

REVIT MUDELI OLULISTE ANDMETE VISUALISEERIMINE JA JAGAMINE

*Reviti mudelist andmed Excelisse, visualiseerimine PowerBI abil ning
jagamine Teamsis/BIM360-s*

ETTEKANNE

Kristel Uibo

24.04.2020



- Asutatud 1991a.
- 20 spetsialisti ning konsultanti.
 - CAD/BIM ja äritarkvara lahendused;
 - Koolitused ja konsultatsioon;
 - Ehituse- ning tootmise andmete juhtimine ja visualiseerimine;
 - IT tugiteenused.



Specialization
Architecture, Engineering &
Visualization

Value Added Services
Authorized Training Center
Authorized Certification
Center

SISUKORD

ANDMETE VISUALISEERIMINE

Sissejuhatus



24.04.2020 | Digiehituse töövood 2020

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ANDMED REVITI MUDELIS

<https://www.autodesk.com/autodesk-university/class/Turn-Revit-Data-Useful-Information-Visualization-Techniques-and-Workflows-2017>



24.04.2020 | Digiehituse töövood 2020

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BIM INTEROPERABILITY TOOLS

<https://www.biminteroperabilitytools.com/>



24.04.2020 | Digiehituse töövood 2020

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TÖÖVOOG (REVIT MODEL CHECKER)

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>



24.04.2020 | Digiehituse töövood 2020

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TÖÖVOOG (POWER BI)

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>



24.04.2020 | Digiehituse töövood 2020

20



TÖÖVOOG (TEAMS JA BIM360)

<https://docs.microsoft.com/en-us/power-bi/service-how-to-collaborate-distribute-dashboards-reports>



24.04.2020 | Digiehituse töövood 2020

26



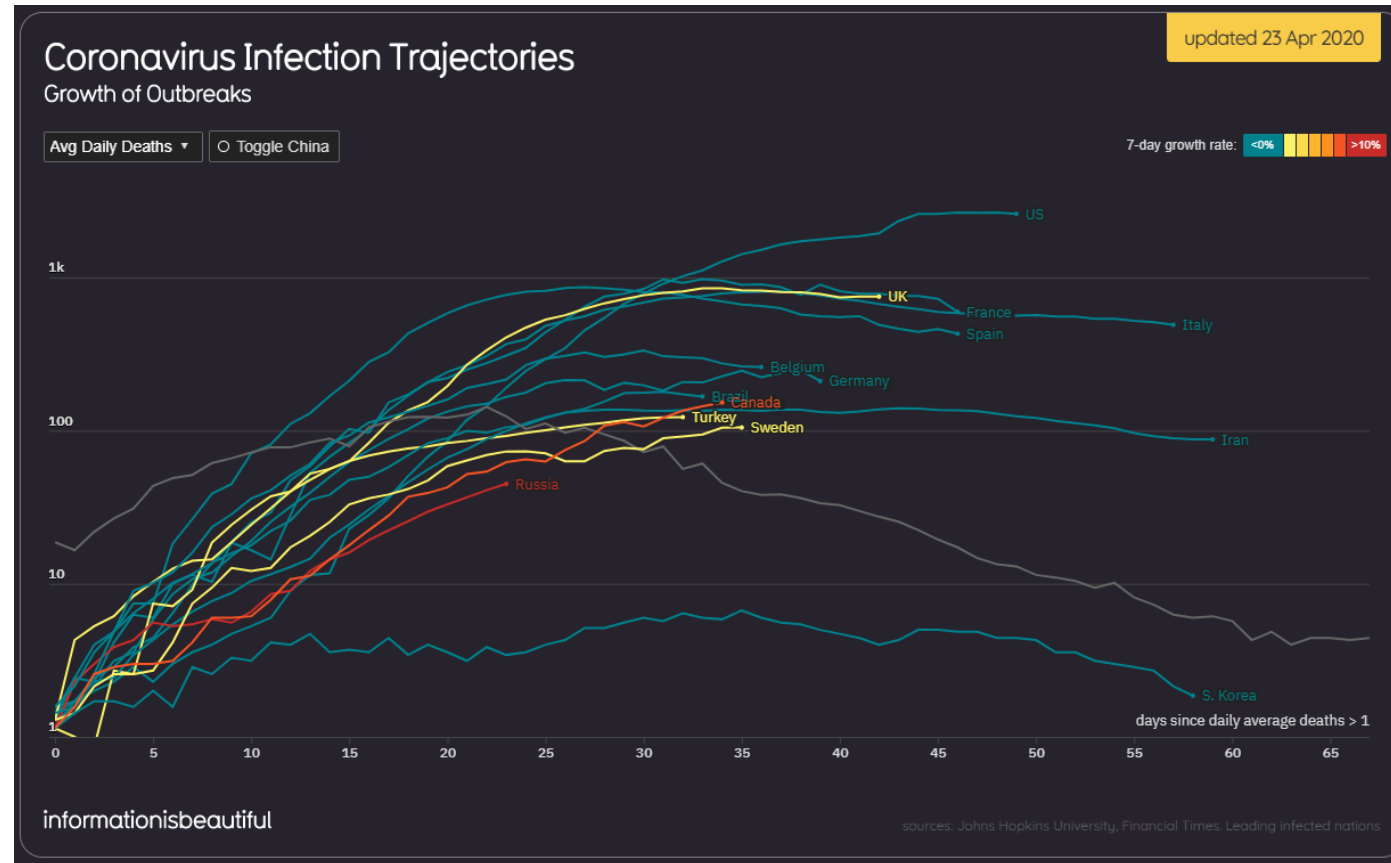
ANDMETE VISUALISEERIMINE

Sissejuhatus



LIHTSALT ILUS JA KIIREMINI MÕISTETAV

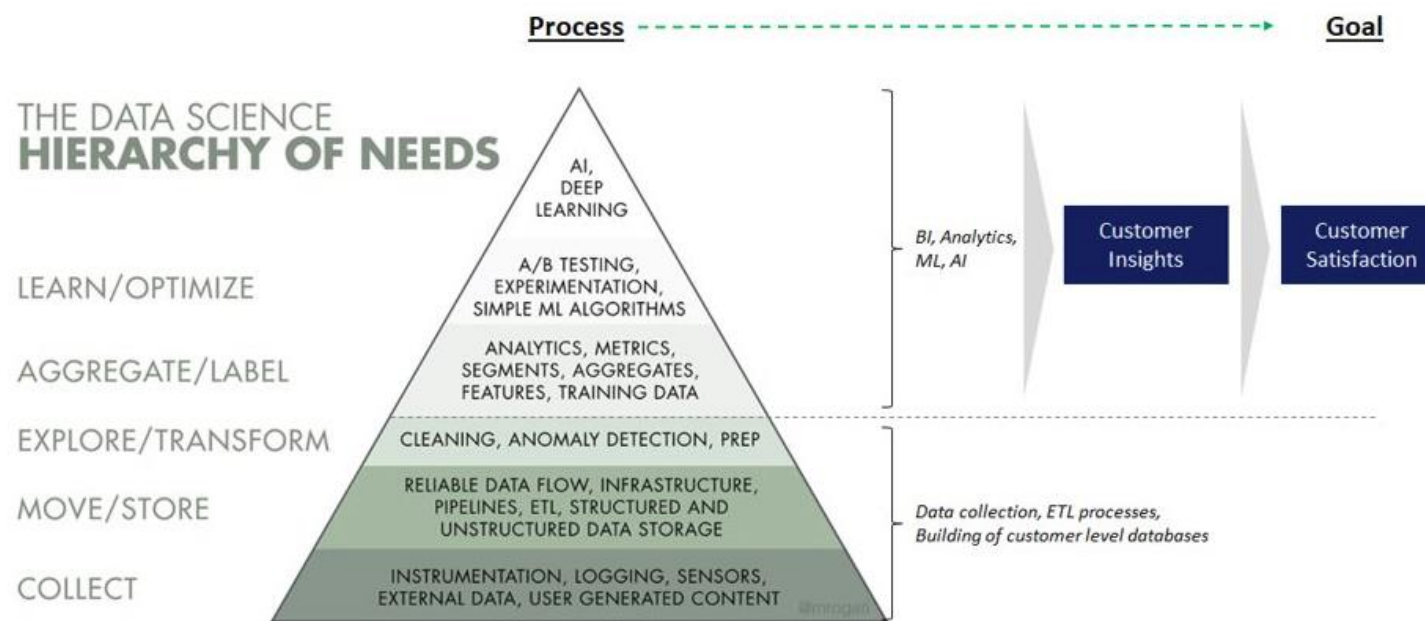
David McCandless
“Information is
beautiful”



<https://informationisbeautiful.net/visualizations/covid-19-coronavirus-infographic-datapack/>
<https://informationisbeautiful.net/visualizations/making-data-out-of-art-a-short-film/>

ANDMEKESKNE MÕTLEMINE JA TULEVIK (AI)

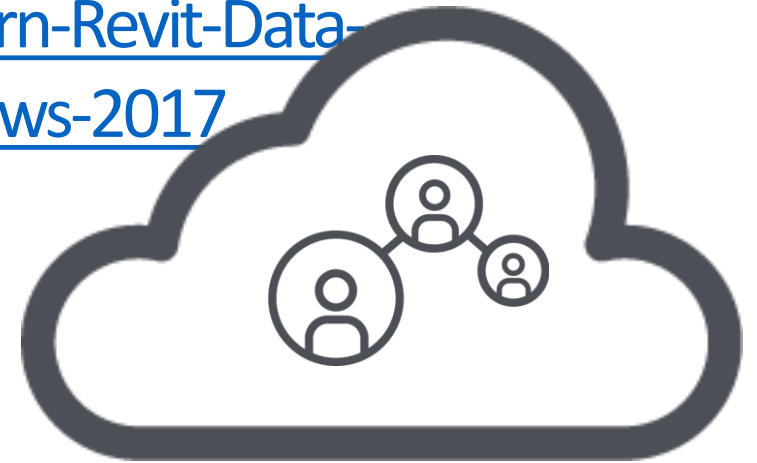
Analoogia Maslow vajaduste püramiidiga. Eneseteostus (AI) on suurepärane, aga kõigepealt on vaja õhku, vett, süüa ja katust pea kohale.



<https://hackernoon.com/the-ai-hierarchy-of-needs-18f111fcc007>

ANDMED REVITI MUDELIS

<https://www.autodesk.com/autodesk-university/class/Turn-Revit-Data-Useful-Information-Visualization-Techniques-and-Workflows-2017>



ERINEVAD VIISID REVITIST ANDMETE SAAMISEKS

Dynamo
Model Checker

Revit DB link

Revit API <https://www.revitapidocs.com/2020/>

BIM360/Forge API <https://forge.autodesk.com/>

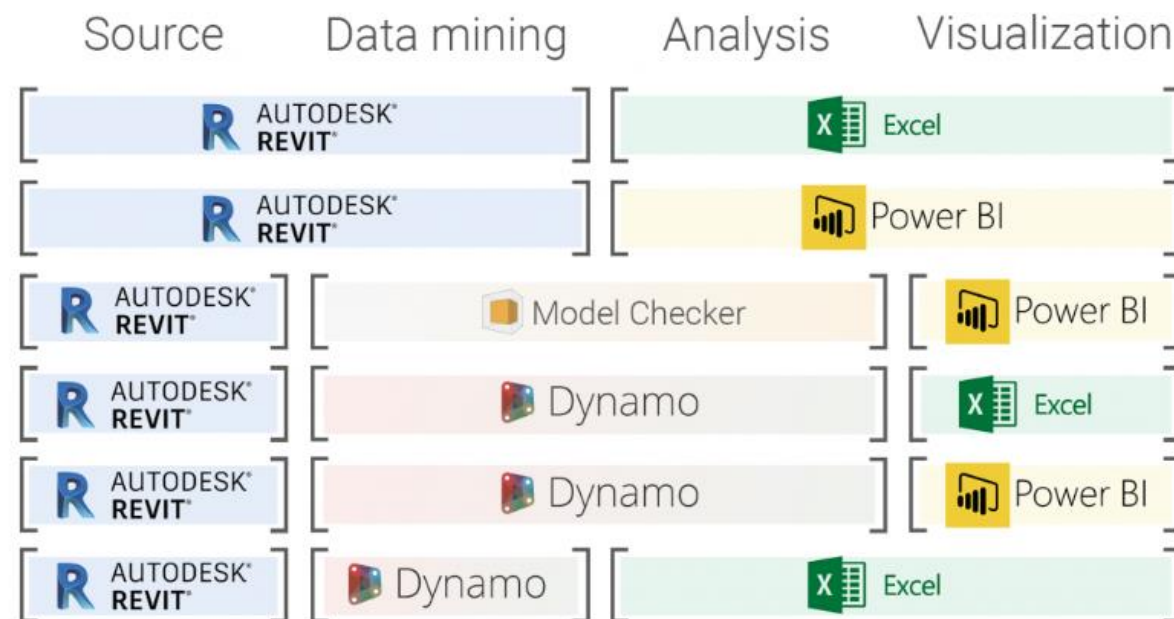
BIM 360 data connector projektijuhtimise andmete jagamiseks

<https://bim360resources.autodesk.com/featured-content/bim-360-data-connector>

<https://www.autodesk.com/bim-360/power-bi-template-construction-projects/>

3-ndate osapoolte lahendused nagu

Ideate BIMLink ideatesoftware.com/ideatebimlink



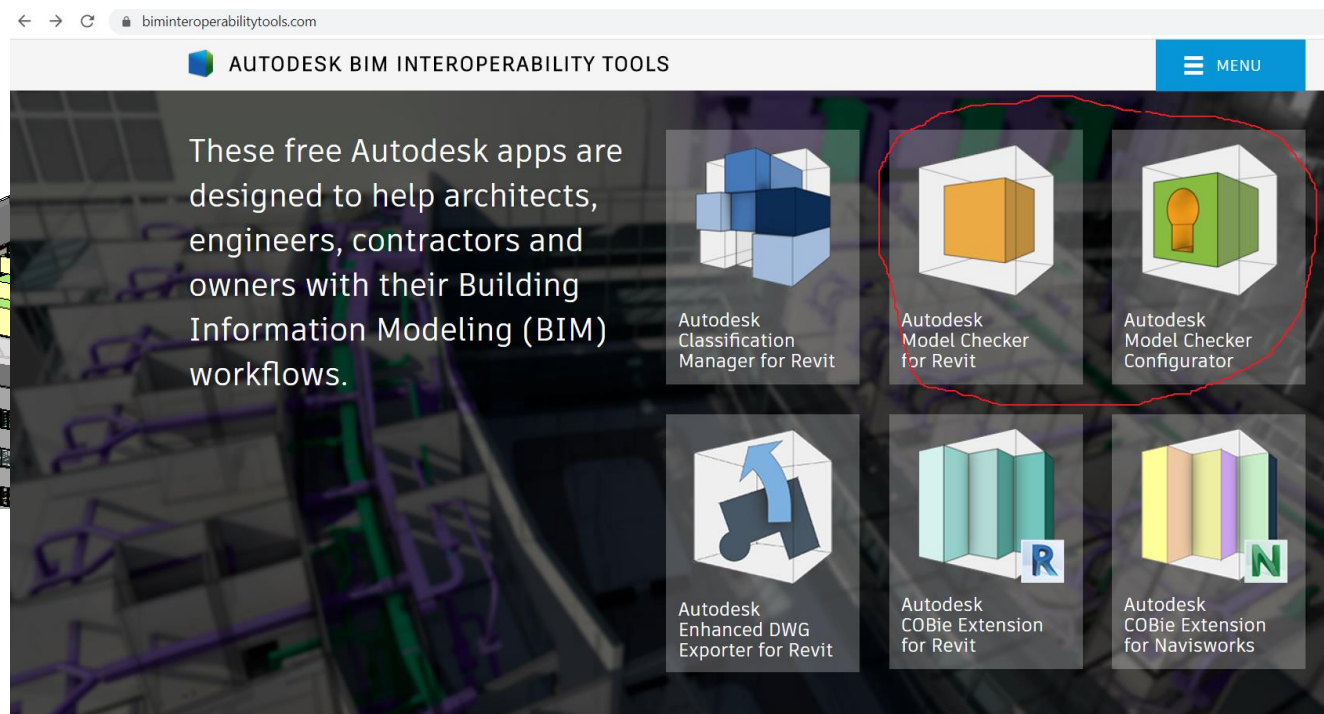
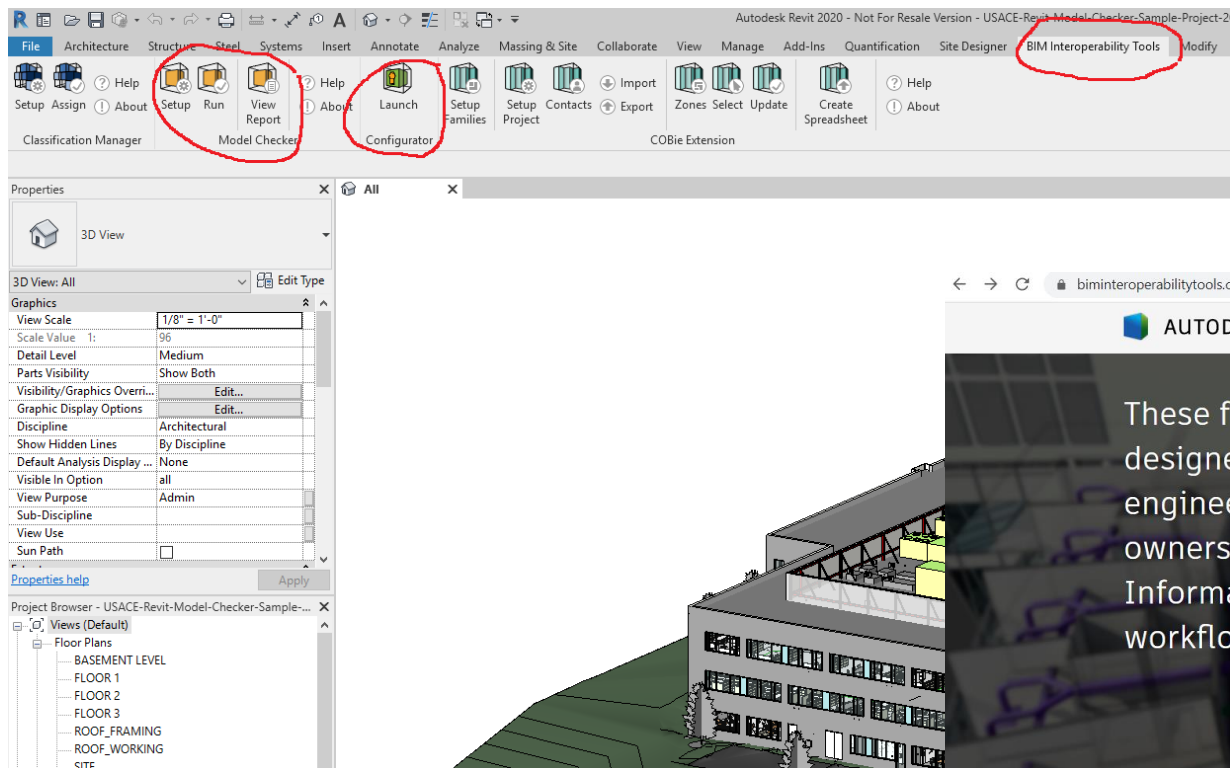
<https://www.autodesk.com/autodesk-university/class/Turn-Revit-Data-Useful-Information-Visualization-Techniques-and-Workflows-2017>

BIM INTEROPERABILITY TOOLS

<https://www.biminteroperabilitytools.com/>



BIM INTEROPERABILITY TOOLS



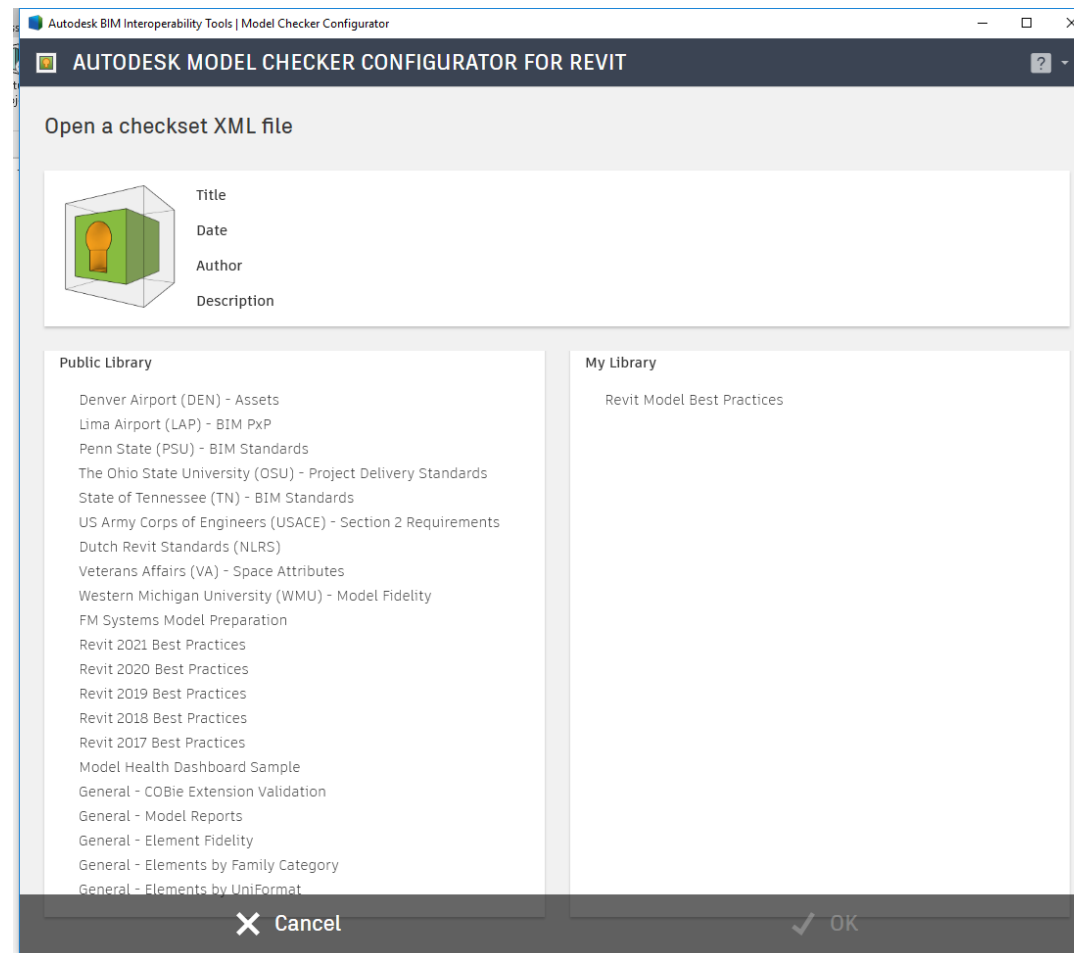
<https://www.biminteroperabilitytools.com>

NÕUETELE VASTAVUS JA MUDELI TERVIKLIKKUS

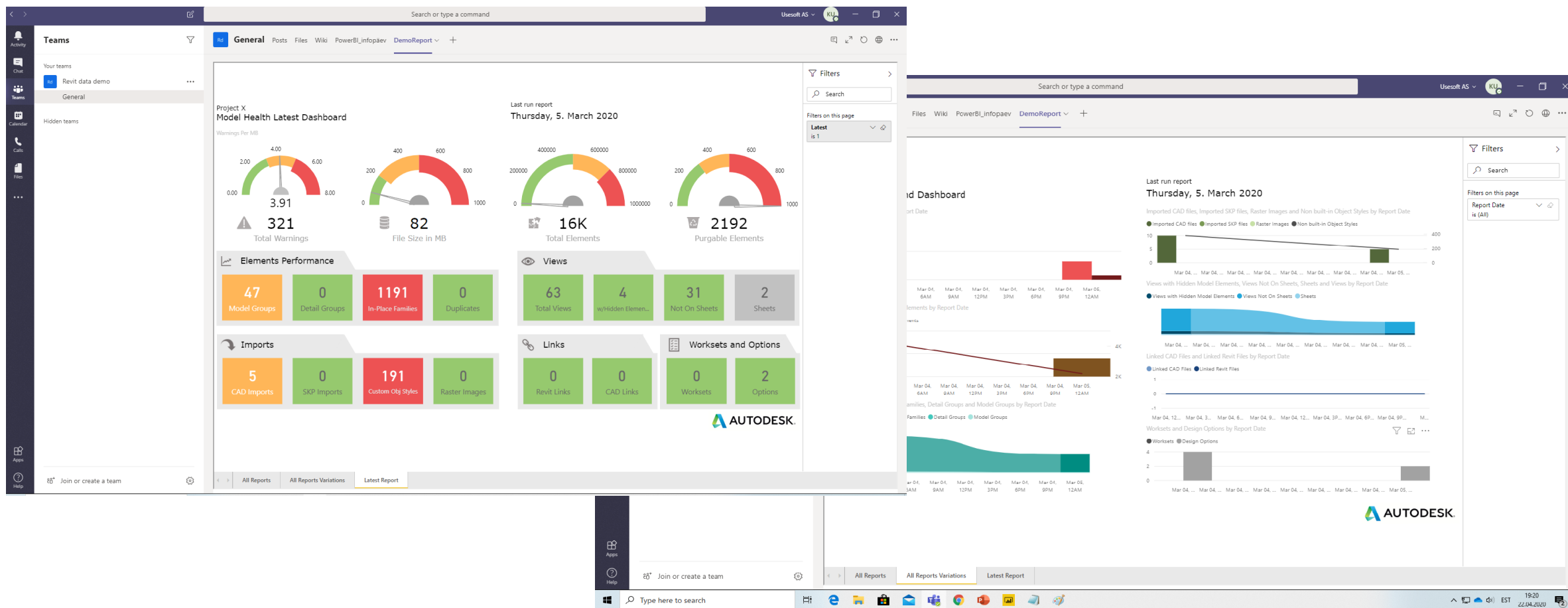
Nii terviklikkuse näitajate, kui ka erinevatele standarditele vastavuse kohta on ka mitmeid häid teste juba saadaval nt Revit Best Practices.

Siin ja praegu mudeli terviklikkus (Model Health ehk integrity).

<https://www.biminteroperabilitytools.com>

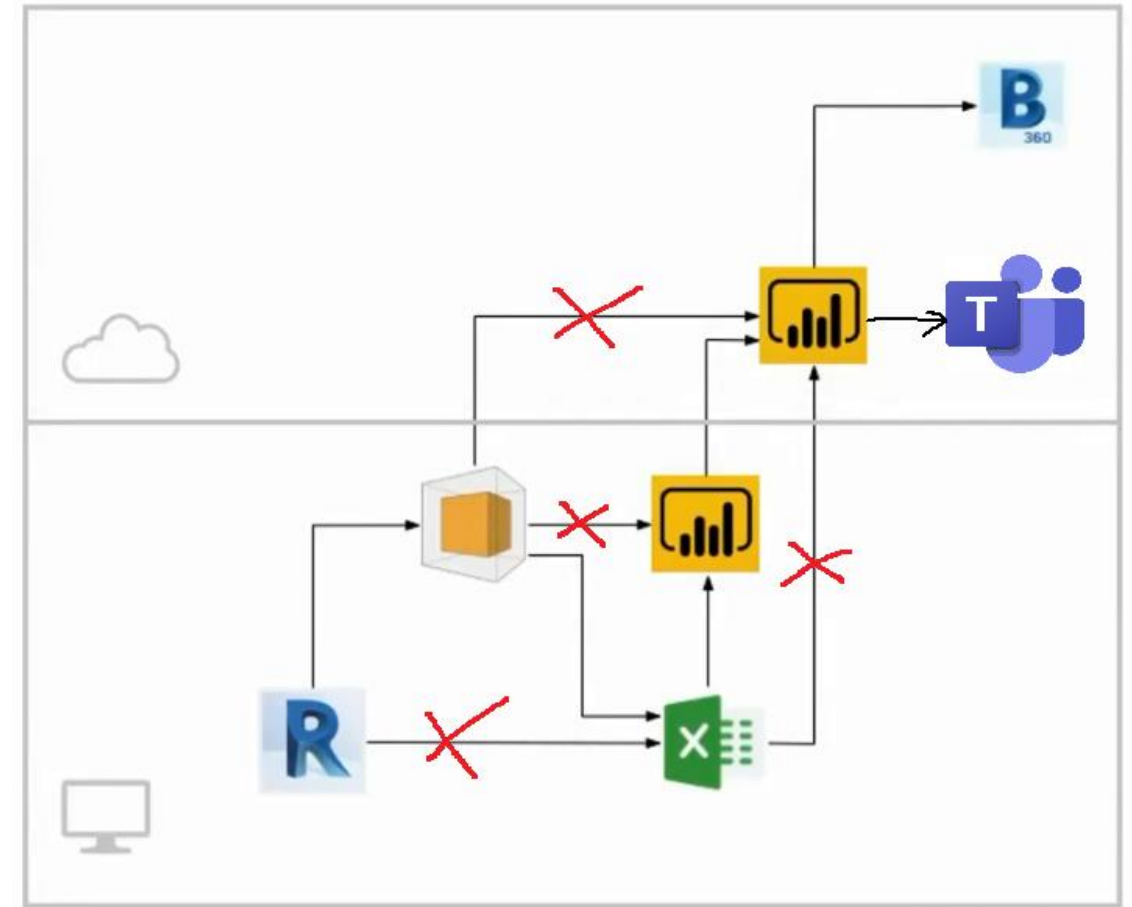
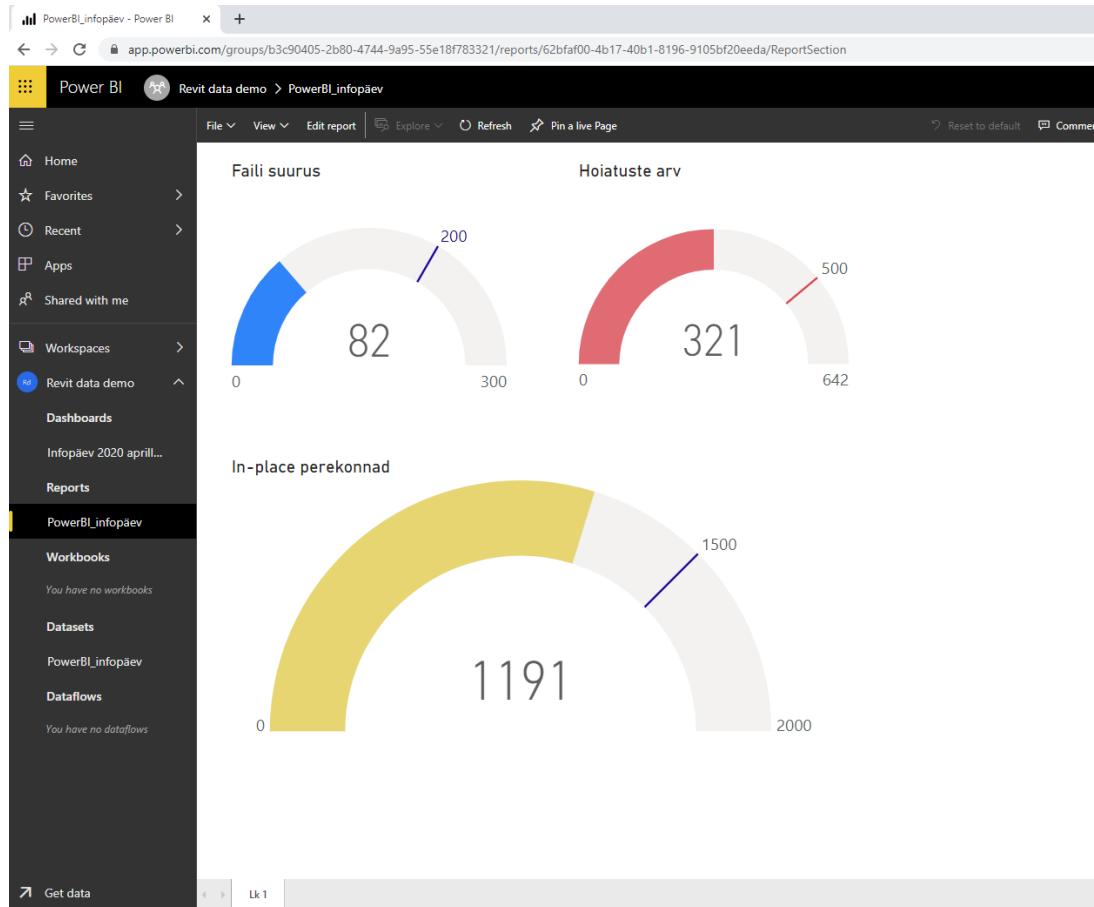


REVIT MODEL HEALTH DASHBOARD



Model Health Dashboard koostamise näide + viide näidisfailidele: NB! Dashboard template salvestada kohalikku formaati.
<https://www.youtube.com/watch?v=DBky01uRq4&list=PLORZIBv0pCftzo9ntWSwTfVbUE3d96etu&index=8>

TÄNANE MODEL HEALTH DASHBOARD



Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

MIDA ON VAJA TÖÖVOO LÄBI TEGEMISEKS

- Autodesk Revit
- BIM interoperability tools <https://www.biminteroperabilitytools.com/>
- Microsoft Excel
- Microsoft Power BI Desktop rakendus (tasuta)
<https://powerbi.microsoft.com/en-us/desktop/>
- Pilvepõhine Microsoft Power BI PRO graafikute jagamiseks ja teiste tehtud töö vaatamiseks <https://powerbi.microsoft.com/en-us/pricing/>
- Microsoft Teams ja BIM 360 docs

Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

TÖÖVOOG (REVIT MODEL CHECKER)

[https://www.autodesk.com/autodesk-university/class/
Revit-Dashboards-Cheap-and-Easy-Way-2019](https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019)



TÖÖVOO SAMMUD

- Määratle analüüsitavad andmed
- Tekita test ehk Model Checker checkset (xml fail)
- Jooksuta testi mudelis ja ekspordi tulemus (Model Checker report) Excel faili

Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

SAMM 1 – MÄÄRATLE ANDMED

Mõeldavad kriteeriumid, millele uuritavad andmed võiks vastata:

On see mõõdetav, on see üldse mudelis, kas info muutub mudeli arenemise jooksul või on erinev teistes mudelites, kas see mõjutab mudeli terviklikkust, kas nende näitajate jälgimine muudab midagi paremaks? Targemaks? Ilusamaks? Rikkamaks?

Täna täpsemalt:

faili suurus

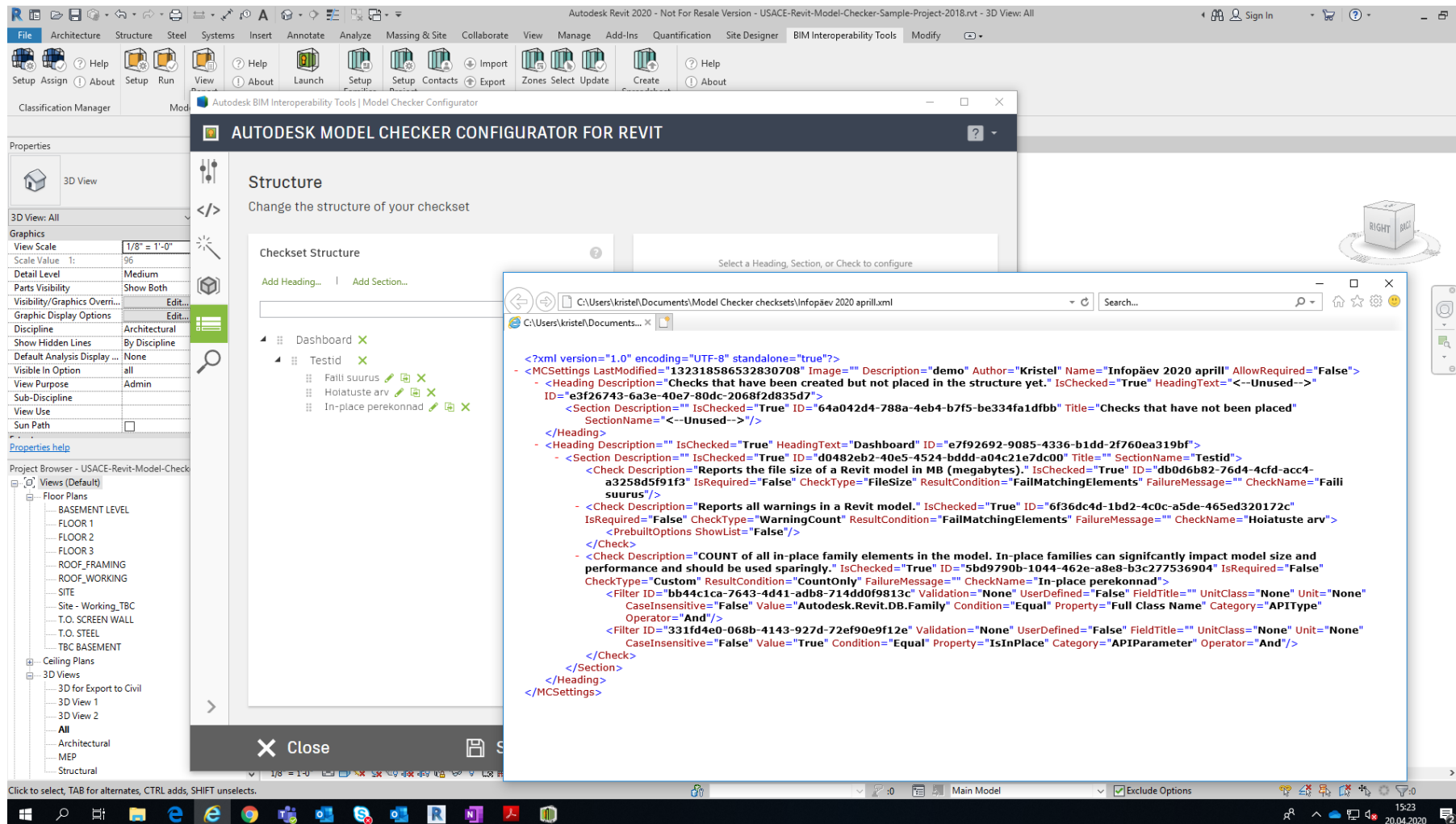
hoiatuste arv

unikaalsete perekondade esinemine

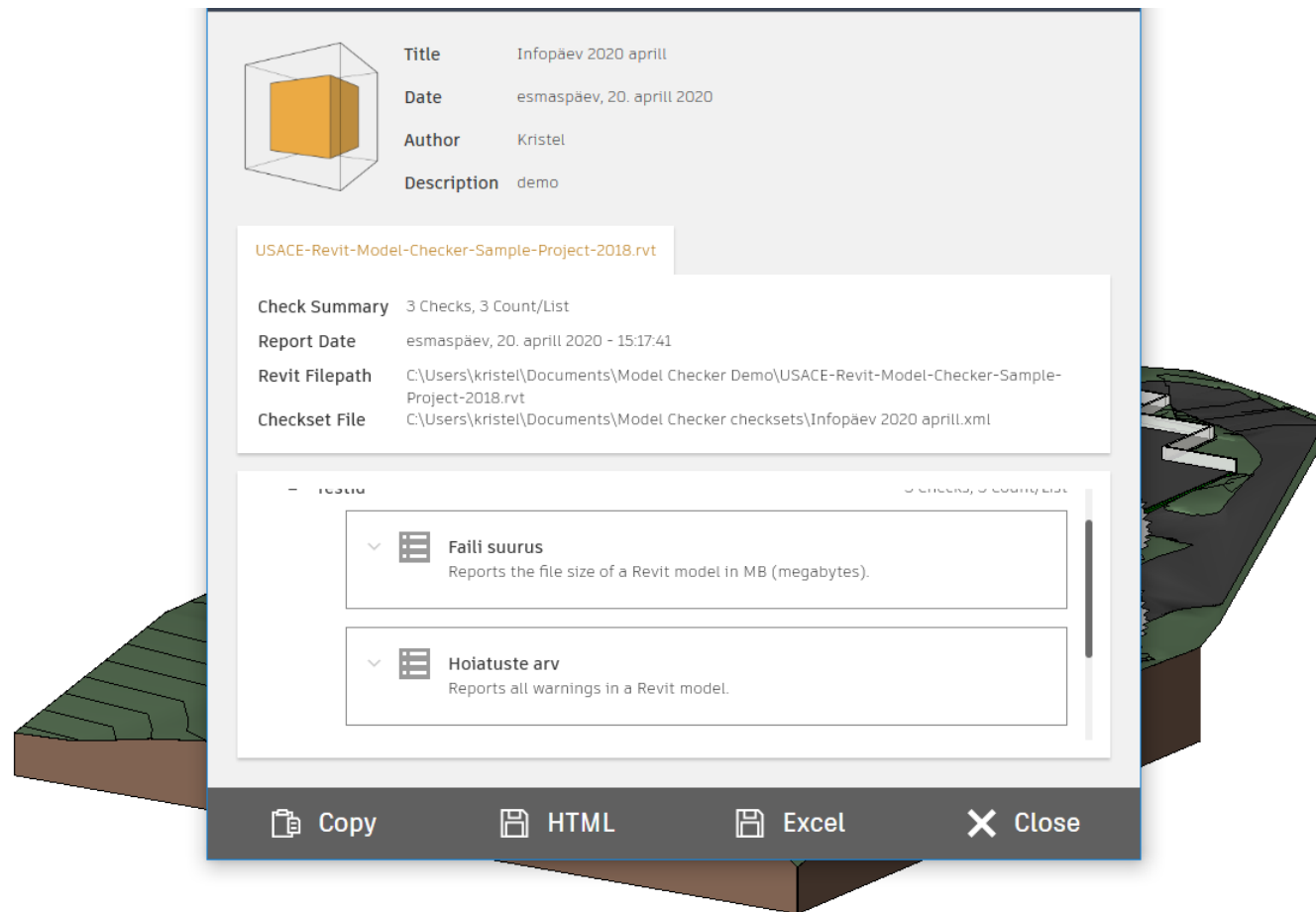
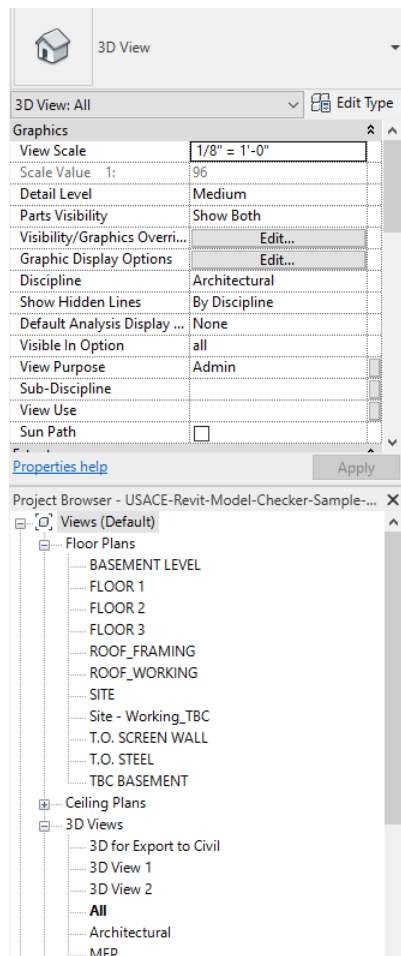
Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

SAMM 2 - REVIT MODEL CHECKER CONFIGURATOR



SAMM 3 - REVIT MODEL CHECKER



TÖÖVOOG (POWER BI)

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>



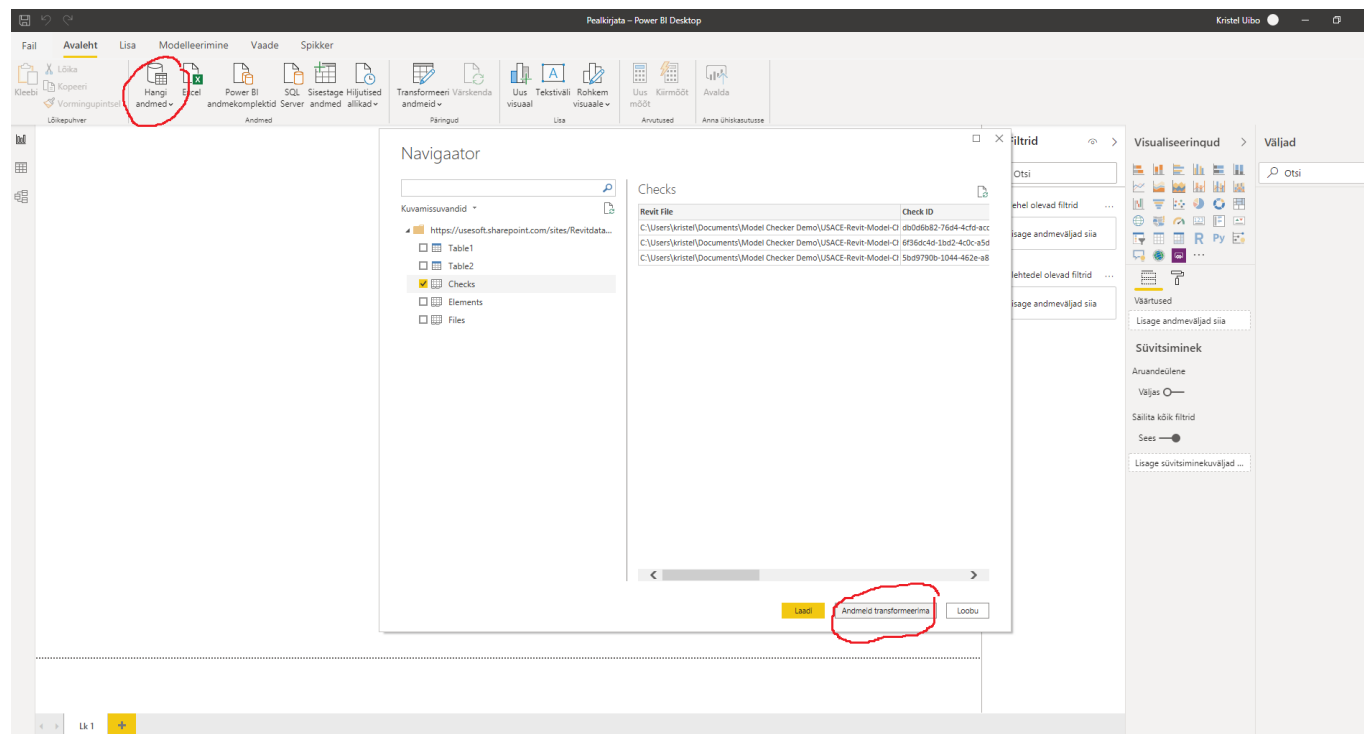
TÖÖVOO SAMMUD

- Vii andmed Power BI Desktop rakendusse
- Muuda andmed visualiseeritavaks (Power Query Editor)
- Loo visualiseering (Power BI Desktop)
- Avalikusta andmed (Power BI Dashboard)

Sarnase Health Dasboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

SAMM 1 – ANDMED POWER BI DESKTOP RAKENDUSSE



Palun märka! **OneDrive-s asuvale failile viitamine**

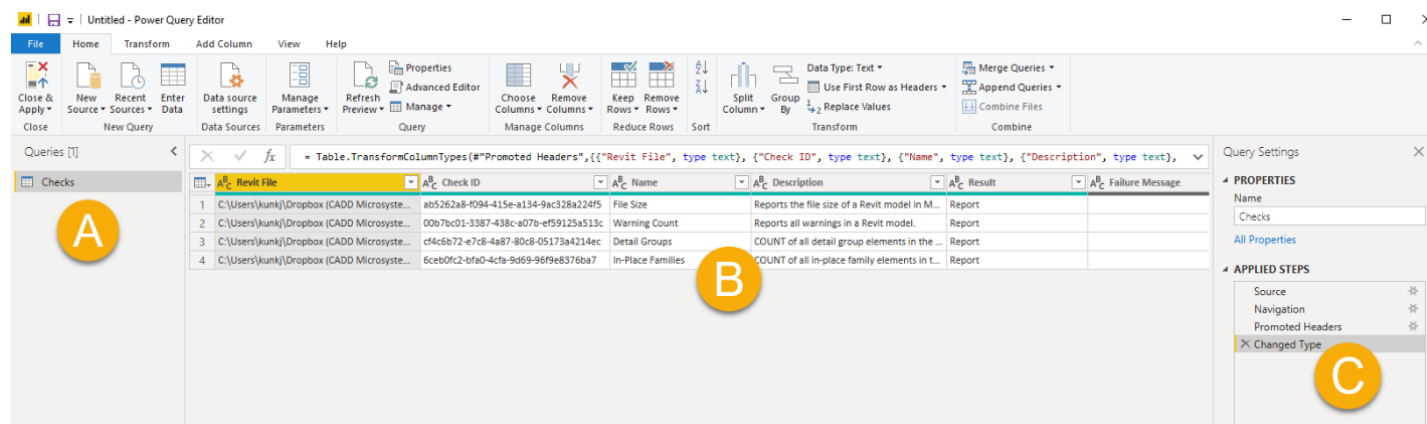
<https://docs.microsoft.com/en-us/power-bi/desktop-use-onedrive-business-links>

Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

SAMM 2 – ANDMETE MUUTMINE (POWER QUERY)

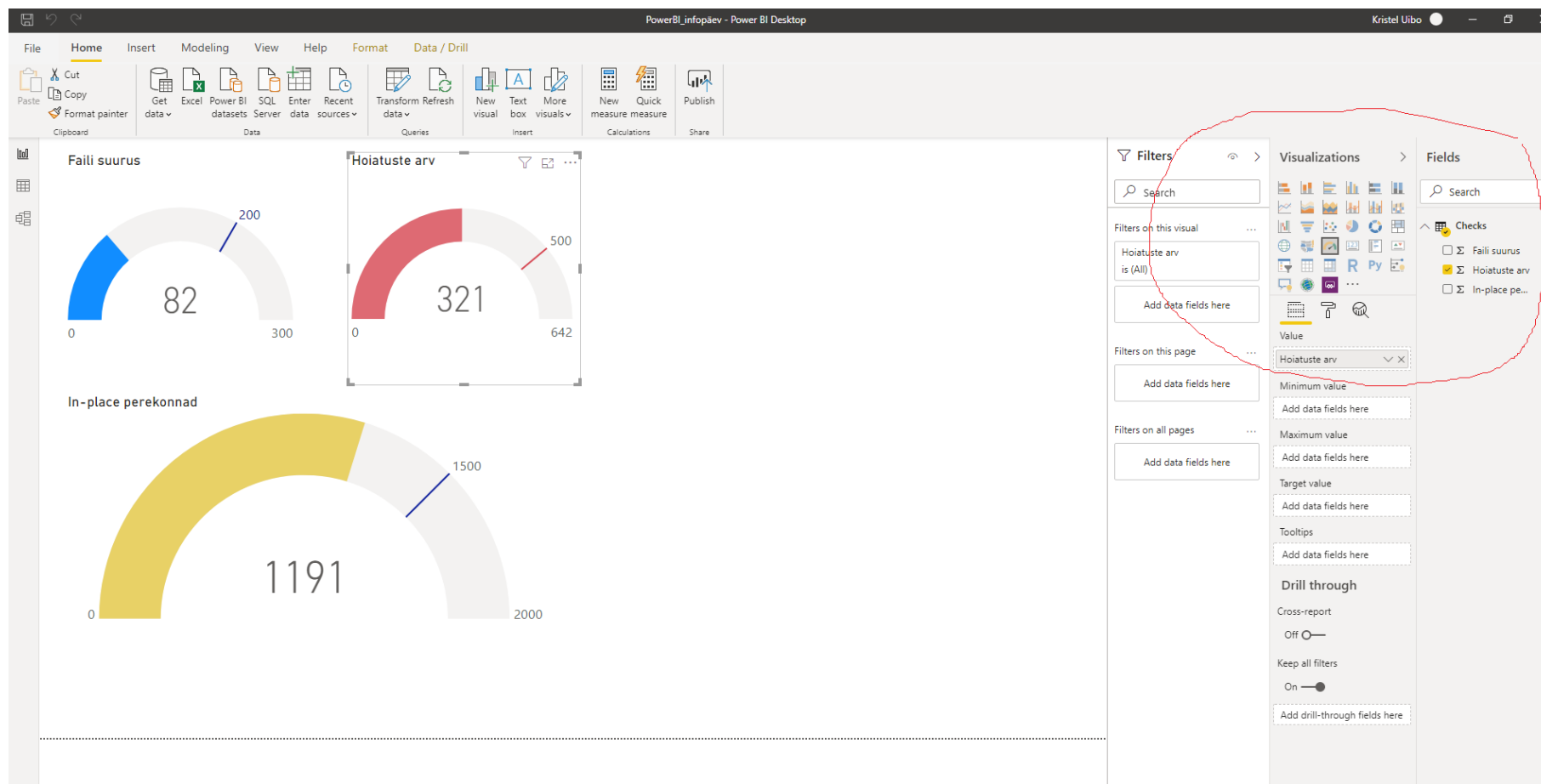
- A – viide andmete allikale;
- B – muudetud andmed;
- C - muudatuste ajalugu;



Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

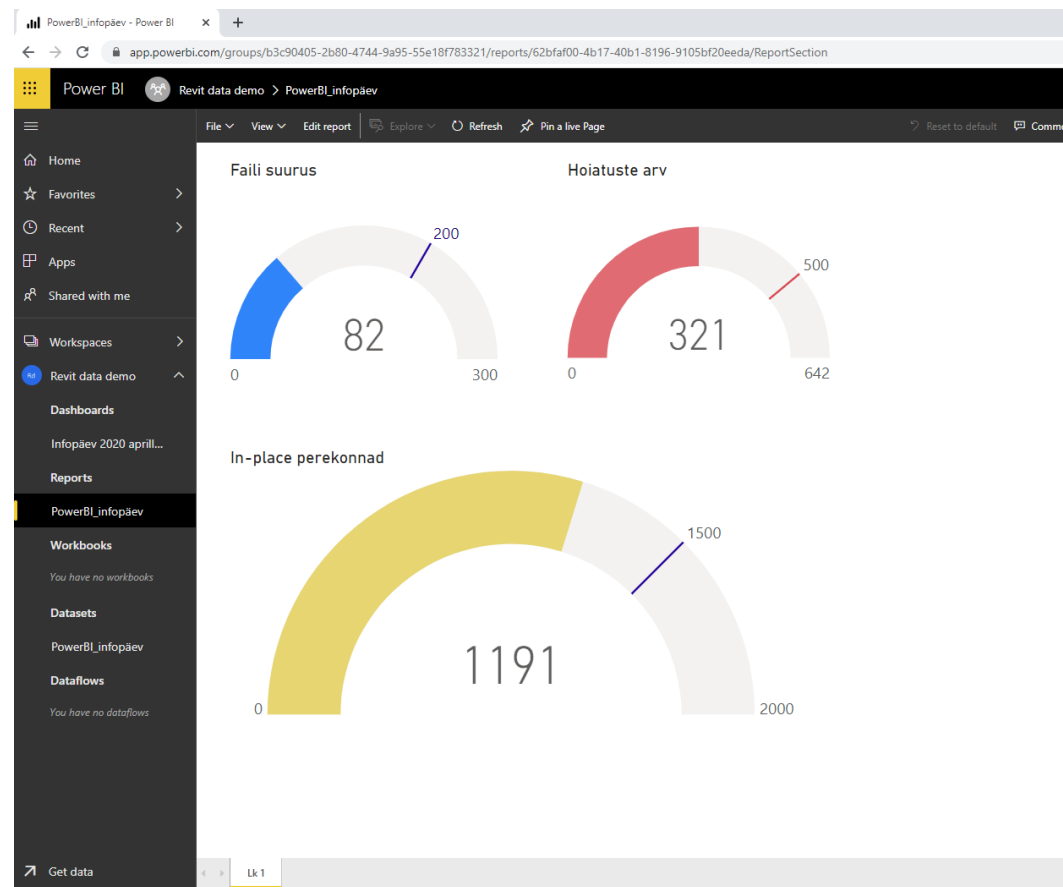
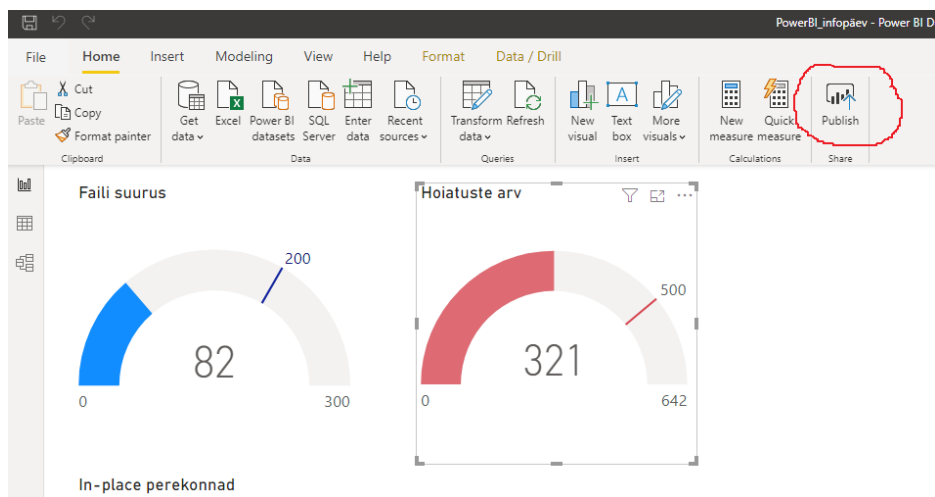
SAMM 3 – LOO VISUALISEERING (POWER BI DESKTOP)



Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

SAMM 4 – ANDMED AVALIKUKS (POWER BI DASHBOARD)



Pilvepõhine MS Power BI PRO graafikute jagamiseks ja teiste tehtud töö vaatamiseks

<https://powerbi.microsoft.com/en-us/landing/signin/>

Sarnase Health Dashboard koostamise näide + viide näidisfailidele:

<https://www.autodesk.com/autodesk-university/class/Revit-Dashboards-Cheap-and-Easy-Way-2019>

TÖÖVOOG (TEAMS JA BIM360)

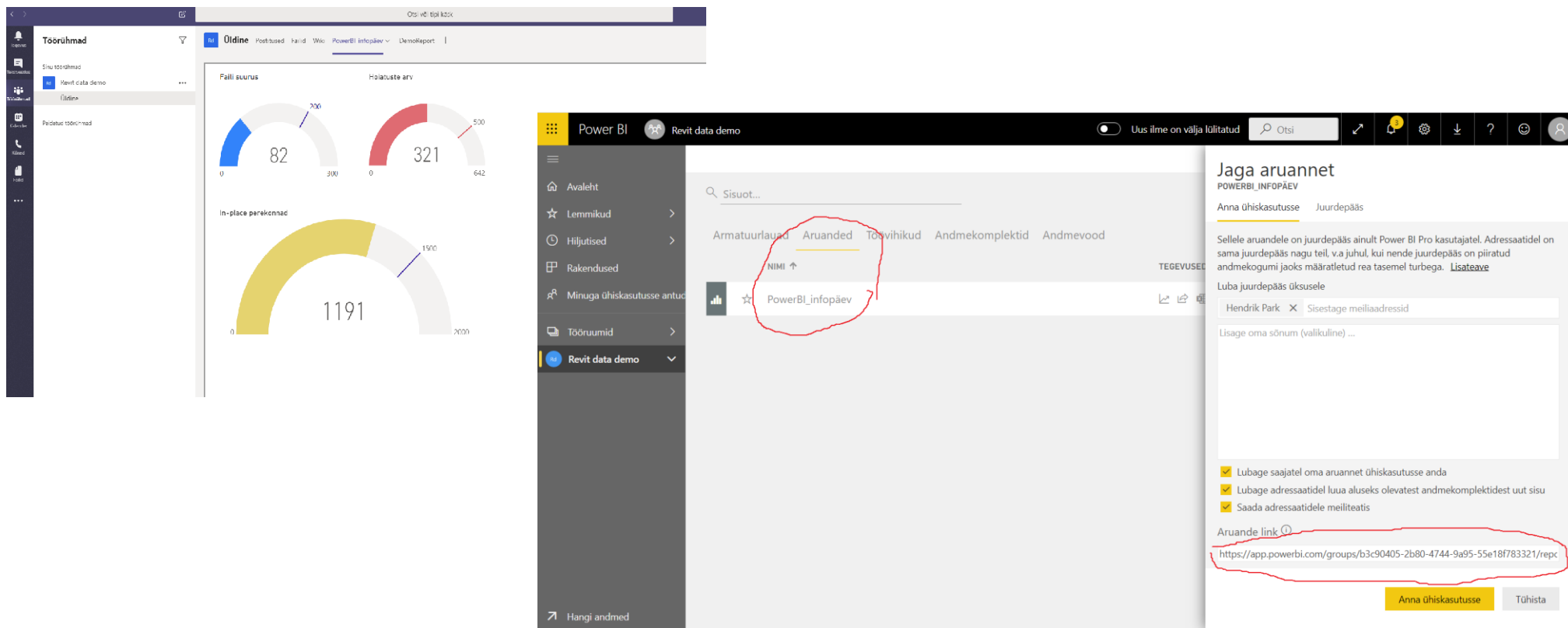
[https://docs.microsoft.com/en-us/power-bi/
service-how-to-collaborate-distribute-dashboards-reports](https://docs.microsoft.com/en-us/power-bi/service-how-to-collaborate-distribute-dashboards-reports)



TÖÖVOO SAMMUD

- Jaga Power BI raportit Teamsis
- Loo raportist Power BI Dashboard
- Jaga Dashboardi linki veebis st BIM 360 projekti kodulehel

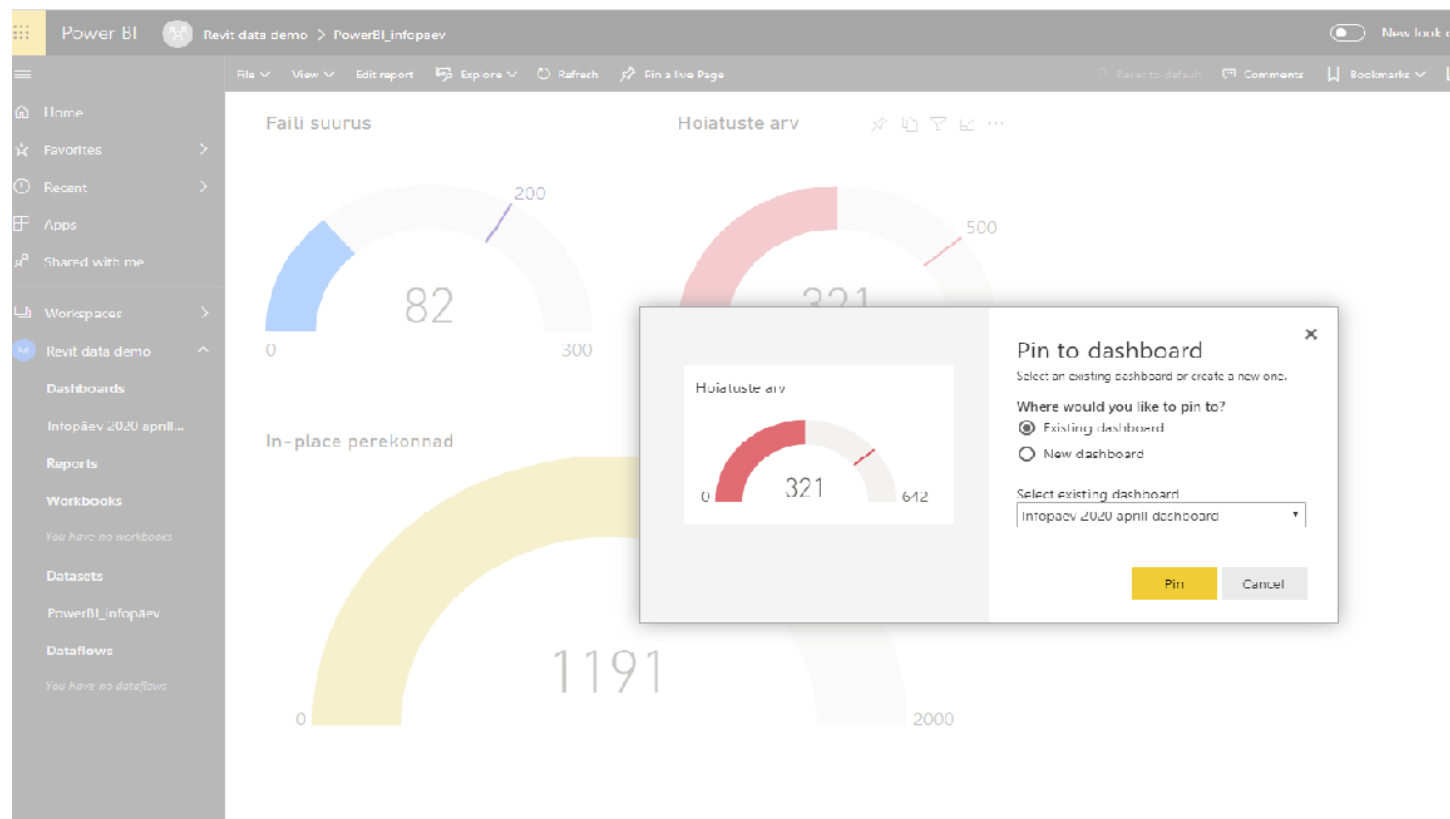
SAMM 1 – RAPORDI JAGAMINE TEAMSIS



Power BI rapordi jagamine MS Teamsis:

<https://docs.microsoft.com/en-us/power-bi/service-embed-report-microsoft-teams>

SAMM 2 – POWER BI DASHBOARD LOOMINE



Power BI dashboardi loomine ja jagamise erinevad viisid:

<https://docs.microsoft.com/en-us/power-bi/service-how-to-collaborate-distribute-dashboards-reports>

SAMM 3 – JAGA DASHBOARDI LINKI VEEBIS (BIM 360 PROJEKTI KODULEHEL)

The screenshot displays the Power BI 'Share' menu for a report named 'PowerBI_infopäev'. The menu options include: Save as, Print, Embed, Embed in SharePoint Online, Publish to web, Export to PowerPoint, Export to PDF, and Download report (Preview). The 'Publish to web' option is highlighted, with a tooltip stating 'Embed this report for public access by anyone on the Internet'. In the background, a dashboard preview is visible, featuring a map of Tallinn, weather information (9°C, Mostly Cloudy), and two gauges. The 'Hoiatuste arv' (Number of Warnings) gauge shows a value of 32, and the 'In-place personal' gauge shows a value of 1191. A 'Card Library' panel on the right shows a search for 'power' and a list of filters including Companies, Issues, Project Controls, Design, Reviews, RFIs, Submittals, Coordination, Quality, Safety, Cost, Schedule, Partner Cards, and Planning.

Power BI dashboardi jagamine BIM 360 projekti avalehel:

<https://www.youtube.com/watch?v=9nm8jdToG0Y&list=PL0RZIBv0pCftzo9ntWSwTfVbUE3d96etu&index=11&t=0s>

TÄNUD TÄHELEPANU EEST!

Kui saame andmetega aidata:

kristel@usesoft.ee

+372 50 25 369