



a mibuso.com conference

**WHEN YOU ARE
PASSIONATE ABOUT
MICROSOFT DYNAMICS NAV...**

27 & 28 Sept 2012, Antwerp (Belgium)



Best practices in development and design patterns

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Partner Ready Software

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Eric Wauters



Mark Brummel



Agenda

- A Short Introduction to PRS
- Facing NAV's Future: Repeatable Packages
- The ID Card Reader Add-in
 - Basic Architectural Elements
 - Facade Technology
- Design Patterns in NAV 2013
- Key Take-Aways
- Q&A

What is PRS all about?

- Community Initiative by Partners for the Channel
- Starting Points:
 - Partners are less successful than they need to be
 - The ISV/VAR model has failed
 - ERP world is changing dramatically
 - NAV's positioning is evolving
 - Add-ons are feature collections rather than software packages
 - Business Case, Sales & Marketing, Software Architecture and Implementation do not harmonize

PRS Goals

- Turn NAV verticals into volume-deal enabled software
- Establish a professional production process using adequate tools and methodologies
- Identify and enhance key structural elements
- Bring fresh ideas and concepts to NAV architecture and coding
- Make NAV verticals and the core product more app-like
- Facilitate coherence and consistency along the complete process from business case to coding



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Why Repeatability?

- Prerequisite for Cloud business
- Basis for a profitable ISV / Master VAR relationship
- Key success factor for OnPrem business
- New CfMD regulations
- New NAV policy of annual releases
- New NAV pricing
- NAV positioning
- Repeatability more urgent now than we told you in 2011

We're not speaking for Microsoft. Our conclusions are based on non-classified material only.

New CfMD Regulations

- Annual object pricing:
 - Non-CfMD registered solution: $\text{Object Price} * 0.625 * 4$
 - CfMD registered solution: 0
- Recertification?
- Customers on current or last version?
- CfMD has become a key for competitive pricing
- CfMD is now linked to quantity as well as quality
- Non CfMD-implementations still interesting for large projects

NAV Pricing & Positioning

- AX license is cheaper than NAV on implementations with more than 75 concurrent users
- AX seems to get promoted into deals much lower than that
- Can we conclude that in the future
 - AX is for big and/or individual projects?
 - NAV is for small and repeatable business?

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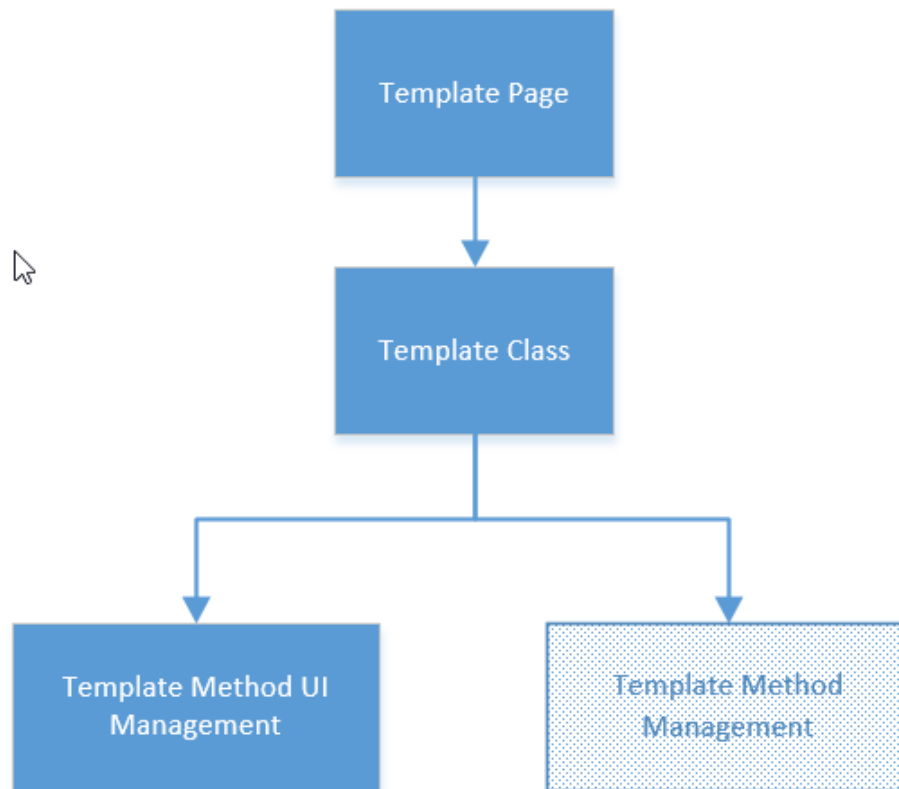
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Basic Architectural Elements

- Daily Build
- Atomic Coding
- UI Separation
- Encapsulation
- Business Process Code
- Object-oriented Way of Coding
- Facade Technology



Preparatory development

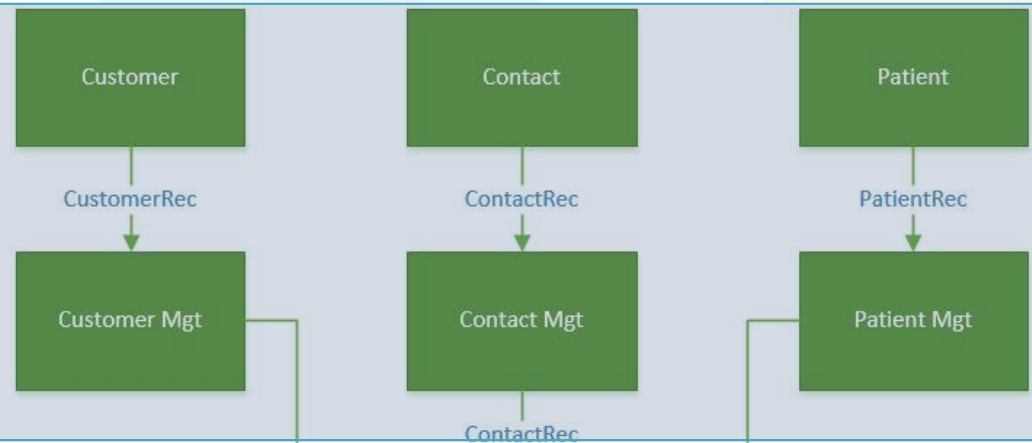


- Can be a separate development role
- Builds the framework for the Business Logic
- Follows predefined patterns

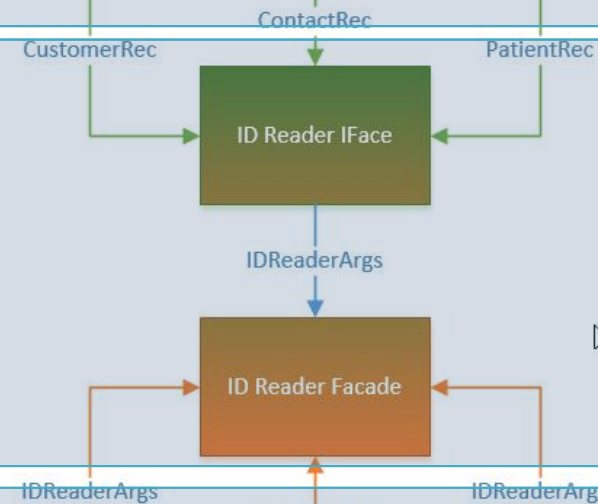
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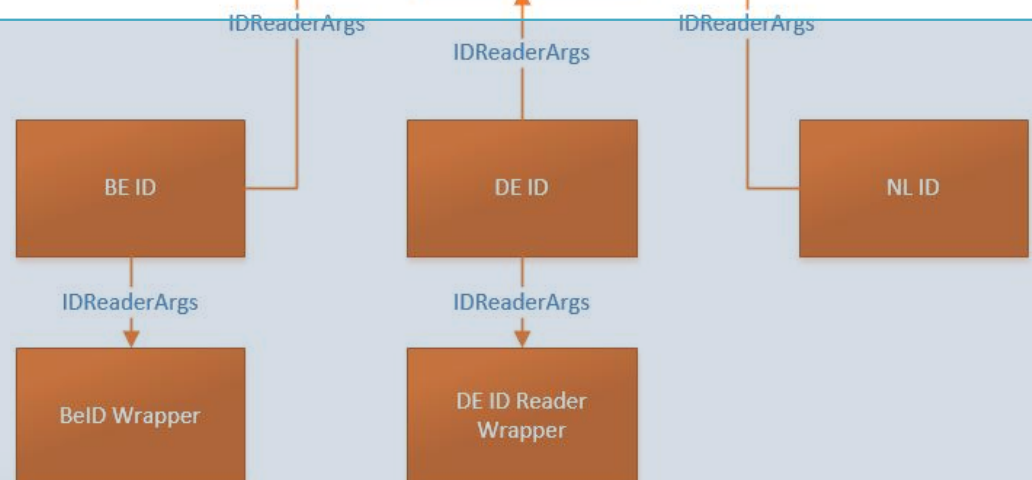
Business Process Business Logic



Interface



ID Reader Business Logic





Facade Technology Summary

- Generic enhancement strategy in repeatable environments
- To be repeatable: we need to be able to add and may be change business logic, without touching the core framework
- Levels can be added:
 - Product flexibility
 - Partner flexibility
 - Project flexibility

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Design Patterns in NAV 7

- Introduction Design Patterns in NAV
- Design Patterns in NAV 7
 - Dimensions
 - Assembly

Introduction Design Patterns in NAV

- Dynamics NAV has Design Patterns
 - Journals, Documents, Process, Archiving, Events
- Patterns are implicit, the compiler does not check them
- “This is how Microsoft does it” is not always a good design motivation
- Not everything in NAV is to be copied, but the foundation architecture is good and solid

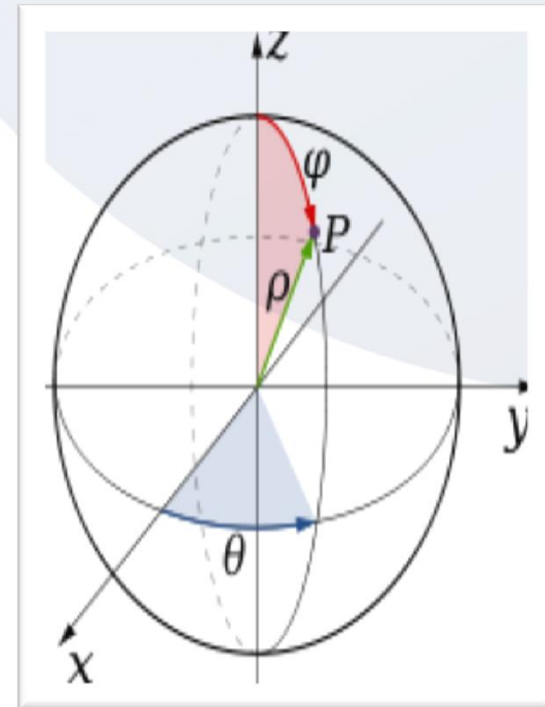
NAV 7 | Dimensions

Functionality

- Restrictions on posting
- Data analysis

Elements

- Masterdata & Restrictions
- Journals & Document registration
- Posting
- Analysis



Problems & Challenges

- Data storage (Normalisation)
 - Takes up to 30% of database space
- Performance
 - Moving around redundant data
- Massive coding required



	NAV 6 (And Earlier)	NAV 7
Master Data	348 – Dimension 349 – Dimension Value 350 – Dimension Combination 351 – Dimension Value Combination 352 – Default Dimension 353 – Dimension ID buffer 354 – Default Dimension Priority 1002 – Job Task Dimension	(Almost) No Changes
Journal & Documents	355 - Ledger Entry Dimension 356 - Journal Line Dimension 357 - Document Dimension 358 - Production Document Dimension 359 - Posted Document Dimension 361 - G/L Budget Dimension	480 – Dimension Set Entry
Posting	Functions for each Table with seperate calls to posting routines	Just move Dimension ID
Analysis		Usage of Query Object

Dimension Sets

- Dimension Set ID field (480)
- Handled in Codeunit Dimension Management 408
- New Function
 - ShowDimensions
- Changes required in Dimension Functions
 - CreateDim
 - ValidateShortcutDimCode
 - LookupShortcutDimCode
 - ShowShortcutDimCode

Coding

NAV 6

```
TempJnlLineDim.DELETEALL;  
TempDocDim.RESET;  
TempDocDim.SETRANGE("Table ID",DATABASE::"Sales Line");  
TempDocDim.SETRANGE("Line No.",SalesLine."Line No.");  
DimMgt.CopyDocDimToJnlLineDim(TempDocDim,TempJnlLineDim);  
ResJnlPostLine.RunWithCheck(ResJnlLine,TempJnlLineDim);
```

NAV 7

```
ResJnlLine."Dimension Set ID" := SalesLine."Dimension Set ID";
```

```
ResJnlPostLine.RunWithCheck(ResJnlLine);
```

Analysis

- Update via Query object Analysis View Source (410)
- Codeunit 410 changed

E... Type	Data Source	Name	Method Type	Method	Group By
DataItem	Analysis View	<Analysis_View>			
Filter	Code	AnalysisViewCode			
DataItem	G/L Entry	<G_L_Entry>			
Filter	Entry No.	EntryNo			
Column	G/L Account No.	GLAcctNo	None		✓
Column	Business Unit Code	BusinessUnitCode	None		✓
Column	Posting Date	PostingDate	None		✓
Column	Dimension Set ID	DimensionSetID	None		✓
Column	Amount	Amount	None		✓
Column	Debit Amount	DebitAmount	Totals	Sum	
Column	Credit Amount	CreditAmount	Totals	Sum	
Column	Additional-Currency Amount	AmountACY	Totals	Sum	
Column	Add.-Currency Debit Amount	DebitAmountACY	Totals	Sum	
Column	Add.-Currency Credit Amount	CreditAmountACY	Totals	Sum	
DataItem	Dimension Set Entry	DimSet1	Totals	Sum	
Column	Dimension Value Code	DimVal1			
DataItem	Dimension Set Entry	DimSet2	None		
Column	Dimension Value Code				



Summary

- Introduction of Data Normalisation in Dynamics NAV
- Out of the Box thinking
- Query object possibilities
- Microsoft is investing in redesign
- Upgrade done via T-SQL



“Don’t do it as we do, do it as we say”

Tip



If upgrade is “not an option” downgrading NAV 7 Dimensions to earlier versions is possible

Assembly

- Create an Item from other Items
- New in NAV 7
- Replacement for “Kitting” in USA, FR, etc.
- Replacing BOM Journal

Completely designed from
scratch

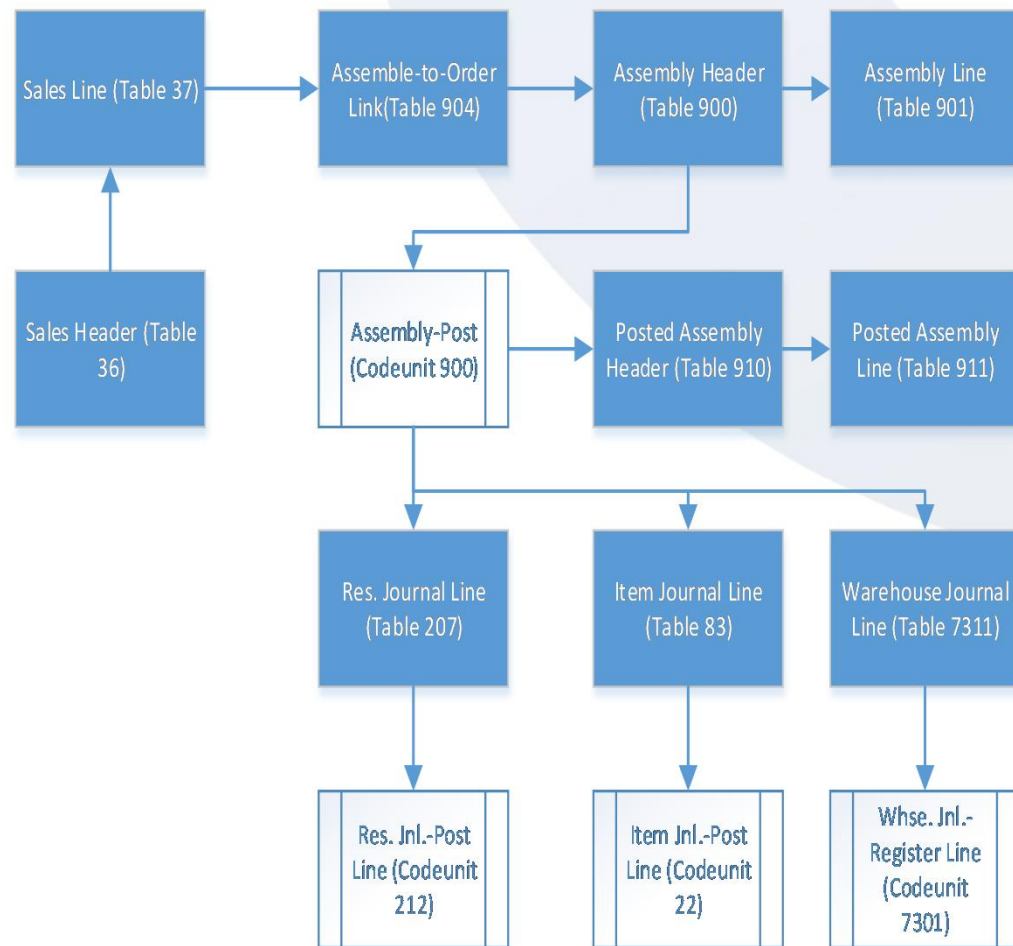


Application Impact

- Item Costing
- Production Planning
- Reservation
- Item Tracking



Data & Transaction Model



Is MSFT going PRS?

```
OnRun(UAR Rec : Record "Assembly Header")
// Replace posting date if called from batch posting
IF PostingDateExists AND (ReplacePostingDate OR ("Posting Date" = 0D)) THEN
    "Posting Date" := PostingDate;

CLEARALL;
AssemblyHeader := Rec;

IF IsAsmToOrder THEN
    TESTFIELD("Assemble to Order",FALSE);

OpenWindow("Document Type");
Window.UPDATE(1,STRSUBSTNO('%1 %2',"Document Type","No.));

InitPost(AssemblyHeader);
Post(AssemblyHeader,ItemJnlPostLine,ResJnlPostLine,WhseJnlRegisterLine);
FinalizePost(AssemblyHeader);
COMMIT;

Window.CLOSE;
Rec := AssemblyHeader;
```



Item Ledger, Value & Resource Entries

- New Item Ledger Entry Type
 - (Anyone knows why the blank entry is there?)
- Resource Entry Order Type Assembly



Table 32 Item Ledger Entry - Table Designer

E... Field No.	Field Name	Data Type	Length	Description
✓ 1	Entry No.	Integer		
✓ 2	Item No.	Code	20	
✓ 3	Posting Date	Date		
✓ 4	Entry Type	Option		
✓ 5	Source No.	Code	20	

Entry Type - Properties

Property	Value
AltSearchField	<Undefined>
OptionString	Purchase,Sale,Positive Adjmt.,Negative Adjmt.,Transfer,Consumption,Output, ,Assembly Consumption,Assembly Output
OptionCaption	Inkoop,Verkoop,Pos. correctie,Neg. correctie,Transfer,Verbruik,Output, ,Assemblageverbruik,Assemblageuitvoer
OptionCaptionML	ENU=Purchase,Sale,Positive Adjmt.,Negative Adjmt.,Transfer,Consumption,Output, ,Assembly Consumption,Assembly Output;NLD=Inkoop,Ver
BlankNumbers	<DontBlank>

Item Costing

- Implementing of Assembly functions (Codeunit 5895)
- Assembly types in a lot of Where clauses
- Document Type in Inventory Adjmt. Entry (Order)
- Recipy for new bugs?



```
PostOutput(InvtAdjmtBuf : Record "Inventory Adjustment Buffer")
OrigValueEntry.SETCURRENTKEY("Item Ledger Entry No.", "Entry Type");
OrigValueEntry.SETRANGE("Item Ledger Entry No.", TempInvtAdjmtBuf."Item Ledger Entry No.");
OrigValueEntry.FINDFIRST;

WITH OrigValueEntry DO BEGIN
    ItemJnlLine.INIT;
    ItemJnlLine."Value Entry Type" := InvtAdjmtBuf."Entry Type";
    ItemJnlLine."Variance Type" := InvtAdjmtBuf."Variance Type";
    ItemJnlLine."Invoiced Quantity" := "Item Ledger Entry Quantity";
    ItemJnlLine."Invoiced Qty. (Base)" := "Item Ledger Entry Quantity";
    ItemJnlLine."Qty. per Unit of Measure" := 1;
    ItemJnlLine."Source Type" := ItemJnlLine."Source Type"::Item;
    ItemJnlLine."Source No." := "Item No.";
    ItemJnlLine.Description := Description;
    ItemJnlLine.Adjustment := "Order Type" = "Order Type"::Assembly;
    OrigItemLedgEntry.GET("Item Ledger Entry No.");
    ItemJnlLine.Adjustment := ("Order Type" = "Order Type"::Assembly) AND (OrigItemLedgEntry."
```

Production Planning

- New Replenishment type : Assembly
- Carry Out Action Msg. - Plan. (Report 99001020) makes Assembly orders
- Inventory Profile Offsetting (Codeunit 99000854) takes Assembly orders into account



Reservations / Item Tracking

- Reservation Page changed, but not redesigned
- New Source Type : Assembly
- New codeunits Assembly Header-Reserve (925) and Assembly Line-Reserve (926)
- Tracking done via Type, Subtype & Source ID
- Tracking on Header (Assembled Item) & Lines (BOM)
- OrderTrackingManagement Changed



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Key Take-Aways for Today

- Think of a Smartphone as an app collection that gets you through the day
- Think of your ERP system as an app collection that gets you through your working day
- A flexible enhancement strategy is the key to a globally sexy product
- Repeatability is the key to a significant footprint in the market
- Get the product and the marketing people to work together on the same page and on the same level

Upcoming PRS Sessions

- German Airlift 2012, Leipzig
 - Topic: Cloud Readiness (in German)
 - Speakers: Rainer Fischer (impuls), Marius Funariu (Infoma)
- US Directions 2012, Phoenix
 - Topic: Core Architecture
 - Speakers: Gary, Eric, Mark

Resources

- Website: www.partner-ready-software.com
- Follow us on Twitter: [prsNAV](#)
- LinkedIn: [Partner Ready Software](#)
- Facebook: [Partner Ready Software](#)
- Waldo's Blog: www.waldo.be
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Questions & Answers



Thank you
for your attention

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Dinner

See you back
tomorrow