the extra burden of *modeling the problem and finding an empty spot on the surface and moving the surrounding portions of the model possibly without breaking the timeline* that is making your brain's work harder.

therefore

Providing more modeling surface will break the stalemate. Usually this means adding another paper strip below the original one or rehashing existing stickies in a more readable way.

Suddenly, modeling the big mess becomes an easy task again, since we removed the extra constraint of modeling the whole process *within the available space*, while your brain was silently screaming: “*The solution can’t fit in there!*”

In general, it’s a good idea to have some extra space to add on demand. Using all the available space from the beginning - like it may happen when you have a big, entirely writable wall - might create a weird feeling later, and a stalemate that can’t easily be overcome.

Remember we’re exploring: it’s hard to see in advance how big the problem will be.

Here are some recurring scenarios where **add more space** will prove worthwhile:

- Doubling the modeling space to see both *current* and *desired* state of the system (and highlighting the differences)
- Keeping the *Big Picture* modeling artifact, and starting a *Design-Level* on a different scale.
- Exploring alternative paths for a business flow.
- Choosing between two different solutions, in a process modeling, or a software modeling scenario.
- Splitting the modeling team in two, when it’s hard to fit different modeling styles on the same surface.

Be the worst¹

(Pattern)

In every team, in every meeting, nobody wants to look like the most stupid person in the room. Sometimes, being that person can turn into an excellent facilitator’s trick.

¹I’ve stolen the name from Rinat Abdullin and his blog.

Especially when it comes to placing the first domain event on the modeling surface, an initial standoff may be very embarrassing. If no allies are helping you, be the one to start ...with a twist: instead of doing your best, with the unintended consequence of setting the bar too high, just place something *evidently wrong* on the surface, so that it's going to be easy for somebody to something better. Then throw your sticky away, or have somebody rewrite/rephrase it.

This way, you're showing that you're not aiming for perfection and that being wrong is an option, with no dramatic consequences. This trick is not a risk-free one: if the initial situation is really awkward (maybe because of the way invitations were managed, of conflicting purposes upfront), this may just add awkwardness. So, handle with care.

Conquer First, Divide Later

(Pattern)

Space constraints and traditional mindset usually force people to model making an upfront selection. The boundaries of a physical modeling surface such as a whiteboard or a flipchart are in fact turning our original goal:

we need to model this problem in order to find a solution

into

*we need to model this problem **within the available space** in order to find a solution*

Your brain won't explicitly warn you about this change of direction. Sometimes you'll find yourself in a problem harder than it should be (see also [Add more space](#) about it). Some other times you'll quickly cut off some portions of the problem that don't look relevant.

Even more annoyingly, if the problem is *too big to fit in the available space* people just don't model it: they just *talk* about it. And this creates a vicious loop of endless conversations about what the nature of the problem is. If you find yourself trapped in a conversation about "*what the real problem is*" you know exactly what I mean.

[FIXME: image with balloons]

[FIXME: finish this one]

Do First, Explain Later

(Pattern)

When performing new activities, people usually feel the need for detailed instruction, in order to do things properly. The need is real, but it doesn't mean that satisfying the need is the best thing to do.

If your goal is swimming, understanding the theory in advance won't help much. In fact, it could make things worse: more concept with no connection yet with the actual feelings - can you explain being underwater to a person that's never been underwater? - will pile up in your brain waiting for an explanation. The more concepts piled up, the more messier would be their understanding.

therefore

Have people get in touch with the problem first. Provide just the basic information needed to have them try, and provide clarification only as a response to specific questions.

Do not create a big theory in advance: keep the time to explain the whys later, after people had the time and the feedback to create a more solid mental model².

²Reading *Pragmatic Thinking and Learning* from Andy Hunt was a big eye opener for me. A more thorough approach on the matter can be found in *Training from the Back of the room* by Sharon L. Bowman.

It is funny to see how *the very same words* will slip away from the listener brain if told *before* the experience, and will stick instead once the experience formed an incomplete model with compelling questions.

Fuzzy Definitions

(Pattern)

Software developers are often obsessed with terms *precision*. This is remarkable, because *ambiguity does not compile, and doesn't pass tests either*.

However, there are situations where this obsession for precision might just get in the way of a successful conversation:

- in a Big Picture EventStorming, the different perspectives *have to* clash. Enforcing precision too early in the exploration phase might exclude interesting dissonant voices from the conversation.
- Adherence to a specific conceptual model upfront will exclude what's not part of that model, which can be relevant.
- The distinction between a *User* and an *Actor* or a *Persona* isn't really that interesting, there are better things to discuss, during an EventStorming.
- Choosing a specific model/notation will also favor one party over another one.

therefore

Clearly state that you won't provide precise definitions *on purpose*, ant the goal is to include different viewpoints in the same conversation.

The apparently agreeable sentence “*Ok, but we have to define what an actor is*” could be addressed like: “*Sure, we will!*” But now there are more interesting things to do. However, if the pressure for a definition is driven by clashing interpretations, then make both interpretation visible: maybe you're just

discovering that you have two actors behaving differently in that given portion of the flow.

During the workshop, I'll let a **visible legend** be the explicit reference for the current meaning of a piece of notation. At the same time I'll try to dumb down the language up to the "*we need a blue one after a lilac one*" instead of the more precise *"we always need a command as a consequence of a policy"*.

Guess First

(Pattern)

In many conversations, the learners quietly listen to the expert's explanation, like in a traditional lecture.

unfortunately

This interaction has many drawbacks:

- it may be *boring*;
- it may be *hard to interrupt your boss* during an explanation, especially if you're afraid to ask a stupid question;
- an expert usually tends to skip obvious topics, *which might not be obvious* to other participants;
- misunderstandings are not visible: the current displayed model is the official one, with little or no contradictions.

In general, better learning happens when we're conquering our knowledge with experience, not with an explanation.

therefore

Encourage the newbies to openly *guess* what the system is supposed to be. Learners can contribute to the model adding things that might be right (some developers are really good in *figuring out things that aren't written in the official specifications*), or wrong.

When the guessing is wrong, usually somebody will correct the statement. In this case, the little lecture will be needed and *appreciated*: discarding the initial guessing, we create the curiosity space for the expert explanation.

Hotspot

(Pattern)

Understanding how a process works is not a linear process. The larger the topic, the higher the probability you'll run into bumpy situations like:

- people being *not entirely sure* about what they're saying;
- different people having *different views on the same topic*;
- people warning about how messy or risky a given step is;
- endless arguments between a couple of participants cutting off the rest of the discussion.

therefore

Use Purple stickies to mark **Hotspots**. They're your annotations, or better they're the shared annotations from participants to the workshop. The resulting model won't be *right* or *finished*; hot spots will contain the meta-information which is relevant to the learners.

[FIXME: images]

Icebreaker (the)

(Pattern)

That awkward moment everybody is looking at an empty paper roll on the wall, so big, so white, so empty ...and nobody knows how to start! It's like being at a party when nobody is dancing! Well, if that's the first time you're running a workshop, then *people legitimately have no clue about what to do*. The best way to exit the stalemate is to have an *Icebreaker* make the first move.

After people see what they're expected to do in practice, and after seeing they can actively contribute to the emerging model, things will start flowing a lot more smoothly.

The best icebreaker is often an ally among the participants. If the moment is *really* awkward and nobody is making a move, then it's probably the facilitator's duty to make the first move. However, the facilitator is a special role: they know about the format more than others, and people might start relying on the facilitator too much in order to [do the right thing](#).

Incremental Notation

(Pattern)

A well established standard notation sets a gap between the ones that know it, and the ones that don't. It's better to keep the shared notation *as small as possible* and increment it as we go, in order to make communication fair and efficient and to promote a collaborative discovery of the model complexity. Once we hit a *plateau* (a fancy way to say that the pace of discovery slowed down), we might then add new elements to the current notation and add them to the legend.

I usually ask participants questions like “*What is the aspect you’d like to see in the model?*” or “*What’s the next thing you’d like to visualize?*” to go in the direction that will maximize the engagement and keep the workshop flow in ‘the zone’.

When taken to the extreme, the incremental notation approach will open the doors of [Model Storming](#), the radical approach to model big stuff, when you have no idea what you’re doing. See also [Visible Legend](#).

Go personal

(Pattern)

Sometimes only a few participants are actively engaged. It may happen for several reasons: maybe the room setup - people managed to grab a seat before the discussion got into a state of flow - or maybe some implicit hierarchy, preventing the people from speaking out (or to contribute writing on stickies).

After double-checking that there are no practical impediments to engagements (are stickies and markers enough?) you may want to pull some engagement by asking participants: “*What do you do?*” and to add themselves to the picture as little named actors.

Yep, that’s our little trick: some may not feel engaged by ‘the system’ but they’ll probably like to talk about themselves. However, this trick worked well a few times, so it can be used to escape awkward situations.

Keep your mouth shut

(Pattern)

Sometimes you'll see a better option.

Sometimes the solution is *so obvious!*.

But sometimes it's better to resist the temptation, and let somebody else have the same idea and follow. If *nobody* had the idea... well you can try with "*It might be a very stupid thing to ask, but I was wondering...*". Remember: nobody likes to look stupid in public.

Leave Stuff Around

(*Pattern*)

Once the workshop is finished, you might be tempted to wrap it [FIXME: finish]

Manage Energy

(*Pattern*)

Make some noise!

[FIXME: Finish]

(*Pattern*)

Mark hot spots

[FIXME: duplicated - merge] C> (*Pattern*)

EventStorming is an act of learning and discovery. But you'll always going to meet some workshop participant thinking that the goal is a *formalization* or, even worse, a *specification*.

This is not the case. The visible outcome of EventStorming is a *representation of our current level of understanding*, with no guarantee that we'll be able to understand everything within the time frame of a single workshop.

Moreover, conflicts may arise during the workshop. In fact the workshop is designed in such a way to make the underlying conflicts *observable*.

therefore

Mark hot spots with purple sticky notes. Purple is the closest you can get in the stickies world to signal *warning* or *danger*³, and you can use it just like annotation in your notes.

They'll signal that there's a problem in a given area, or a lack of understanding (you can use hot spot to mark Socrates approved known unknowns), or whatever looks necessary to signal to your future self.

The model is you team sketchnote, and polished ones just don't work so well.

Money on the table

(*Pattern*)

Developers tend to *forget* the money. Mostly because it's so *boring*. However, when *discovery* business processes, well ...we have to include money in the

³For some reason, red is not contemplated among valid sticky notes colors. This is still a mystery to me.

conversation. The problem is that when we start talking about money it tends to displace other (valuable) perspectives. Our recommendation is to do the first round in the most natural way and once we're finished do another round focusing on money.

One Man One Marker

(Pattern)

In a normal meeting room you might find just a few, probably depleted, markers. But when only a few people are writing the collaboration becomes dysfunctional: people will form [circles](#), agreeing on what to dictate to the one that instantly became the [group scribe](#).

This can turn a promising workshop into a really boring and frustrating session: some voices will be heard more than others, and the quality of the outcome will be disappointing.

therefore

To ensure modeling will happen at the maximum possible speed, you have to remove impediments to parallelism. Provide enough [working](#) markers for everybody, so that access to key resources is not a problem.

It's a good idea to double check your markers before the workshop (and please throw away the nearly depleted ones) and to bring an extra supply, just in case. [FIXME: one man one marker image]

Poisonous Seats

(Pattern) [FIXME: it's apparently the contrary]

There are a few problems with seats. 1. Despite the appearances, sitting is a *hardly reversible action*, it takes little energy to seat, and a lot more to stand up. 2. Once sat we'll have a lot less interaction with people far away from us: interaction becomes too much influenced by our position. 3. Sitting is a lot more prone to distractions such as switching on the laptop, checking e-mail, etc. 4. Blood circulation is affected too.

therefore

Remove seats for short workshops. People joining a room with no seats.

For longer workshops, have the seats visibly removed but still reachable. After the workshop gets into flow state, people will start looking for seats only when they deserve a break.

Don't push it too forward: some people might have a real *need* for a seat. Don't let them suffer just because I told you so.

Reverse Narrative

(Pattern)

[FIXME: complete this one]

The Right To Be Wrong

(Pattern)

We are exploring, so being wrong is a legitimate state. Being *visibly wrong* is even better, so we can find somebody in the room with the information we need in order to learn something valuable. [FIXME: complete this one]

30. Rush to the goal

(Pattern)

In collaborative design formats, like Process Modelling and Software Design, it's easy to get swamped by alternatives.

therefore

Prioritize having a visible baseline over visualizing every possible branch of the exploration. You'll need something visible to start with. At the same time you're not supposed to *forget* about the complexity of possible alternatives and corner cases: we are just *postponing* it. **Hot Spots** can be used as a placeholder for the complexity we are deferring to a later discussion.

Also keep in mind that this complexity is not deferred indefinitely: we just need to complete a scenario, making the key stakeholder happy, and then we'll come back and pick the most interesting hot spot to explore.

[FIXME: a good sequential image here would be great]

Blink Modelling at DDD Europe 2020

I submitted a session called 'Rush to the Goal' about this topic at DDDEurope 2020 edition. The main idea was: "*put me in a room with a domain expert I've never met and I'll show what I can achieve in less than two hours*". Mathias Verraes liked the idea. In fact the idea became more popular than I expected, and became a format that later was renamed 'Blink Modelling' and (my session)[<https://dddeurope.com/2020/schedule/#!/2020-02-06/q7pn5pr7w21m/blink-modelling>] was renamed accordingly.

It was fun. We modelled a digital payment system, and were overwhelmed by exceptions and variations. I remember threatening the audience with my paper roll to have them stop asking "what if..." questions. And then clarifying that this was in fact the essence of the workshop. Curiosity is a natural human tendency, that has to be tamed in order to deliver.

How radical should we be?

Single Out the Alpha-male

(Pattern)

Slack day after

(Pattern)

The workshop is essentially discovery and opening Pandora's Boxes. The outcome of this discovery is unknown. The necessary actions are unknown

too, but we'll be targeting the most relevant blocker in the business flow.

Ideas and conversation emerging from the workshop will sparkle the urgency to do something about the most compelling problem in the whole flow.

Moreover, the workshop might favor extroverts over introverts who might need a quieter arrangement in order to formalize their thoughts.

therefore

Reserve a slack time after the workshop, to immediately start attacking the real problem. It can be used to start coding a prototype or sketching a candidate solution, or calling another meeting with the appropriate persons.

Nothing is more annoying than having a clear and definite vision of what needs to be done now and being reserved for doing something else instead.

Sound Stupid

(Pattern)

Speaking out loud

(Pattern)

Our brain is a lazy machine. It will try to skip deep analytical thoughts in favor of quick pattern matching whenever possible. In practice - especially when we're running out of energies - it will take shortcuts and *pretend we understand something even if we don't*[^HSLDM].

:[^HSLDM] Like in the classic Homer Simpson vs the Lie Detector Machine:
<https://www.youtube.com/watch?v=k9Ylu0YywoA>

Like most of our brain's loopholes, the problem is that we won't be aware of our brain taking a shortcut. Or worse: we might be annoyed by this pedantic need of precision on a trivial issue and call a "*Come on! Let's not waste our time on this one!*"

therefore

If you find yourself indulging in shortcuts, maybe a break will be necessary, but a great trick to detect inconsistencies is to exercise the verbal part of your brain by speaking out loud. I mean loud enough so that you form complete sentences that you peers are supposed to hear.

The moment you do that, you'll also exercise the part of your brain whose task is to avoid to look or sound stupid in public, or to lie unintentionally. You'll be surprised how many corrections and more specific tricks will be triggered by this practice.

Start from the center

(Pattern)

[FIXME: complete this one] See also [Start from the beginning](#) and [Start from the extremes](#)

Start from the extremes

(Pattern)

Exploration without a clear scope limitation works fine in Big Picture workshop where the goal is massive learning and risk discovery, but isn't a good fit for design sessions tailored around a specific use case or a Minimum Viable Product.

therefore

Unlimited Modeling Surface

(Pattern)

Visible Legend

(Pattern)

What are we doing? What was the meaning of *that lilac sticky note*? Should I use a *blue* or *orange* sticky here? Whenever people think questions like this, they are *distracted from their goal*. Modeling a complex business flow is difficult enough without the extra clutter of *having to remember the notation*.

If we're using **incremental notation** we could actually make things worse. If every new bit of notation is the result of an agreement on the fly between participants, the amount of *cognitive load* could be overwhelming.

therefore

Set up a *Visible Legend* available to all participants. Make it vivid and easily readable. Don't use symbols: you have the very same modeling tools available. You can use an orange sticky note and name it 'Domain Event', same with hot spots and so on. [FIXME: example image] Basically, use every trick to keep the cognitive load as low as possible.

With **incremental notation** this means that the facilitator will be creating the legend on-the-fly. Having a prepared *all-in-one* legend could save some time, but will also make it harder to steer the workshop reacting to the participants' mood and interests.

31. Anti-patterns

This is probably going to be one of the most awkward sections in the book, since most of the items listed here will sound like *plain old common sense*.

The problem is *common sense works only to a given extent*. Just like the abuse of antibiotics ended up increasing the probability of antibiotic-resistant diseases, the abuse of common sense is behind most entangled dysfunctions in complex environments, like ...your workplace, for example.

So here it is, our little list of dysfunctional applications of what looks like plain old common sense.

Ask Questions First

(Anti-Pattern)

Every group of people starting an EventStorming workshop always starts self-organizing into *asking questions* to one person, usually the domain expert. It's so obvious that we don't even realize that this approach is totally sub-optimal for many reasons:

- one person is asking, one person is answering, many people are just listening, or waiting their turn;
- only one topic at a time (serialization and low throughput);
- high risk of digging into one single topic without exploring the whole thing;
- high risk of spending a lot of time just stating the obvious (and *boring* is bad);

The best way to overcome this problem is to steer the workshop into massive parallel writing first, but to achieve that we need to establish [the right to be wrong](#).

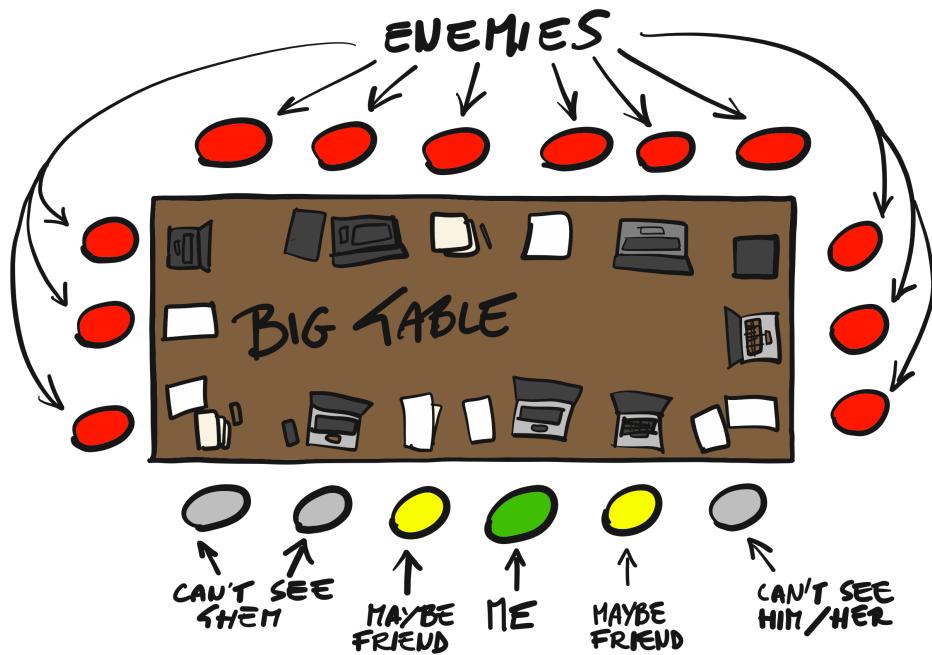
However, key questions are not forbidden, only *postponed*. They will spontaneously arise in front of some sticky note that doesn't resonate with the domain expert daily experience.

Big Table at the center of the room

(*Anti-Pattern*)

: Every large company has a meeting room with a huge table at the center. They may be ludicrously expensive, but ...hey! Who cares, it's a *status* thing. We'll save the money on programmers monitors¹.

¹Yes, I am ranting. Sorry about that.



Big tables are forcing you to choose a seat, defining upfront who's going to be your friend or foe during the meeting

Committee

(Anti-Pattern)

A common reaction to the *horror vacui*, the fear of an empty whiteboard at the beginning of a workshop is to form small groups and start reaching an agreement about what to write on our stickies.

This is reasonable and *damn wrong* at the same time, so here's a list of reasons why you should try to break up committees as soon as you spot them.

- Reaching an agreement is **expensive**: it requires consensus by every party involved, and this may take a huge amount of time.
- An agreement **limits the team bandwidth** to one topic, breaking committees allows for a higher parallelism and more collective throughput.
- Committees are **filtering out options**: they choose one wording for a given sticky note, and make the discarded ones invisible (see also [make some noise](#)).
- Committees fall into **confirmation bias**: forcing an agreement inevitably leads to re-framing the problem in “*the usual way*”. If we’re looking at the problem from a different perspective, our worst mistake might just to discover the same old things.

In general, it is fun to see how the workshop speed dramatically increases after breaking up committees. But you can only let people fail and change the rules: explaining this in advance usually doesn’t help much.

Divide and Conquer

(Anti-Pattern)

Many people in the software development field forgot the origin of the latin *divide et impera* that referred to a strategy to keep enemies divided. That was a strategy to maintain the political *status quo*, not to solve big problems.

However, while decomposing a problems in smaller one is usually a good strategy for writing software, it doesn’t mean it is a good strategy for everything.

The problem with this approach is that it tends to artificially reduce the exploration scope of a problem with sentences like “*Let’s focus only on this part*”. *Focusing* is another verb with a default positive connotation, so it’s shouldn’t be wrong. However, the moment we *focus* we’re deliberately excluding some information from the picture.

Focusing or narrowing the scope are often necessary choices when we're not provided a [modeling space](#) big enough to contain our problem, or when we can't have all the key people together. In EventStorming we try to make the opposite possible allowing large scope exploration, and a [Conquer first, divide later](#) approach.

Do the right thing

(Anti-Pattern)

Dungeon Master

(Anti-Pattern)

Follow the leader

(Anti-Pattern)

Human Bottleneck

(Anti-Pattern)

Karaoke Singer

(Anti-Pattern)

[FIXME: This needs the hardest picture of all]

Some people like to dominate the discussion. Some people like the sound of their own voice *a lot*. Some people need to make it look like their team is helpless without them.

unfortunately

Actually, it doesn't have to be a discussion. The team doesn't have to reach any agreement (especially in [Big Picture EventStorming](#)), and slowing down the team in order to reach an agreement on any single sticky note, before writing is actually the most wasteful approach:

- we'll waste *time* by reducing throughput to only one person;
- we'll waste *energy* trying to reach consensus;
- we'll waste *insights* from people with a diverging idea, maybe not worth the effort.

therefore

Look closely to the emerging team dynamics. Point out that *consensus* is not necessary and diverging voices are actually valuable (see also [Make Some Noise](#)).

Make it clear that we're not looking for precision immediately and that every participant has [The Right To Be Wrong](#).

Make sure that every participant has everything needed in order to participate independently (see [One Man One Marker](#)).

Precise Notation

(Anti-Pattern)

Every discipline has some specific notation. A precise standard notation allows more sophisticated conversations between experts, and allows for more precise modeling when used inside specific drawing tools.

unfortunately

Not every conversation is *expert-to-expert* or *expert-to-tool*. In fact the most significant conversation in software development are the ones between people that master the notation and the others that don't. Forcing people to adopt a specific language to join a conversation is no different from saying "*We're going to discuss something very important here, and we're going to discuss it in mandarin Chinese. Feel free to join the conversation!*"

The unwanted effect of sticking to a precise notation is to exclude key people from the conversation. Whenever the conversation becomes *specialist-to-specialist*, the one who is not familiar with the used jargon gets in a position of disadvantage when it comes to understanding, or correcting the model.

therefore

We'll try to avoid specific notation *during the workshops*. The quality of the conversation is what we should concentrate our attention. If notation gets in the way, then we should simplify it to the point that this is no longer a problem. See also [Grounded Notation](#) and [\[Visible Legend\]](#).

This doesn't mean that we shouldn't capture the information in a more precise notation later. In fact, a working prototype is another form of model in a *machine-readable* specific notation.

Religion War

(Anti-Pattern)

When two or more people have already figured out a model, or a solution, they might be tempted to skip the details and jump straight into the discussion, before having laid out the details.

unfortunately

My obvious is different from your obvious, and from everyone else's obvious too. But whenever something is invisible, and one has to explain it to someone else, discussions get abstract and start sucking time, backfiring into an endless old-style discussion.

therefore

Go visible as quickly as possible. Enforce

we only talk about visible things

as a modeling agreement between all parties. Break abstract discussion, by asking to write the missing building blocks.

Often you'll need to **add more space** to allow both solutions to be visible. In fact, if the space is not large enough to contain two alternatives, you are implicitly signaling that the team will have to choose a solution *upfront*.

Only choose between visible alternatives. Once both solutions are visible, the difference will probably be obvious to everybody.

Maybe you'll find out that the difference is negligible, and wasn't worth the standoff. Or you'll discover that it is significant, but now you are in the position to easily challenge both the alternatives with different scenarios, and discuss their probability and business significance.

Once the two solutions are visible the choice isn't limited to A or B. People could start contaminate the proposal with more alternatives, or merging the good parts anding up with something better.

Whatever would be your final preference, you'll have a better understanding of the reason why a solution has been chosen. And of the alternatives available in case it turns out the chosen solution isn't as good as it looked like.

The Spoiler

(Anti-Pattern)

“What’s the point of exploring together something that is already clear in my mind? Haven’t we already talked about it? I even wrote a specification document, just read through it and don’t waste my time with pointless questions!”

Often, there’ll be a person that knows a lot of the story. Maybe the person that developed the previous solution (see also [the Dungeon Master](#) on this specific case), or maybe the business analyst that already did some exploration on the current matter. The more work they did, the less they’ll be inclined to repeat it: doing things twice always looks like waste, and they might be bored to repeat the same things over and over.

Things can get worse if the exploration phase led to some form of specification document. Since the company put some money on that one, it has to deliver some value, hence people will have to read it.

unfortunately

It’s not the expert knowledge that really matters. As we already mentioned [FIXME: where?] it’s developer understanding that gets captured in code and released in production. And developers need to *learn*.

But a specification document, or a person telling the distilled knowledge isn’t necessarily the most efficient way to learn on a complex matter. Sometimes, intermediate steps are necessary, sometimes *making mistakes is necessary* in order to achieve deeper learning.

Moreover, specification documents are an incredibly *boring* way to convey any form of knowledge. And we know that boredom is the arch-enemy of learning. Or it may shortcut all the thinking process necessary in order to understand why things are in a given why and why it matters. Distilled knowledge will turn into a dogma, leaving little space to maneuver in order to change them.

therefore

Forget the specification document. Make clear that we'll need to improve developers understanding, and that this will be faster and more efficient in an interactive workshop.

EventStorming doesn't try to make things right from the beginning. In fact we'll be progressing towards a common model, by exposing all the wrong models at once. Unexperienced colleagues have the right to place wrong sticky notes on the modeling surface, and this will trigger a meaningful conversation by somebody that knows the real story.

Start from the beginning

(Anti-Pattern)

Where should we start? Many times, you'll find somebody that *starts from the beginning* by placing the first domain event right at the leftmost edge of the modeling surface. There are two major pitfalls here:

1. In general, this is a very unwise usage of the available space: we have a huge surface and we're just constraining expansion to happen only in one direction.
2. We are implicitly signaling other people that there's nothing to explore *before the starting point*.

[FIXME: image here]

The godfather

Have you ever been in a meeting where, despite having 12 people in the room, only a few of them were entitled to speak? I was, and it was the only

time in my career when I was ready to cancel the whole workshop and send everybody home.

32. RED ZONE

Even the best facilitators have weak points. I am not among them, so I have many weak points. I rationalized the thing by repeating me that facilitation is not a 100% guaranteed result process.

In real life, there are mutual selection processes in place to be sure that there's a good match between a client organization and a consultant, facilitator.

Fresh Catering

(Emergency Exit)

Providential Toilet Door Malfunctioning

(Emergency Exit)

Specific Formats

A brief recap of what is needed for each workshop format, in recipe style.

33. Big Picture EventStorming



Ingredients:

- A large meeting room
- Huge modelling surface (50 metres paper roll)
- People with questions
- People with answers
- A facilitator
- Many flipchart markers (one for each person plus 3 backup)
- Plenty of sticky notes:
 - Orange (500 squared 76x76)
 - Blue (200)
 - Purple (200)
 - Pink (100 rectangular)
 - Yellow (200 small rectangular)
- Just in case:
 - Green (100 squared 76x76)
 - Pale Yellow (100 rectangular)

Prepare the room in the standard way: table and seats aside. Keep the seats available for later use.

Take with you at least 50 metres of plotter paper roll: with *big picture exploration* you don't know how big the model is going to be in advance. Get somebody to help you setup the room. If everything's ready before the meeting start, you probably already made an impression.

Provide refreshments. After a while, the brains will start to work at full speed, so something like fresh fruit will be necessary. Don't rely on heavy food or industrial junk food. Not today.

The organizer should provide a little introduction: there's no need to explain EventStorming, like "we're going to do this and then this" [FIXME: This will go in the facilitator's chapter] but to clearly state the workshop goals and to give participants *confidence* that you know what you're doing with their time. Remember: *people are there for their business goal, not for EventStorming.*

34. Design-Level EventStorming



Ingredients:

- A large meeting room
- Huge modelling surface (50 metres paper roll)
- a completed Big Picture EventStorming
- a clear focus on a given business process or key feature
- the development team
- the relevant domain experts
- A facilitator
- Many flipchart markers (one for each person plus 3 backup)
- Plenty of sticky notes:
 - Orange (300 squared 76x76)
 - Blue (300)
 - Purple (200)
 - Lilac (200)
 - Pink (100 rectangular)
 - Yellow (200 small rectangular)
 - Green (200 squared 76x76)
 - Pale Yellow (100 rectangular)

Prepare the room in the standard way: table and seats aside. Keep the seats available for later use.

In this scenario we won't be stopped by timeout: the completion criteria is mostly the level of confidence with the modelled solution.

Next actions

Just start coding a prototype as soon as possible. Get some good food, but turn the exploration into working code, and write down the resulting questions.

Glossary - 40% (but do you really care?)

Writer's note

*I still have no idea whether this should be a simple reference for terms or something more structured, with deeper explanation. A **Modeling Building Blocks** information is needed, but it's probably better to localize the explanation where is needed, and summarize it here.*

Fuzzy by design

Here is another chapter where I am going to intentionally disappoint many readers. If you're looking for a definition of the terms used throughout the book, here you are! But if you're looking for a *precise* definition, you won't find it.

It's not that I am lazy, or messy. I am, but that's not the point. The real reason is that in many situations, *precision gets in the way*. A large portion of EventStorming is about making significant conversations possible, and if we have to know what an Aggregate is in order to speak, well... that isn't going to work!

Actor

Aggregate

Aggregate is one of the fundamental patterns described in [Domain-Driven Design, Tackling Complexity at the Heart of Software](#).

:An aggregate is a *unit of consistency* within the Domain Model: a group of

Bounded Context

[FIXME: ...]

Command

[...]

CQRS - Command-Query Responsibility Segregation

an architectural style enforcing strong separation between *Commands* actions that trigger a system behavior, and *Queries* that only access data.
[FIXME: more info]

Domain Event:

In Domain-Driven Design, the term refers to a software design pattern, useful for modeling event-based systems and processes.

The term was originally defined on Martin Fowler's Bliki in 2005: <http://martinfowler.com/bliki/DomainEvent.html> and become popular once Greg Young started pushing the idea of using [Event Sourcing](#) and [CQRS](#) to model complex high-performance enterprise systems.

In *EventStorming* we are not looking for *precision*, but for meaningful conversations, that could engage the vastest company of stakeholders. So, a Domain Event is an *orange sticky note with a verb at past tense*, referring to something that happened in the domain.

[FIXME: picture a domain event. Not a domain event]

Event-Based Modeling

the original name for the EventStorming workshop, originally presented at the Italian Agile Day 2012 in Milan. Accompanying slides are available at [http://eventstorming.com/slides/](#).

Event-Driven Architecture

[...]

Event model

the physical outcome of an event storming session, be it the paper roll, a picture of it or its translation into a digital support.

Event Sourcing :

EventStorming

Go back to page one and re-read the book.

Hypocrite Modeling

when you're modeling a system with strict validation rules that cannot be fulfilled in the real world, sort of no-sex-before-marriage, and everybody finds a way to cheat.

Impact Mapping

Minimum Viable Product

[FIXME: ...]

Model Storming

The process that unconsciously led me to EventStorming. Unfortunately I didn't realize it during the process, so I am responsible for making a bit of a mess. However, while EventStorming is the somewhat codified way to model business processes collaboratively, *Model Storming is the meta-process that lets you collaboratively model virtually everything without having an idea of how it will look like at the end.*

Persona In user-centered design and marketing, *personas* are fictional characters created to represent the different user types that might use a site, brand, or product in a similar way.

Source: [Wikipedia¹](#) quoting William Lidwell; Kritina Holden; Jill Butler (1 January 2010), *Universal Principles of Design*, Rockport Publishers, p. 182, ISBN 978-1-61058-065-6

¹[https://en.wikipedia.org/wiki/Persona_\(user_experience\)](https://en.wikipedia.org/wiki/Persona_(user_experience))

Read Model

a data-oriented model, with no specific behavior, which is normally tailored around a specific use case for a specific user.

Theory of Constraints

as explained by Eliyahu Goldratt in “[The Goal](#)”, ToC actively focuses on the search for the main system constraint. In a given flow there’s normally one main constraint, usually called ‘the bottleneck’: improving the behavior around it results in major system improvements, while improving somewhere else leads to negligible results or even worsen the system performance.

User Story

User Story Mapping

Tools

A lot of the conversation revolving EventStorming and visual facilitation is about “*which markers do I use?*”. So here is a sort of dedicated F.A.Q. to the topic. Disclaimer: I added some link to the producers website whenever possible. I am not affiliated with any of those producers. Even more: most of the websites listed here suck big time, so my apologies if you get trapped into inconsistent navigation, ridiculous user experience and so on.

Modeling Surfaces

Paper Roll



The iconic paper roll.

I may adopt different strategies, given the context. Here are some of the most common choices.

- **Guerrilla Workshop:** I might be running one on the fly, I don't have so much time for the preparation. In this case my first choice is the IKEA Måla paper roll (it can be found in the kids area). The paper is cheap and somewhat yellowish, and the width is limited, so you'll surely need a double-decker or more. But it fits in my backpack, so I can carry it with me in a *just-in-case* fashion. The whole thing started exactly in this way.
- **Prepared workshop:** in this case, I prefer relying on more professional plotter paper roll. It comes in different format, so I may choose different

options here. If I am traveling by car I may be taking a 90cm width roll with me, while if I am traveling by plane the maximum I was able to fit into my trolley was a 60 cm one.

Can we live without it?

Well, the paper roll has never been mandatory: it became the icon of EventStorming because in the largest majority of workplaces the idea of an unlimited modeling surface is an illusion.

Writable walls

In order to walk the path[FIXME: or is it walk the walk?] according to our principles, in our company every wall is writable. We applied a special paint on top of the existing one

Markers

You should already be familiar with the **One Man One Marker** rule. However, given the workshop constraints you'll might need more than one type of markers, depending on the use.

Writing on whiteboards (or erasable surfaces)

Writing on stickies

Here is where the normal whiteboard marker is simply too big to allow us to write anything significant, while a normal pen isn't visible enough. My

favorite choice here is the **BIC marking pocket 1445²** or the **Sharpie Fine Point permanent marker³**.

Writing on flip charts

Normally, writing on the flip-chart is reserved only to the facilitator, but it might not necessarily be a rule. To write on a flip-chart, a larger font size will be needed and a larger marker too. If you're a beginner a round tip marker will do the job really easily. If you're visual scribing like a pro, then a *chisel tip* will allow for better results. [FIXME: links and maybe an image]

Stickies

The glue is the most important thing: you just don't want to invite your company big guys to a workshop and waste their time picking up falling stickies from the floor. So don't pretend you're saving money and choose something with a decent glue.

²<http://www.bicworld.com/en/products/details/103/marketing-pocket-1445>

³<http://www.sharpie.com/it-IT/sharpie-products/marcatori-permanenti/sharpie-fine-point-sp-00013--4>



A reasonable supply of orange stickies.

I am loyal to [3M super sticky]

Removable labels

The great thing about sticky notes is that they can be moved around. When people start labeling areas for [Subdomains](#) or [Bounded Contexts](#) they tend to write directly on the surface. But if the surface is paper, this is irreversible: can't rename it or move it without making a mess.

My not so secret trick is to use a labeling and covering tape for this. It's just a white sticky note that I can rewrite or move around whenever the merging structure calls for it.



Labeling and covering tape

Static pads

These are lovely on a smooth surface.

Recording results

Bibliography

Agile Retrospectives - Esther Derby, Diana Larsen

Apparently focused on Agile retrospective only, this book is a goldmine for suggestions about how to run workshop, or - more generally - how to handle situation where you put a lot of clashing personalities in the same room.

Agile Software Development, the Cooperative Game - Alistair Cockburn

One of the first book I read about agile software development, and a game-changer for me. It opened my eyes towards the idea of Information radiators and around communication as one of the major bottleneck in software development.

Analysis Patterns - Martin Fowler

In this book, Martin explores recurring and repeatable patterns for modeling specific portions of a business domain. Although it's somewhat outdated (pictures are in a pre-UML notation) it's definitely a worthwhile read for a sophisticated modeler

Antifragile - Nassim Nicholas Taleb

Fragile systems get damaged by volatility and disorder. Antifragile systems have the ability to take advantage from disorder.

Black Box Thinking - Matthew Syed

From covering up mistakes, to cognitive dissonance, to what makes an organization learn and be a sustainable place to work, Mathew Syed manages to connect an impressive amount of dots in a meaningful and readable way.

Brain Rules - John Medina

A great book for understanding the basic mechanism of our brain, and a handful of practical advice about how to take the best out of it.

The Connected Company - Dave Gray

Hierarchy used to be the canonical form for every organization structure. However, it's not necessarily the most efficient, depending on the organization's purpose. In this book, Dave Grays collects and describes several examples of organizations and companies that succeeded with different organizational structures.

Design Patterns, [FIXME and something else] - Gang of Four [FIXME: the actual names]

[FIXME say something smart here]

Domain-Driven Design, Tackling Complexity at the Heart of Software - Eric Evans

This is the book that started everything, and that still surprises me. After many years I still find pearls of wisdom entangled in Eric's software modeling approach. One among many: we are knowledge crunchers, EventStorming is just my attempt to make this statement real.

Drive, the surprising truth about what motivates us - Daniel H. Pink

[FIXME: tell the story]

eXtreme Programming Explained - Kent Beck

[FIXME say something smart here]. Interestingly, among the agile practices, Kent places 'Build a system metaphor', which I guess is exactly what EventStorming is all about.

GameStorming - Dave Gray

*If you wonder how it could be possible to turn boring unproductive meetings into incredibly engaging and effective ones, this is the book for you. Dave will provide information about the basic structure of a *storming meeting, and specific tips to use in the different phases.*

Getting to Yes - Roger Fisher, William Ury

A small and popular negotiation book. If you're surprised to find a negotiation book in the references, then you probably need to think twice about what collaborative design really is.

Growing Object Oriented Software, guided by tests - Steve Freeman & Nat Pryce

The best book about implementing a nontrivial software system applying Test-Driven Development principles in the small and in the large. It's also the book that made the concept of walking skeleton popular among software developers.

Impact Mapping - Gojko Adzic

A great book about turning the discussion into software requirements into a discussion about doing the right thing. Writing software is expensive, but many organizations keep pushing for writing more. Why? What is the outcome they seek? Is it "more software"? Or more likely they're looking for an impact on user behavior, or on company revenues? If that's the reason, what is the shortest and more effective path to achieve this result?

Implementing Domain-Driven Design - Vaughn Vernon**Introducing Deliberate Discovery - Dan North**

This is one of the best explanation why learning is the real bottleneck in software development. The whole article can be read [here](#)⁴.

Kanban - David J. Anderson

The book that defined Kanban (capital 'K') software development process, by putting together Agile, Lean and Queue Theory principles.

Management 3.0 - Jurgen Appelo

Jurgen's book opened a whole new universe to me. It connected topics and disciplines that have been separated for ages and provided a consistent view of the whole. Even more, he made the whole thing look easy. I still don't know how he managed it.

Patterns of Enterprise Application Architecture - Martin Fowler

[FIXME say something smart here]

⁴<http://dannorth.net/2010/08/30/introducing-deliberate-discovery/>

Pragmatic thinking and Learning - Andy Hunt

An introduction to how the brain works, written by a software developer. One of the best entry point into the magic realm of the human brain.

Switch - Chip & Dan Heath

One of the easiest books to read about change management, but also a great collection of wisdom about how little constraints can influence people's behavior in unexpected ways.

The Goal - Eliyahu Goldratt

Written as a novel, the book illustrates the principles of Theory of Constraints, giving a very crucial significance to the concepts of Bottleneck and throughput.

The Lean Startup - Eric Ries

Probably the most influential book in the startup world, and more. The idea of validated learning is incredibly powerful and drives software development in a way that makes traditional management and planning look like stone age, especially in exploratory domains.

Thinking Fast and Slow - Daniel Kahneman

This is an amazing book explaining how the brain works in many circumstances. From managing risks and probabilities to multitasking. If your work is brain-intensive (and I bet it is), then you have no excuses not to read this one. You'll probably find many logical explanations to real world situation in your daily and working life. You can't change people's brains, including yours. So it's better to know how it really works to find strategies around it instead of against it.

This is Lean - Niklas Modig, Pär Åhlström

A great entry point to lean thinking, with some notable stories that will introduce the reader into the mindset. Very well written and very clear, with some really valuable advices when it comes to choose a corporate strategy according to principles.

User Story Mapping - Jeff Patton

Story Mapping has been one of the key sources of inspiration for EventStorming, and a lot of the thinking behind it is the same. While reading the first chapters of Jeff's book I've found myself saying: "this is exactly what I wanted to write!", and it's also very well put. If you're struggling to put a product vision into practice, this is the book for you.

Visual Meetings - David Sibbett

David Sibbett made the profession of Visual Facilitator visible, showing the value of visually supporting large scale meetings, and providing precious advice. The book is great but the single sentence "Can't do system thinking without visualization" is already worth the price.