

Modelirajmo podatke za poslovanje

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*Kako se Oracle SQL Developer
Data Modeler uklopio u agilni proces
razvoja modela???*



A decorative graphic consisting of three colored circles (dark teal, light teal, grey) and a vertical black line to their right.

Agenda

- Cilj prezentacije
- Zašto logički model?
- Metodologija razvoja logičkih modela?
- Oracle Data Modeler?
- Zaključak

The logo for CROZ, consisting of the word 'CROZ' in a bold, dark teal, sans-serif font. The logo is reflected on the surface below it.

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● ● ● | *Ciljevi prezentacije*

- *Vlasnik logičkog modela je business!!!!*
- *Zašto logički model?*
- *Razvojni proces podatkovnih modela mora jamčiti održivost jer spaja business & IT*
 → to može samo jedan alat
 --> metodološki pristup koji jamči održivost!!
- *SW je samo mali dio tog alata!*
- *Oracle SQL developer Data modeler*



Gartner.

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● ● ● | Agenda

- Cilj prezentacije
- **Zašto logički model?**
- Metodologija razvoja?
- Oracle SD Data Modeler?
- Zaključak

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● ● ● ***Zašto logički model?***

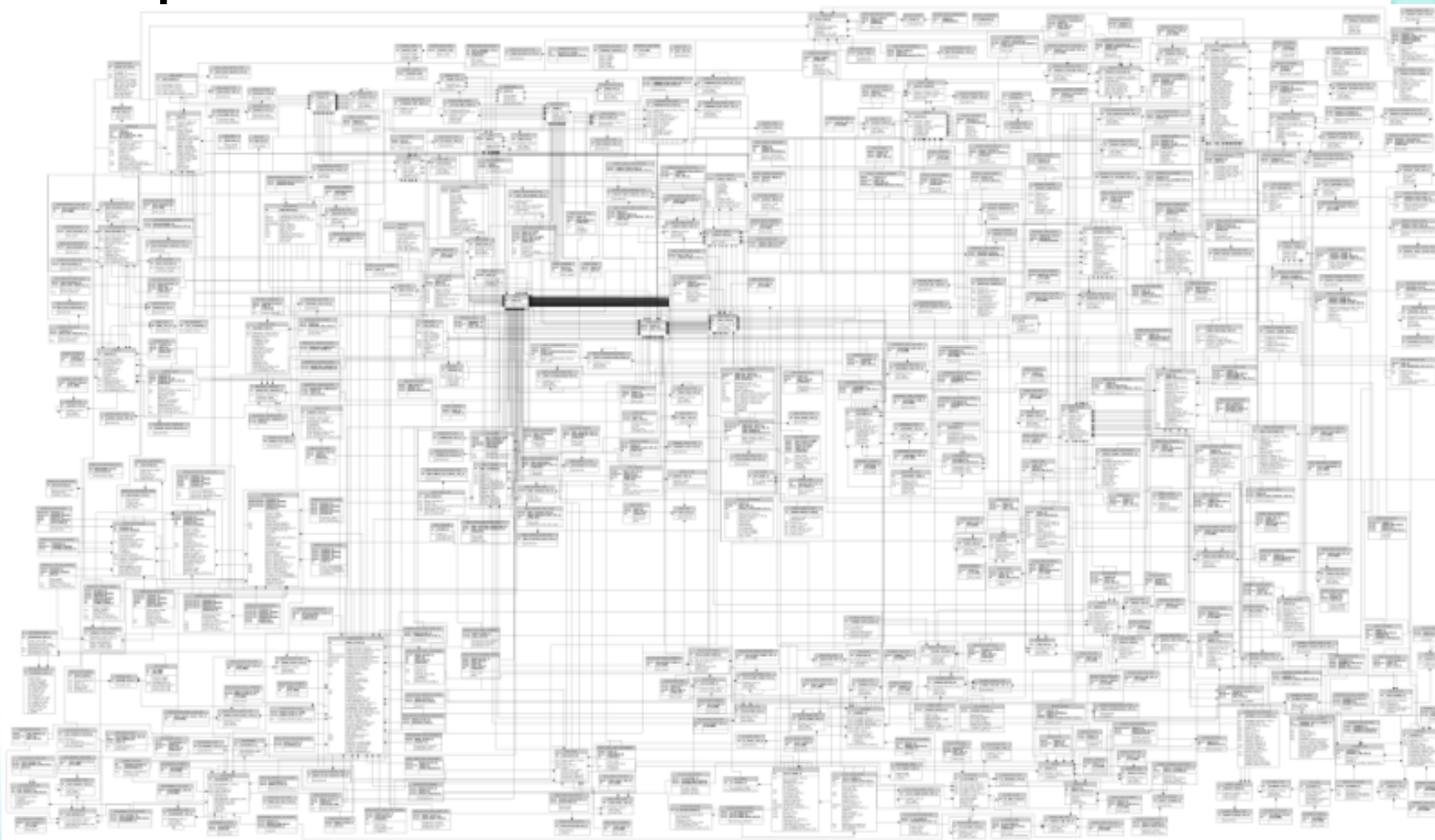
Zašto želim imati logički mode? -> Zato jer:

1. Prikazuje kako business radi neovisno o tehnologiji
2. Predstavlja medij – postaje sredstvo komunikacije
3. Vizualizira poslovna pravila -> Blueprints
4. Podržava data quality
5. Definiira jasno područje primjene



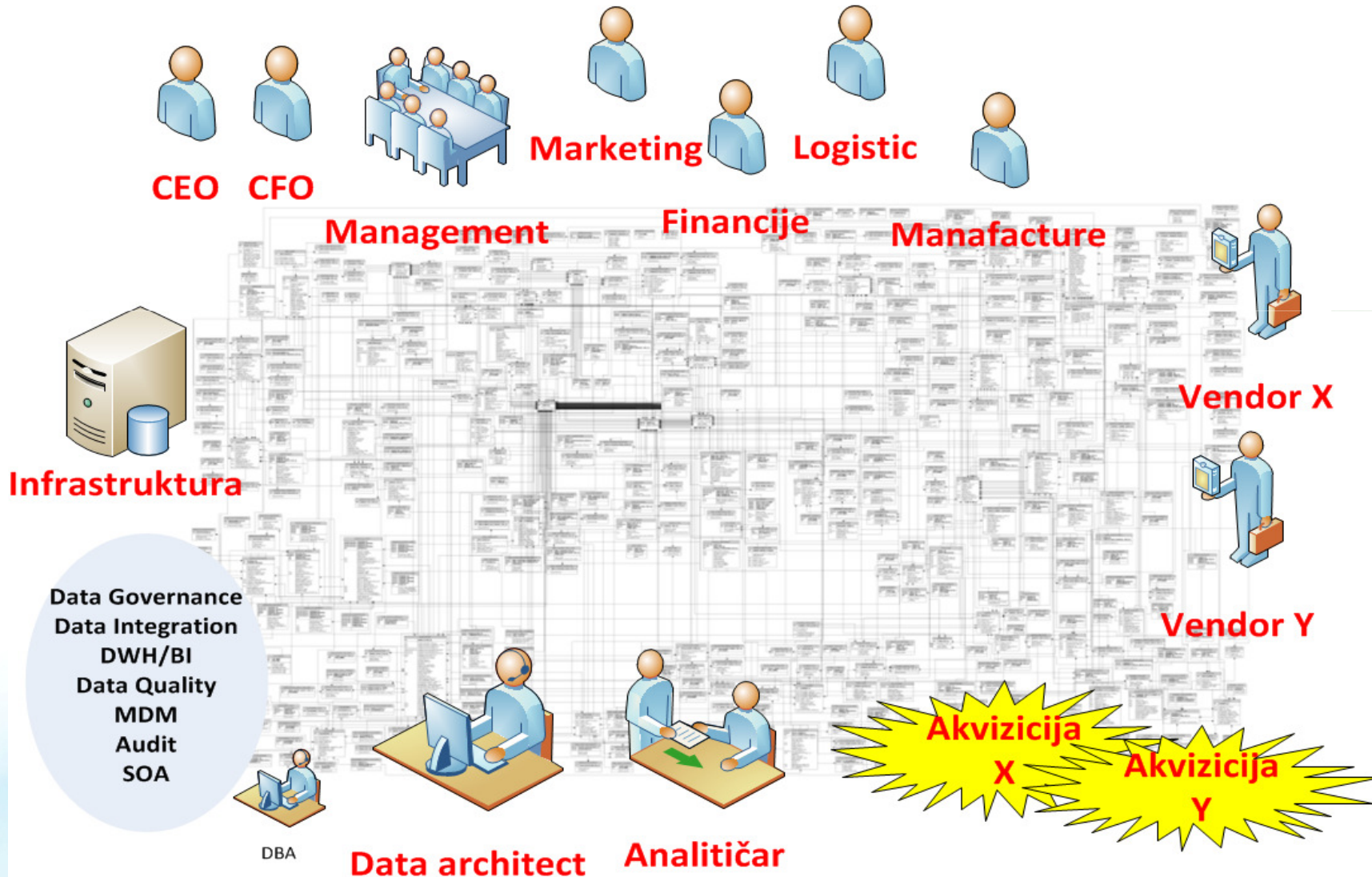


Zašto logički model?





Zašto logički model?



● ● ● | Agenda

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Metodologija – razina apstrakcije

Modeli u domeni businessa:

1. Enterprise data model - kontekst
2. Konceptualni data model – osnovni koncept

Modeli u domeni businessa & IT-a:

1. Logički data model - > Apstrakcija, standardizacija naziva i domena

Modeli u domeni IT-a:

1. Fizički data model -> implementacija



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Metodologija – razina apstrakcije

- Definicija max A4
- Nacrt osnovnih pojmova i definicija
- Business user

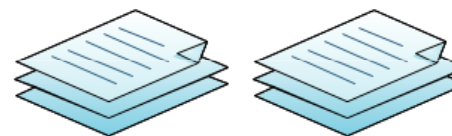
- Definicija max A3
- Definicija pojmova i poslovne logike
- Business & Analitičar

- Definicija > A3
- Struktura: Relacijska ili dimezijska (neovisno i tehnologiji)
- Data Arhitekt & Analitičar

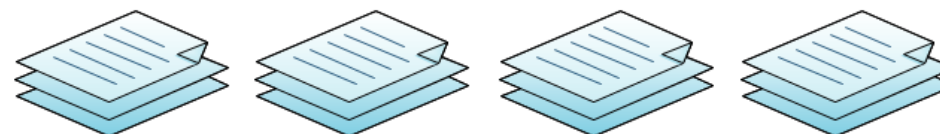
- Definicija > A3
- Struktura: Relacijska ili dimezijska (ovisno o tehnologiji)
- Data Arhitekt, DBA & developers



Enterprise DM - kontekst



Konceptualni DM - koncept



Logički DM - struktura



Fizički DM - implementacija



Metodologija – Modeli u domeni biznisa

Enterprise data model -> definira kontekst, obujam „Scope“:

(Very-High DM, Contextual DM, C-Level view, blueprint)

- *Sadržaj modela:* svrha, sudionici, kontekst informacije
- *Svrha modela:* komunikacija i dogovor/sporazum
- *Poveznice:* Relacije (opcionalno), ukoliko postoji hijerarhija
- *Konvencija:* Osnovni termini, teme i predmeti
- *Veličina:* max A4
- *Sudjelovanje:* „Business-driven“- vlasnik definicije business
- *Notacija:* neformalna
- *Okvirni broj objekata:* < 20



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Metodologija – Modeli u domeni biznisa

Osoba ili tvrtka koja kupuje naš proizvod



Regija koja opisuje jednu ili više županija



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"Everything should be made as simple as possible, but not simpler! A.E.



Metodologija – Modeli u domeni biznisa

Konceptualni data model -> definira osnovnu poslovnu potrebu:

(High DM, Conceptual DM, Subject Area DM, Business DM)

- **Sadržaj modela:** ključne definicije i kontekst
- **Svrha modela:** Dogovor/sporazum oko definicija i poslovne logike
- **Poveznice:** Many-to-Many relacije su dozvoljene
- **Konvencija:** Poslovna terminologija
- **Veličina:** Obično 1-3 A4 stranice
- **Sudjelovanje:** Senior business i Data arhitekt
- **Notacija:** Jednostavno forma -> jednostavnost pobjeđuje preciznost

Okvirni broj objekata: <100



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● ● ● **Metodologija** – Modeli u domeni biznisa & IT

Logički data model -> definira poslovno rješenje!!!

Forget the technology, enter logic!!!

- *Sadržaj modela: Potreba za podacima, poslovna pravila i relacije*
- *Svrha modela: Dovoljno informacija za izgradnju fizičkog DM*
- *Poveznice: Many-to-Many -> novi entitet*
- *Konvencija: Data glossary (What data entity contains?)*
- *Veličina: nekoliko stranica*
- *Sudjelovanje: **Poslovni** analitičar/Data modeler/arhitekt*
- *Notacija: Formalna notacija -> ER, IE, IDEF1X, Barker, UML,..*
- *Okvirni broj objekata: > 100*

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● ● ● **Metodologija** – Modeli u domeni biznisa & IT

Logički data model -> dodaci:

• **Glossary model:**

- Naming standard
- Business term

• **Domain model/dataType: -> Reusability**

- tipova podataka
- Constraints (logical)

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● ● ● **Metodologija** – Modeli u domeni biznisa & IT

Logički data model -> dodaci:

•**Templates:**

In-the-Know Template

This tool identifies the people and documentation you will need as resources to complete your data modeling deliverables for this new application. This is a straightforward method to gain agreement on the resources you can tap for your data modeling activities.

Subject Area	Resource	Type	Role/How Used	Location/Contact

● ● ● **Metodologija** – Modeli u domeni biznisa & IT

Logički data model -> dodaci:

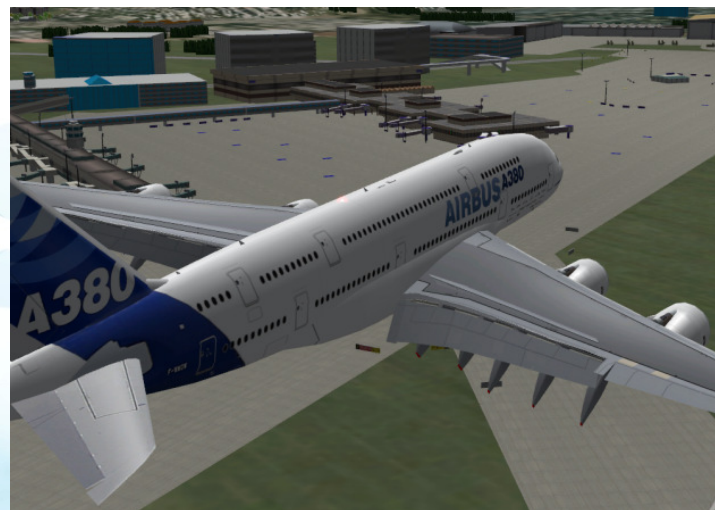
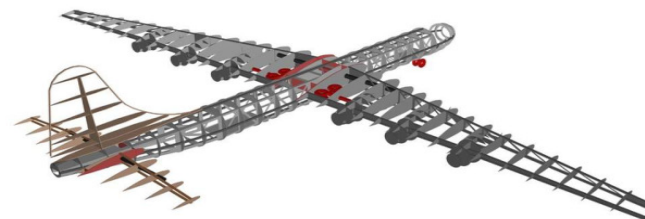
•Templates:

Subject Area Family Tree

From Here				To Here				To Arrive Here			
Name	Source	Definition	History	Name	Source	Definition	History	Name	Definition	History	Questions and Impact



● ● ● *Metodologija* – Modeli u domeni biznisa & IT



● ● ● *Metodologija* – Modeli u domeni IT-a

Fizički data model -> implementira poslovno rješenje

Time to make it real!

- *Sadržaj modela: Tablice, View, Indexi, tablespace, MV,*
- *Svrha modela: Reprezentacija fizičke strukture*
- *Poveznice: Foreign Key*
- *Konvencija: Data glossary (What data **object** contains?)*
- *Veličina: nekoliko stranica*
- *Sudjelovanje: Data modeler/arhitekt/Developer*
- *Notacija: Formalna notacija -> ER, IE, IDEF1X, Barker, UML,..*
- *Okvirni broj objekata: > 100*

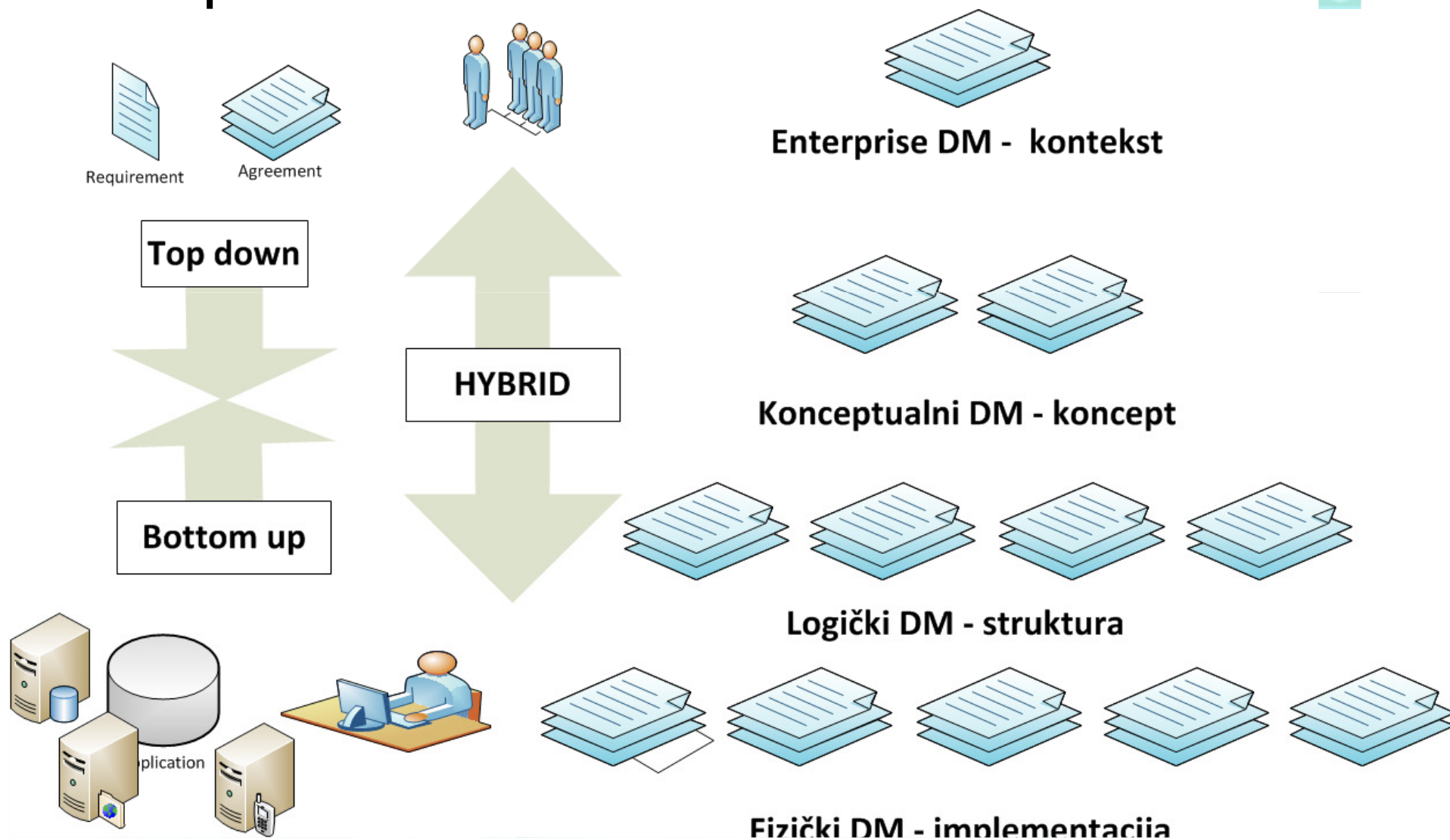


● ● ● | *Metodologija* – Modeli u domeni IT-a



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● ● ● **Metodologija – Razvojni pristup**



● ● ● | **Metodologija – Razvojni pristup**

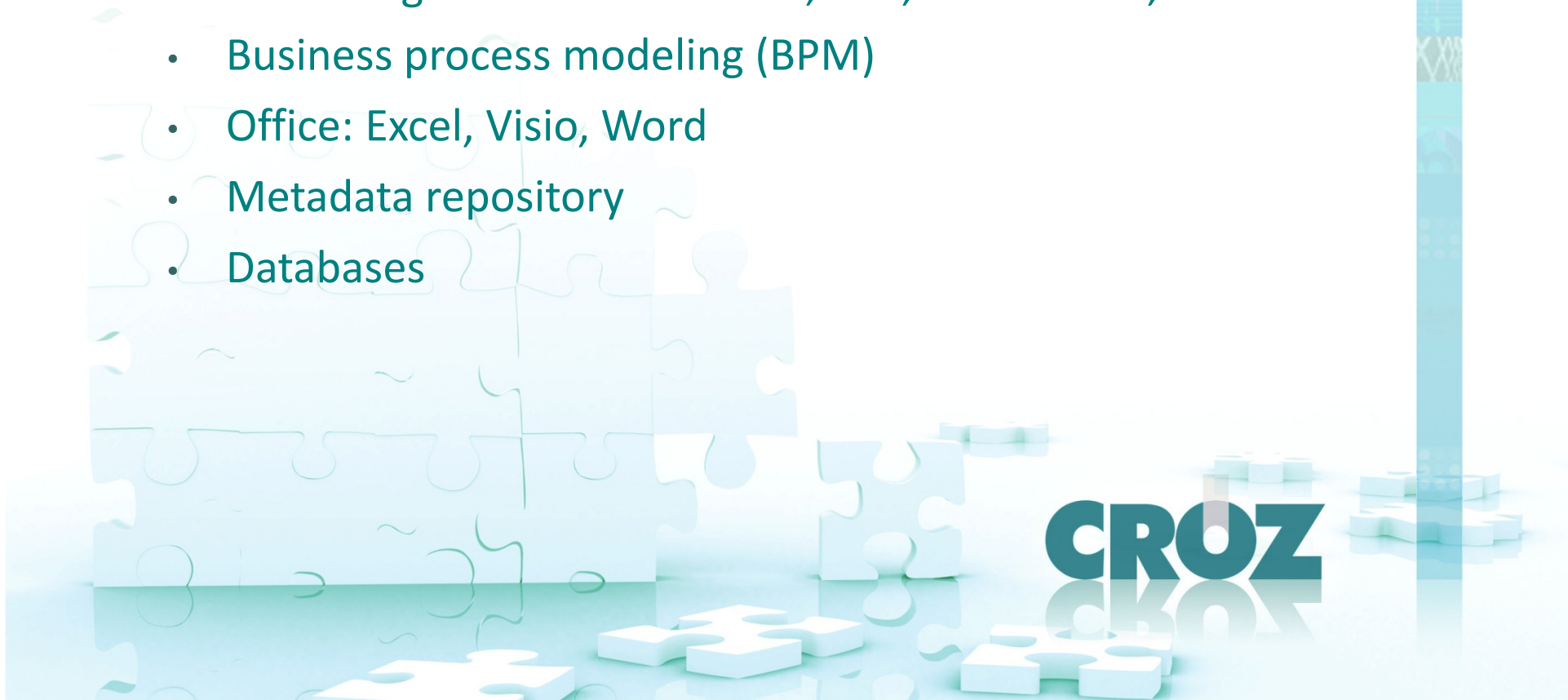
	Skupljanje postojećih poslovnih procesa	Skupljanje predloženih poslovnih procesa	Postojeće aplikacija	Predložene aplikacije
Opsežni zahtjevi	top-down	top-down	hybrid	top-down
Opsežni IT resursi	hybrid	hybrid	Bottom-up	hybrid




● ● ● ***Metodologija*** – Ključne točke

Integracija sa drugim alatima

- Reporting PDF, Excel
- Data integration tools -> OWB, ODI, Informatica,...
- Business process modeling (BPM)
- Office: Excel, Visio, Word
- Metadata repository
- Databases

● ● ● | ***Metodologija*** – Ključne točke

Naming standardi

- Glossary model
- Validacija naziva (ISO)

Skupljanje meta podataka

- Definiranje učesnika u modelu
- Poslovne definicije

Vizualna prezentacija

- Interaktivno skrivanje nepotrebnih detalja
- Korištenje boja
- Prikazivanje definicija



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● ● ● ***Metodologija*** – Ključne točke

Domain/dataType model

- Tipovi podataka i standardni atributi
- Validacija atributa (check constraints)

Change/Configuration management

- Versioning
- Build/deploy -> DDL scripts, reverse engenering
- Usporedba i sinkronizacija modela

Impact analiza

- Ovisnost između entiteta/tablica
- rekurzija

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● ● ● ***Metodologija*** – Ključne točke

Analiza modela

- Pravila za provjeru modela: Check design, object name, dataTypes, PK, FK,..

Reuse

- Templates (scripts)

Automatizacija:

- Generiranje DDL-a
- Publiciranje dokumentacije (PDF, HTML,...)
- Validacija modela

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● ● ● *Oracle SQL Developer Data Modeler*

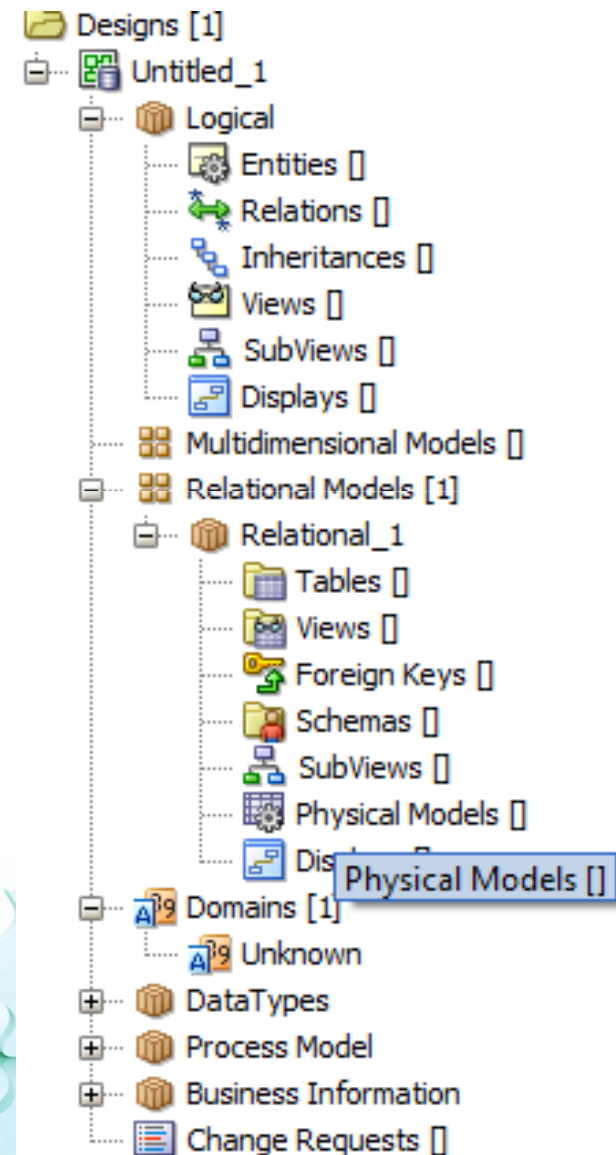
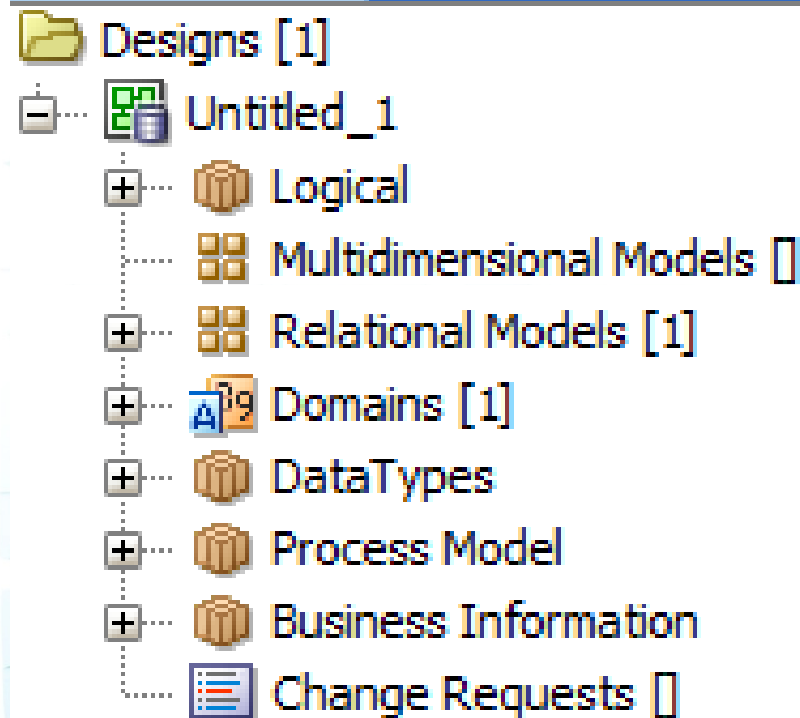
- *Trenutna verzija: 3.1. Early adaptor → preferiramo stabilnu verziju 3.0*
- *JDeveloper UI*
- *Data modeling*
 - *logical*
 - *Physical*
 - *Relational*
 - *Dimesional*
- *Neovisan o o platformi*



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Oracle SQL Developer Data Modeler

Struktura ODM:



Oracle SQL Developer Data Modeler

The screenshot displays the Oracle SQL Developer Data Modeler interface. The main workspace shows a logical data model with several tables and their relationships:

- ORDERS**: Primary key (ORDER_ID), foreign key (ORDER_PK, ORDER_ID).
- ORDER_ITEMS**: Foreign key (ORDER_ITEMS_FK, ORDER_ID).
- CUSTOMER**: Primary key (CUSTOMER_ID), foreign key (CUSTOMERS_FK, CUSTOMER_ID).
- EMPLOYEES**: Primary key (EMPLOYEE_ID), foreign key (EMP_EMAIL_LK, EMAIL), foreign key (EMP_EMP_ID_FK, EMPLOYEE_ID).
- DEPARTMENTS**: Primary key (DEPARTMENT_ID), foreign key (DEPT_ID_FK, DEPARTMENT_ID).
- WAREHOUSES**: Primary key (WAREHOUSE_ID), foreign key (WAREHOUSES_FK, WAREHOUSE_ID).
- INVENTORIES**: Foreign key (INVENTORY_FK, PRODUCT_ID, WAREHOUSE_ID).
- PRODUCT_INFORMATION**: Primary key (PRODUCT_ID), foreign key (WARRANTY_PERIOD, SUPPLIER_ID).

A context menu is open over the 'Create SubView' option, with other options including 'Create Display', 'Delete Display', 'Auto Route', 'Straighten Lines', 'View Details', 'Resize Objects to Visible', 'Diagram Color', 'Barker Notation', 'Bachman Notation' (checked), 'Information Engineering Notation', 'Box-In-Box Presentation', 'Go To Diagram', 'Show', and 'Properties'. At the bottom of the workspace, the 'Logical' and 'Bachman' notation tabs are visible, with 'Bachman' selected.

Oracle SQL Developer Data Modeler

The screenshot displays the Oracle SQL Developer Data Modeler interface. The main window shows a logical data model with two tables: **OE1.WAREHOUSES** and **OE1.INVENTORIES**. The **WAREHOUSES** table has columns: WAREHOUSE_ID (NUMBER 3), WAREHOUSE_SPEC (XMLTYPE), WAREHOUSE_NAME (VARCHAR2 (36 BYTE)), LOCATION_ID (NUMBER 4), and WH_GEO_LOCATION (SDO_GEOMETRYv1). It includes a primary key constraint **WAREHOUSES_PK** on WAREHOUSE_ID and a foreign key **WHS_LOCATION_IX** on LOCATION_ID. The **INVENTORIES** table has columns: PRODUCT_ID (NUMBER 6), WAREHOUSE_ID (NUMBER 3), and QUANTITY_ON_HAND (NUMBER 8). It includes a primary key constraint **INVENTORY_PK** on PRODUCT_ID and WAREHOUSE_ID, and foreign key constraints **INV_PRODUCT_IX** on PRODUCT_ID and **INV_WAREHOUSE_IX** on WAREHOUSE_ID.

An **XML Metadata Comparator** dialog is open, comparing two metadata sets. The left pane shows a list of columns with checkboxes, including MARITAL_STATUS (12) and GENDER (13). The right pane shows a similar list. The **Details** tab is active, showing a comparison table for the selected **MARITAL_STATUS** column.

Property	Selected	Left	Right
name	<input type="checkbox"/>	MARITAL_STATUS	MARITAL_STATUS
id	<input type="checkbox"/>	8B027594-F41F-D8D9-4229-FED8AE10DE21	8B027594-F41F-D8D9-4229-FED8AE10DE21
ownerDesignName	<input type="checkbox"/>	MyFirstModel30	MyFirstModel30
constraintName	<input type="checkbox"/>	status	status
nullable	<input type="checkbox"/>	true	true
defaultValue	<input type="checkbox"/>	married	married
Data Type Kind	<input checked="" type="checkbox"/>	Domain	Logical Type
logicalDatatype	<input checked="" type="checkbox"/>	LOGDT017	VARCHAR / LOGDT024
dataTypeSize	<input checked="" type="checkbox"/>	20	
usesDefaultValue	<input type="checkbox"/>	true	true
createdBy	<input type="checkbox"/>	Administrator	Administrator
createdTime	<input type="checkbox"/>	2009-05-05 02:26:12 UTC	2009-05-05 02:26:12 UTC
changedBy	<input checked="" type="checkbox"/>	Administrator	smharper
changedTime	<input checked="" type="checkbox"/>	2009-05-05 11:14:41 UTC	2011-01-28 13:29:30 UTC

At the bottom of the dialog, there are buttons for **Merge**, **Close**, and **Help**.

The background interface shows a **Pending Changes** window with a context menu open over the **CUSTOMERS** table, listing options like **Commit...**, **Revert...**, **Compare With**, **Version History**, and **Properties**.

● ● ● *Oracle SQL Developer Data Modeler*

Dobre strane alata:

- Cijena -> Free
- Vizulna prezentacija
- Versioning
- Templates (scripts)
- *Change Requests*
- *Meta Informacije: volumetrija, Responsible parties, dynamic properties*



● ● ● *Oracle SQL Developer Data Modeler*

Što nedostaje:

- Kontekst i konceptualni modeli
- Integracija SQL Developer + SQL developer Data modeler
- **Bugovit i nedovršen BPM**
- **Requirement managements**
- Impact analiza – vizualna prezentacija i rekurzija
- Interaktivni razvoj više modela u jednom trenutku
- Glossary/Naming Standard – nije potpuno integriran
- Usporedba između verzija na razini entiteta
- Direktna usporedba trenutne implementacije (Baza) i fizičkog modela
-

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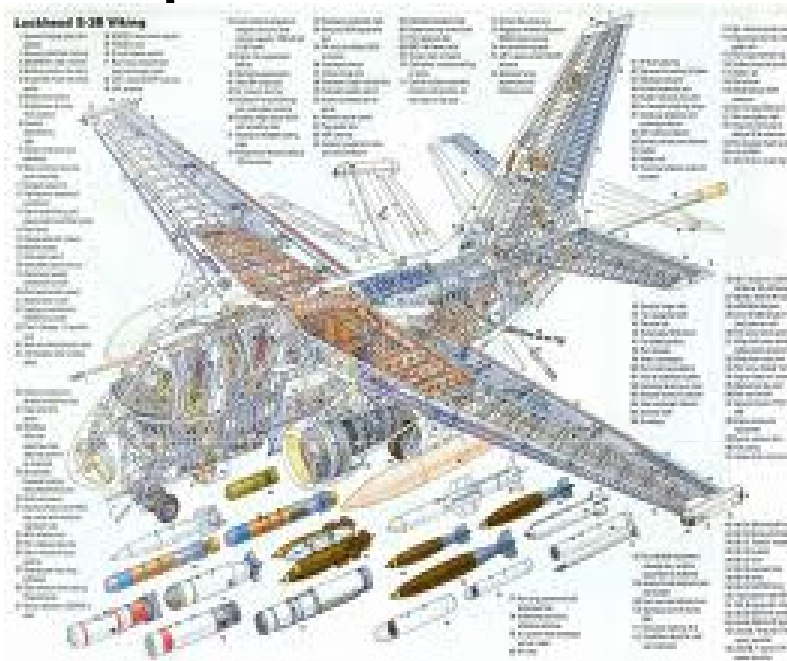


Agenda

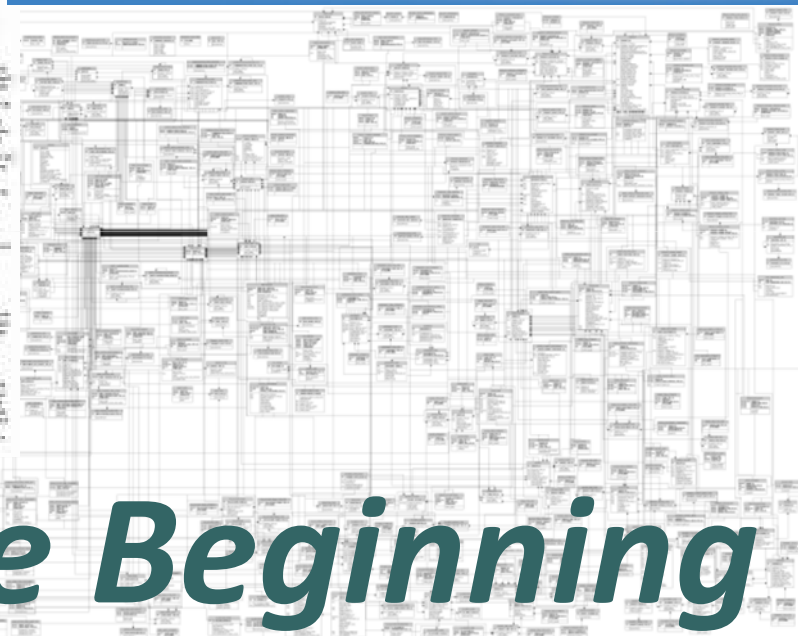
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● ● ● | *After The Ending....*



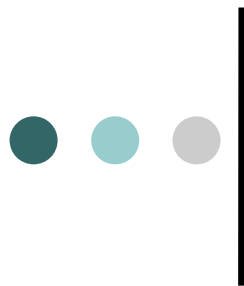
ORACLE SQL Developer Data Modeler
Release 3.1 Early Adopter is here



Before The Beginning....

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HVALA!

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