

fira

CAN A TAKT PLAN EVER SURVIVE BEYOND THE FIRST CONTACT WITH THE TRADES ON-SITE?

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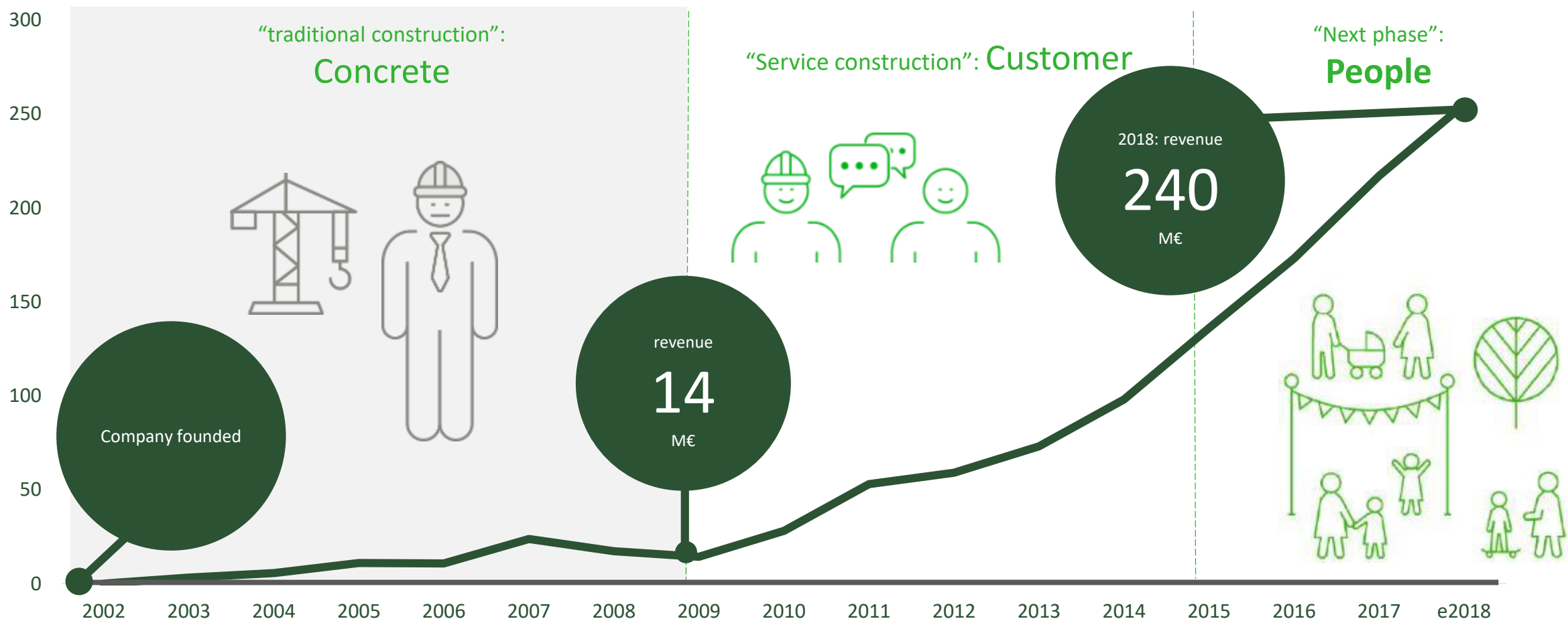
3.7.2019

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What Fira?



THE DEVELOPMENT OF THINKING HAS CREATED FINANCIAL RESULTS AND GROWTH



Group Revenue 2002 – 2018 (M€)

Fira is an innovative growth company in the construction business

Personnel ca. 350, owners personnel and founders

Fira

Smart
services

Construction
services

Sitedrive
Modules
Insite
ODP

New business
opportunities
and services

residential
commercial
Modernisation
Pipe renovations
Project development

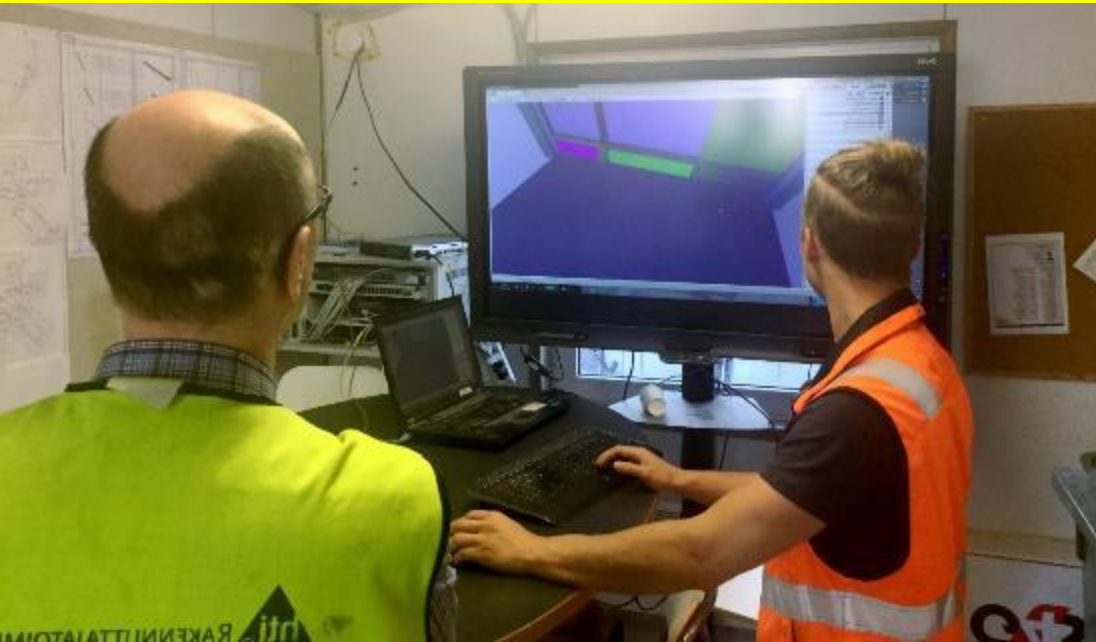
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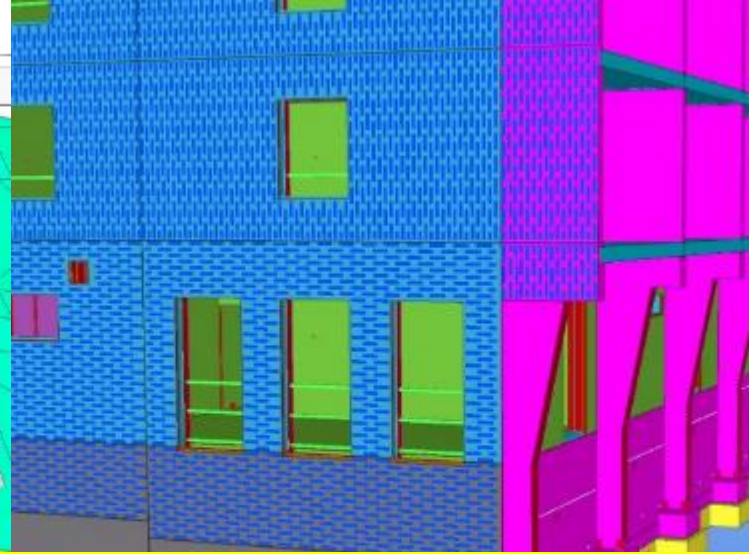
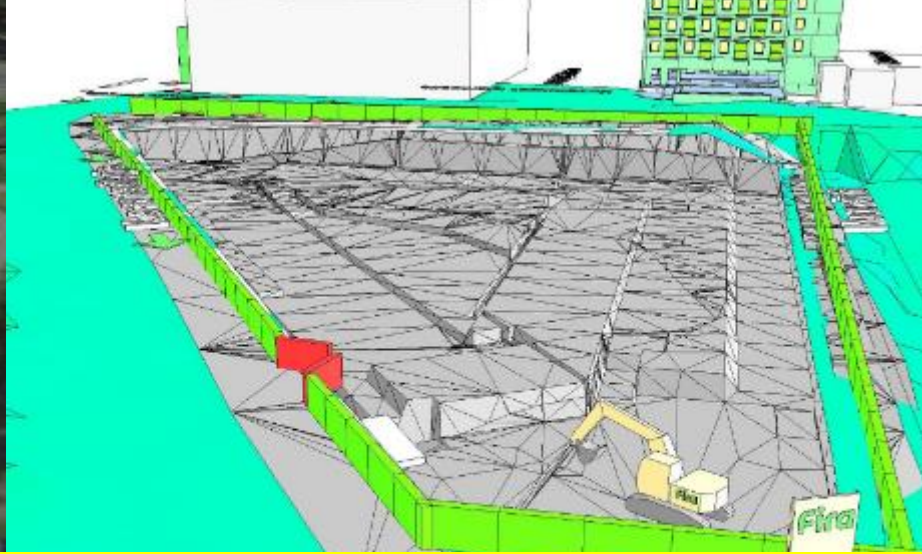
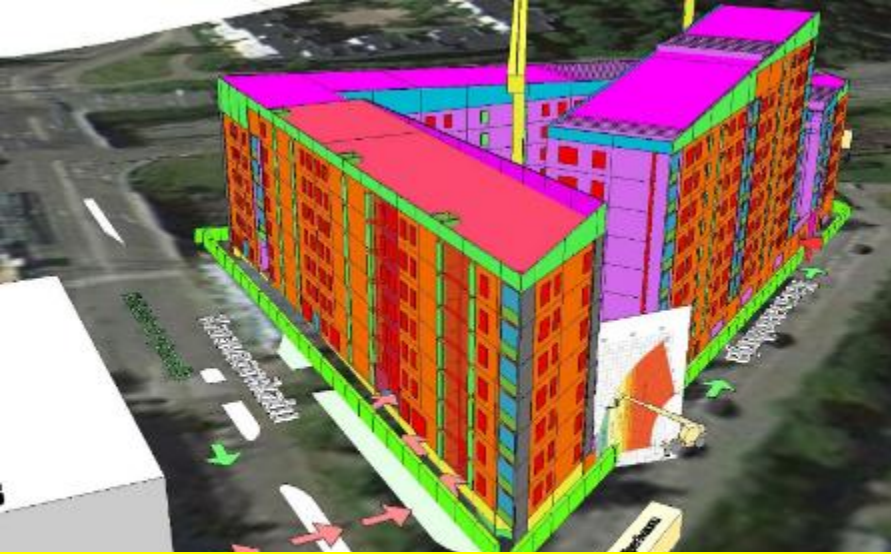
Why focusing to the TPTC
and Digitalisation of the
Site?



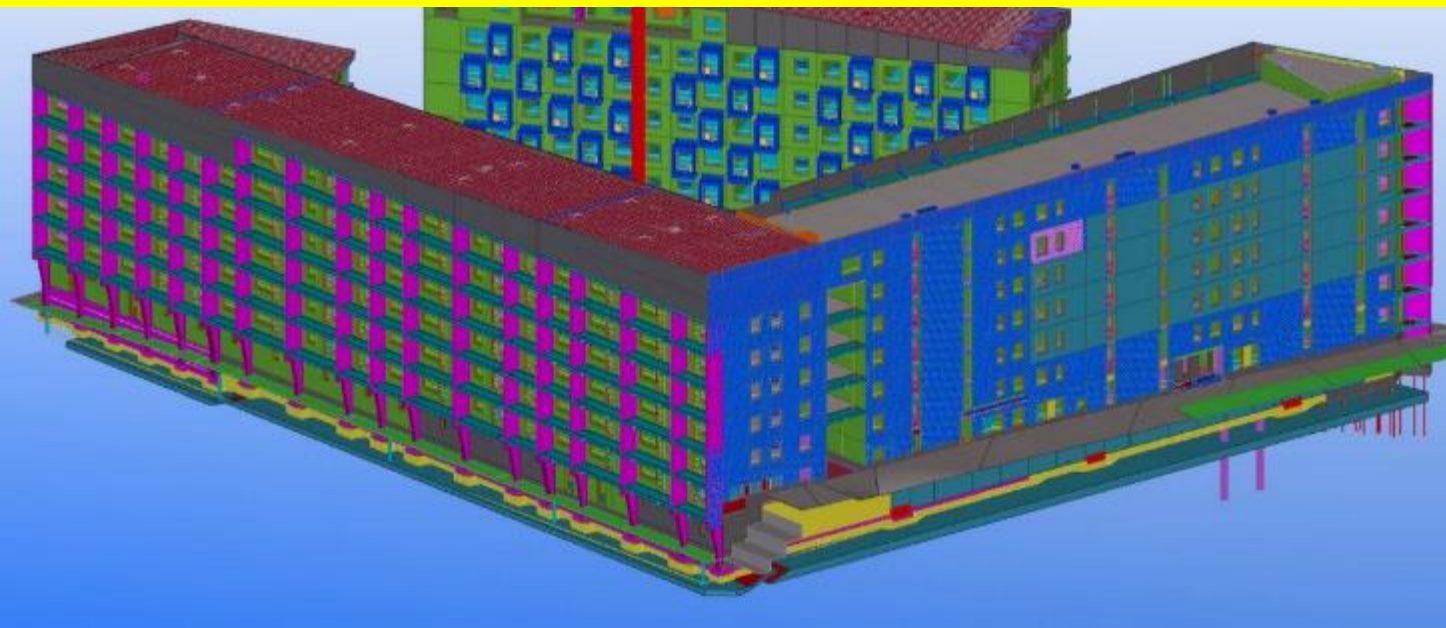


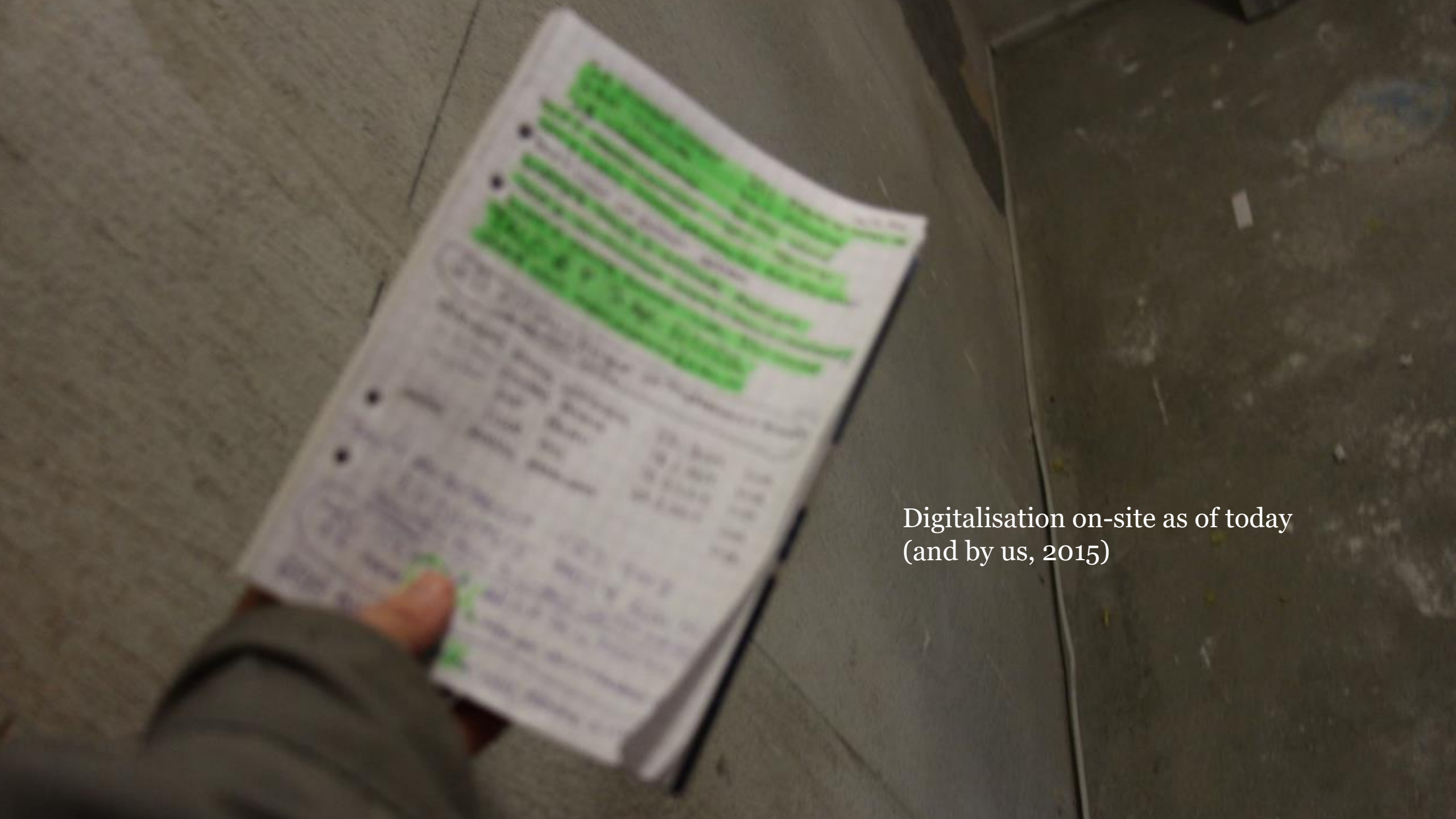
Our work on-site *was* based on our Virtual Design and Construction (VDC) process, in which the BIM (Building Information Management) is in core.





Every construction company have their own "Hollywood-bim" projects
(So did we)





Digitalisation on-site as of today
(and by us, 2015)

BIM on site today (most advanced application in Fira 2015)





Instructions on site

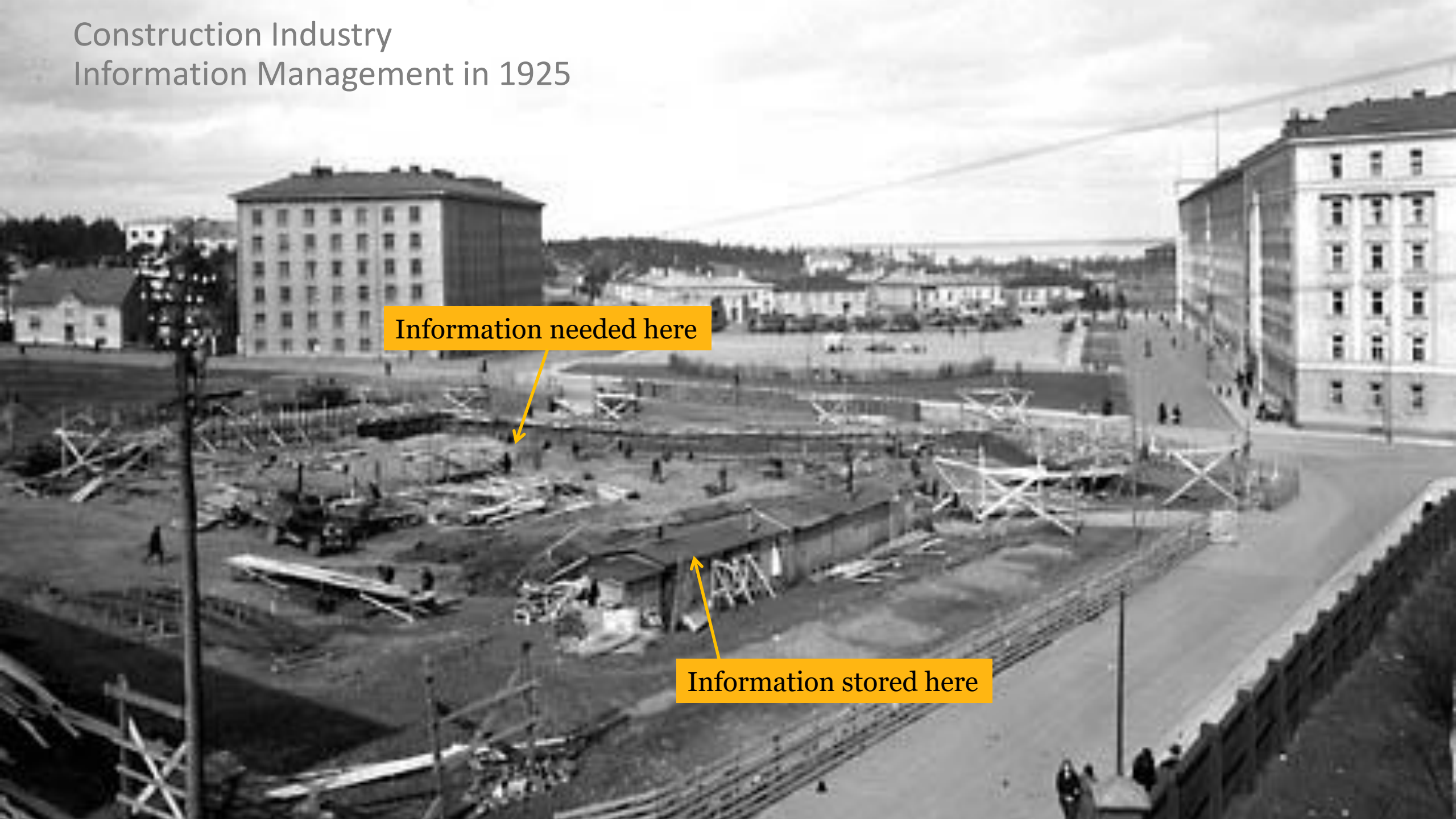
TAPETI
POIS +
TASOITUS +
MAALAUUS
2C30

Communication on site



Information management on site

Construction Industry Information Management in 1925



Information needed here

Information stored here

CONSTRUCTION INDUSTRY INFORMATION DAMAGEMENT CONTINUES IN 2014

Information stored here

Information needed here



Digitalised Takt Production



Case capella

Apartment building, 7 floors, 42 apartments (studios, double and three rooms), parking facilities, business bases, terrace, sauna and common spaces

First takt project, strategic initiative for the company

Relatively young project team

Digital site, apps and IoT; agile software development

=> 30% savings in throughput time of interior work



Tasks for takt production during interial works in Capella

Colour coding for interpreting the schedule for slides 30 ->



[illegible]

Takt planning in the first weeks

Printed schedule is very visual, easy to understand and use but awfull to maintain and share



..and this is what actually happened (as reported from the work places)

Data from Fira SiteDrive visualised: **Plan is nothing, planning is everything.**

Fira

Toteumatiedon visualisointi - SiteDrive dump 21.12.2018 - vain lopetetuksi kultatut ovat tässä 1h mittaisia, jotta näkyisivät

Filters

Työvaihe ja nimi

Kerros

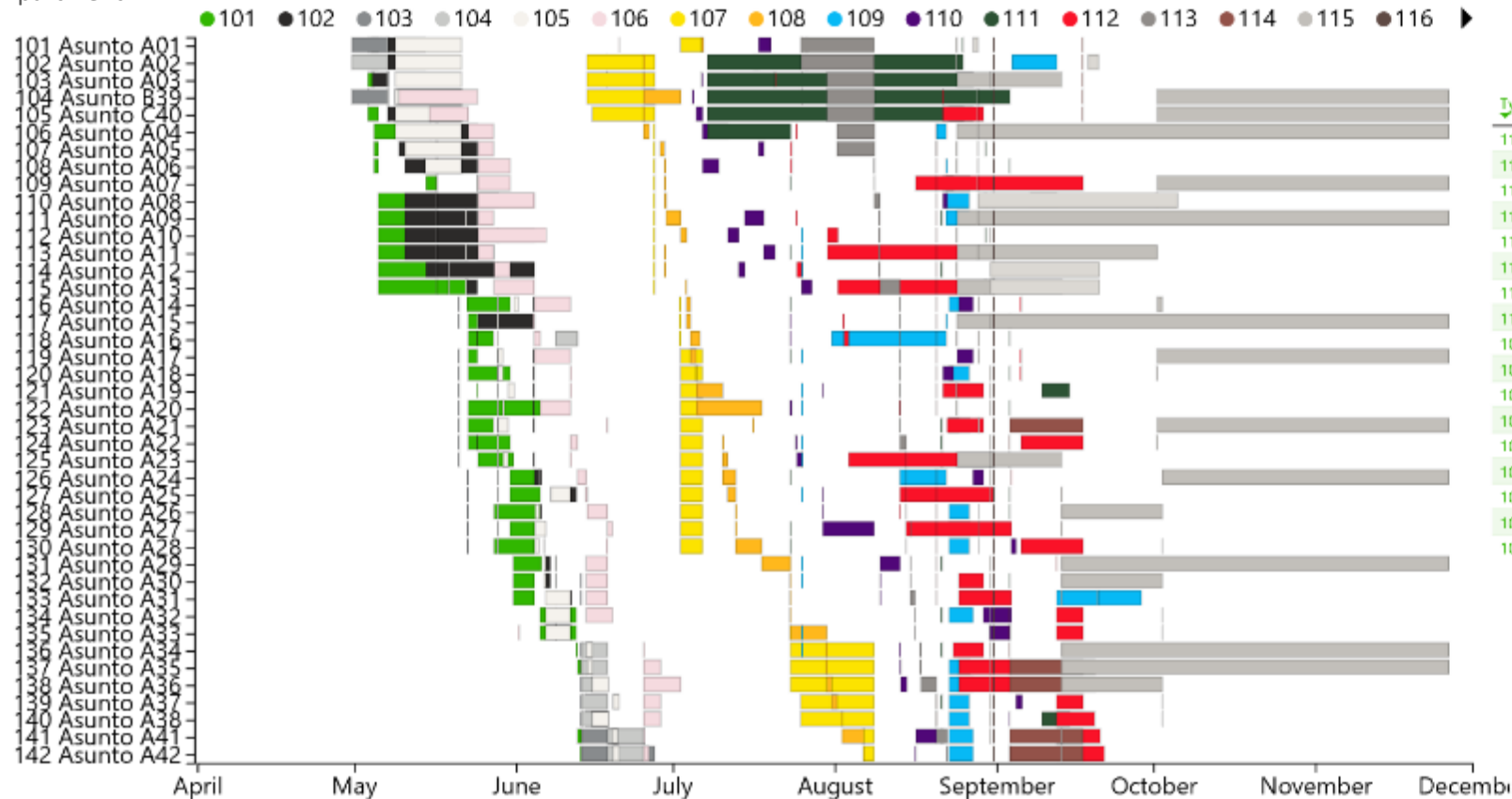
Asunto

Kaikki

Kaikki

Kaikki

Apartment #



Projekti

Capella

Keinulaudankuja

Työvaihe ja nimi

117 Valaisimet ja välitilavalaisimet

116 Varusteasennus

115 Kodinkoneasennus ja koekäyttö

114 Päätelaitteet

113 Huoneistokeskukset

112 Oviaasennus ja listoitus

111 Liesituulettimet

110 Laminaattiasennus

109 Keittiön välitilalaatoitus

108 Kalusteasennus

107 Sähköasiat, kytkimet, keittiön kaappien sisäasiat

106 Välineinätuplaus ja alakatot

105 Peittolupa sähkö

104 Peittolupa LVI

103 Alakaton yläpuolinen tate

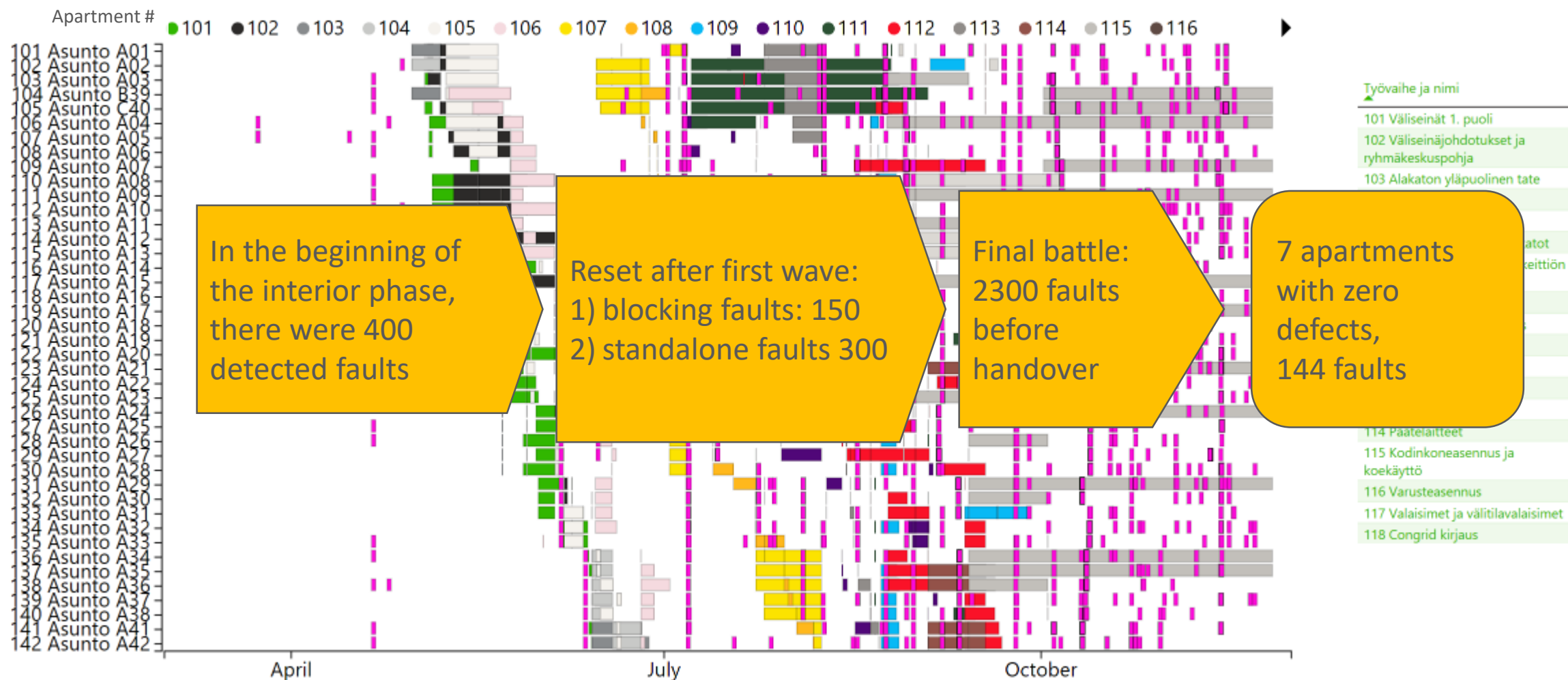
102 Välineinäjohdotukset ja ryhmäkeskuspohja

101 Välineinät 1. puoli

Fira

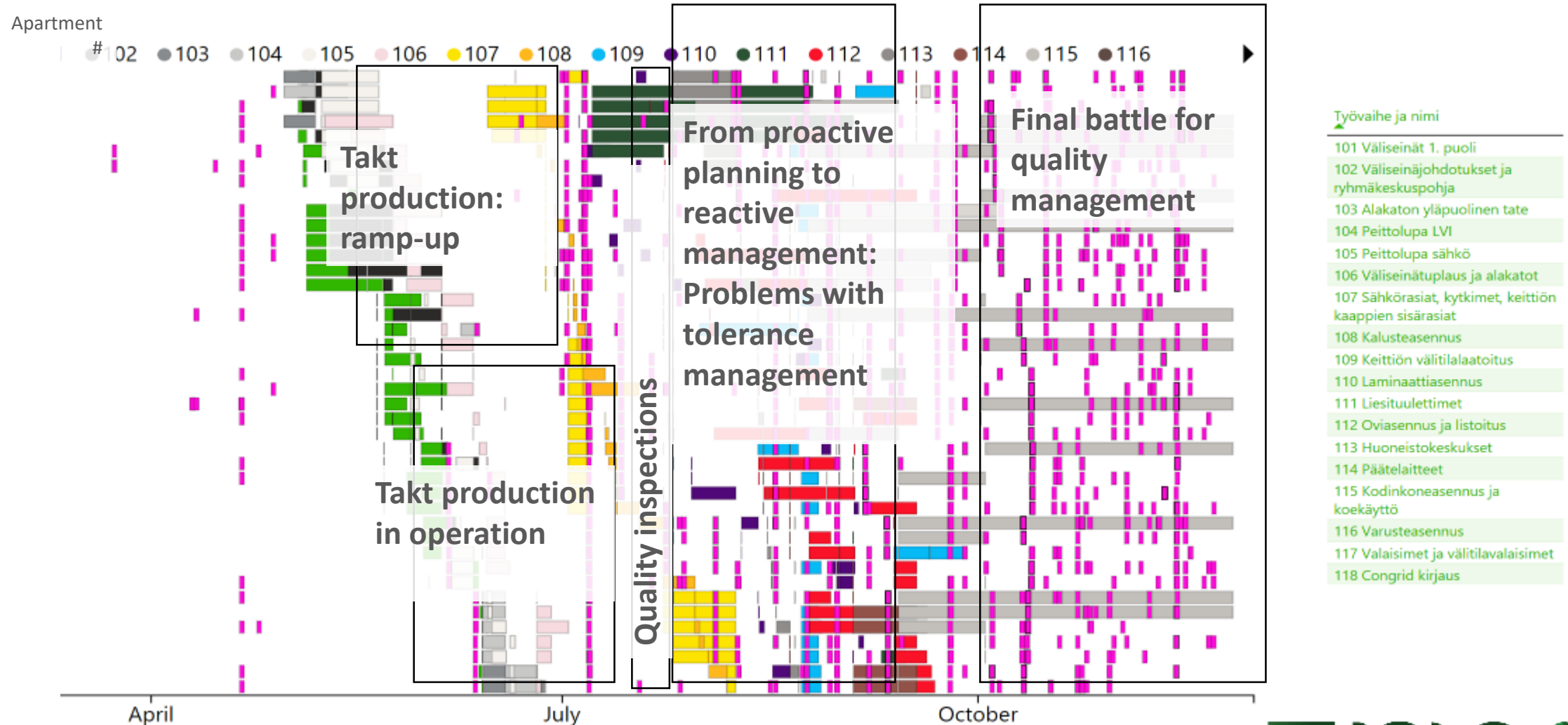
Integration of data gives us the big picture of takt process

Pink marks are from quality management software, Congrid, each represent one or more faults in apartment



How should we interpret the data? What actually happened?

We will be able to cut half the throughput time just integrating the trade partner management



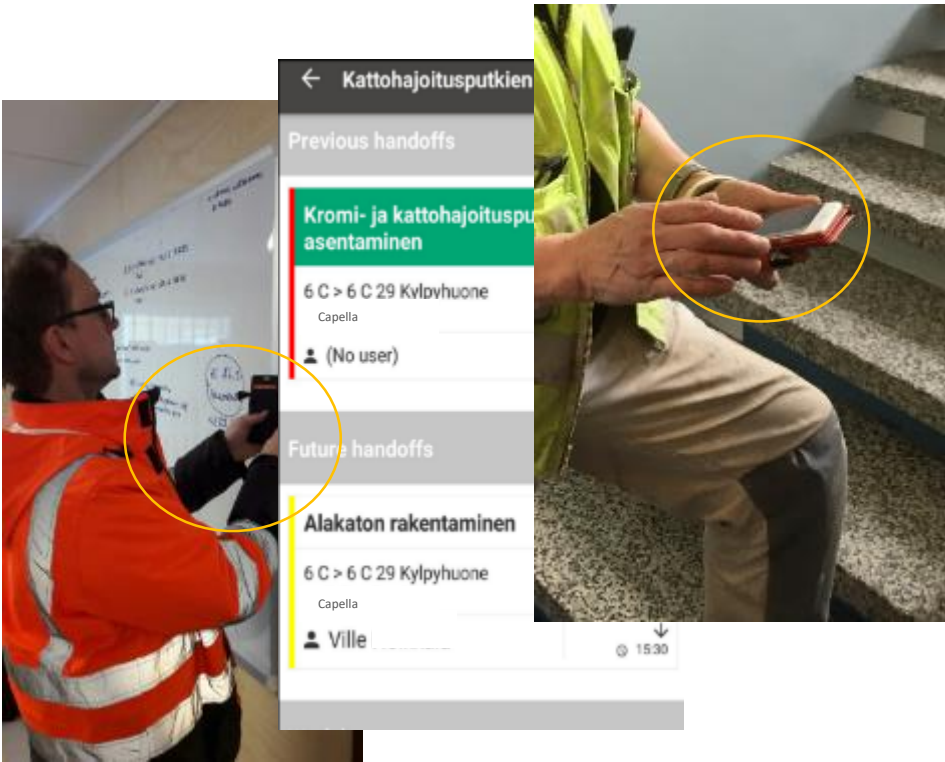


How did we manage to
deliver project in time?

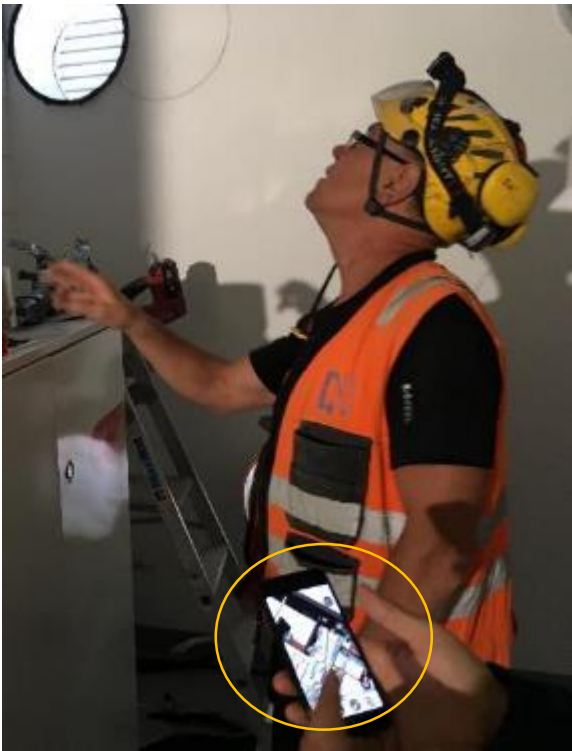


Scheduling, resource allocation and plans accessed directly from the work sites

+ conditions were monitored



Tasks are allocated and roadblocks reported on site (Fira SiteDrive)



BIM and quality reports used on site (Arcadia and Congrid)



Conditions monitored (Kaltiot, Haltian, Fira InSite)

Fira's Open Data Platform integrated the data from point solutions

Fira InSite - Capella Tilannekuva

Kerros

1. krs

2. krs

3. krs

4. krs

5. krs

6. krs

7. krs

Tehtävä status matriisi

Kerros	1. krs					2. krs						
Tehtävä	A01	A02	A03	B39	C40	A04	A05	A06	A07	A08	A09	
Kaatojen tarkistus	o	o	o	o	o	o	o	o	o	o	o	
Väliseinät 1. puoli	o	o	o	o	o	o	o	o	o	o	o	
Väliseinäjohdotukset ja ryhmäkeskuspohja	o	o	o	o	o	o	o	o	o	o	o	
Alakaton yläpuolinen tate	o	o	o	o	o	o	o	o	o	o	o	
Oikaisu seinät + lattian rajat	o	o	o	o	o	o	o	o	o	o	o	
Peittolupa LVI	o	o	o	o	o	o	o	o	o	o	o	
Vedeneristys seinät 1. kerta	o	o	o	o	o	o	o	o	o	o	o	
Vedeneristys seinät 2. kerta	o	o	o	o	o	o	o	o	o	o	o	
Seinälaatoitus	o	o	o	o	o	o	o	o	o	o	o	
Peittolupa sähkö	o	o	o	o	o	o	o	o	o	o	o	
Väliseinätuplaus ja alakatot	o	o	o	o	o	o	o	o	o	o	o	
KPH putket kaikki	o	o	o	o	o	o	o	o	o	o	o	
Sähköasiat, kytkimet, keittiön kaappien sisäasiat	o	o	o	o	o	o	o	o	o	o	o	
Kalusteasennus	o	o	o	o	o	o	o	o	o	o	o	
keittiön välitilalaatoitus	o	/	o	o	o	o	o	o	o	/	/	
Vedeneristys lattiat 1. kerta	o	o	o	o	o	o	o	o	o	o	o	

As planned schedule and status:

trade partnes report by using SiteDrive

As planned schedule and status:
trade partners report by using SiteDrive

Laatupoikkeamat				
Asunto	Tarkennus	Kuvaus	Status	Luotu
A34	Makuuhuone 2	Roiskekattojen korjaukset	1. Odottaa	16.8.2018
A37	Olohuone	Reiän paikkaus	1. Odottaa	16.8.2018
A37	Olohuone	Ontelosauma vajaa	1. Odottaa	16.8.2018
A37	Olohuone	Reiän paikkaus	1. Odottaa	16.8.2018
A42	Makuuhuone	Katto likainen	1. Odottaa	16.8.2018
A04	VH	Katkaisija ja pistorasia siirretty, tasoitus ja maalaus	1. Odottaa	17.8.2018

Quality defects from Congrid

Tämä viikko

☐ Yes

☐ No

Tämä päivä

Esteet			
Asunto	Tehtävä	Lausunto	Reportoitu
A37	21 Laminaattiasennus	lausunto ei sisällä	13.8.2018
A22	25 Oviasennus ja listoitus	Laminaatti puuttuu	13.8.2018

Roadblocks reported by trade partners
(reaction time 2 hours max)

Työntekijät työmaalla	
CompanyName	Työntekijät lkm
BAFO Talotekniikka Oy	2
Fira Oy	1
Sähkö Pietikäinen Oy	1
Yhteensä	5

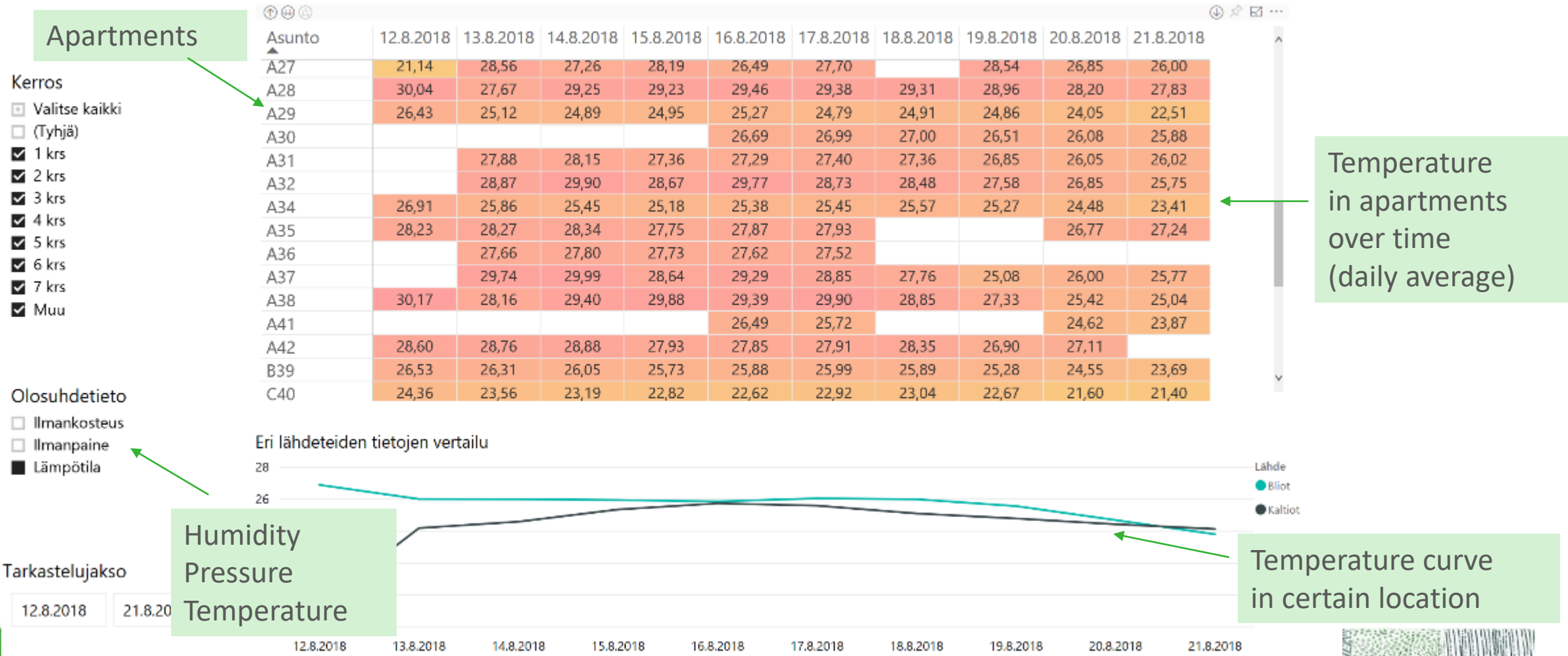
Persons on site from
SiteManager

IOT information in Fira Insite

The very same hw and sw architecture provides us condition monitoring in real time

Fira InSite - Capella Olosuhdeseuranta

21.8.2018 17:39:27



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What was the needed
Digital trick?



Building blocks for digital site

Next step is transparent logistically controlled installation



Fira SITEDRIVE

CONGRID

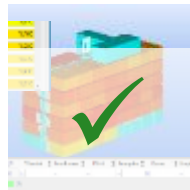
e1 Manager



Social media for site



Access to BIM



Scheduling and resource allocation



Quality management



Access control



AR/VR on.site



Integration Platform: Fira Open Data Platform



Smart tags



Speech recognition



Connectivity



Indoor positioning



IoT



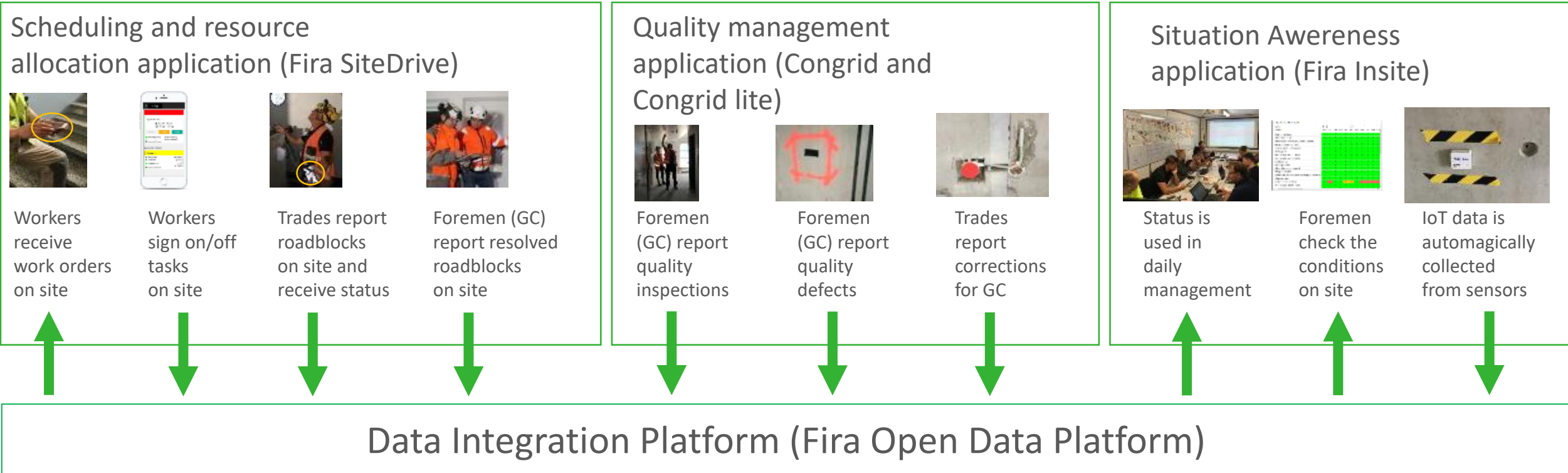
Fira InSite

Situation awareness



Construction process started to create data automatically!

Suddenly the participants shared the same situation picture



Three steps for digitalisation

Digitalisation requires successful implementation of common behaviour (Common business process)

1

On-site connectivity

2

Common TPTC process and apps on-site

3

Platform for integrating the apps





THANK YOU!