SD226808

The Pros and Cons of Creating Revit Dynamo Tools vs Add-In Tools

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Learning Objectives

- What is the Revit API?
- Learn the basics of what Revit Dynamo & Add-Ins are
- Find Learning Resources for both Revit Dynamo & Add-Ins
- Pros & Cons creating Revit Dynamo & Revit Add-In tools

Description

Revit Dynamo is a great user-friendly tool that is used more and more every day. With the ability to create your own nodes, use Python, and download Packages, Revit Dynamo is almost as easy as it can be. Creating Revit Add-Ins using C# programming language for example means learning how to code but also how to code with the Revit API. This can take a lot of time and effort; however, having complete control over the code logic, being able to create any GUI needed, and utilizing Revit API Events can give you many powerful abilities. In this presentation, we will discuss when using Revit Dynamo or a Revit Add-In may be the best solution, and we will look at the pros and cons for both depending on a number of factors, including limitations each may have.

Speaker(s)

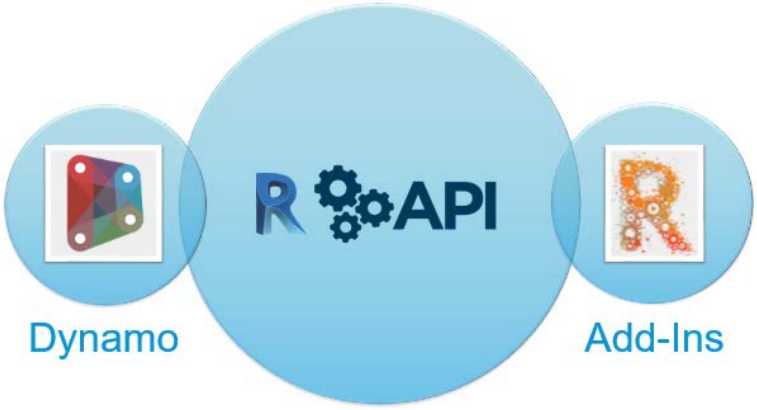
Dan Tartaglia

- 32 years in the AEC industry
- Work at NBBJ for 10 years (Columbus OH)
- BIM Platform Leader (firm-wide role)
  - Responsible for effective BIM platform
  - Deploying/Training teams using BIM 360
  - Identify existing/create BIM tools
  - Develop firm metrics for strategic planning
  - Wear many other 'hats'

Nick Burnett

- 11 Years BIM AEC experience
- Studio BIM Lead for Los Angeles
- Worked with Over 40 Companies and 2 dozen pieces of software
  - Management
  - Implementation
  - Authoring
  - Development
  - Team Building

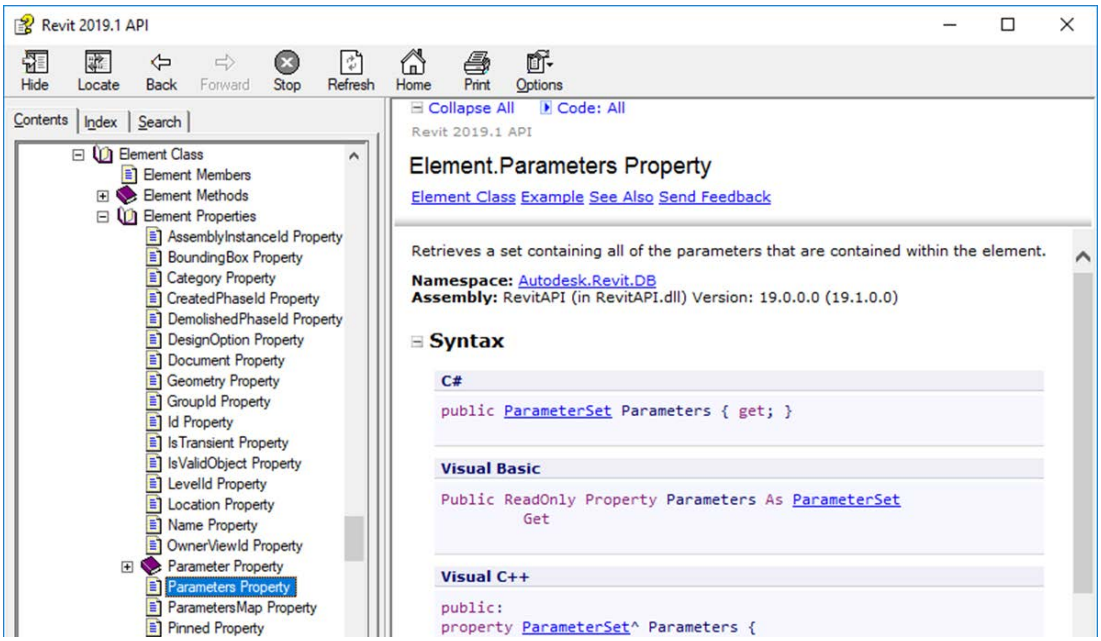
What is the Revit API?



Icons courtesy of: DynamoBIM and Juan Osborne

- Application Programming Interface (API)
- Collection of protocols and subroutines for building software
- Allows you to program with any .NET compliant language
- You cannot create custom tools without it

To get the Software Developer Kit (SDK) which includes the RevitAPI.chm, install the MSI from the Revit installation folder's: …\Utilities\SDK folder.



…also use the web tool: http://www.revitapidocs.com/

Revit API Docs

Online Documentation for the Revit API

Learn the basics of what Revit Dynamo & Add-Ins are

What is Revit Dynamo?

- *Visual Programming Language*

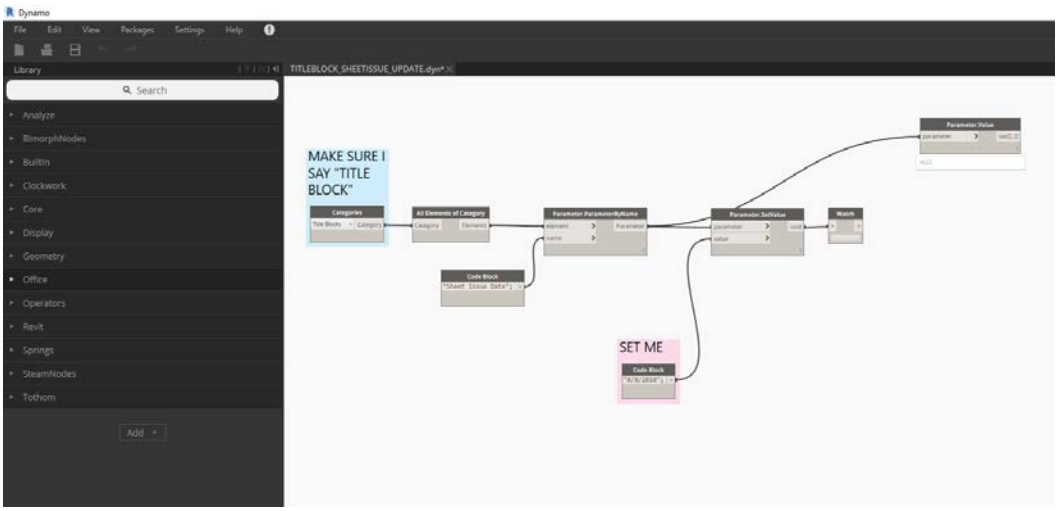
  Dynamo is a graphical programming language that allows users without a programming background to build algorithmic processes to implement as tools and resources in a BIM project.

- *Intuitive to the Revit environment*

  Dynamo connects directly to the Revit environment of whichever current project you have open, seeing both all developed project information and accessing all Revit tools and abilities.

- *Project enhancement*

  The Dynamo interface connects with whichever Revit project you have currently open but works in its own windowed environment to develop the graphical scripts.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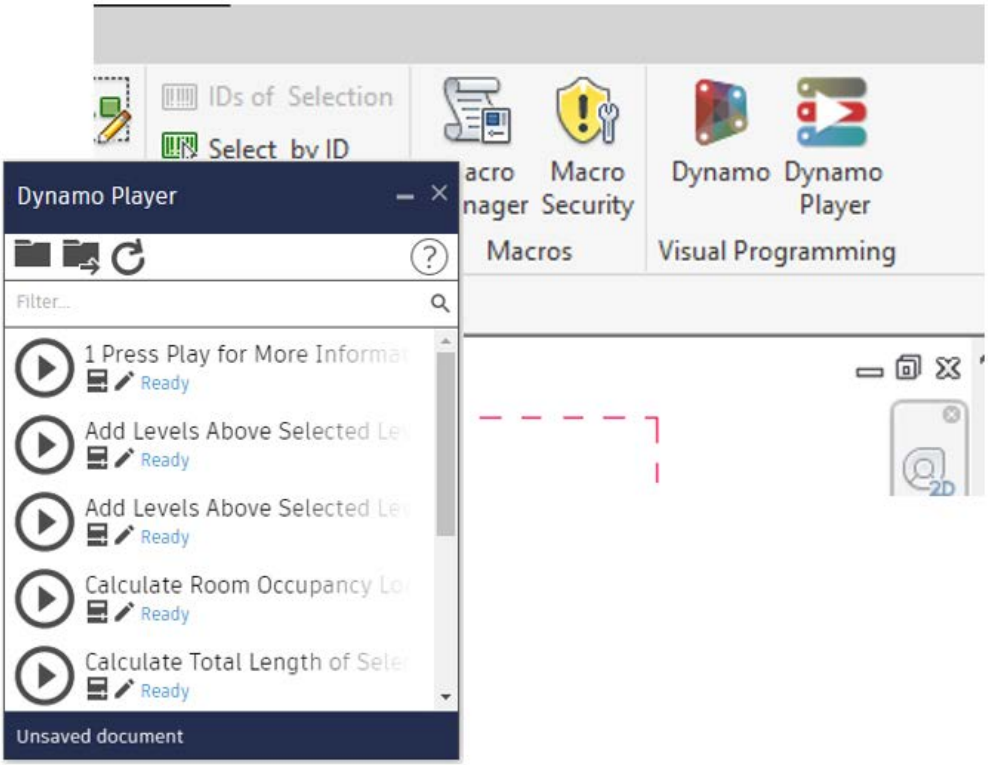
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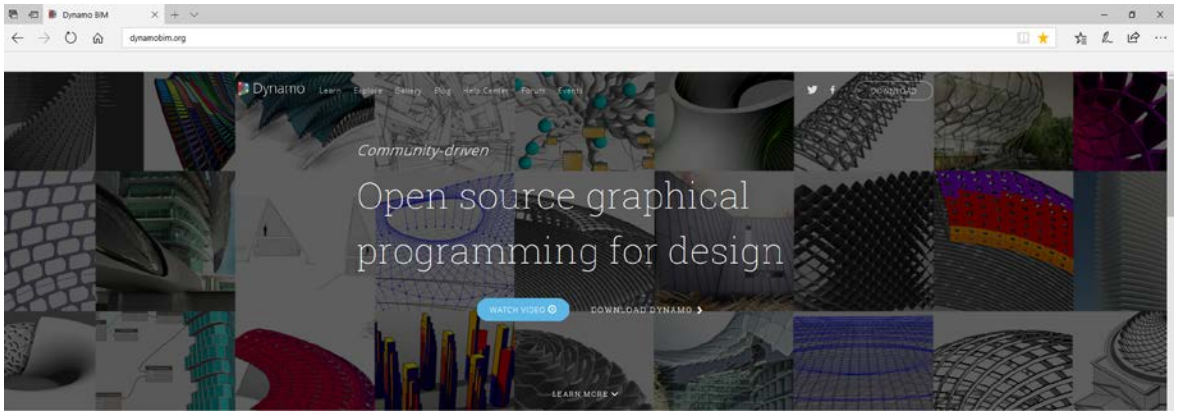
Revit Dynamo Learning & Resources

- One website for all your needs!
  http://dynamobim.org/

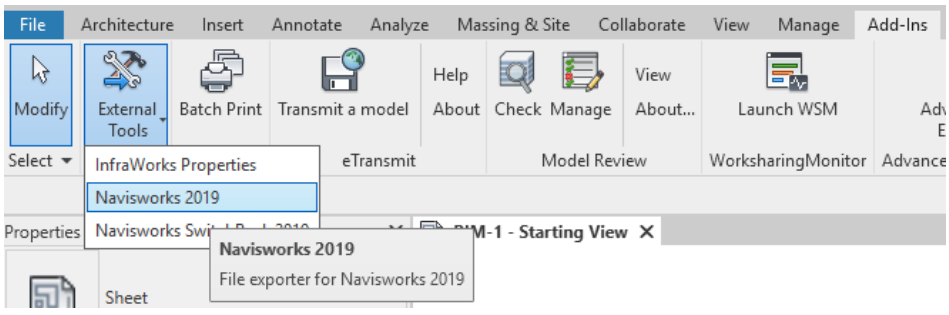


Dynamo is open source and has a great website where all the needed learning and resources exist in one place. Besides being able to download the latest version of Dynamo, some of the more useful links are:

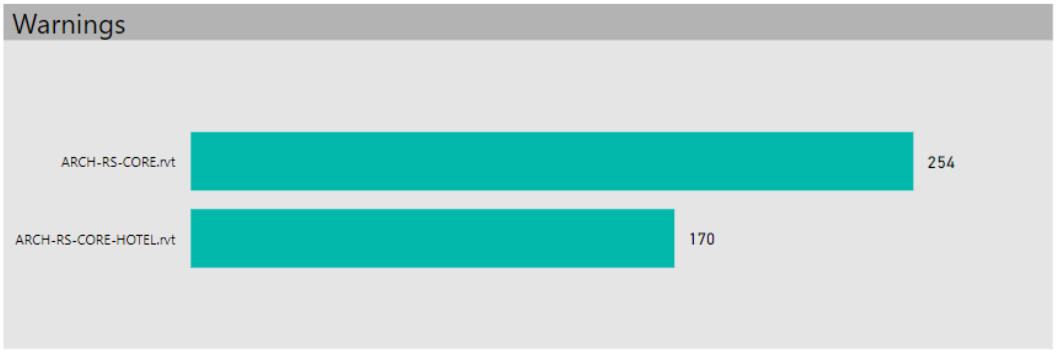
- **Learn**: Contains a lot of information and video tutorials for beginner to advanced level users.
- **Forum**: Post questions or search topics or information you need. There is also a lot of example code.
- **Events**: See a calendar of all upcoming conferences and workshops.
- …also go through the other links as well. Besides this website, there are many user blogs and examples, packages and tools on GitHub.

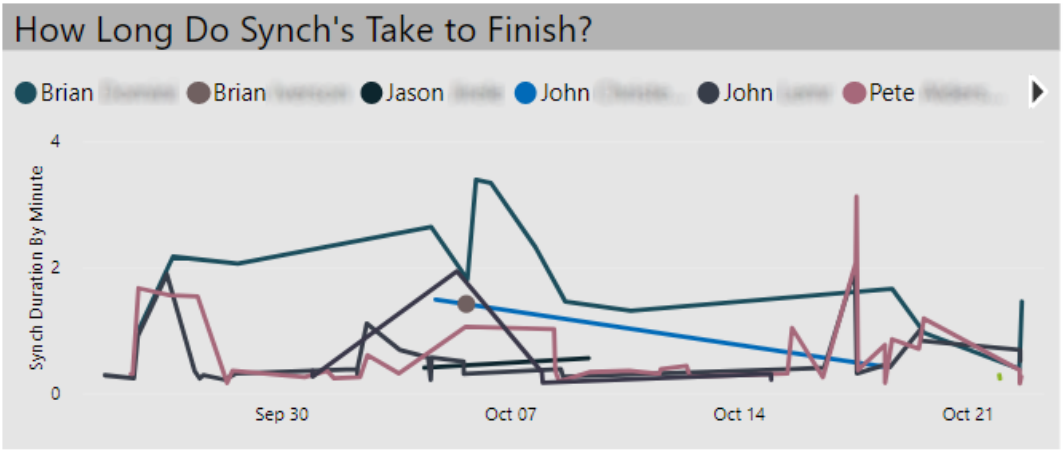
What is a Revit Add-In?

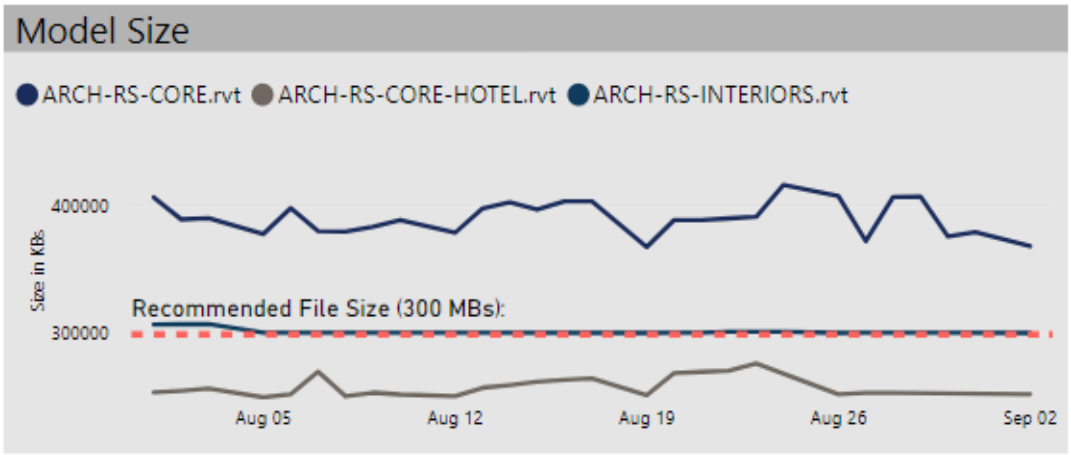
- In the context of this presentation, a Revit Add-In is a tool using a coding language using for example C#.
- A tool created with a manifest file (.addin) and one or more DLLs. There are two main types of tools:
  - **Command**: *(most common)* this is a tool similar to the Wall tool in Revit. You start the tool, place walls then stop the tool.



- **Application**: This type of tool uses Revit API events to start running when Revit launches then typically stops when Revit closes (it can be stopped at any time as needed). One example can be to automatically extract Revit metrics.







Revit Add-In Learning & Resources

- There are many Autodesk related websites and the SDK to find tutorials, resources, support and samples on using the Revit API to create Add-In tools using a coding language. Just like Dynamo, there are many user blogs, examples and tools on GitHub as well. Many resources listed below can also help Revit Dynamo users, especially if they need to use DesignScript or Python nodes.

    - *Revit on-line help file:*
      http://help.autodesk.com/view/RVT/2019/ENU/

    - *Revit API Autodesk Community:*
      https://forums.autodesk.com/t5/revit-api-forum/bd-p/160

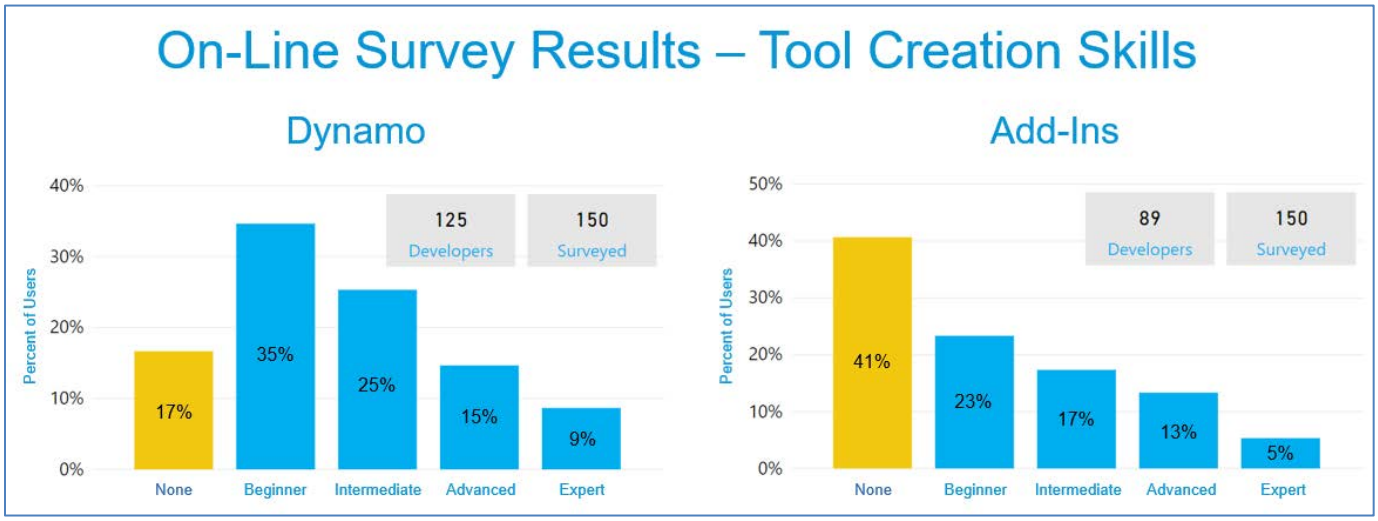
    - *The Building Coder:*
      http://thebuildingcoder.typepad.com/

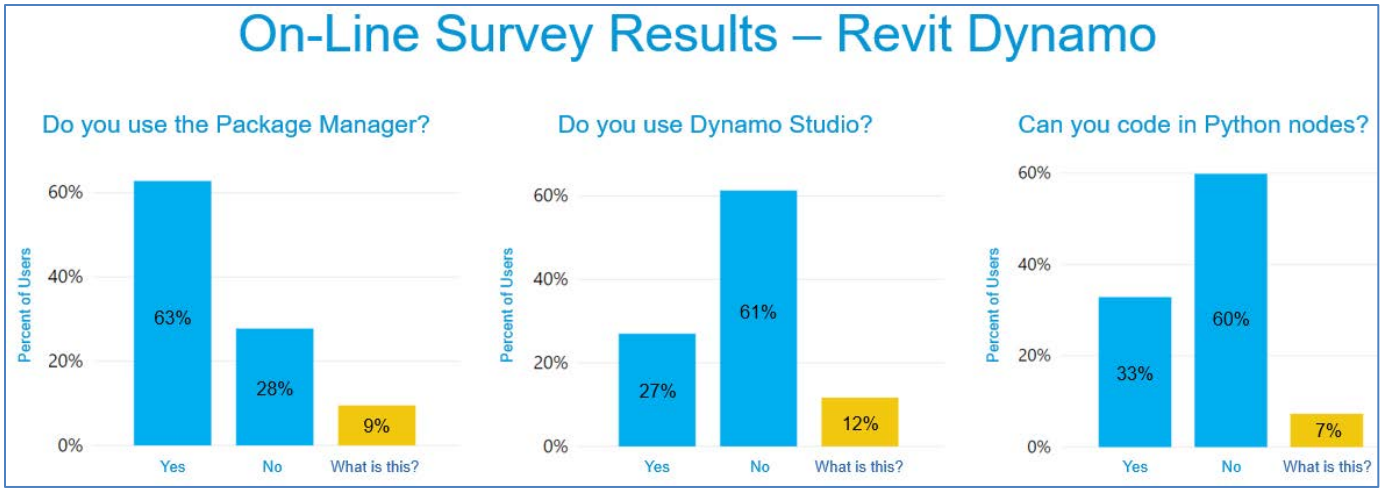
    - *Software Developer Kit (Revit SDK):*
      Found in the installation folder: *Utilities/SDK*
        - SDK help file
        - Many working examples in mostly C#
        - …and more.

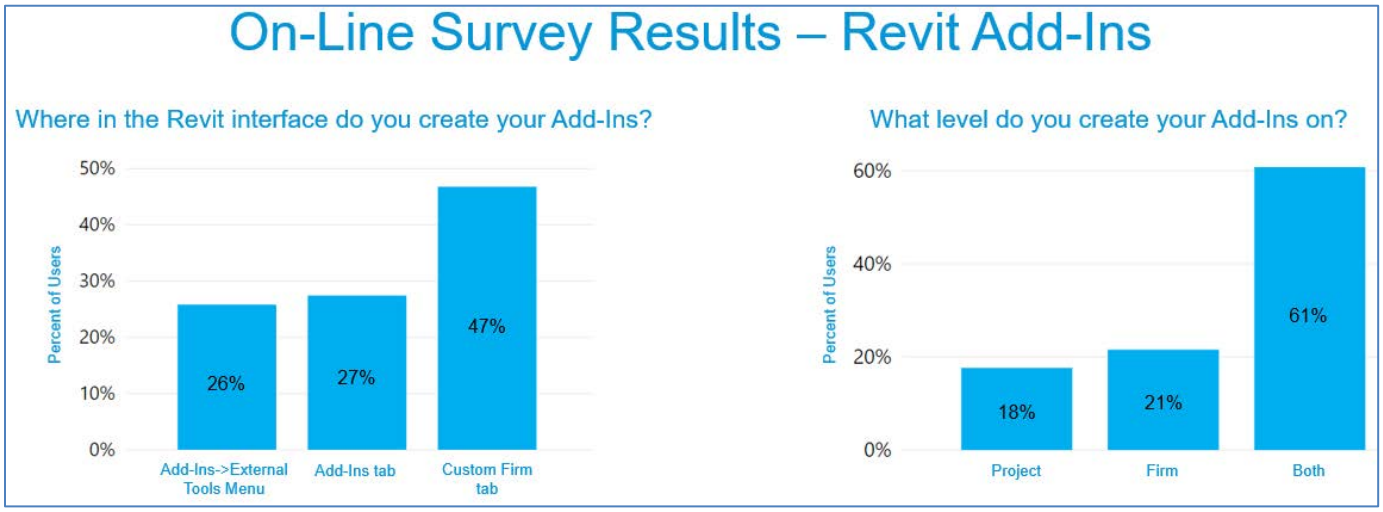
    - *Revit API Docs:*
      http://www.revitapidocs.com/

    - Autodesk Developer Network (ADN) need to be a member:
      https://www.autodesk.com/developer-network/overview

On-line Survey results







Pros & Cons creating Revit Dynamo & Revit Add-In tools

- This information is only in the PowerPoint slide deck. You will be able to download it after the presentation.