



Modernising Legacy with DDD

jimmy.nilsson@factor10.com

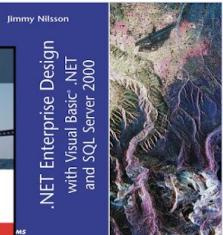
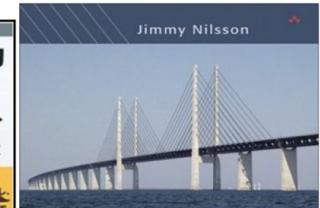


About Jimmy

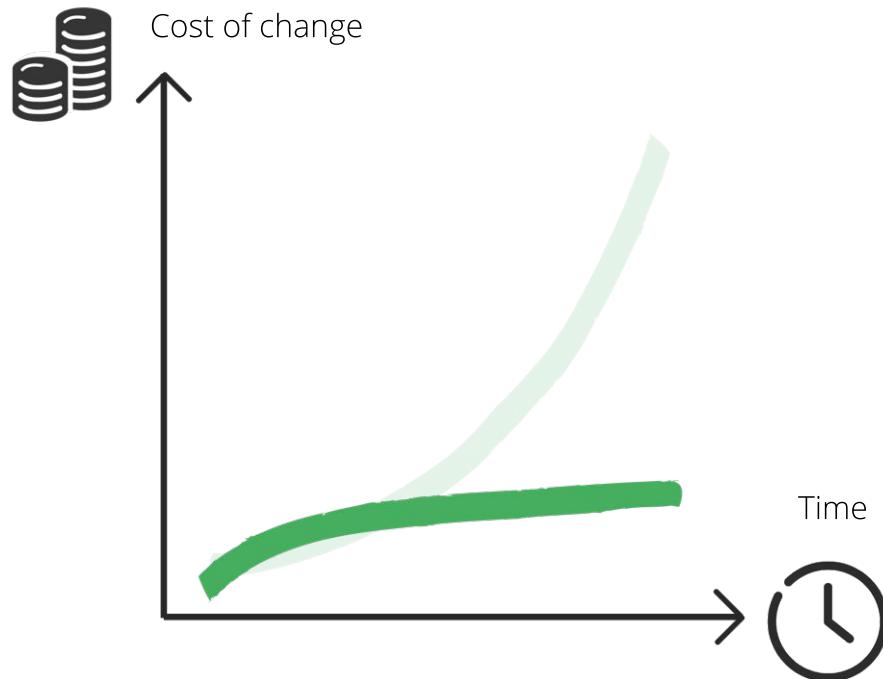
Coding architect with the focus
on the business of the client

Co-founder of
factor10

Author of "Applying
Domain-Driven Design
and Patterns" and ".NET
Enterprise Design"



Our purpose?



Agenda

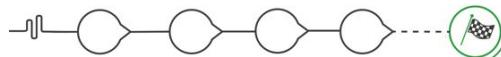
Now



Target



Plan



Execute



Adjust and repeat



Lots of labs



Background for the workshop and all the labs

You are asked to be change agents for a company called Acme which is a consultant company, specialized in software development services

They are big in four European countries (Greece, Italy, Germany and Sweden.) 4 000 consultants, 600 MEUR revenue, 7% result margin.



Time and consultants are their core “assets” so a few years ago they innovated in the area of time reporting

Now, that time reporting system seems to be causing them problems with their business development

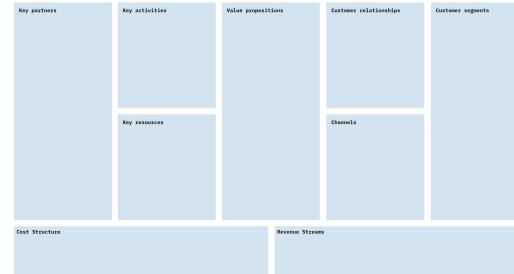
Quite a lot of tools/concepts

factor 10

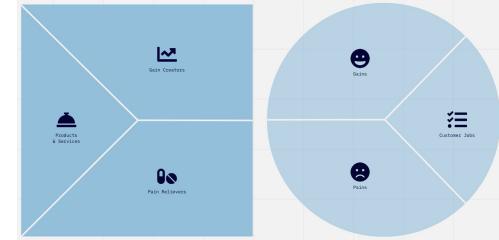
Theory of constraints



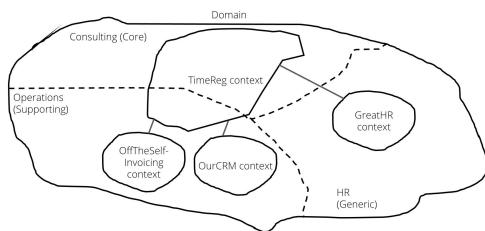
Business model canvas



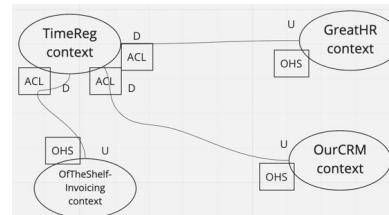
Value proposition canvas



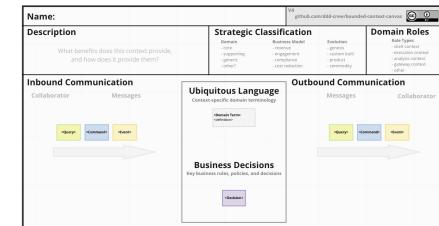
Assessment view



Context map



Bounded context canvas



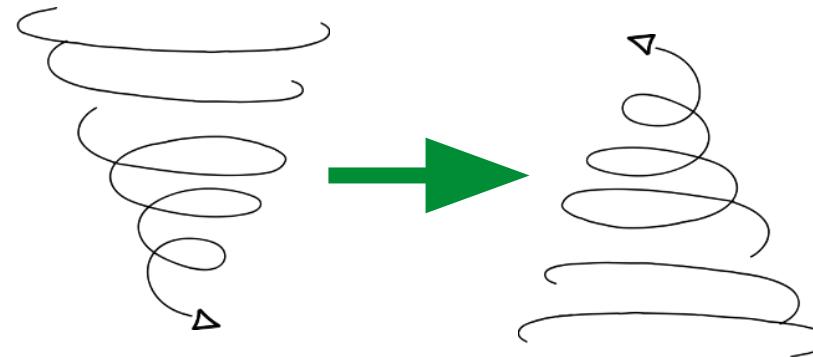
Intention Directive

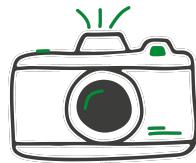
But there is a “red thread”!

"We are so different!"

Every situation is unique!

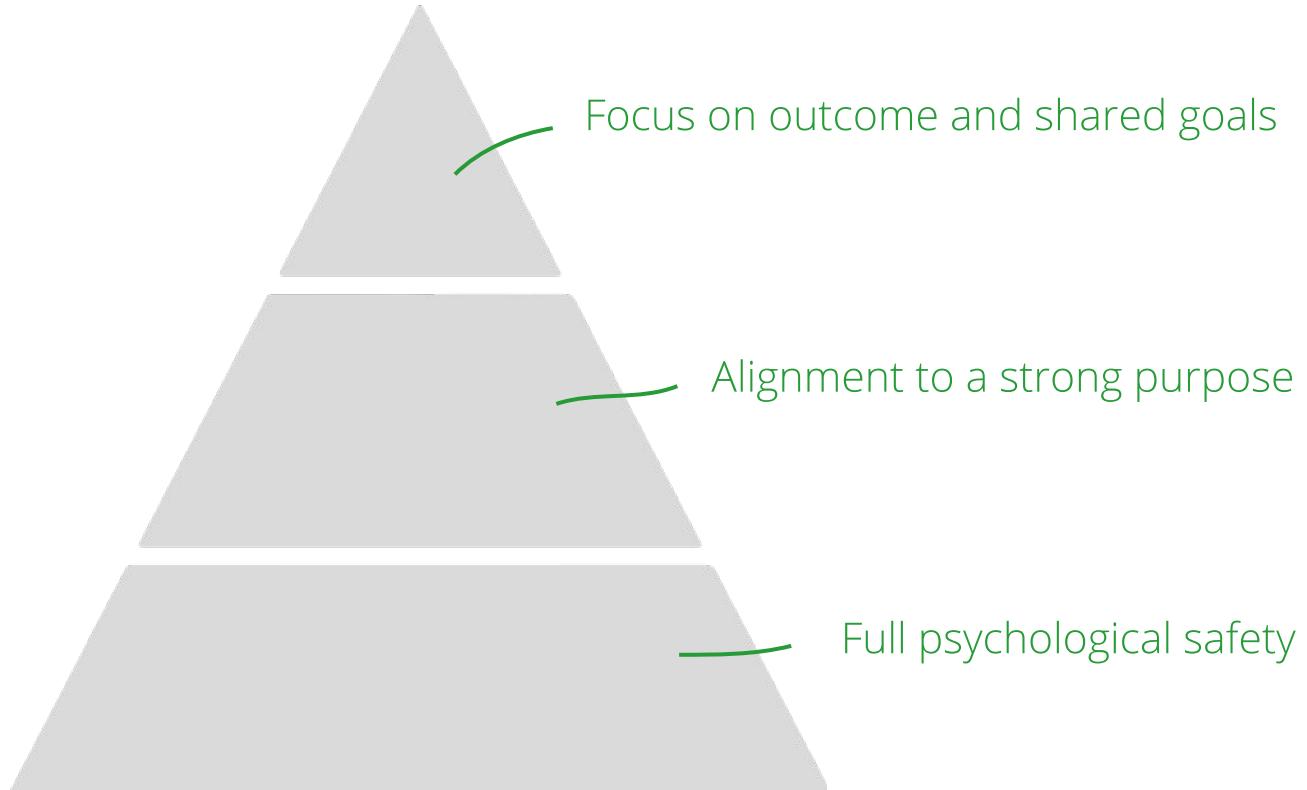
But the big picture of the process should be generic enough for helping you with your situation!





Now

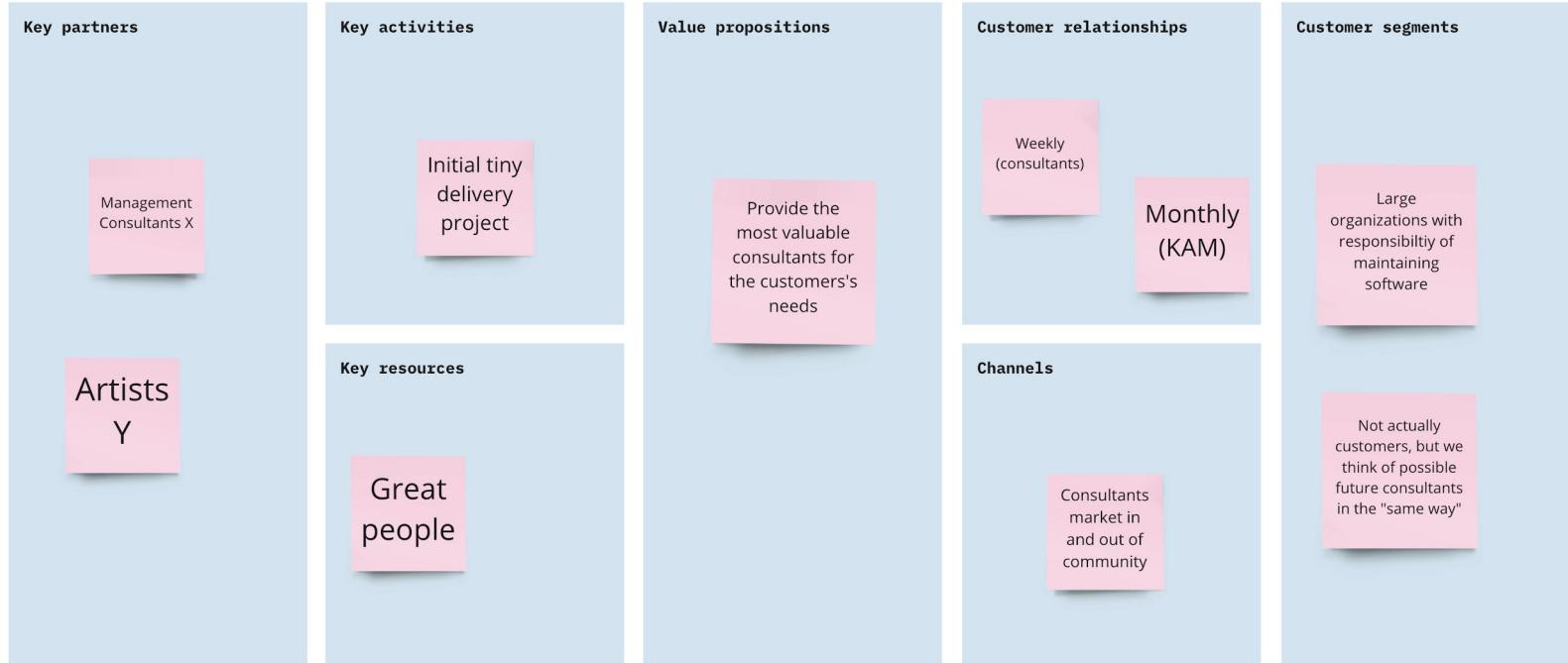
Let's assume the "basics" are OK



Business model for Acme

factor 10

The Business Model Canvas



Cost Structure

70% on
consultants

Operations
10%

Management
and sales
10%

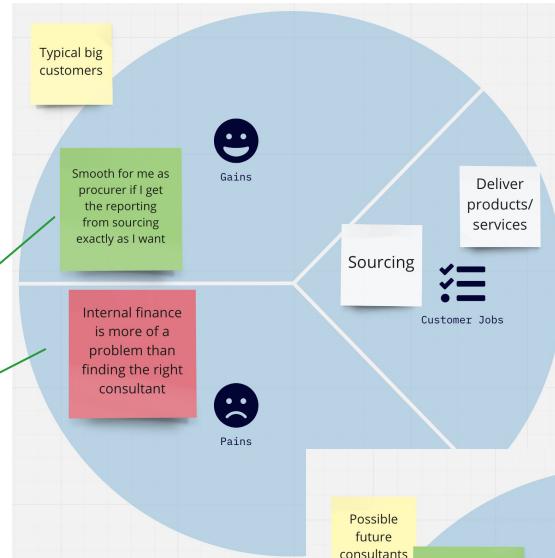
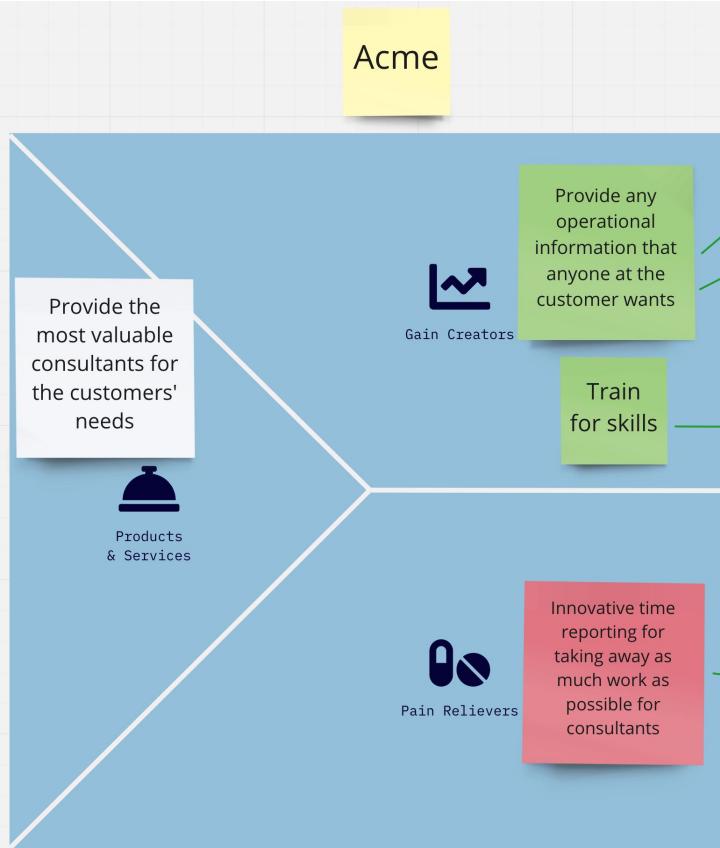
Revenue Streams

Time
and
material

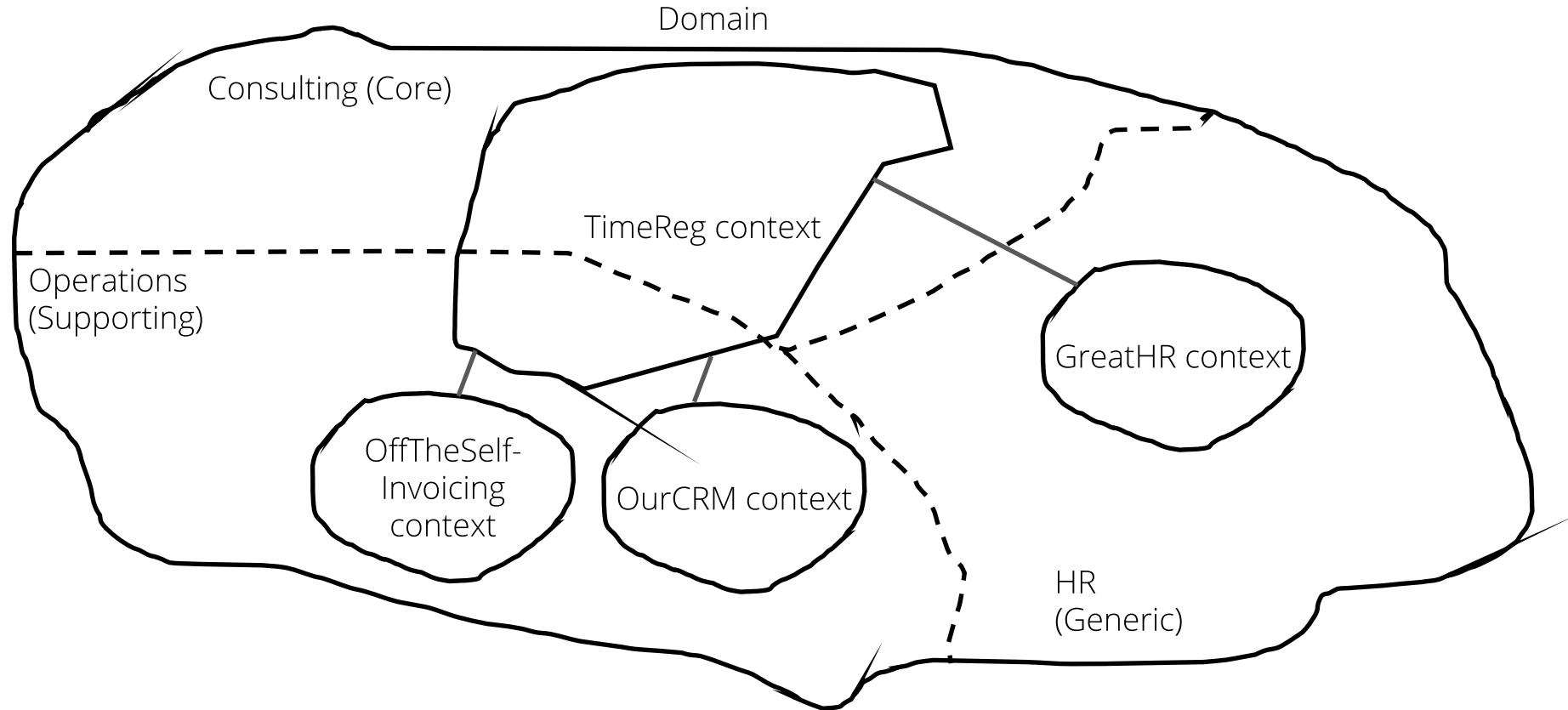
Subscription
of a team

Value proposition, ~3 years ago

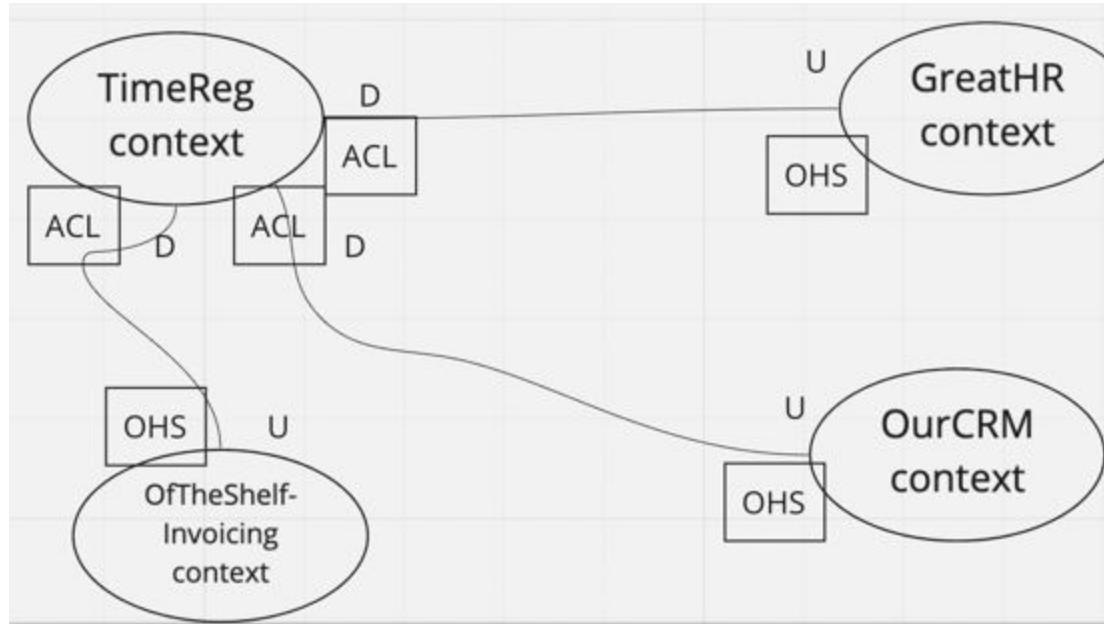
factor 10



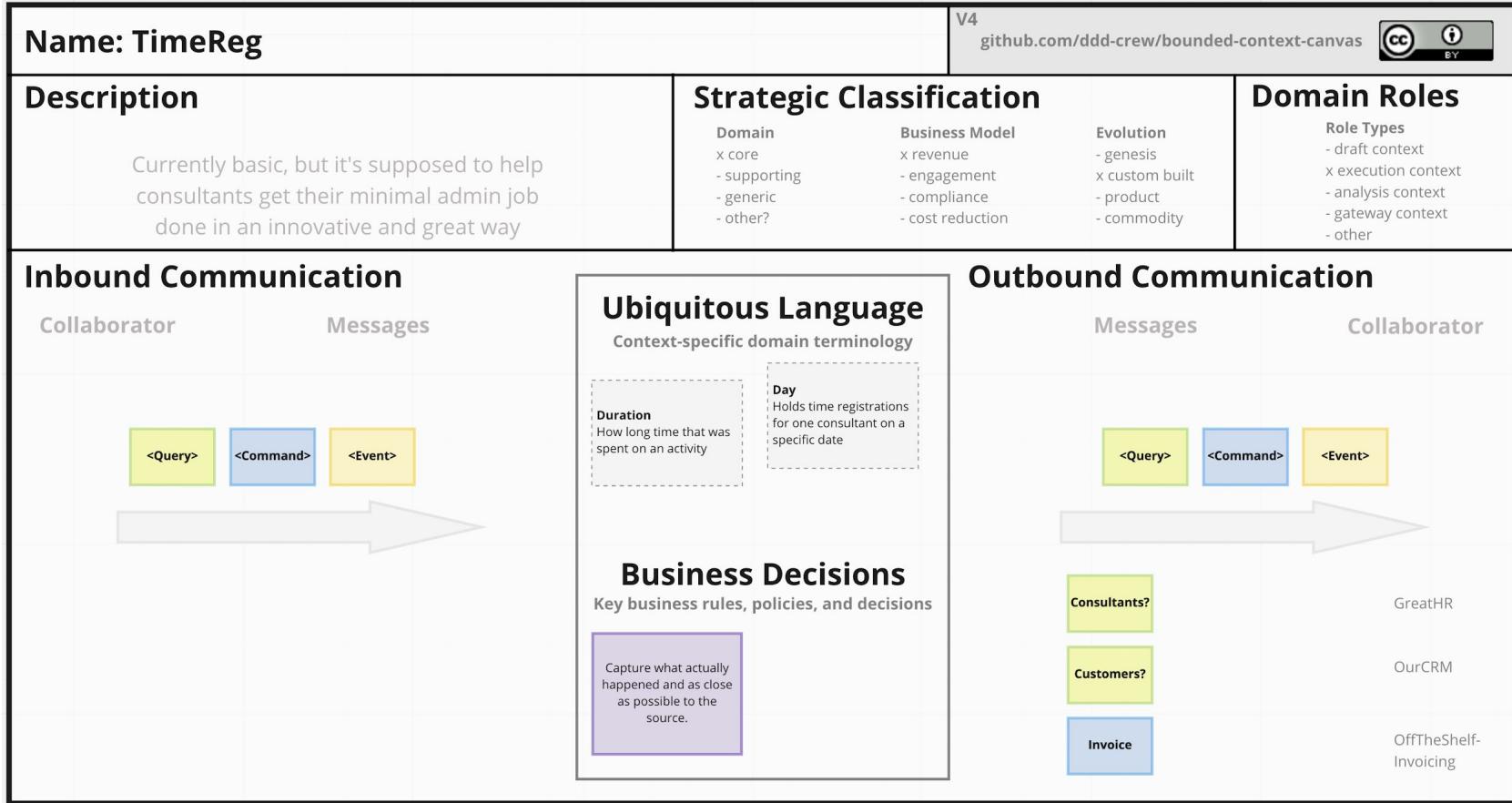
Assessment view



Context map



The Bounded Context in focus: TimeReg factor 10



UI like this?

Or this? :)

Home Time Expenses Projects Team Reports Invoices Manage Help Settings Jimmy

Timesheet Pending Approval • Unsubmitted Archive

✓ Timesheet has been submitted for approval.

< > 25 – 31 Jan 2021 PENDING APPROVAL Return to This Week

Day Week Teammates

M	T	W	Th	F	S	Su		
25 Jan	26 Jan	27 Jan	28 Jan	29 Jan	30 Jan	31 Jan		
[X10-EXPO-NIJ] 10% Projekt-NIJ (Exp) Not chargeable	4.00	5.00				9.00		
[X10-SALE] SALES (NEW) (factor10) Default	4.00	4.00	4.00	2.00	1.00	15.00		
[X10-VD] VD (factor10) Default	4.00	4.00	4.00	2.00	2.00	16.00		
[LEAVE-VAC] Vacation (Leave) Default						0		
+ New Row Save	8.00	8.00	8.00	8.00	8.00	0	0	40.00

Resubmit Week for Approval

Register time

Select consultant Per Persson ▾

Date 2021-02-05 □

Project Finnair's new app ▾

Activity #142

Duration 2.0

Add registration

Registrations

Total duration 360 minutes

- #123 @ Finnair's new app 240 minutes
- #142 @ Finnair's new app 120 minutes

Lab 1: Bounded context in focus, the TimeReg

You find code and some extra information here:

<https://github.com/factor10/ddd-legacy-workshop>

- Capture some measurements of the code such as lines of code per different type, number of different tests, tables, forms, etc you find to be interesting...
- Write a few words about the overall tech, team structure and ways of working



factor 10

Something like this?

	html	css	js	c#	sql	Total	cloc	End2End	Integration	Unit	Total	
TimeReg	46	0	138	687	0	871		UI-tests	tests	tests	tests	LOC/test
	46	0	138	687	0	871		0	10	45	55	16
	46	0	138	687	0	871		0	10	45	55	16

Something like this?

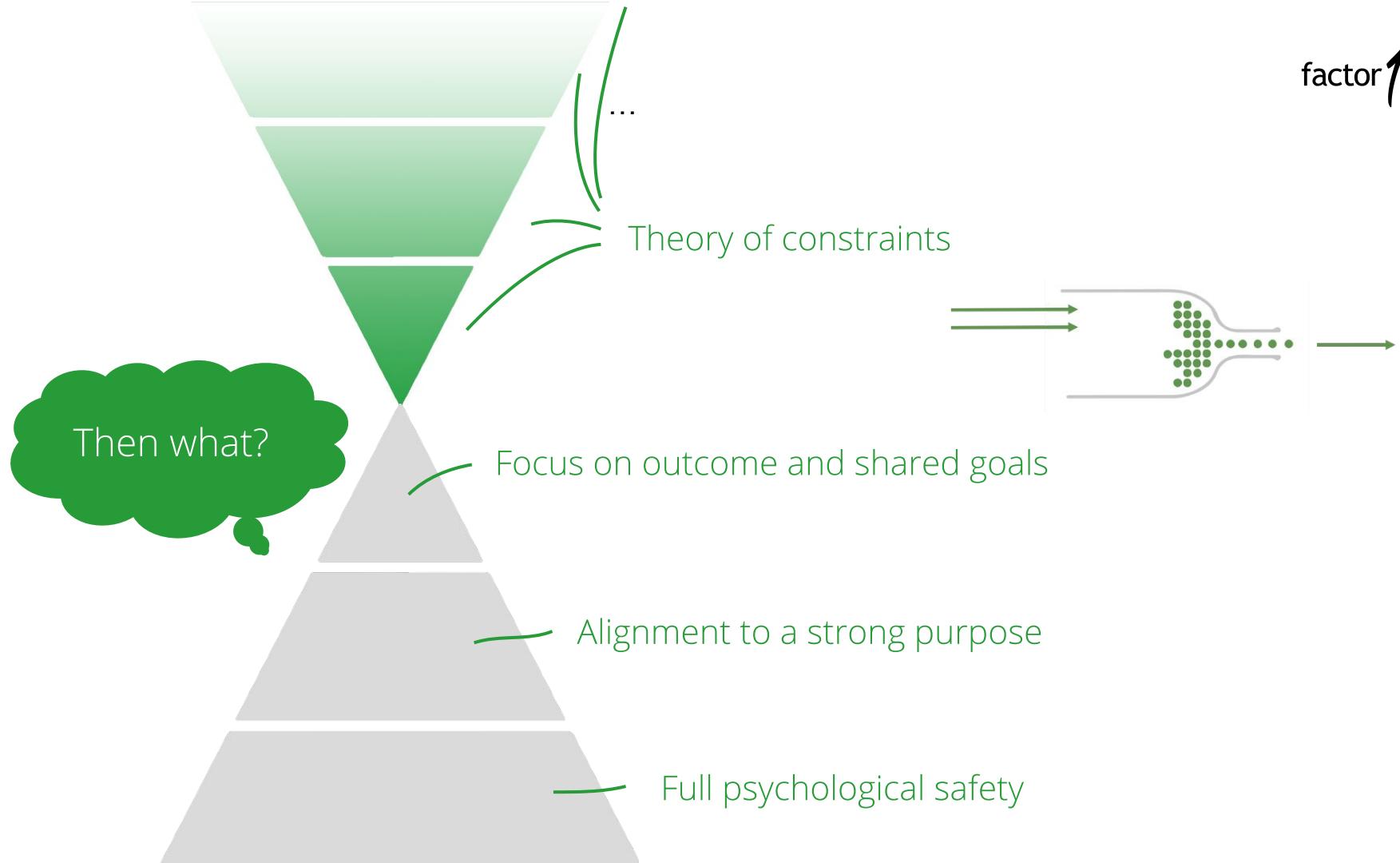
Basic DDD-style of development, rich domain-model, TDD-ish

One team of 7

Kanban, feature-branches, pull requests

DevSecOps, but immature Sec

Continuous Delivery to test, manual decision for going to production (typically 2 times/month)



Diagnosis of “now” - where/what is the bottleneck?

factor 10

You are typically provided with lots of opinions! But we have to check on our own!

Common examples of areas:

- Lack of “together”-culture,
- Dev culture that is weak... Transaction script, without tests? Or the database is everything (including used for integrations)
- Quality, always fire fighting after release. Release once a year.
- A new feature is needed, too expensive to accomplish

Positive side effect, we gather information for clean up

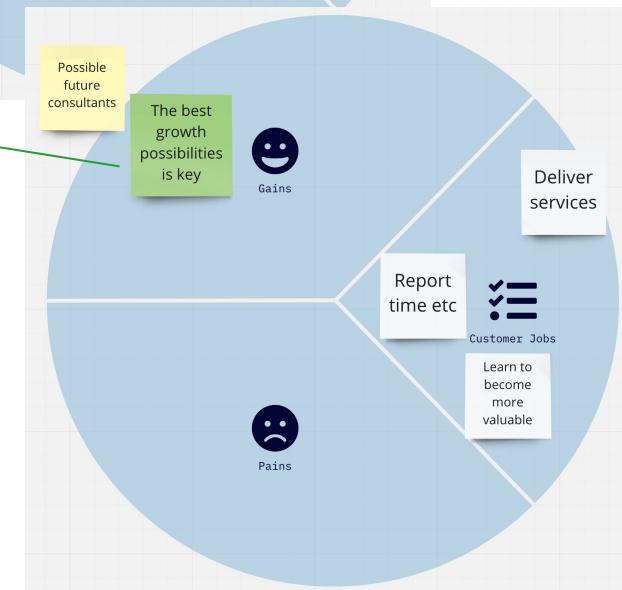
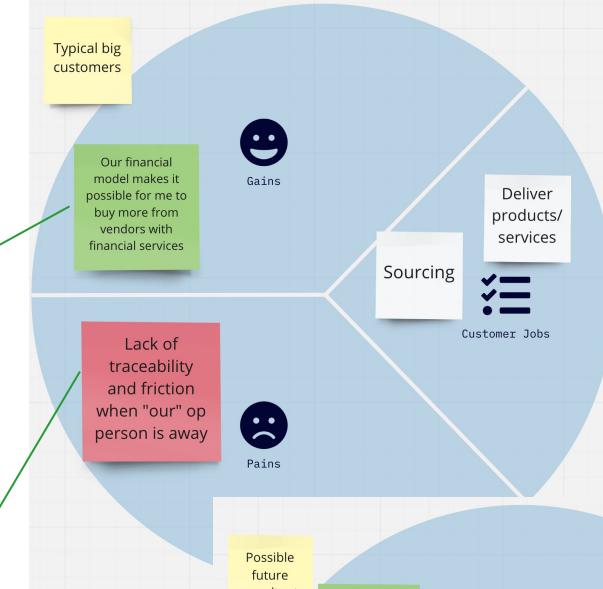
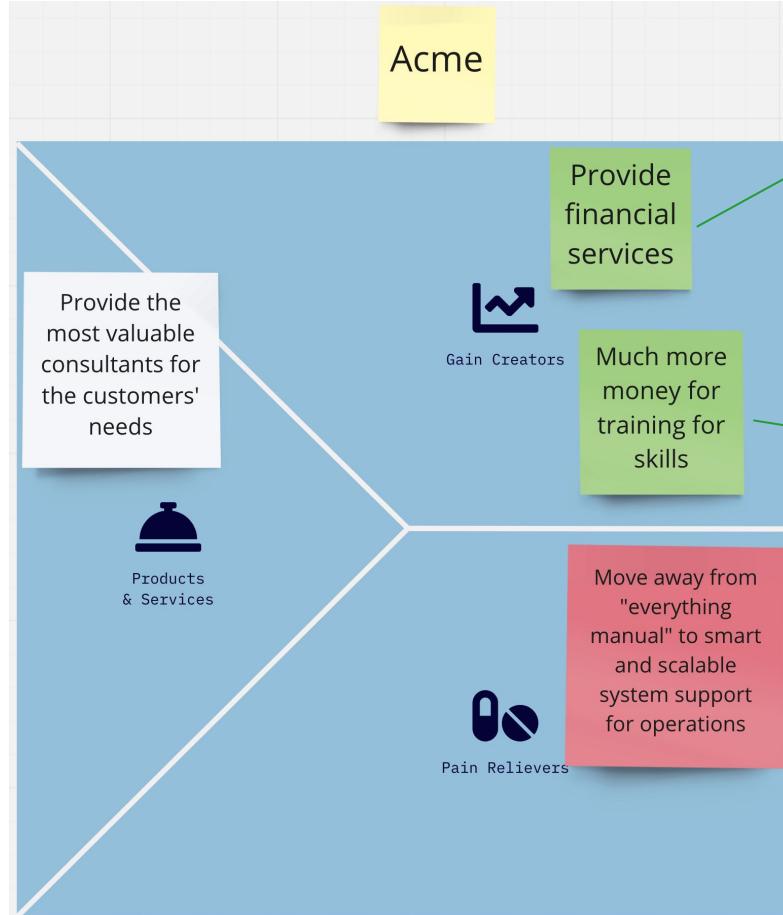
New ambitions?

Let's create new value propositions canvases!

If bottleneck is seen here, it's typically easy to motivate a journey!

We talk to customers and possible future consultants again

factor 10



factor 10

factor 10



Target

Which target to choose?

Focus on global optima

Create different alternatives

Is current organisation
and business model OK
or do they need to be
changed?

Execute time boxed
spikes/experiments to
answer questions

Lab 2: Sketch the target

You find one more text at the Miro board with information adding to what you already have collected



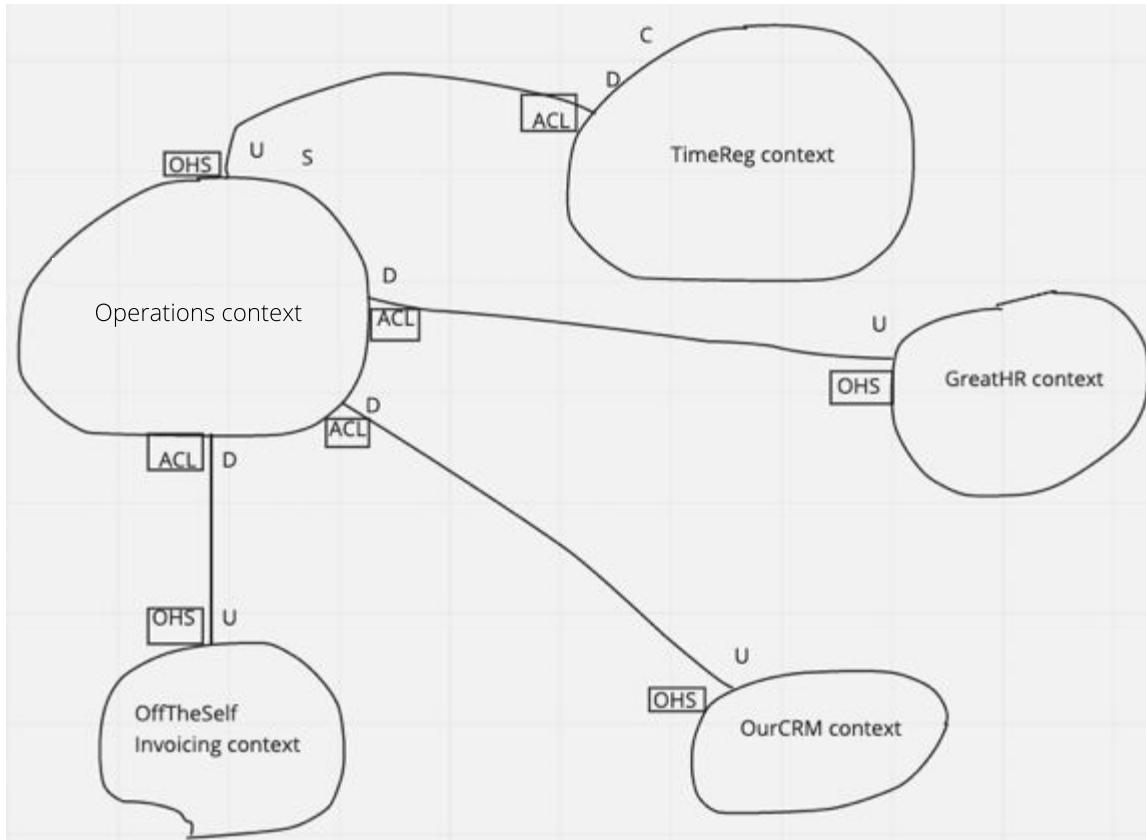
The tasks:

- Theme for target?
- Target context map?
- Which spikes/experiments?

Something like this?

Theme: Operations as competitive edge

Something like this?

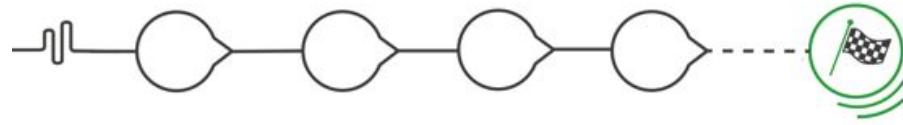


Something like this?

List of spikes/experiments:

- Validate the new Value proposition canvases
(something like design sprints?)
 - Experiment A
 - Experiment B
 - Experiment C
- When will the current database solution break down?
Certain load?
- How hard is it to split the old Bounded Contexts in two? Give it a day with the code...
- Is the overall safety net good enough if we just add new specific tests for each scenario we hit?

factor 10



Plan

Have you often received
NO as the answer to your
renovation ideas?

factor 10

Drivers for the plan?

If possible, pick an order of execution so that new revenue is created first, and second, ...

Keep a focus on deploy into production from the start and all the time. The smaller the steps, the better.

"If founding is stopped tomorrow, what would we like to have achieved by today?"

Big ball of mud? Create a boundary and don't let the model spread. Use via API.

Sub-theme 0: Culture and competence?

“Always” good to do work with the people who will do the journey

With a focus on “doing” in the daily job. For example, start using Value Objects, Test-Driven Development, UI-tests, ...

Sub-theme 0.1: Clean up

See notes about need for clean up from earlier work

Typical examples:

- Deleting stuff that isn't needed, it's just fog and hinders visibility
- Does each developer have a totally isolated dev environment?
- Do all developers write tests?
- Is CI/CD in place?
- Is DevOps or DevSecOps in place?

For each sub-theme, think “safety net”

Safety net on a “larger” scale than just “writing the test” before the code. (Of course with automation.)

Think about it as finding the “answer” in the “output” of the old system and compare it with the output after changes

A typical example is using a few reports. Also include migration in the test execution.

Another typical example is to use end-2-end UI-tests

This typically detects old problems too, which might cause surprisingly much friction

Sub-themes?

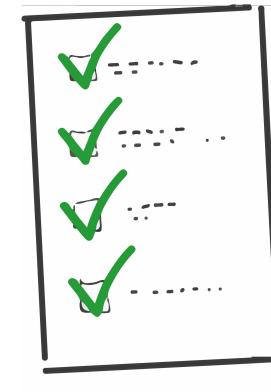
1 ?

2 ?

3 ?

4 ?

...



Lab 3: What sub-themes (after 0 and 0.1)

Sketch a plan



Something like this?

1. Cut out a new Bounded Context (Operations) and create traceability for operations
2. Add automation for the operations functionality
3. Add support for the new financial services

Implementing a strategy

Creating a strategy is hard, implementing it is harder!

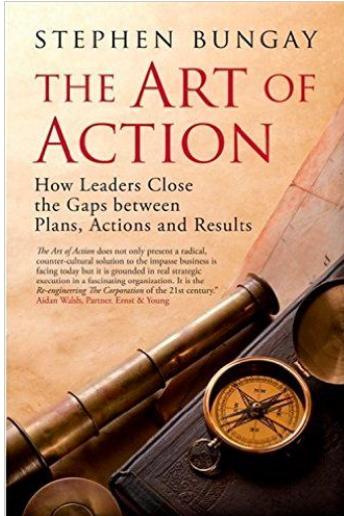
How to bridge the gaps?

“Tell me what you want, what you really really want!”

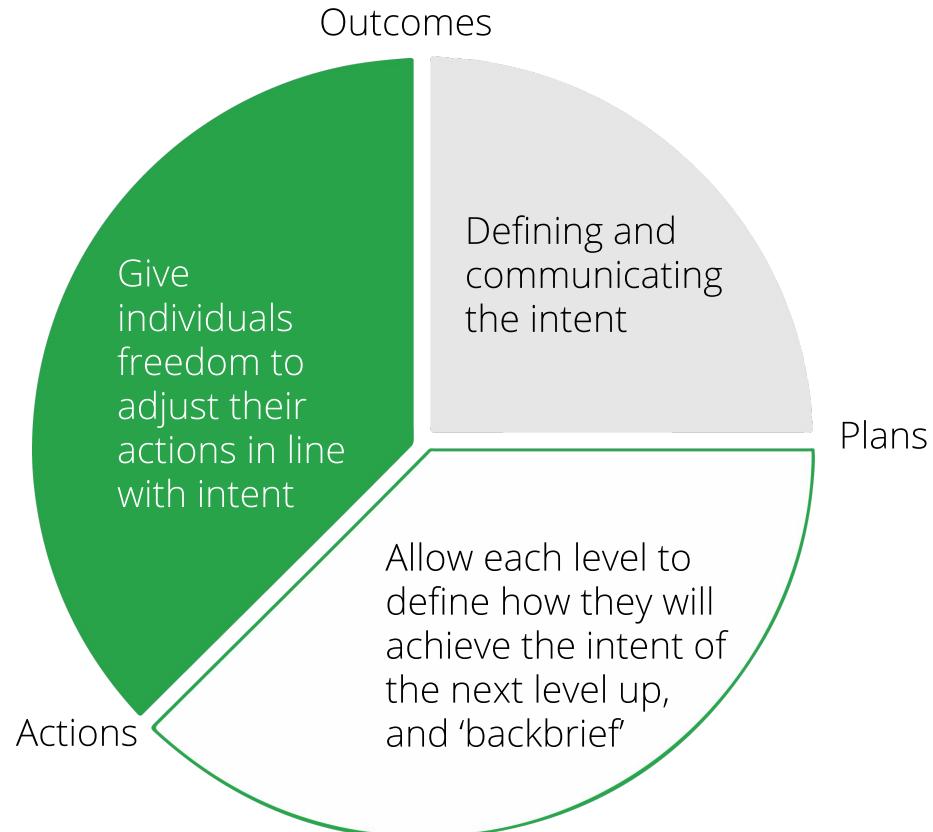
Intention directive for sub-theme 1

factor 10

Three parts to get outcomes, plans and actions to work together



"Intentions are binding, tasks are not"



A template for Intention Directive

Context

What is the situation?

Higher intent

One level up
(my boss)

Two levels up
(my boss's boss)

My intent

What are we trying to achieve and why?

What:

Why:

Measures:

Implied tasks

Main tasks,
Responsible,
Timing

Which task is the main effort?

Boundaries

Freedoms

Constraints

Backbrief: Has the situation changed?

No -> our brief is valid

- Yes -> we have to change some tasks, but what we are trying to achieve is still valid

- Yes -> and we have to change what we are trying to achieve

Something like this?

Context

For Acme as a quality consultant company on a competitive market, it's just getting harder and harder to attract the best consultants. It's also the case that customers are starting to see negative impacts because of our custom (manual) treatment of their operational needs. Finally, there are openings to differentiate from other consultant companies in other ways than "just" having the best consultants if we can offer certain and innovative financial services to some of our biggest clients. It will require further operational support, but the gain will be immense.

Higher intent

One level up (CDO)

Stop our legacy to hinder our business development, help our new business strategy to happen.

Two levels up (CEO)

To make our revenue curve take a leap upwards, without investments or rapid increase of operational expenses.

My intent (as the change agent)

What

Execute the first sub-theme which is to "Cut out a new Bounded Context (Operations) and create traceability for operations".

Why

To get the journey started and moving forward, in a way so that value is created for every step.

Measures

Consultants satisfaction before and after, focus on their time reporting experience.

Customer satisfaction before and after, focus on their experience of our operations sub-domain.

Employee satisfaction in the team before and in the teams after.

Implied tasks

Split the old team to create a new one for the new Operations	New product owner for operations	2021-04
Make the rest of the old team to stay effective	Old product owner	2021-04
Split the TimeReg into two Bounded contexts and get the new system situation into production	New product owner for operations	2021-05
In the new bounded context, deal with operational information and processes on top of the information from the TimeReg to create traceability	New product owner for operations	2021-09

Boundaries

Freedoms

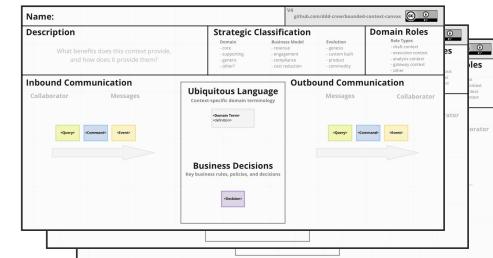
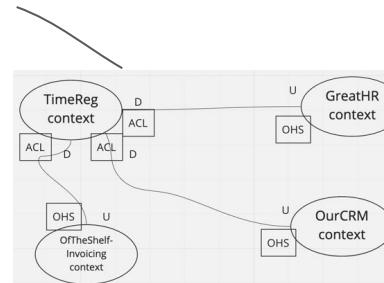
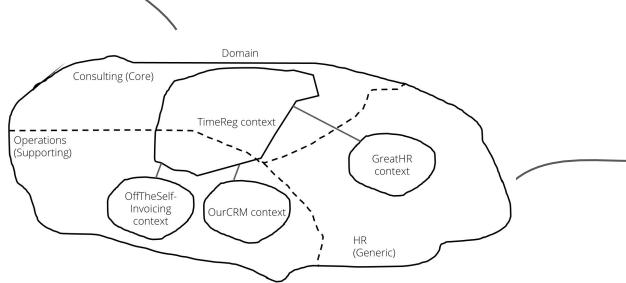
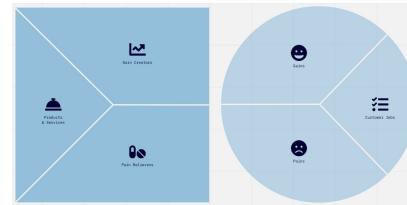
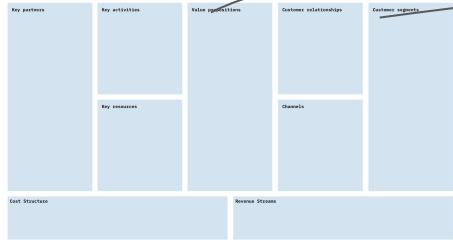
Each team can spend an extra amount of 50 000 EUR for team activities during 2021.

Constraints

Keep the lights on for the business, no negative effects

How the tools/concepts fit together

factor 10



Bottleneck?

Check “now” + ideas for “new”!

↓
Target
↓
Plan

---> Intention Directive



What about estimations?

We are not going to dive into that today, but most often some estimations are needed for getting a “go”.

Estimation is hard, but the discussed process is at least providing more quality information than what is usually available before an initiative is started

And again, try to make every step valuable in itself. Thereby you will be able to stay on the path of just estimating the nearest future.

factor 10



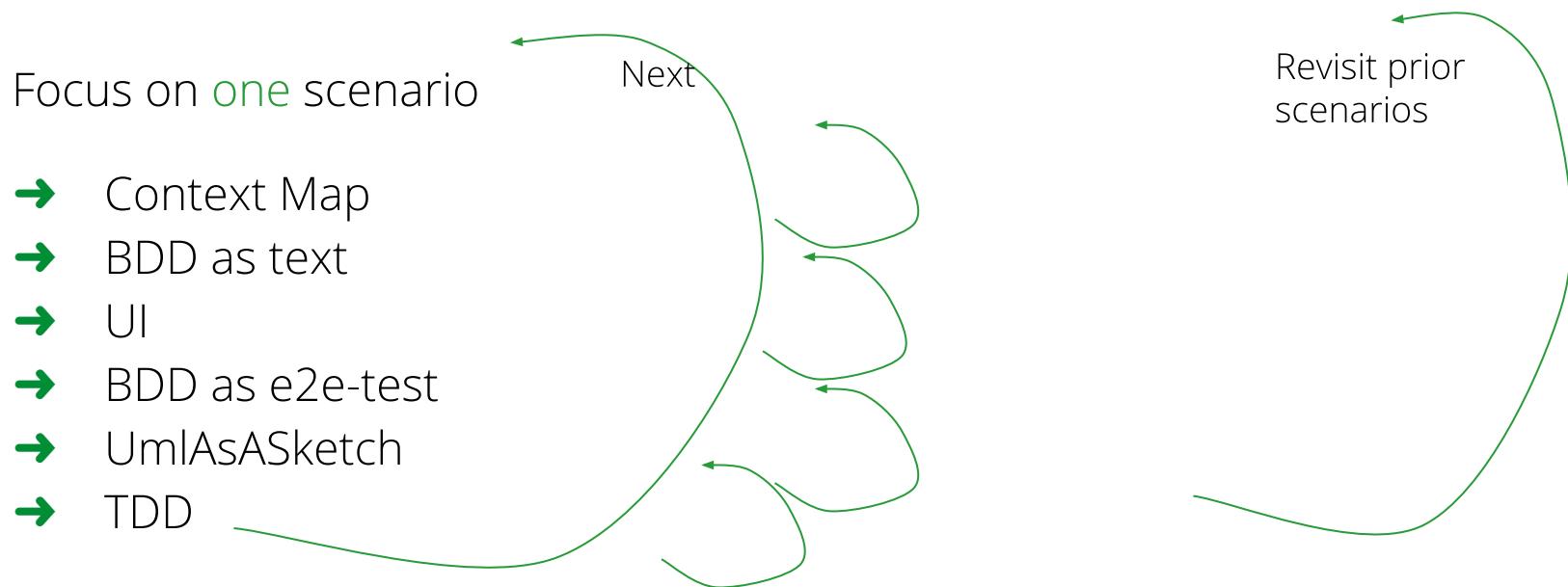
Execute

First of all

Get the “environment” into shape (sub-theme 0 and 0.1)

Typically “just good” and great for team spirit!

Then, just “ordinary” development in collaboration?



Make decisions for now and move on.

Expect to be wrong and change when you understand better.

factor 10

Adjust and repeat

Avoid the trap

Don't just take the next sub-theme in the plan!

At least the world around you has changed since you created the plan

Probably you have also learned a lot

Challenge the plan before starting the next sub-theme!

factor 10

Summary

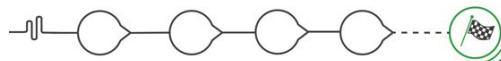
Now



Target



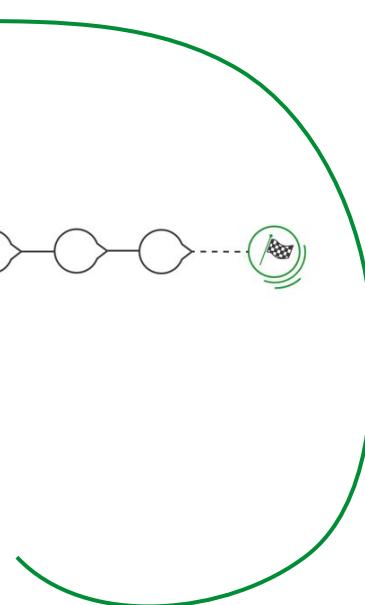
Plan



Execute



Adjust and repeat



Lots of labs



Call to action!

References

Evans

Vernon

Alexander Osterwald

Bungay

Tune

Goldratt

Design sprint



Thank you !

jimmy.nilsson@factor10.com