Automate Boring Stuff in Autodesk using RPA

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Agenda

• About Arcadis
• RPA Introduction
• Pain Points
• Revit and BIM360 RPA Use Cases
• Demo
• Benefits and Future
A software bot per person is going to be a reality soon

Source: https://www.uipath.com/rpa/robot-every-person
About the speaker

Shahansha Shaik

Working in Arcadis India as Automation Lead.

11 years of experience in software development.
About the speaker

Ashuthosh Sabnis

Working in Arcadis India as BIM Manager. 9 years of experience in BIM and AEC industry. Expert in Autodesk Revit, Civil 3D, BIM 360 and Dynamo.
Learning Objectives

LEARNING OBJECTIVE 1
Know about Robotic Process Automation

LEARNING OBJECTIVE 2
Power of RPA and its Use cases

LEARNING OBJECTIVE 3
Understand how RPA can benefit AEC industry

LEARNING OBJECTIVE 4
Discover how to combine RPA and Autodesk
Arcadis at a Glance

- We are the leading **global natural and built asset design & consultancy** firm working in partnership with our clients to deliver **exceptional and sustainable outcomes** through the application of design, consultancy, engineering, project and management services.

**2018**
- Best Management Consulting Firms
  - Forbes
- #5
  - Top 225 International Design Firms (2018)
  - Engineering News Record
- #12
  - Top 200 Environmental Firms (2018)
  - Engineering News Record
We Address the World’s Most Pressing Challenges

- Globalization
- Urbanization
- Mobility
- Climate Change
- Sustainability
- Scarcity
- Asset Productivity
- Energy
- Natural Resources
Global Reach

Our global network seamlessly brings together our knowledge and experience of projects worldwide...
RPA Introduction
Robotic Process Automation

- RPA is the process that enables the creation of software robots to automate any rule-based business processes.
- 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

Potential Projects

- Integrating systems that don't talk to each other.
- Generating reports and sending mass emails.
- Scheduling tasks.
- Getting data from different sources and consolidation.
- Data Manipulation: Store the data in a consistent format.
- Filling forms on several locations.
- File conversions.
RPA Tools

- UIPath
- Blueprism
- Automation Anywhere
- Microsoft Power Automate Desktop

Source: Gartner (July 2020)
Q. Over the next year, how much investment/focus is your organization making year to help you achieve operational cost saving goals?

<table>
<thead>
<tr>
<th>Technology</th>
<th>Significant investment/focus</th>
<th>Some investment/focus</th>
<th>Limited investment/focus</th>
<th>No investment/focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robotic Process Automation</td>
<td>53%</td>
<td>28%</td>
<td>14%</td>
<td>5%</td>
</tr>
<tr>
<td>Cloud</td>
<td>44%</td>
<td>36%</td>
<td>14%</td>
<td>6%</td>
</tr>
<tr>
<td>Internet of Things (IOT)</td>
<td>42%</td>
<td>35%</td>
<td>18%</td>
<td>5%</td>
</tr>
<tr>
<td>Analytics</td>
<td>37%</td>
<td>41%</td>
<td>18%</td>
<td>4%</td>
</tr>
<tr>
<td>AI/ML/Cognitive</td>
<td>33%</td>
<td>48%</td>
<td>14%</td>
<td>5%</td>
</tr>
<tr>
<td>Blockchain</td>
<td>33%</td>
<td>40%</td>
<td>23%</td>
<td>4%</td>
</tr>
<tr>
<td>Virtual / Augmented Reality</td>
<td>33%</td>
<td>30%</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Drones</td>
<td>19%</td>
<td>37%</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>Driverless Vehicles</td>
<td>16%</td>
<td>32%</td>
<td>22%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Source: HfS Research in Conjunction with KPMG, "State of Operations and Outsourcing 2018, March, 2018
Sample: (Interim Data) Enterprise Buyers (Global 2000) = 250
## RPA Adoption Across Processes And Industries

RPA is high priority for most global in-house centres

<table>
<thead>
<tr>
<th>Industry</th>
<th>Finance and Accounting</th>
<th>Procurement</th>
<th>Human Resources</th>
<th>Contact Center</th>
<th>Industry Specific Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banking</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Cards activation, Fraud claim discovery</td>
</tr>
<tr>
<td>Insurance</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Claims processing, New business preparation</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Reports automation, System reconciliation</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Bills of Material generation</td>
</tr>
<tr>
<td>Hi-Tech &amp; Telecom</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Service order management, Quality reporting</td>
</tr>
<tr>
<td>Energy &amp; Utilities</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Account setup, Meter reading validation</td>
</tr>
</tbody>
</table>
Pain Points
Pain Points

- 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
DIGITAL ASSET LIFE CYCLE

The Digital Asset Lifecycle approach is a critical step in realizing our vision.
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
What do you need to do RPA?

Basic things to start

PC
Repetitive Use case
RPA UiPath license
RPA expertise
Domain expertise
Demo

Everything running on screen during this demo is run by BOT!!
## RPA Vs Other

<table>
<thead>
<tr>
<th>RPA</th>
<th>Other tools (VBA, .Net, APIs, Dynamo etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPA is technology / tool agnostic (Works with Revit, AutoCAD, Navisworks and in fact with all most all software in PC)</td>
<td>Specific to tool / platform</td>
</tr>
<tr>
<td>Easy to learn and implement</td>
<td>Complex needs coding knowledge</td>
</tr>
<tr>
<td>Rapid Automation Development</td>
<td>Takes time to develop and maintain</td>
</tr>
</tbody>
</table>
Digital Asset Life Cycle

- RPA Can connect the dots by interacting with multiple platforms in the asset and data life cycle
- D&E, PgE, CCM

Data Life Cycle

- **Data Collection**: Collect data from different sources like apps, drone, survey etc.
- **Data Processing**: Data extraction from original sources, cleaning, transforming.
- **Data Entry**: Entering data into Database from different sources.
- **Data Storage**: Storing Data in a system (SharePoint / DB).
- **Data Integration**: Single Source of Truth by merging data from multiple sources.
- **Data Extraction**: Extracting specific data as per requests.
- **Data Validation**: Verification of data before submitting reports.
- **Reporting**: Preparing reports as per client/govt requirements.
- **Analytics & Visualization**: Get Data insights for decision making.
- **Data Sharing**: Sharing/access to people/applications etc.
Future

- A software bot for each person will be a 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, NLP and IoT interactions
- RPA to IPA (Robotic to Intelligent Process Automation)
References & Learning Opportunities

- www.Shahansha.com
- https://www.uipath.com/rpa/robot-every-person
Thank You!

See you in Q&A
IMPROVING QUALITY OF LIFE