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Automate Boring Stuff in Autodesk using RPA

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Learning Objectives

- Know about Robotic process automation
- Power of RPA and its Use cases
- Understand how RPA can benefit Civil industry
- Discover how to combine RPA and Autodesk

Description

RPA (robotic process automation) is growing fast. RPA is mimicking the repetitive human activities with software robots. Almost 25-30% of every project has repetitive tasks that are done by engineers, designers, and modelers, including data copying from Microsoft Excel to a software, headers and footers for drawings, drawing info extraction, conversions, analysis, and so on. For some of these activities we use plug-ins, programs like Dynamo software, coding like VBA, .NET, and Forge. But these are specific to each software and work for a specific task. In this session, I'm going to introduce an innovative solution using RPA that works with most Autodesk software, including AutoCAD software, Civil 3D software, Revit software, and Navisworks software. You will see RPA in action preparing inputs, transferring data between different sources, performing analysis, extracting data, filing data, generating reports, and much more, aiming to automate your business processes. Join this exciting session to learn about RPA and its application with Autodesk products.

Speaker(s)

Shahansha Shaik
Working in Arcadis India as Automation Lead. 11 years of experience on software development. Expert in RPA, Web technologies, Microsoft Power Platform, AR & VR.

Ashutosh Sabnis
Working in Arcadis India as BIM Manager. 9 years of experience in Civil industry. Expert in Autodesk Revit, Naviswork and Dynamo.

Robotic Process Automation

- RPA is the process that enables to create your own software robots to automate any rule - based business process.
- Think of them as your digital workforce.
- Train your bots what to do, then let them do the work.
- Robotic automation uses a computer (a.k.a. robot) to run application software in the exact same way that a person works with that software
- RPA aims to replace repetitive tasks performed by humans, with a virtual workforce. Humans then make judgmental calls, handle exceptions and provide oversight.

RPA Key Areas

Getting data from different sources and consolidation

Integrating systems that don't talk to each other.

Data Manipulation

Generating reports and sending mass emails

Potential Projects

Store the data in a consistent format

Scheduling tasks

Filling forms on several locations

File conversions

RPA Tools

- UIPath
- Blueprism
- Automation Anywhere
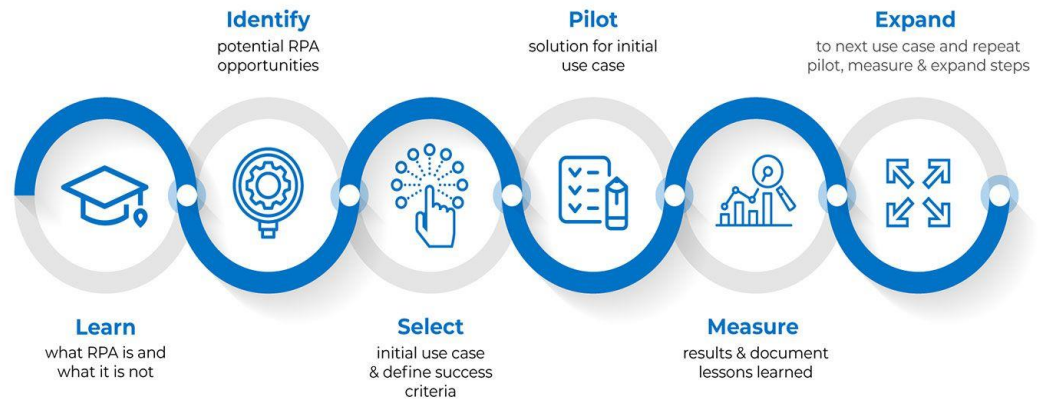- Power Automate Desktop e.t.c

Construction Domain Pain points
- A lot of manual repetitive tasks on desk or at site
- Program management
    - Schedule management
    - Vendor management
- Cost / Financial management
    - Utility management
    - Invoice management
- Employee/contract management
- Engineers have a lot of daily manual repetitive tasks
- Mostly 30% of processes are same for all most all types of projects which is being done manually.
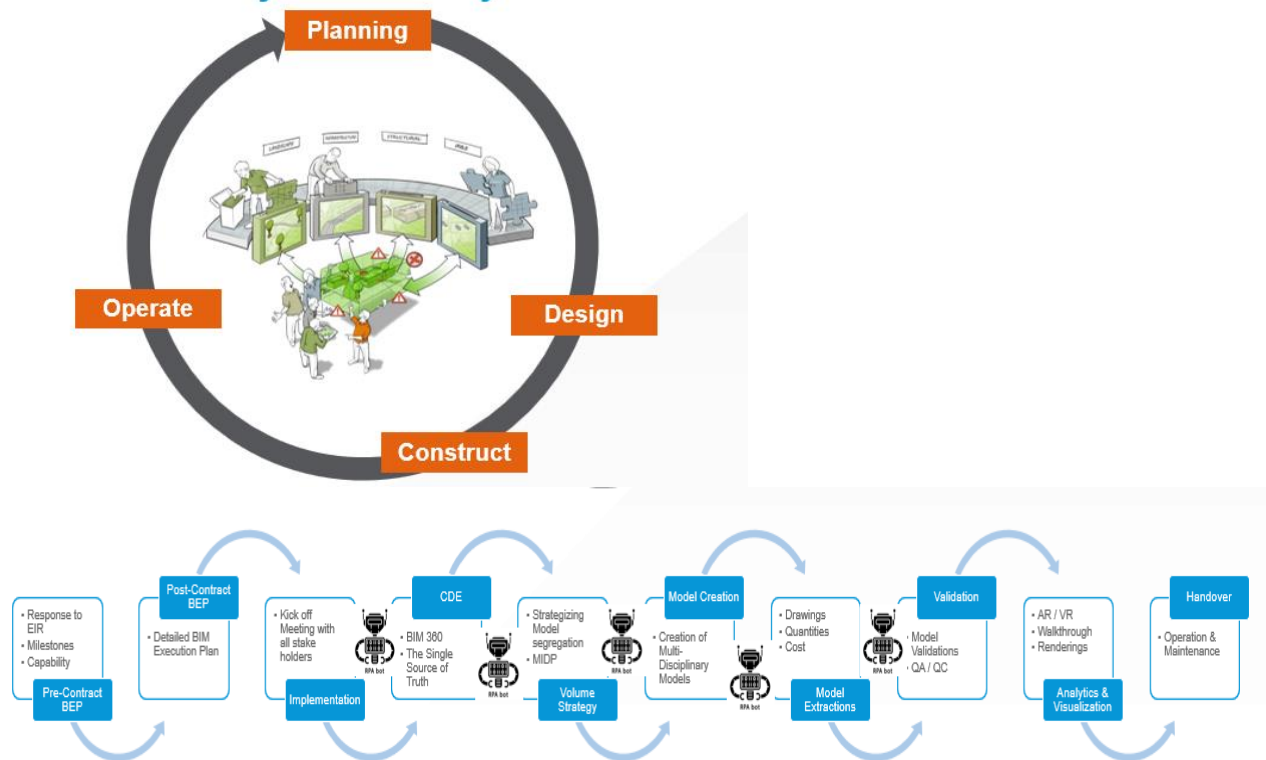- Design automation is hard and very specific to the tool / technology / platform

What do you need to do RPA?
- PC
- Repetitive Use case
- RPA UIPath license
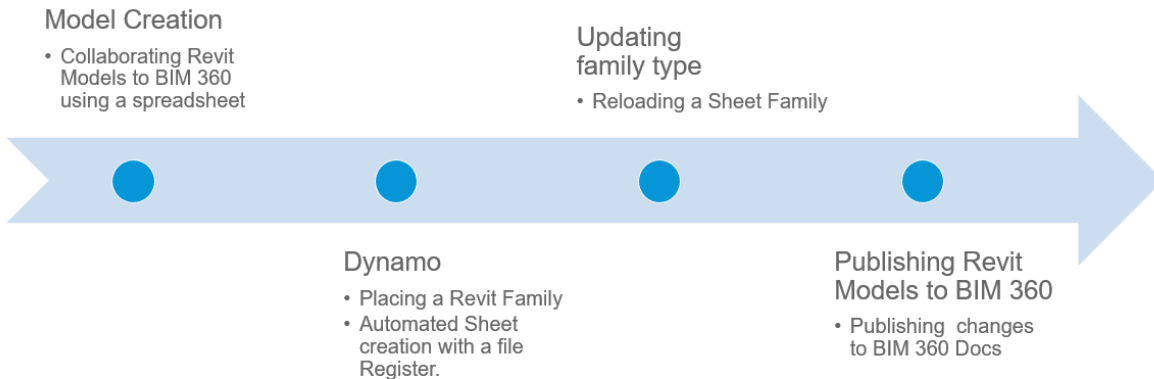- RPA experttize
- Domain expertize

How RPA can be utilised?

Identify
potential RPA
opportunities

Pilot
solution for initial
use case

Expand
to next use case and repeat
pilot, measure & expand steps

Learn
what RPA is and
what it is not

Select
initial use case
& define success
criteria

Measure
results & document
lessons learned

BIM Project Life Cycle

Planning

Operate

Design

Construct

- Response to EIR
- Milestones
- Capability

Pre-Contract BEP

Post-Contract BEP

- Detailed BIM Execution Plan

- Kick off Meeting with all stake holders

Implementation

RPA bot

CDE
- BIM 360
- The Single Source of Truth

RPA bot

- Strategizing Model segregation
- MIDP

Volume Strategy

RPA bot

Model Creation
- Creation of Multi-Disciplinary Models

RPA bot

- Drawings
- Quantities
- Cost

Model Extractions

Validation
- Model Validations
- QA / QC

RPA bot

- AR / VR
- Walkthrough
- Renderings

Analytics & Visualization

Handover
- Operation & Maintenance

Revit & BIM360 Use Cases

Model Creation
- Collaborating Revit Models to BIM 360 using a spreadsheet

Dynamo
- Placing a Revit Family
- Automated Sheet creation with a file Register.

Updating family type
- Reloading a Sheet Family

Publishing Revit Models to BIM 360
- Publishing changes to BIM 360 Docs

Check out an awesome demo in video.

Benefits of RPA
- Individual, team and organization can get benefitted out of such automations
- This can be generalized to any Autodesk tool like AutoCAD, Civil 3D, Navisworks etc. Infact for Bentley tools as well.
- All use cases pre and post design can also be automated

More Use Cases
- All workflows in any software which are done manually today
- Project and Program Management
- Cost and Commercial management
- Finance Management

Future of RPA in Construction Industry
- A software bot for each person is reality soon
- Bot can do the end to end automation by interacting with multiple different software tools
- RPA Bot is not just for repetitive tasks, they are also getting intelligent with AI / ML, IoT interactions
- RPA to IPA (Robotic to Intelligent Process Automation)

See you in Q & A Session