DYNAMICS MINDS

Microsoft Dynamics 365 and Power Platform Community Conference

MAY 26 – 28, 2025
Portorož, Slovenia, Europe

FINANCE & OPERATIONS

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and Power Platform Community Conference

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An introduction to BC development and delivery

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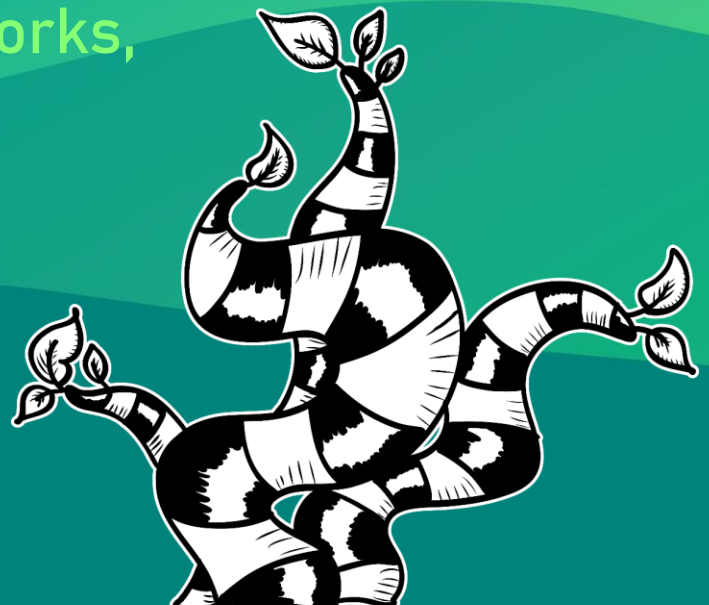
Disclaimer!

This is meant for people new to or interested in Business Central development and delivery. If you already know how this works, you probably won't learn a lot.



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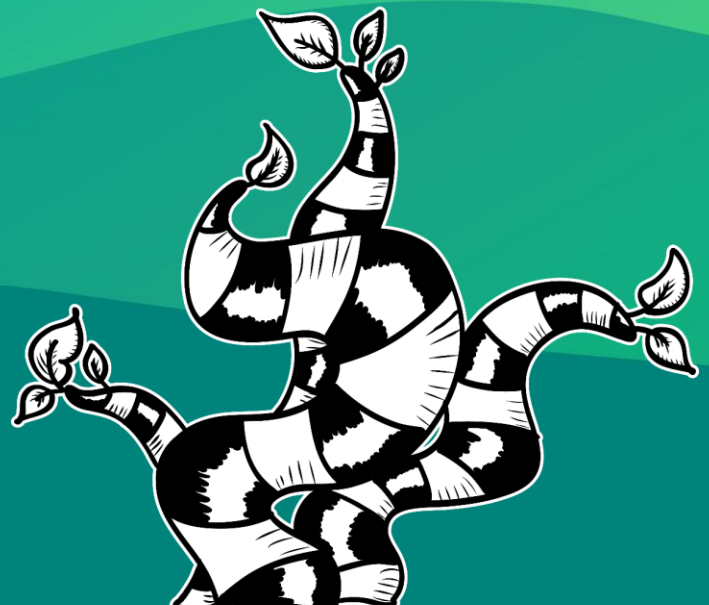
Development in BC (and NAV)



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General approach (past and present)

Customer code

Partner(s) code

Local Microsoft code (DE, UK, …)

International Microsoft code

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Implementation reality (past)

Implementation reality (present)

- You can't change or remove Microsoft code, you can only extend it
  - With a few exceptions
  - And a concept to replace whole "modules" if they are designed for it
- You can create for the whole world (AppSource) or for a customer ("Per Tenant Extension" PTE)
  - But you must say which localizations you support
- Overall a lot cleaner, better to understand and maintain
  - But also more limited

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General structure

- Business Central with classic 3-tier architecture: database, middle/application layer, (web) client
- Code is imported into the database, the rest is generated (more on that later)
- Because of generative approach, developer has far-reaching, but not complete influence on all layers

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Tooling (past): C/SIDE

Codeunit 50000 CrInvForCust10000And70000 - C/AL Editor

```
Documentation()
OnRun()
LOCAL CreateInvoiceDocument(VAR SalesHeader : Record "Sales Header")
WITH SalesHeader DO BEGIN
  INIT;
  "Document Type" := "Document Type"::Invoice;
  "No." := '';
  INSERT(TRUE);
END;

LOCAL TestIfCustomerIsBlocked()
WITH Customer DO BEGIN
  GET('10000');
  TESTFIELD(Blocked, Blocked::" ");
END;

LOCAL SelectCustomer10000(VAR SalesHeader : Record "Sales Header")
WITH SalesHeader DO
  VALIDATE("Sell-to Customer No.", '10000');

LOCAL SaveHeaderToDatabase(VAR SalesHeader : Record "Sales Header")
WITH SalesHeader DO
  MODIFY(TRUE);

LOCAL CreateSalesLine(VAR SalesHeader : Record "Sales Header";VAR SalesLine : Record "Sales Line")
LOCAL TestIfItemIsBlocked()
LOCAL SelectItem70000(VAR SalesLine : Record "Sales Line")
LOCAL SaveLineToDatabase(VAR SalesLine : Record "Sales Line")
LOCAL OpenSalesInvoicePage(VAR SalesHeader : Record "Sales Header")
```

Tooling (present): VS Code + AL extension

File Edit Selection View Go ··· 'S Base Application DE - PurchaseOrder4PD.PageExt.al - BC - Visual Studio Code - Ir

EXPLORER

- 4PS BASE APPLICATION DE
  - app
    - src
      - Subcontracting
        - contract
          - SubcontractorContracts4PD.Page.al
        - invoice
        - permission
        - reduction
        - setup
        - ActionHandler4PD.Codeunit.al
        - PrintdataBuffer4PD.Table.al
        - PurchaseOrder4PD.PageExt.al
        - PurchaseProcessingRC.PageExt.al
        - PurchaseQuoteExt4PD.PageExt.al
        - VendorCardExt4PD.PageExt.al
        - VendorExt4PD.TableExt.al
        - VendorListExt4PD.PageExt.al
      - Telemetry
      - whitevision
      - .gitkeep
    - Translations
    - .gitignore
    - .objidconfig
    - 4PS B.V._4PS Base Application DE_25.1.0.0.a...
    - app.json ↓M
    - AppSourceCop.json
  - test
- OUTLINE
- TIMELINE

AL PurchaseOrder4PD.PageExt.al

app > src > Subcontracting > AL PurchaseOrder4PD.PageExt.al > {} PageExtension 11316765 "Purchase Order 4PD"

0 references | Simon Häuser, 7 months ago | 2 authors (Simon Häuser and one other)

```
1  pageextension 11316765 "Purchase Order 4PD" extends "Purchase Order"      Simon Häuser, 2 ye
2  {
       Simon Häuser, 15 months ago | 2 authors (Simon Häuser and one other)
3      layout
4      {
5          movebefore("Invoice Received Date"; "Subcontracting Invoice")
6          addafter("Subcontracting Invoice")
7          {
               0 references | Simon Häuser, 15 months ago | 2 authors (Simon Häuser and one other)
8              group(Subcontracting4PD)
9              {
10                 ShowCaption = false;
11                 Visible = Rec."Subcontracting Invoice";
12
                   0 references
13                 field(SubcontractNo4PD; Rec."Subcontract No.")
14                 {
15                     ApplicationArea = All;
16                     ToolTip = 'Specifies the value of the Subcontract No. field.',
                       Comment = 'de-DE=Nachunternehmervertrag Nr.||nl-NL=Hiermee wordt de
                       waarde van het veld Onderaannemerscontractnr. opgegeven.';
17                     Editable = (Rec.Status <> Rec.Status::Released) and (Rec.Status <>
                       Rec.Status::Closed);
18
                       0 references
19                     trigger OnAssistEdit()
20                     var
21                         SCContractMgt: Codeunit "SC Contract Mgt. 4PD";
22                     begin
23                         SCContractMgt.ShowSubcontractAndCreateOptionally(Rec);
24                         CurrPage.Update(false);
25                     end;
```

master* 10↓ 0↑ Launchpad ⊳: 0 ⊗ 0 ⚠ 0 No AL workspace folder is active. An AL workspace is active, if a contained AL project Spaces: 4 UTF-8 CRLF {} AL

Development language (C/)AL

- 4th generation programming language ("4GL") with a much more generative approach than 3GL (C#, Java, Pascal, ...)
  - Developer writes business code, engine generates backend (C#) / frontend (HTML, JavaScript etc) code
- Optimised for the development of application logic
- Very quick to learn, relatively easy to use
  - But like everywhere else, it takes talent and hard work to be above average...
- Pascal-like syntax
- Past C/AL, present AL

Objects in AL

- Objects in Business Central != Object-orientation (OOP) in other languages
- Code and structures are stored in different object types:
  - Tables (correspond to tables on SQL Server)
  - Pages (UI for displaying data, among other things)
  - Codeunits ("containers" for business logic, roughly comparable to DLLs)
  - Others for different purposes (reports, XML ports, profiles, ...)

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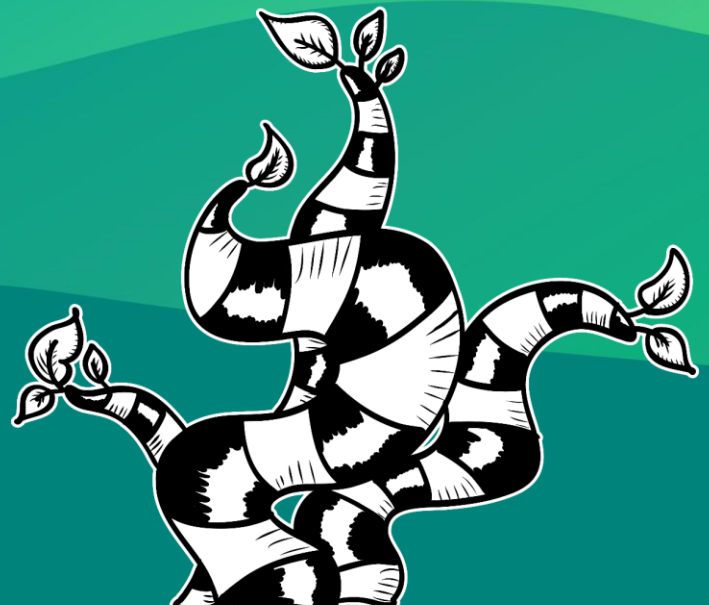
Demo: Development

Based on AL learning sample in official docs

Delivery in BC (and NAV)



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General approach (past)

- Very manual process
  - Develop in your local database (not file based, no real version control!)
  - Extract the changed objects into a file (“.fob”)
  - Connect to the target environment
  - Import the .fob file
- Could be automated in pipelines, but very cumbersome and with ugly workarounds

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General approach (present)

- File-based development, resulting in modular .app packages
- Build in build pipelines
  - AL-Go by Microsoft works in GitHub
  - ALOps works on Azure DevOps
  - COSMO Alpaca works on Azure DevOps and GitHub (and provides development environments)
- Release publicly available solutions to AppSource
- Release customer-individual solutions directly to customer environments
  - Also possible directly from VS Code, but you shouldn't…

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General approach (present)

- Test automation as part of the code
  - Typically run in pipelines as well
- Relatively new feature: page scripting
  - Non-technical people record steps they take in the client
  - Results in YAML files describing the steps
  - Can be exported and imported into other environments
  - Can run in pipelines as well

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Demo: Delivery

THANK YOU!