lego4scrum

One of the most interactive ways of introducing Agile thinking and Scrum framework

Covering user story mapping and magic estimates, overall backlog refinement and multi-team scrum events, continuous integration and many more other agile practices all simulated with using LEGO® as a teaching & learning API.

Alexey Krivitsky

Foreword by Henrik Kniberg

February 2023

lego4scrum: post-covid revision

A complete guide to #lego4scrum - a great way to teach the Scrum framework and Agile thinking.

Alexey Krivitsky

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Author's foreword from 2023

Welcome to the Post-Pandemic World!

It is the world, where the physical presence is back:

Physical presence is back

Where the people are back:

People are back

And where LEGO is back:

LEGO is back

These photos are taken in November 2022 in Gothenburg, Sweden in Chalmers University of Technology. There, we trained 120 students of the Project Management curriculum on the ideas of product development using lego4scrum. It's been a blast. All the students across all the tables were building just one shared product. This is also the *main rule* of lego4scrum - one product for all. That's to show how scalable the Agile and Scrum ideas really are. And this

books describes this approach in the details.

We love to be back and we love to be back teaching! Especially, in the Universities. So please invite us via info@lego4scrum.com.

Real Collaboration

Few words on the world we live in now. The post-pandemic era. The times of the controversial remote work.

For the last couple of years, I've participated in several trials of virtual simulations that were to replace lego4scrum. Some of them were alright. But I found out that physical presence is essential to get some real team dynamics going.

I have also participated in several mostly remote Large-Scale Scrum adoptions. People in Zoom can talk, and they can even move electric post-its on e-walls. But to me, something is truly missing in such environments. The evolution hasn't prepared us for online collaboration. No matter how good the facilitation is, our brains is just half-engaged when we are collaborating online.

Solo work, deep creative pieces of work, some silent moments - we all need that, don't get me wrong. Not all the work that teams do actually requires collaboration. For instance I am getting the best of my insights when I am alone - walking or bathing.

But for the collaboration bit - we all need something better than a bunch of flat squares with people's avatars (*Zoombies*, that's how I call them). I hope that over the next 10+ years the progress in VR/AR will be able to reach the level where the simulated digital world and the physical (brain-simulated) worlds will look almost identical - we will be able to fool our brains.

But until now - let's not fool ourselves. And now, several years after the faux movement of going remote, some research is appearing:

Steve Blank 🔗 • Following
Adjunct Professor Stanford University
5d • 🌐

Data shows that pre-seed and seed startups with employees showing up in a physical office have 3½ times higher revenue growth than those that are solely remote.

Let the discussion begin.

#startups #entrepreneurship #entrepreneurs #remotework

Startups That Have Employees in Offices Grow 3 1/2 Times Faster

Steve Blank on LinkedIn • 4 min read

This article previously appeared in EIX – Entreprenuers and Innovators Exchange. Data sh...

Steve Blank on office work

"Data shows that pre-seed and seed startups with employees showing up in a physical office have 3½ times higher revenue growth than those that are solely re-

mote."[1]

So again, I am happy we are back and we can play LEGO again to learn about the magnificent world of teamwork, products and Scrum.

Yours truly, Alexey Krivitsky.

February 2023, Munich.

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[1]The article: https://www.linkedin.com/pulse/startups-have-employees-offices-grow-3-12-times-faster-steve-blank
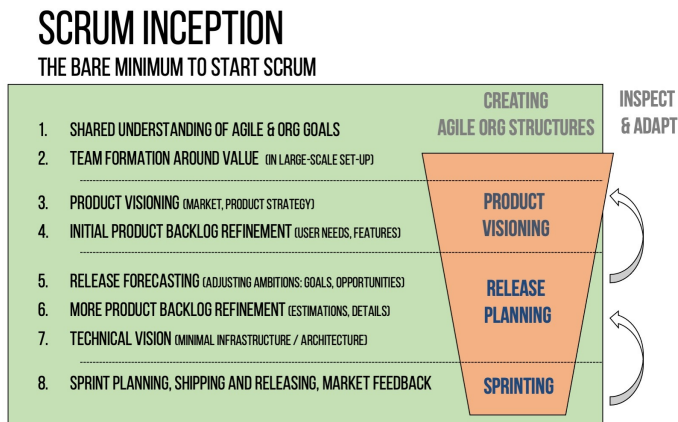
Walking Skeleton of the Simulation

The BIG ideas behind lego4scrum (explained in the next chapters):

- it is focusing on the agile mindset
- a product owner needs to have a big vision to be shared
- several (or many) teams will be working together to build a single integrated product matching the big vision

If we're good with it, now it is the very right time to lay down the high-level structure of the simulation.

When running lego4scrum (and also doing real projects) I'm following a process similar to this one:

SCRUM INCEPTION
THE BARE MINIMUM TO START SCRUM

		CREATING AGILE ORG STRUCTURES	INSPECT & ADAPT
1.	SHARED UNDERSTANDING OF AGILE & ORG GOALS		
2.	TEAM FORMATION AROUND VALUE (IN LARGE-SCALE SET-UP)		
3.	PRODUCT VISIONING (MARKET, PRODUCT STRATEGY)	PRODUCT VISIONING	
4.	INITIAL PRODUCT BACKLOG REFINEMENT (USER NEEDS, FEATURES)		
5.	RELEASE FORECASTING (ADJUSTING AMBITIONS: GOALS, OPPORTUNITIES)	RELEASE PLANNING	
6.	MORE PRODUCT BACKLOG REFINEMENT (ESTIMATIONS, DETAILS)		
7.	TECHNICAL VISION (MINIMAL INFRASTRUCTURE / ARCHITECTURE)		
8.	SPRINT PLANNING, SHIPPING AND RELEASING, MARKET FEEDBACK	SPRINTING	

Scrum inception

The next pages will describe each step in greater details as long as workshop preparation steps.

Pre-game: Defining the Product

Setting the Stage: to explain the workshop participants the main learning objectives of the simulation, namely: "Why you'd want them to spend next hours playing with LEGO instead of speaking about Agile and Scrum?".

- **Setting the Stage**: to explain the workshop participants the main learning objectives of the simulation, namely: "Why you'd want them to spend next hours playing with LEGO instead of seeing slides about Agile and Scrum?".
- **Pitching the Vision**: to show an example of how a great Product Owner communicates the big picture and engages the teams for a meaningful product purpose.
- **Forming the Teams**: to teach how to form new teams to maximize learning and delivery. This is a huge learning opportunity if you're to illustrate self-organization principles of Scrum and especially Large-Scale Scrum.
- **User Story Mapping**: to teach the structural way of capturing key product insights: users, user needs, possible solutions and release goals. Instead of the User Story Mapping feel free to choose any other structural backlog co-creation tool you want the participants to master.
- **Refining the Product Backlog**: to teach the emergent nature of the the product backlog and how much "just enough" details is what you need to get started.
- **Estimating the Effort**: to teach the fastest estimating technique(s) and the idea of relative complexity. Also can be used to teach Planning Poker and #NoEstimates.
- **Re-Prioritizing the Work**: to demonstrate how a great Product Owner facilitates getting ready for the first Sprint Planning with clear priorities that are coming from shared understanding of the upcoming work. And how those get changed during meaningful discussions with the teams.

In-game: Building the Product

- **Planning a Sprint**: to teach the concept of multi-team overall Sprint Planning as a technique for rich inter-team coordination.
- **Building an Increment**: to let'em finally play with LEGO for few minutes :)
- **Reviewing the Increment**: this is done altogether no matter how many people there are - this is to reveal the dysfunctions (e.g. late feature acceptance, delayed integration and so on) and the importance of keeping a tight cooperation between the Product Owner and the teams.
- **Retrospecting the Process**: to help create a positive habit of constant process improvements driven by the teams. Within the Large-Scale Scrum context this is a great placeholder to introduce the concept of an Overall Retrospective to teach the ideas of 'optimizing the whole' and 'avoiding local optimizations'.

Post-game: Debrief

- **Game Re-cap**: a chance for a facilitator to help participants glue the parts of the game together and see a holistic process that drove to a holistic product.
- **Lessons Learned**: to amplify lessons learned and help participants see what helped them achieve the results despite of the inherent complexity of the problem (many people, unclear changing requirements, a messy process).
- **Changing the World**: to give participants a chance to reflect on how they can apply the same thinking and similar ideas to run their own product development initiatives.

Next Chapters

Still hungry for more details? Sure. This was just a backbone of the simulation, a barely walking skeleton of it.

Next chapters will add some flesh to the bones so that our skeleton could not only walk, but run, dance and build stuff with LEGOs!

But before, let's make a quick detour and look what is needed to be thought of and prepared in advance so that your participants could really enjoy and learn at the workshop.

Game Design and Principles of lego4scrum

The same way as not all software development teams are Scrum teams - **not every game that teaches Scrum with LEGO is a lego4scrum**! That's important to know.

There are certain underlying principles that need to be satisfied and a certain mindset to be brought forward to call your session 'lego4scrum'. This is not a copyright issue or something. No. This is because the game has certain systemic ideas that need to be followed to guarantee that learning of the participants is broad and deep and that they grasp what *real* Agile and *true* Scrum are.

I set myself on a mission of being the guardian of these underlying design principles. And you can do too. So please read on.

Am I Allowed To Customize lego4scrum?

Oh yes, indeed! Thanks for asking. I apologies if this hasn't been clarified well enough.

In fact lego4scrum is not a particular game, it is a 'thinking API' to help you create your own lego4scrum simulations. As all projects are unique, all lego4scrum instances are unique too. (I think I've already said that earlier once. Am I repeating myself? Am I repeating? Am I…)

I can also promise you that my next year's simulations will likely be at least 30% different comparing to today's version. So this guide

you're reading is a snapshot of my current understanding of the lego4scrum simulation design.

But! (there is always a but, isn't it?). In order to make sure the class participants do get maximum value from playing with LEGO for several hours and that we, as a community of Scrum trainers, provide the highest value possible - I'm providing some guiding principles to help you design your own lego4scrums.

So once the below mentioned principles are met - you can be sure - your simulation is a lego4scrum!

Principles Behind lego4scrum

Product Focus: "Where Is My City?"

"Where Is My City?" - this is statement that a Product Owners in lego4scrum says at least once every sprint - at the beginning of Sprint Reviews. It's key, it's vital. It glues the whole thing together.

"Where Is My City?" implies we value a working product more than any documentation or justification why the product is not hm… quite working.

"Where Is My City?" makes it explicit there needs to be a product increment by the end of every sprint. And of course there will be funny 'oopsy' moments when there is none. The first sprint in fact is designed to catalyze this failure. Such failures become great learning experiences for the participants. See the principle "Designing For Failure" to know more.

"Where Is My City?" creates a strong need for the teams in the game to coordinate and integrate their work[2]. See the next principles "Design for Interdependance" to see how to enable this.

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[2]See my blog post on Coordination and Integration practices of Large Scaled Scrum: https://www.agiletrainings.eu/2016/09/27/scrum-of-scrums-is-dead-emerging-coordination-practices-at-scale/

Multi-team Focus: Design for Interdependance

I can't remember running this simulation with one development team. I never do.

If you have just several people in your workshop - please go and find another game[3].

With a single team playing, lego4scrum feels oversimplified and just naïve. So people might draw conclusions that Scrum is simple and straightforward which of course will set them up for big hairy failures out in the real world. Our goal is to make the simulation as close to a live environment as possible. So playing LEGO with just two friends is likely not going to make it happen.

So prefer a multi-team setting whenever possible.

So if you brought your big bag of LEGO and there are just 6 or 8 folks in the class - think of forming several smallish teams. This will make the game so much richer. Such constraints create a lot of positive pressure for the teams to learn how to coordinate.

The Product Backlog will have some dependent items, so the teams will have to learn how to coordinate during and after Sprint Planning to make stuff work.

Whole Product Focus: Scaled Scrum is Scrum

When multiple (or even many) teams working together on a single product with one Product Backlog, delivering an integrated product increment at least once a sprint - this sends a strong message to the participants: Scrum is scalable and is usable in a real enterprise.

So please don't create a set of backlogs one for each team (or I will kill you.)

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[3]See for example the http://www.tastycupcakes.org for ideas on whole lot of other serious games.

Also don't think of creating a group of product owners to make several teams work 'independently' in asynchronous sprints (or I will really kill you).

This faulty game 'adjustments' will increase the level of ignorance that is all time high in this world. This is bad for your karma! (And I will kill you).

In other words, prefer **Scrum for multiple teams** to multiple Scrum teams. This is also true for the real world, were many people (many teams) need to build a single complex product.

Prefer LeSS Ideas

It is obvious that lego4scrum has been inspired by Large Scale Scrum (LeSS)[4].

So we use the following LeSS-inspired principles

- one product (despite of number of teams)
- one product backlog (because one product)
- one product owner (because one product)
- single sprint (because teams need to learn to collaborate)
- single product increment (because one product)
- one integration environment (because otherwise one product is hard to achieve)
- overall Scrum meetings for all teams at the same time in the same room (because it is fun and makes people learn from each other, which helps them together build the product)

Recently it has been proven that lego4scrum can be scaled to over a hundred participants - more than 15 teams. This is made possible with applying a concept of "product requirement areas" and "area product owners" from LeSS Huge. See the next chapters on ideas on this.

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[4]See http://www.less.works/ for more ideas on this framework.

Learning Focus: Design for Failure

If your teams don't fail their first lego4scrum sprint you're doing it all wrong.

It is not just alright to let them fail - *it is required.*

19 out of my 20 lego4scrum simulations will deliver a total disaster during the first sprint. This is success!

What's your failure rate? Can you make it higher?

Failures creates a strong emotional field and amplifies memory and with it comes learning, so design some failures in your workshops!

I probably shall not be teaching you how to fail Scrum, I'll trust you have all the necessary skills to...

Still, here are some ideas I use constantly:

- Introducing ambiguous requirements (e.g. "all buildings need to be of one color" which could mean solid colors of every building or same color across all buildings).
- Asking to have all the buildings of the same size and proportions (implies teams need to agree on the size, this usually happens after a big fiasco of the first sprint review).
- Making teams 'forget' to think of integrating the product by the end of the first sprint is a nice one. I usually don't remind teams to think of a table where they will have to integrate and demo their stuff, so they naturally keep working at their individual teams tables and fail to integrate.
- "PO is on a business trip" - playing a PO, I simply leave the room in the middle of a sprint and then come later to fail accepting the increment (yes, it is OK to be nasty for the benefits of your participants). Then on the retrospective I really want the teams to build some agreements with their PO.

A Summary: Don't Call It lego4scrum, If

- you have many product backlogs - **yaks!**
- each team is working on a separate 'table' product with zero integration and coordination required between the teams - **gosh!**[5]
- the product and sprint backlogs are not visualized as physical information radiators (e.g. user story mapping with post-its on a wall) - **really?!**
- you've forgotten to bring LEGO… - **OMFG!!**

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[5]I'll explain this in more details later. For now I just mean that you need to make sure your teams have interdependencies. So that they learn how to integrate and coordinate their plans and work results. In the most simplistic case I ask all the teams to build a single 'massive city', this creates enough *nice* dependencies to be dealt with. If you'd prefer your individual teams (or clusters of teams) build separated cities, think of introducing some additional intercity dependencies (like, the transportation, for instance).

The Huge Success of lego4scrum - Thanks to You!

But as much as I want to keep up updating the manuals, I'm always lagging behind as hundreds of people are running this game in hundreds locations. Monthly, weekly and daily.

These are stunning numbers. I guess this is what happens when you multiply the popularity of LEGO by the popularity of Scrum:

popularity(of lego4scrum) = popularity(of LEGO) * popularity(of Scrum).

And it is all open source!

Translation Project

Another key success factors of why lego4scrum became so popular (to my surprise) is the insane number of translations of the older 20-page guide.

Update of 2023: this book you are reading is being translated to **French**, **Spanish and German**. And you can join to help out: info@lego4scrum.com[6].

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[6]mailto:info@lego4scrum.com

The Marvellous Community

I'm doing my best to keep up with all the variations of the simulation I hear.

I constantly meet people at various conferences who explain the ways they have adjusted the game and added few more tricks. I can never get enough of these ideas!

Recently when doing the large scale version of lego4scrum I've played with incorporating the concept of markets, users, investments and material prices into the game (all these ideas I've heard from others). And it worked out great! The chapter "Three Key Game Dimensions" is elaborating on this idea.

So please keep sharing your experiments. The multiple channels listed below are enabling you for that.

Twitter

The best way to get a glimpse of what's happening worldwide is to follow a twitter hashtag #lego4scrum on twitter[7].

Please, share your pictures when running #lego4scrum. Here are the few recent examples:

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[7]https://twitter.com/hashtag/lego4scrum

@Matt_Salikhov and @agabrillagues

@anyalibova and @flore_tr

**@henrikkniberg and @maelle_gaultier**

@arifbobate and @SplendidUnltd

Slack

And if this was not enough, you can get connected with the most active part of the community by joining our #slack team[8] where we are having live discussions on various topics like improvement and facilitation ideas.

I'm personally trying to follow this channel to stay connected with the community.

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[8]http://www.lego4scrum.com/slack
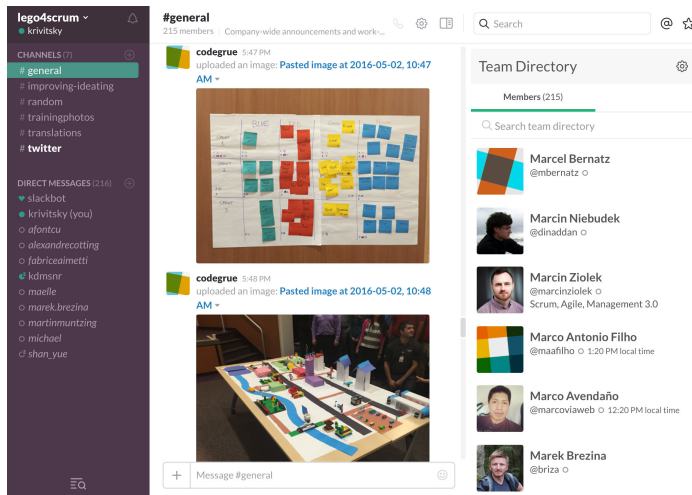
Our #slack channels

Facebook Group

Yet not enough online communities?

Join the Facebook group⁹.

Personal Feedback

… And if you'd like to share your private piece of feedback with me, please poke me at info@lego4scrum.com¹⁰.

Stay Tuned!

So if you're getting your copy of the 3rd edition from leanpub¹¹ - you're also subscribing to all upcoming updates to this book.

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⁹https://www.facebook.com/groups/lego4scrum/
¹⁰mailto:info@lego4scrum.com
¹¹https://leanpub.com/lego4scrum

Including new possible chapters, fixes and minor corrections.

The same applies to Kindle and Paperback readers[12] who bought from Amazon.

This is guarantee for staying up to date with the new trends in the lego4scrum world!

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[12]https://www.amazon.com/lego4scrum-complete-guide-framework-thinking-ebook/dp/B06XCK1K8D/

About The Author

Alexey Krivitsky

Who am I?

I'm a hands-on Lean and Agile practitioner and a Scrum trainer (at times when the snow is gone or my knees can't take it anymore).

My first Scrum experiments date back to 2003. Since then I've been

coaching teams and helping organizations gain more agility.

I also write code (or rather copy-paste from StackOverflow) and yet proud to call myself a software developer.

In 2008 in search for more knowledge I started what has become the Agile Ukraine community and since then I have co-produced dozens of Agile events in the region, including the best of all: Agile Eastern Europe and Agile Rock Conferences.

I am an occasional speaker, mainly running talks and workshops on agile coaching and organizational design.

These days I am based in Germany, working as an independent agile coach and doing many other things (sometimes too many at the same time).

I teach Scrum being a Certified Scrum Trainer. And this is where lego4scrum comes on the stage...

Powder skiing, friends, juices and lego4scrum

.. And I am also a free-ride skier spending my winters in search of deep powder snow.

And it was February 2009 when my friend Mykola Gurov and I were coming back from a wonderful skiing trip in Indian Kashmir and had a quick stop-over in Goa. While enjoying the incredibly wide variety of fresh juices we started an open discussion on how to improve training experience to give participants a chance to *feel the magic of a teamwork by making real product.*

One of us, and I think it was Mykola, mentioned LEGO... And few months later Robin Dymond kindly agreed to let me run a first lego4scrum simulation on a Certified Scrum Master class that we co-trained. So this is how it all started, if you ever wondered.

My blogs and resources online

- My recent blog in English[13]
- My LinkedIn articles[14]
- My blog in Russian[15]
- Agile Coaching Canvas: dream up your coaching vision with[16]
- Retrospective cheat sheet and a mini-book[17]
- My coaching company in Ukraine[18]

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[13]https://www.adaptivity.inc/blog
[14]https://www.linkedin.com/in/alexeykrivitsky/detail/recent-activity/posts/
[15]http://www.krivitsky.com/блог
[16]https://www.agilecoachingcanvas.org/
[17]http://retrospective-cheat-sheet.com/
[18]https://www.scrum.ua/

Liked the Preview?

As you can see there is a bunch of cool stuff in this new edition of the book. Get your copy. The next chapters are providing enough details how to make *your* next Scrum workshops/trainings rock and clang with plastic.

Get Your Copy of lego4scrum 3.0!

Leanpub

Dear Leanpub users, here is the link for the book purchase[19].

Kindle and Amazon

Dear Kindle readers, please use this page for book purchase at Amazon.com or international stores[20].

The book is also available in paper from Amazon. Yes, good old paper.

Email the Author

You can reach out to me at info@lego4scrum.com with feedback.

And also if you're looking for a lego4scrum facilitator.

Or seeking an advice on running the game.

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[19]https://leanpub.com/lego4scrum
[20]https://amzn.to/32wTIhr

Or just to say "hi!".

Thank you! Alexey Krivitsky

Happy teams

Oh! And by the way, the simulation can be also scaled[21] to 100 of participants and more! This books will explain you the underlying principles.

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[21]A fresh report (as of April 2017) on scaling #lego4scrum: https://www.linkedin.com/pulse/large-scale-scrum-simulation-lego-bricks-lego4scrum-less-krivitsky