

# EHITUSPROGRESSI HINDAMINE TEHISINTELLEKTI ABIGA

## Nordeconi kogemuslugu

Risto Vahenurm  
Digitaliseerimise ja innovatsiooni juht  
Nordecon AS  
17.10.2024

Atea Action 2024

- Eesti üks suurimaid ja pikema ajalooga ehitusettevõtteid, aastase käibega u 300 mEUR
- Kontsern on noteeritud Nasdaq Tallinna börsil
- Põhitegevuseks on ehituse peatöövõtt ja projektijuhtimine

## Meid iseloomustab:

- Kõrge inseneritehniline kompetents
- Järjepidev innovatsioonifookus
- Kõrgendatud tähelepanu kehtlikkusele





## EHITUSJUHTIMISE INNOVATSIOONILIIDER\*

\*Aasta innovatsiooniprojekt 2023,  
digitaalehituse klasteri aasta tegu 2022



The background is a complex, low-poly geometric pattern. It consists of numerous triangles of varying sizes and orientations. The color palette is primarily shades of blue, ranging from a deep, dark navy to a bright, vibrant cerulean. Interspersed among the blue triangles are triangles in various shades of pink and magenta, from light, dusty rose to deep, rich magenta. The overall effect is a dynamic, crystalline texture.

**VÄLJAKUTSE**

# VÄLJAKUTSE

- Suured ehitusprojektid **hilinevad** keskmiselt **20% esialgsest plaanist**<sup>1</sup>
- Esineb ressursi raiskamist ja ehitusvigu
- Innovatsioon on ajamahukas ja kulukas

The background is a complex, low-poly geometric pattern. It consists of numerous triangles of varying sizes and orientations. The color palette is primarily shades of blue, ranging from deep navy to a lighter, vibrant blue. Interspersed among these are triangles in shades of pink and magenta, some of which are quite bright. The overall effect is a dynamic, crystalline texture.

**ÜLESANNE**

# EHITUSE PROGRESS



1. Ülevaade igal ajahetkel

2. Andmed on konkurentsieelis

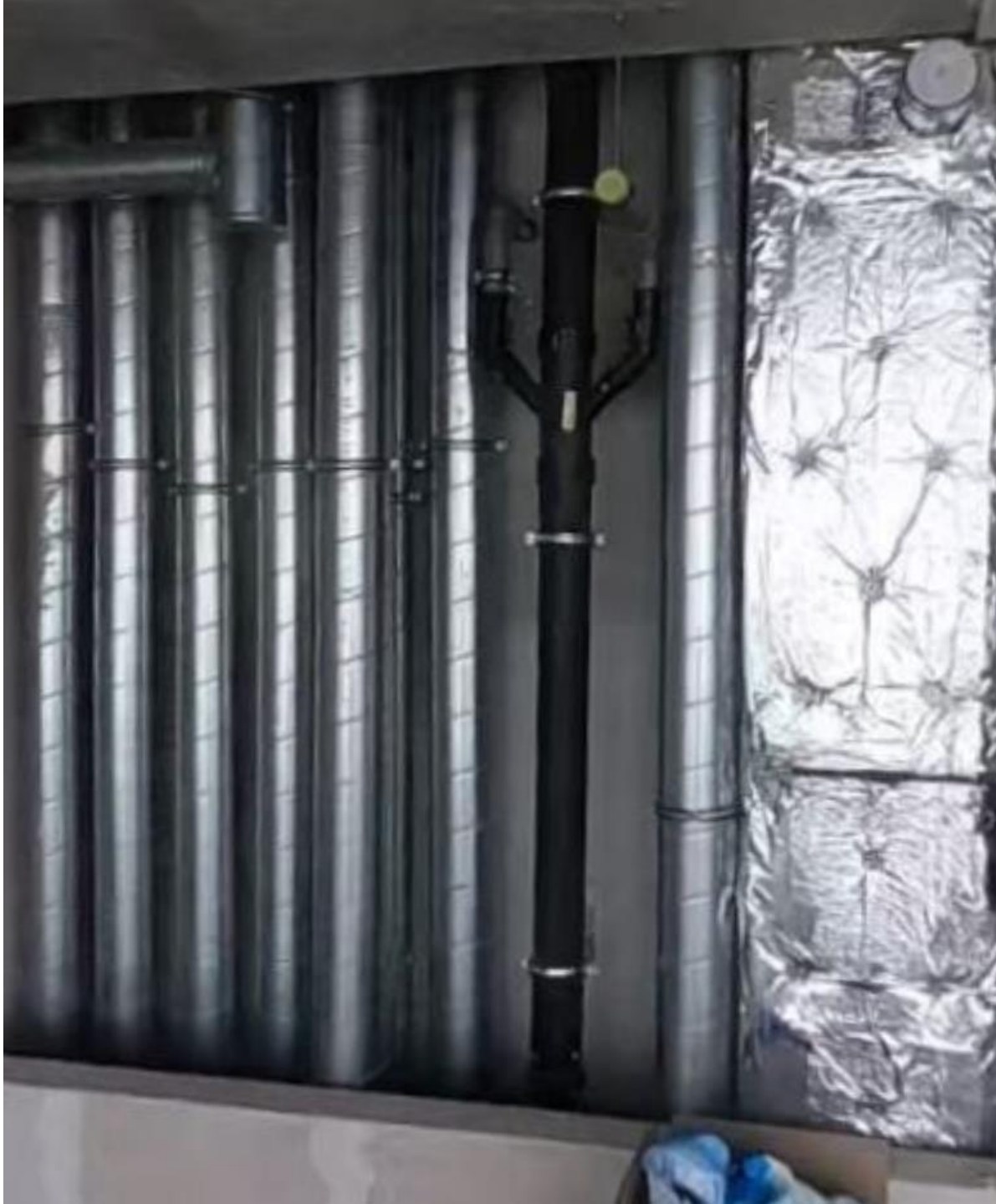
3. Teadmiste ja kogemuste ülekandumine



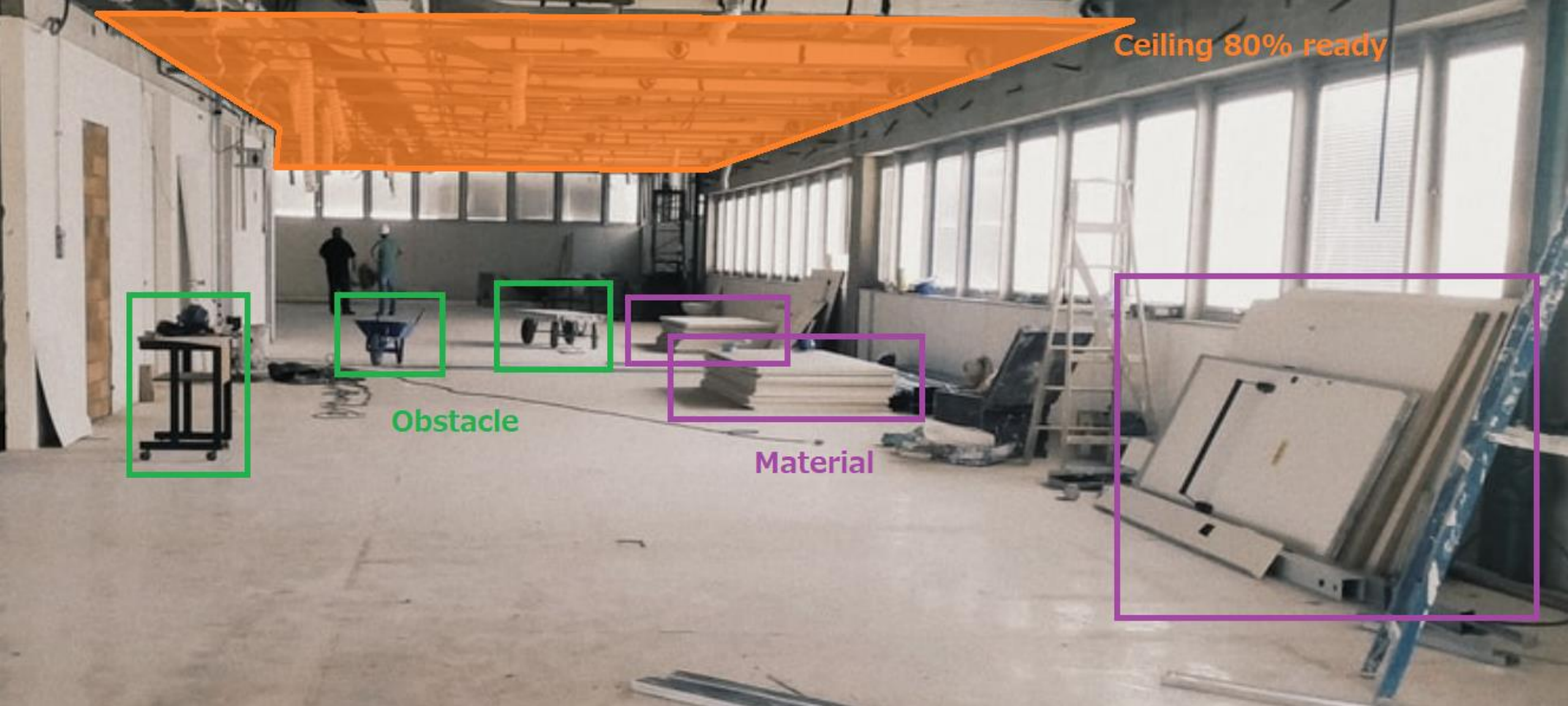








# MIS OLEKS KUI...



Ceiling 80% ready

Obstacle

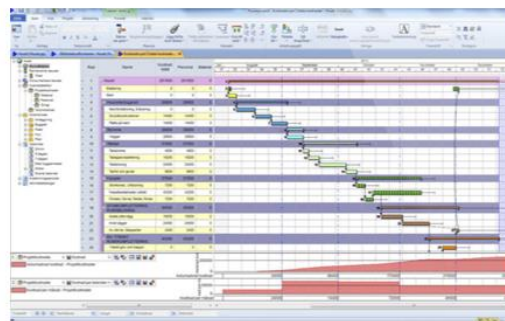
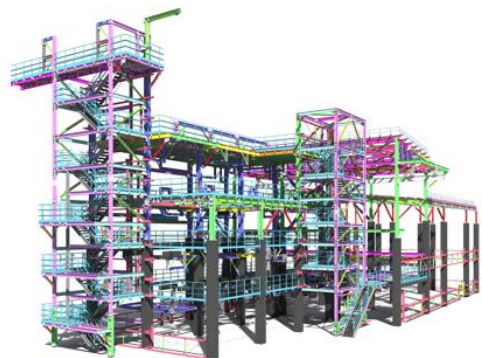
Material

The background is a complex, low-poly geometric pattern. It consists of numerous triangles of varying sizes and orientations. The color palette is primarily shades of blue, ranging from deep navy to bright cerulean, with accents of pink and magenta. The triangles are arranged in a way that creates a sense of depth and movement, with some areas appearing more prominent than others.

**TEHNOLOGIA**

# PROTSESS

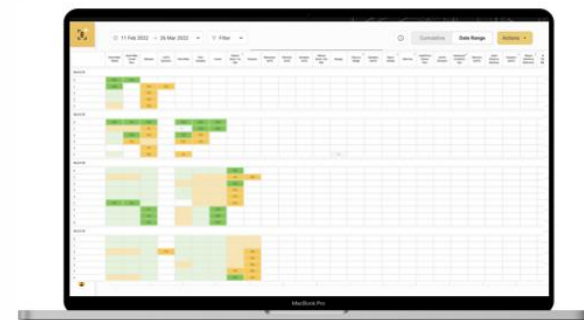
3D mudelid + ajagraafikud

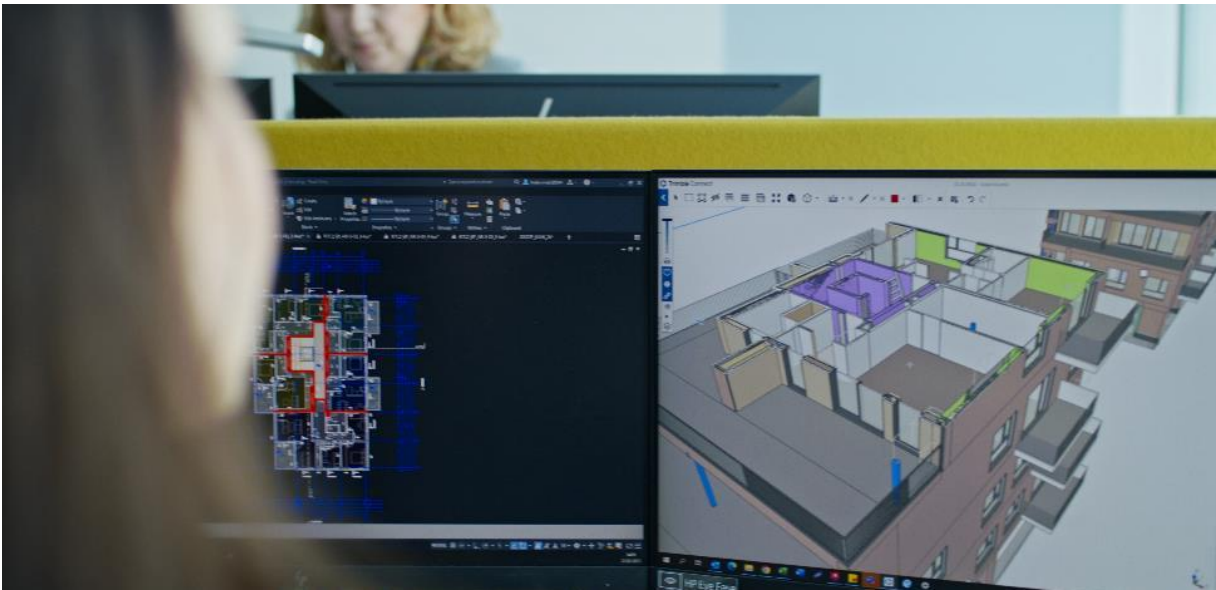


360° kaamera



Terviklik  
Ülevaade

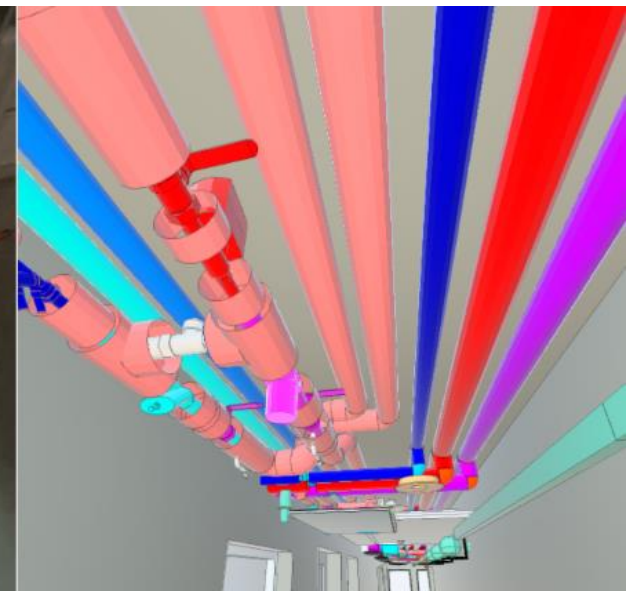
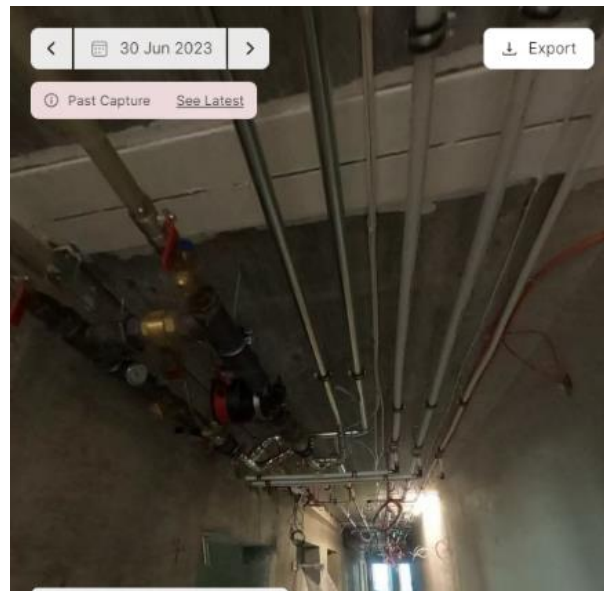




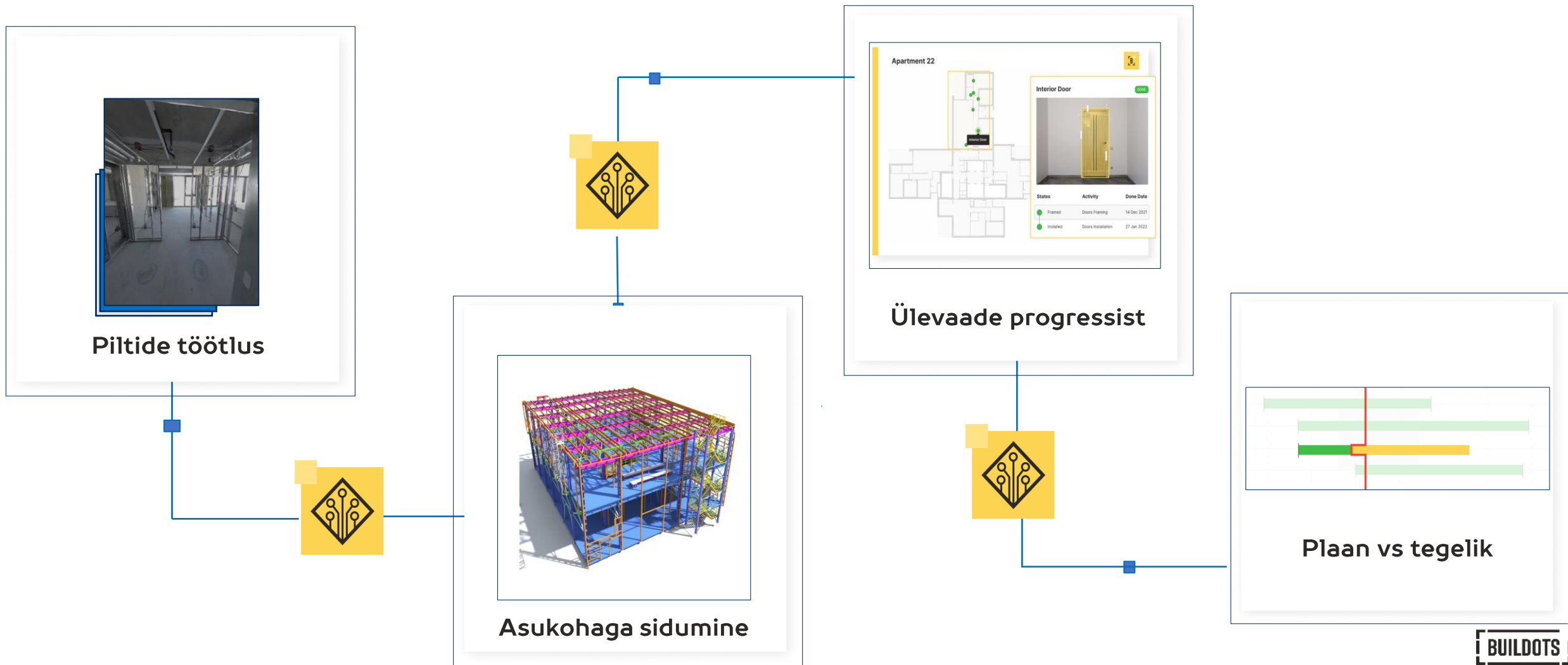
26 Mar 2022 Filters Cumulative % Due Dates Export

View by Level View by Apartment

	Windows	Brick & Blockwork	Doors and Windows Openings	Metal Stud & Board One Side	Roof QA	Electrical 1st Fix	Boxings	Carpentry 1st Fix
<b>Building A</b>	✓	✓	45%	45%	45%	0%	0%	0%
Level 1	✓	✓	✓	✓	45%			
Level 2	✓	✓	✓	✓	45%			
Level 3	✓	✓	✓	21%	21%			
Level 4	✓	✓	✓	✓	21%			
Level 5	✓	✓	45%	45%	21%			
Level 6	✓	✓	45%	45%	21%			
Level 7	✓	✓	45%	45%				
Level 8	✓	✓	45%	45%				
Level 9	✓	✓						
<b>Building B</b>	✓	3%	0%	0%	0%	0%	0%	0%
Level 1	✓	45%						
Level 2	✓							
Level 3	✓							



# TEHISINTELLEKTI KOMPONENDID



The background is a complex, low-poly geometric pattern. It consists of numerous triangles of various sizes and orientations. The color palette is primarily shades of blue, ranging from a deep, dark navy to a vibrant, bright blue. Interspersed among the blue triangles are triangles in shades of pink and purple, with some transitioning from light pink to a darker magenta. The overall effect is a dynamic, crystalline texture.

**PILOOTPROJEKT**





# PILOOTPROJEKT

- Teadus- ja ärilinnak Tehnopol AI arenguprogramm
- Tehnoloogiapartner Buildots UK
- 9 kuud: mai 2023 – veebruar 2024
  
- Liitusime juba käimasoleva ehitusprojektiga
- Vektori hoonetekompleks (38 000 m<sup>2</sup>)
- Progressi mõõdame **sisetööde** teostamise etapis



MAJANDUS- JA  
KOMMUNIKATSIOONI-  
MINISTEERIUM

# PEAMISED MÕÕDIKUD

1. Ehitusvigade varajasem tuvastamine ja vaidluste kiirem lahendamine, **aeg ja raha**
2. Rohkem töid valmib plaanipärastelt
3. Protsessijuhtimisest kokku hoitav **aeg**



The background is a complex, low-poly geometric pattern. It consists of numerous triangles of various sizes and orientations. The color palette is primarily shades of blue, ranging from a deep, dark navy to a vibrant, bright blue. Interspersed among these are shades of pink and magenta, ranging from light, pastel pinks to deep, rich magentas. The overall effect is a dynamic, crystalline texture that resembles a modern, abstract landscape or a digital data visualization.

**TULEMUSED**

# 1. MUUDATUSTE MONITOORIMINE

Building Tower 1 | Level T1\_L11 | Apartment Apt 077 | 360° View | Compare | 3D Model

05 Jun 2023 | Export | Past Capture | See Latest

Apartment Apt 077 | Building Tower 1, Level T1\_L11 | Hide | 05 Jun 2023 — Past Data | See Latest

Search Activity / Trade...

Progress	Activity / Trade	Category
✓	Installation of Risers (First Stage)	Masonry
85%	Underfloor Heating	UFH
79%	Screed	Screed
85%	Concrete Floor Pouring	Manual
29%	Riser Closure	Masonry
0%	manual: Top Edge of The Riser Sealed	Manual
39%	Internal Walls Framework	Drywall
0%	One Side Plasterboard	Drywall
36%	Electrical 1st Fix Drywall	Electrical
3%	Plumbing 1st Fix Drywall	Plumbing
0%	Mechanical Pipework	Mechanical
0%	Two Side Plasterboard	Drywall
0%	Electrical Backboxes	Electrical
0%	Electrical Panel	Electrical

The image displays a software interface for monitoring construction progress. It features a 3D model of a bathroom on the left, overlaid with a 360-degree view of the ceiling and upper walls. The model shows various pipes and structures in different colors (purple, red, blue, orange). On the right, a task list provides a detailed overview of the project's status. The tasks include 'Installation of Risers (First Stage)' (100% complete), 'Underfloor Heating' (85%), 'Screed' (79%), 'Concrete Floor Pouring' (85%), 'Riser Closure' (29%), 'manual: Top Edge of The Riser Sealed' (0%), 'Internal Walls Framework' (39%), 'One Side Plasterboard' (0%), 'Electrical 1st Fix Drywall' (36%), 'Plumbing 1st Fix Drywall' (3%), 'Mechanical Pipework' (0%), 'Two Side Plasterboard' (0%), 'Electrical Backboxes' (0%), and 'Electrical Panel' (0%). The interface also includes navigation controls, a date filter for '05 Jun 2023', and a search bar for activity/trade.



- Dashboard
- Progress Overview**
- Trades
- Plan Tracker
- Explorer
- Issues
- Reports

< 02 Feb 2024 >

Filters (2)

Cumulative % Due Dates Actions

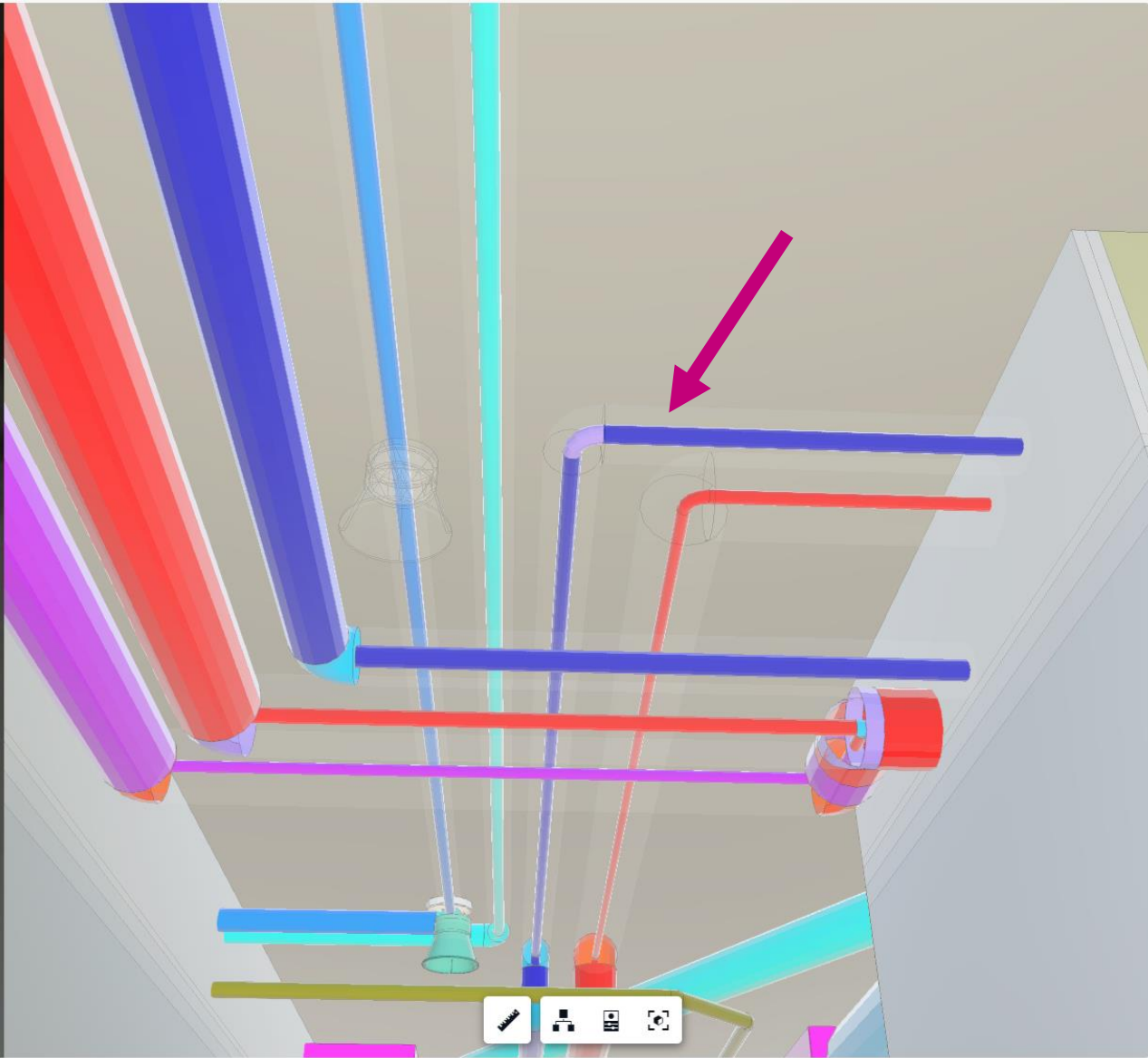
<input checked="" type="radio"/> View by Level	Windows	Riser Closure	Two Side Plasterboard	Ceiling Closure	Bathroom Wall Tiling	Bathroom Floor Tiling	Floor Tiling	Drywall Tape & Joint	Concrete Ceilings Skim	Concrete & Block Walls Skim	Drywall Mist Coat	Drywall Ceiling Mist Coat	Sanitaryware	Parquet Flooring	Final Coat of Paint
<input type="radio"/> View by Apartment															

Building | Tower 1

T1_L05	✓	95%	99%	99%	92%	93%	74%	✓	✓	97%	✓	99%	51%	✓	
T1_L06	✓	96%	99%	99%	93%	88%	✓	✓	✓	97%	✓	99%	52%	✓	
T1_L07	✓	96%	✓	96%	91%	97%	90%	✓	✓	97%	✓	34%		88%	
T1_L08	✓	96%	✓	83%	87%	✓	✓	99%	✓	97%	99%			89%	
T1_L09	✓	96%	✓	9%	93%	88%	✓	99%	✓	99%	98%	6%		82%	
T1_L10	✓	96%	✓	9%	92%	✓	✓	82%	81%	98%	82%	6%		53%	
T1_L11	✓	95%	✓	36%	92%	✓	85%	✓	✓	97%	✓			78%	
T1_L12	✓	96%	✓		93%	93%	✓	✓	✓	97%	✓			85%	
T1_L13	✓	96%	✓		94%	97%	✓	98%	✓	96%	98%			86%	
T1_L14	✓	96%	✓	5%	68%	70%	79%	84%	81%	97%	81%	5%		64%	
T1_L15	✓	96%	✓	5%	64%	64%	73%	99%	✓	96%	92%	3%		52%	
T1_L16	✓	55%	8%							82%					

Building | Tower 2

T2_L05	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	67%	✓	
T2_L06	✓	✓	✓	99%	✓	✓	✓	✓		99%	✓	58%		✓	
T2_L07	✓	✓	✓	96%	95%	✓	85%	99%		99%	99%	21%		✓	
T2_L08	✓	✓	✓	13%	95%	✓	✓	✓		98%	99%	2%		✓	
T2_L09	✓	✓	✓	2%	95%	✓	89%	99%		✓	99%			✓	
T2_L10	✓	✓	✓	3%	95%	66%	✓	✓		✓	99%			✓	
T2_L11	✓	✓	✓	5%	94%	71%	97%	✓		✓	99%			✓	
T2_L12	✓	✓	99%		71%	50%	70%	99%		✓	99%			81%	





Track incompletions

Incomplete Work Level 5

79%

87 Open loose ends 417 Closed loose ends

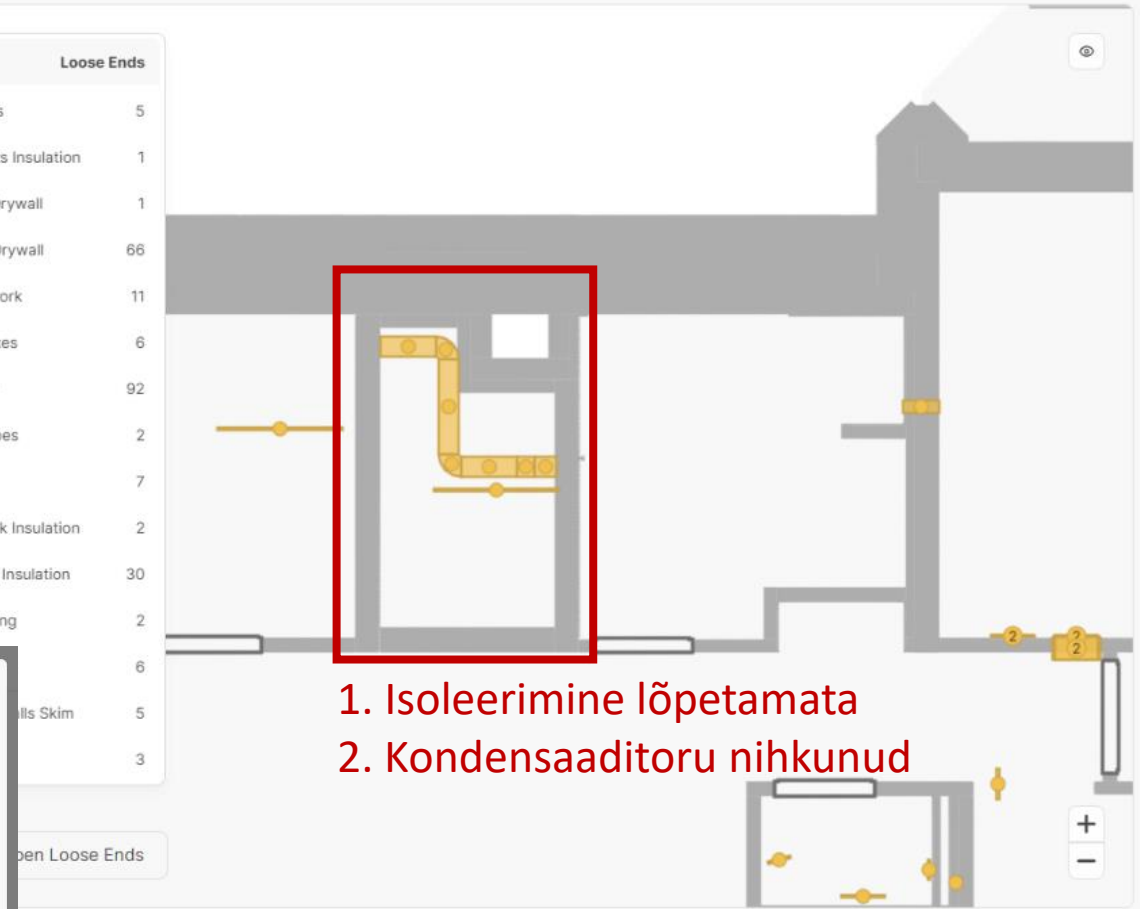
Minimize return visits

Filters

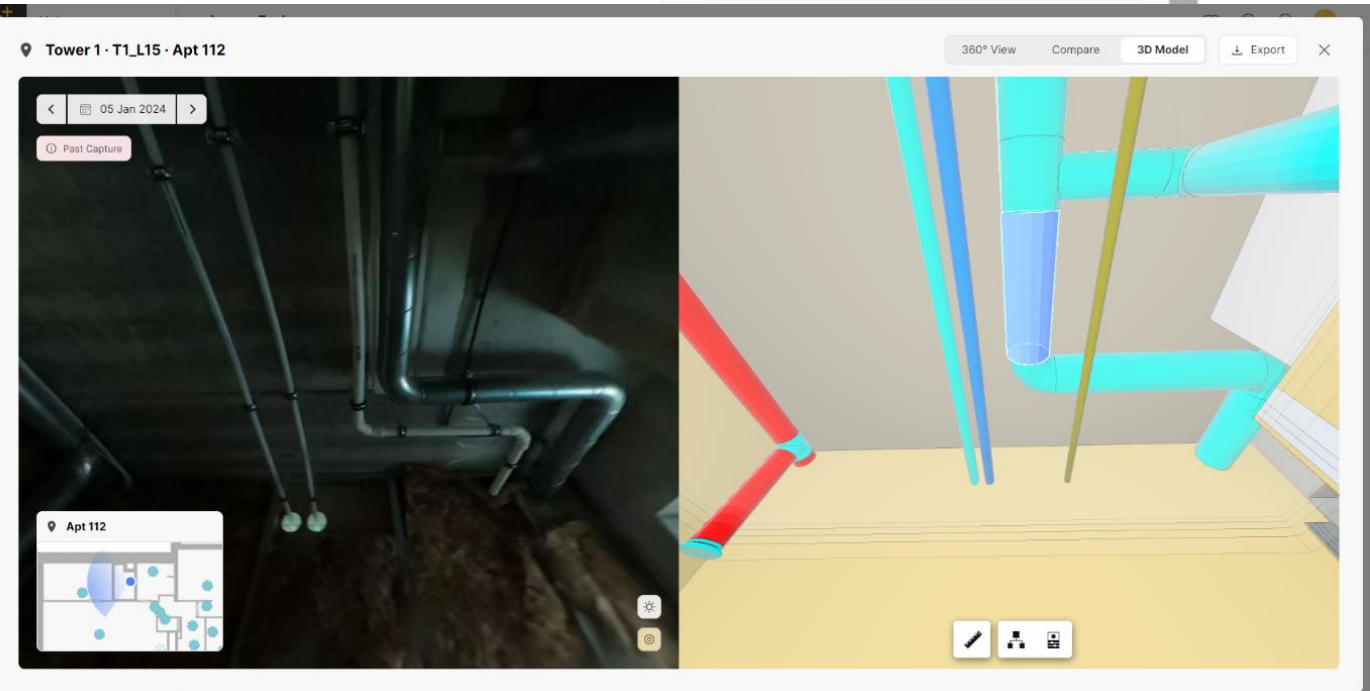
Building   Tower 1	
T1_L05	200
T1_L06	143
T1_L07	184
T1_L08	163
T1_L09	235
T1_L10	186
T1_L11	162
T1_L12	184
T1_L13	163
T1_L14	210
T1_L15	239
T1_L16	33

Activity	Loose Ends
Risers Mech.Ducts	5
Risers Mech. Ducts Insulation	1
Electrical 1st Fix Drywall	1
Plumbing 1st Fix Drywall	66
Mechanical Pipework	11
Electrical Backboxes	6
Mechanical Ducts	92
Fire Protection Pipes	2
Plumbing Pipes	7
Plumbing Pipework Insulation	2
Mechanical Ducts Insulation	30
Bathroom Wall Tiling	2

Open (3291) Closed (9982) Export



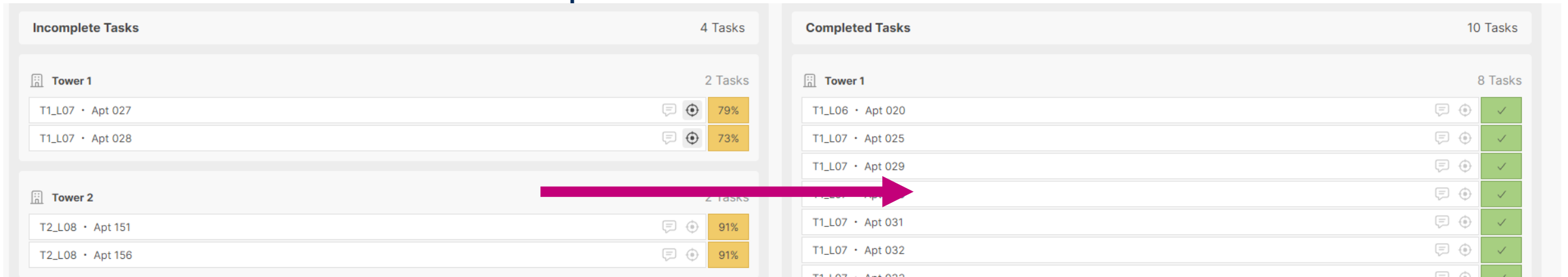
1. Isoleerimine lõpetamata
2. Kondensaaditoru nihkunud





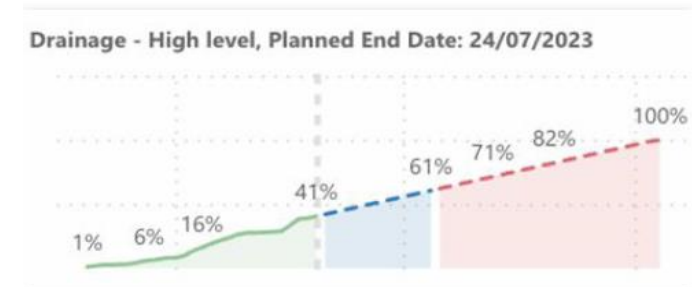
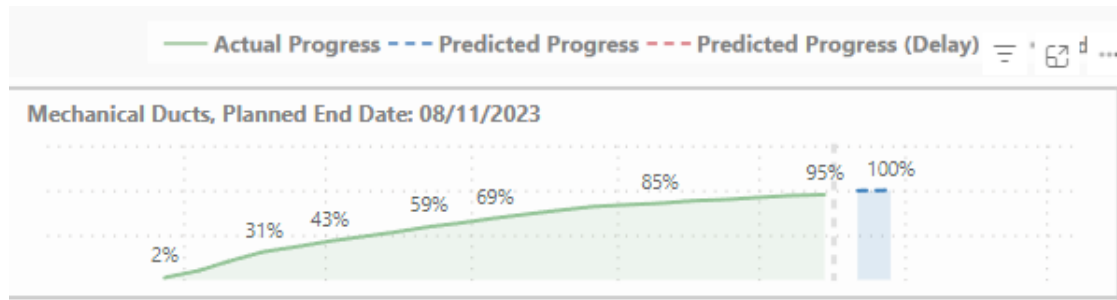
## 2. TEMPO MONITOORIMINE

### Võtsime kasutusele nädalaplaneerimise



Koheselt on teada, kus toimub tempo muutus, kus on mehitatuse probleem või muu potentsiaalne takistus.

Näide, kui hilineksime:





# Optimize Plan Percent Complete (PPC)

## Work Plan Completion Flooring



7/10 Tasks completed | Week 17

### Drive weekly progress

- Vektor
- Dashboard
- Progress Overview
- Trades
- Plan Tracker
  - Work Plan
  - Targets
- Explorer
- Issues
- Reports

Plan Tracker > Work Plan

RV

Week 47 (Nov 20 - Nov 26)

Past Data - based on captures from 17 Nov - 24 Nov [Change](#) [Export](#)

🕒 **26%** Progress of weekly work plan ⓘ

📋 **40 / 164** Tasks completed ⓘ

⚠️ **1** Open Error

Trades	Progress	Tasks completed	Errors
Parquet	91%	2 / 5	0
Metal Doors	66%	4 / 7	0
Paint	30%	0 / 13	0
Wooden Doors	29%	2 / 14	0
Tiling	26%	28 / 101	0
Drywall	13%	4 / 24	1
Ceilings	No tasks yet	No tasks yet	0
Electrical	No tasks yet	No tasks yet	0
Facade	No tasks yet	No tasks yet	0

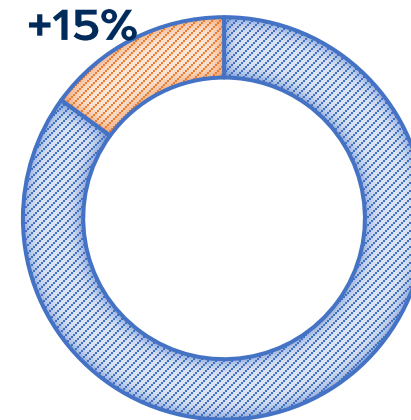
# 3. NÄDALAS KOKKUHOITUD AEG

## TEGEVUSED

- Manuaalne raporteerimine
- Töövõtjaga arutamine, selgitamine
- Olukorra jäädvustamine
- Objektile tagasi pöördumine

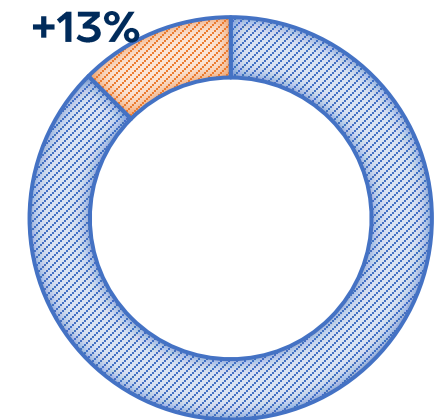
### OBJEKTIJUHT

■ Tegevused ■ Kokkuhoitud aeg

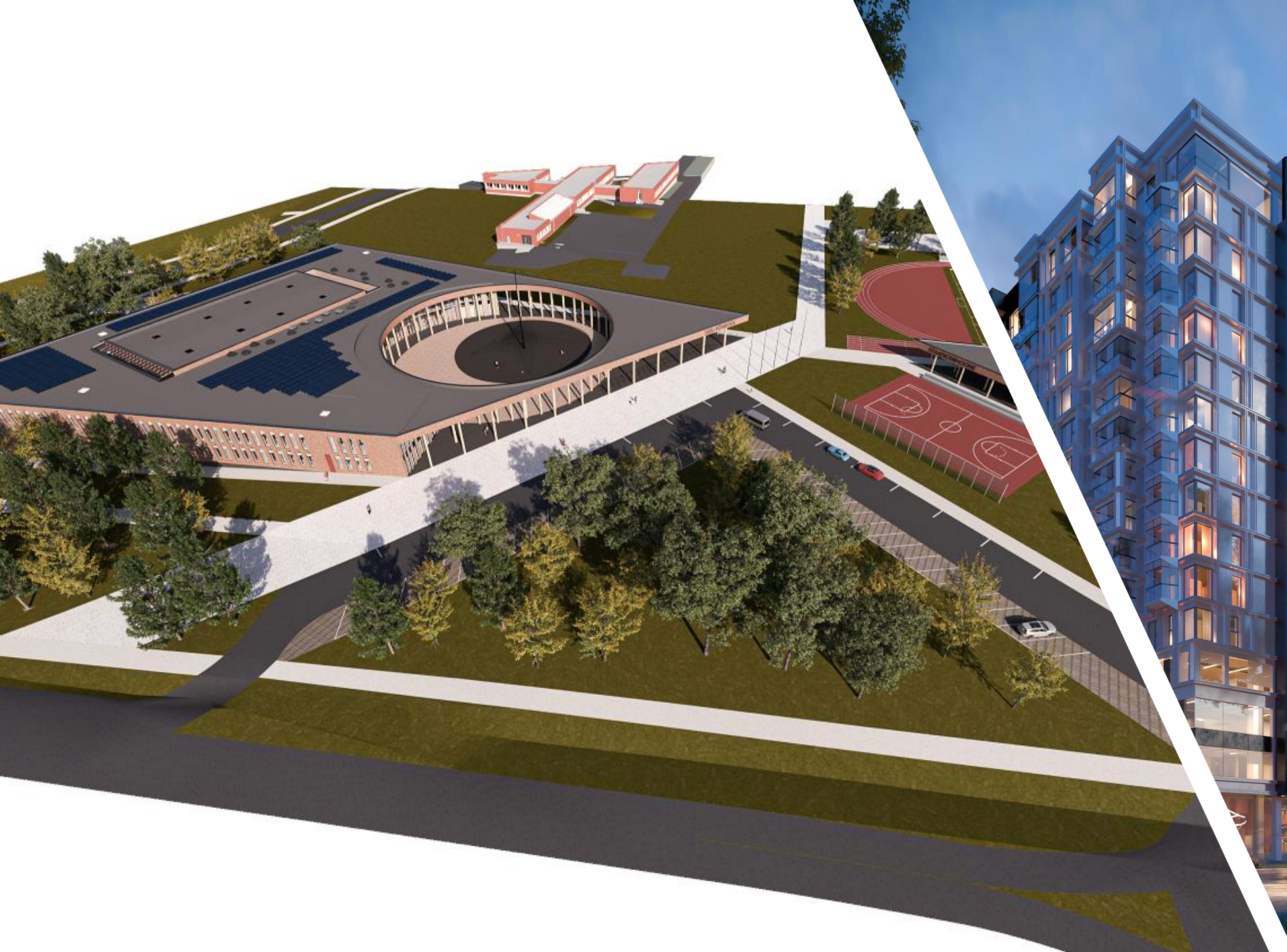


### TÖÖJUHT

■ Tegevused ■ Kokkuhoitud aeg







The background is a complex, low-poly geometric pattern. It consists of numerous triangles of varying sizes and orientations. The color palette is primarily dark blue and navy blue, with vibrant accents of magenta, pink, and purple. The triangles are arranged in a way that creates a sense of depth and movement, with some areas appearing more prominent than others. The overall effect is a modern, digital aesthetic.

**VIDEO**



# Tänan! Küsimused

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