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The complete toolbox for designing your model-driven app solutions

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Two sides to every story (or, why this session?)

What is this?

Model-driven app

Dynamics

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Two sides to every story (or, why this session?)

Model-driven app	Dynamics
• Coming from SharePoint/Office 365	• Coming from Dynamics 365 (or before)
• Familiar with canvas apps & Power Automate	• Familiar with data models, business rules, scripts, plug-ins, etc.
• Getting into Dataverse & model-driven apps	• Getting into Power Automate & canvas apps

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My background

My first apps

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My current app "portfolio"

- SharePoint-based canvas apps

- Dataverse-based canvas apps

- Model-driven apps

- Dataverse-based solutions

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Two sides to every story (business logic & user interface)

No-code/low-code
- Business rules
- Classic workflows
- Power Automate cloud flows
- (Embedded) canvas apps

Code-first
- Form scripts
- Classic workflows
- Plug-ins
- PCF components

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Component definition

Business rule

- Defined for a table
- Acts on a form or table level
- Set
  - Visibility (of fields)
  - Optional/required
  - Lock
  - Default value
  - Field value

- No use of related records' information
- No interaction with sections/tabs of a form
- No error handling
- Only work if all fields used in the rule are present on the form (visible or hidden)
- No control over order of execution of multiple business rules for one form/table

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Classic workflows

- Defined related to a table
- On-demand or automated
- Synchronous or asynchronous
- Use code steps

- Limited number of actions available
- Only interact with Dataverse and other services that provide actions

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Power Automate cloud flows

- Instant, automated or scheduled
- Asynchronous
- Can connect to other data sources or services
- Complex logic and loops possible
- Use all available relational data

- Always run in the background

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(Embedded) canvas apps

- Use other tables
- Pixel-perfect control over UI
- Improve visualization of information

- Are not part of the form definition but load after the form has loaded
- May require additional licensing

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Form scripts

- Defined for a table
- Acts on a form
- Reacts to an event (load, change, save)
- Can interact with all elements of a form (including tabs and subgrids)
- Can include error handling
- Control over order of operations
- Can use related record information

- Requires coding
- Can become very complex

Plug-ins

- Linked to a table
- Interfere at a database level
- Can execute pre, during or post a transaction
- If done correctly, are the most effective way to apply business logic

- Requires coding
- If done incorrectly, can have a significant impact on performance of your solution

PCF components

- Improve visualization

- Use Dataverse API to get information

- Part of form definition

- Developer experience

- Cannot share packages/libraries across components on the same form

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Designing your model-driven app solutions

Step 1: Define the ground rules

- These will help in deciding what to use
- Take into account your companies' strengths and vision
- Take into account other apps/solutions in the same environment

- Our company's ground rules
  - Low-code first
  - Uniformity is key
  - Asynchronous where possible
  - Less is more

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Step 2: Keep the limitations in mind

- Some limitations are straightforward
  - Cloud flows cannot run synchronously
  - Business rules can only set fields based on fixed values or values from the record itself
  - Etc.
- Some you will only learn as you go
  - Cloud flows cannot trigger on N:N relationships
  - Cloud flows cannot use information from a deleted record
  - Etc.

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Step 3: Design the solution so it meets the requirements

- The ground rules define your default choice
- The limitations dictate when another option is needed

- With the ground rules defined earlier
  - Cloud flows > classic workflows > plug-ins
  - Business rules > form scripts
  - (Embedded) canvas apps > PCF components
- But, with the limitations in mind
  - Plug-ins are used when intervening in deletions
  - Form scripts are used when setting values based on related tables

Some examples

Setting conditional values

No-code/low-code

- Business rules
- Classic workflows
- Power Automate cloud flows
- (Embedded) canvas apps

Code-first

- Form scripts
- Classic workflows
- Plug-ins
- PCF components

Setting conditional values

Business Rule

If field A value (number) > x, set field B (Yes/No) to "Yes", otherwise set to "No"

Set a Person field to the "Owner" of the record

Form Script

When selecting a City (Lookup) automatically set Country (Lookup) and Region (Lookup)

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Act on change in a Business Process Flow

No-code/low-code

- Business rules
- Classic workflows
- Power Automate cloud flows
- (Embedded) canvas apps

Code-first

- Form scripts
- Classic workflows
- Plug-ins
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Act on change in a Business Process Flow

Form script

Redirect after stage change

Improve a warning message (e.g. user is not allowed to change the stage yet)

Classic workflow

Clear fields used in BPF

Validate that the stage change is valid

Cloud flow

Clear fields used in BPF

Take a set of actions (e.g. start approval) on a stage change

Take action on CRUD actions in a table
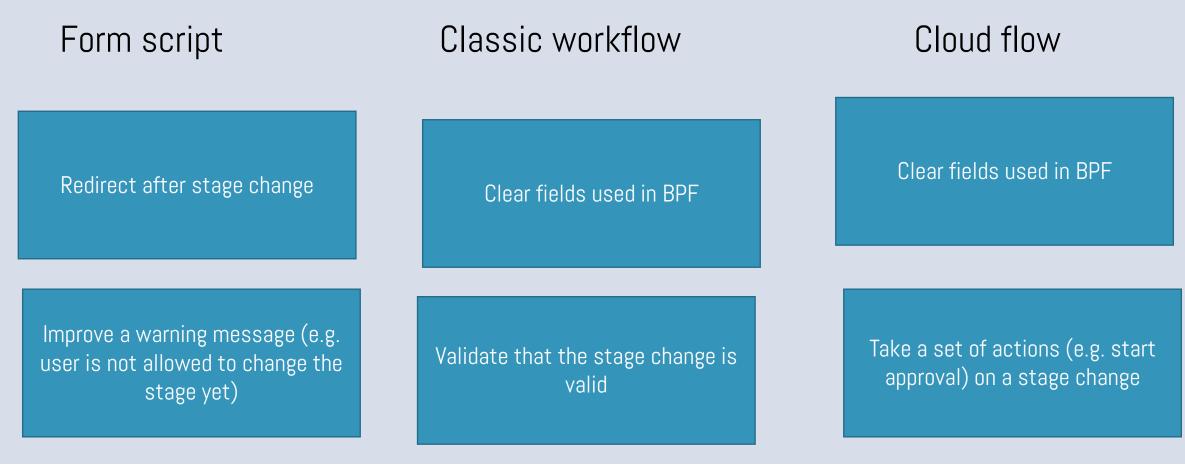
No-code/low-code
- Business rules
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Code-first
- Form scripts
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Take action on CRUD actions in a table

Cloud flow

Plug-in

After a record is created, send a notification

On modification of a record, validate the input before saving

On modification of a record, log the action in a custom logging table

On deletion of a record, log the action in a custom log table

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Takeaway

If there is only one thing you remember from this session...

Define your ground rules

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