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On the Road to AutoCAD Civil 3D

Maxime SUING, Delivery Manager France, PMP, Autodesk Consulting
Rémi MONTORIO, Team Leader, Lille Design Office, EGIS

CV5515

Learn the key practical components involved in successfully moving to Road Design for AutoCAD Civil 3D software. This class will look at the key components to ensuring a smooth and successful transition from any road design application to AutoCAD Civil 3D software across an enterprise and in the context of a broader Building Information Modeling (BIM) implementation. We will base the class on the real-world example of Egis Group transitioning to AutoCAD Civil 3D software for use on all of the company's road-design projects globally. We will focus on the 3 pillars sustaining this type of transition, including technology, with an overview of an "AutoCAD Civil 3D corporate kit" (similar to a country kit) and its worldwide deployment; process, with a summary of the challenges, opportunities, and improvements that we met during the transition to new processes and workflows; and people, with a presentation of the global adoption-phase roadmap.

Learning Objectives

At the end of this class, you will be able to:

- Learn the key practical components to a successful transition to AutoCAD Civil 3D software
- Understand the project execution and business impacts inherent in a technology transition of this type
- Understand the technology considerations to be evaluated before starting the deployment
- Understand the process used on a real example that can be applied to other deployments

About the Speakers

Remi Montorio

Highway Engineer and Design Team Leader, based in France, with Egis International.
To date Rémi has contributed to the detailed design of significant international highway programs/projects, such as the Kosovo Route 7 Motorway Project and the Doha Expressway Program, as well as completing feasibility studies for projects in Suriname, Trinidad-and-Tobago and Italy.
As a key member of the Egis International design management team, Rémi is deeply involved in the technical development of Egis design capabilities in relation to project collaboration software and CAD/BIM integration issues. He is currently involved in the Egis operational roll-out of Autocad Civil 3D, which is being undertaken in partnership with Autodesk.

Maxime Suing

Senior project manager with extensive experience in a wide variety of projects for Autodesk Consulting at Autodesk, Inc. After about 12 years of project management with a focus on customer listening and satisfaction, Maxime is adept at delivering successful projects in a wide range of industries and topics, including Building Information Modeling (BIM), infrastructure, utilities, government, transportation, land management, and facility management.

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Delivery Manager France, PMP
Autodesk Consulting

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Team Leader, Lille Design Office
Egis

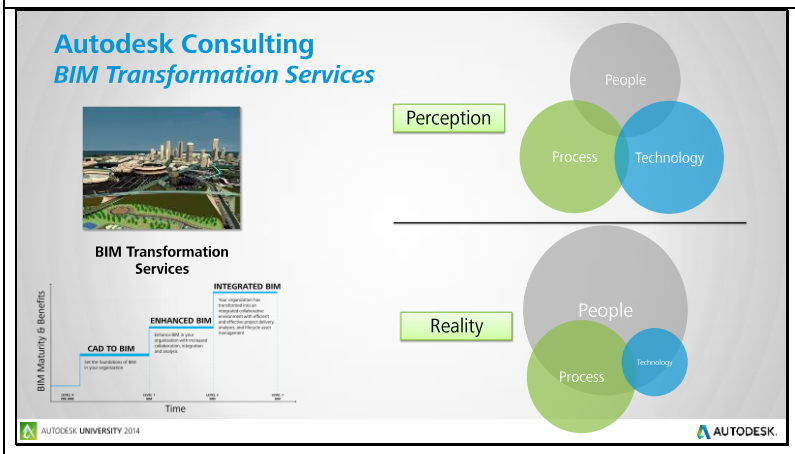
Class summary

- Autodesk Consulting & Egis
- Why AutoCAD Civil 3D ?
- The transition to Civil 3D
  - Definition & Roadmap
  - Construction
  - Adoption
- Alignment with the corporate BIM initiative

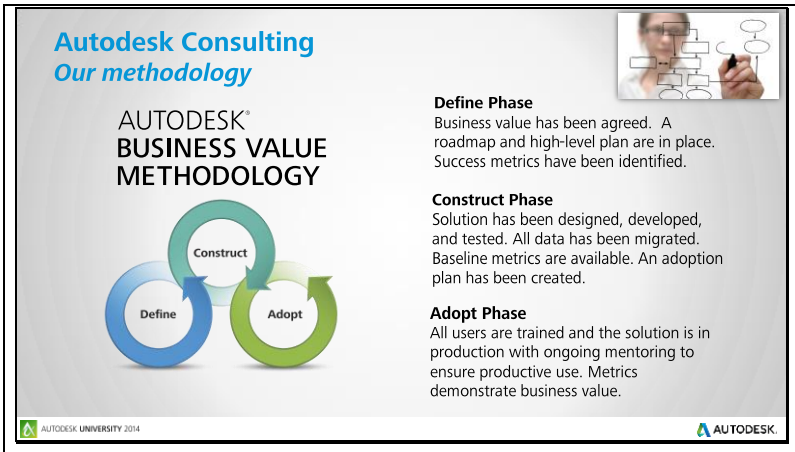
Autodesk Consulting & Egis

What you see here is the official presentation of Autodesk Consulting
To summarize, we are a global team covering all Autodesk industries and knowing pretty well the Autodesk products and the deployment strategies.
But we can highlight two important missions which make sense in the context

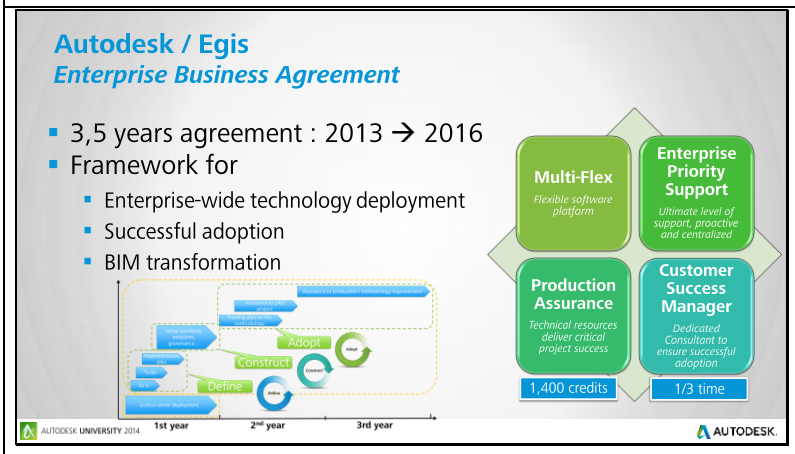
- We help our customers to maximize the value of Autodesk technology, so to exploit 100% of the product capacities
- And to do so, we help them to transform their most critical business processes



To cover all industries, Autodesk Consulting is structured by service lines.
And this deployment of Civil 3D is part of what we call BIM Transformation Services.
The purpose is to help the customer to move up on the BIM Maturity scale, from the level 0 pre-BIM, CAD to BIM, up to integrated BIM
To perform this kind of transformation, we usually consider Technology and Process, and if everything goes well, we know that people is an important parameter as well.
But this is just a perception, in reality, and this is especially true for BIM, technology is useless if it's not embedded in efficient processes, and most of all, those processes are inefficient if they are not adopted and applied properly and consistently.
So the key for a successful transformation is really the focus on people so on the adoption of the solution we provide.



That's one of the main reason why Autodesk Consulting has a common structured approach on any kind of project or program : the autodesk business value methodology.
This methodology comprises three phases, with the following expected outcomes at the end of each phase:
Define: We *reach mutual agreement on the expected business value of the engagement, together with* a road map, a high-level plan, and success metrics.
Construct: We design, develop, and test the solution, we migrate all data, and we create an adoption plan to help the customer maximize value from the solution.
Adopt: We deploy the solution into production, train all users, and provide mentoring to ensure productivity with the solution. We also provide metrics to demonstrate the customer business value.

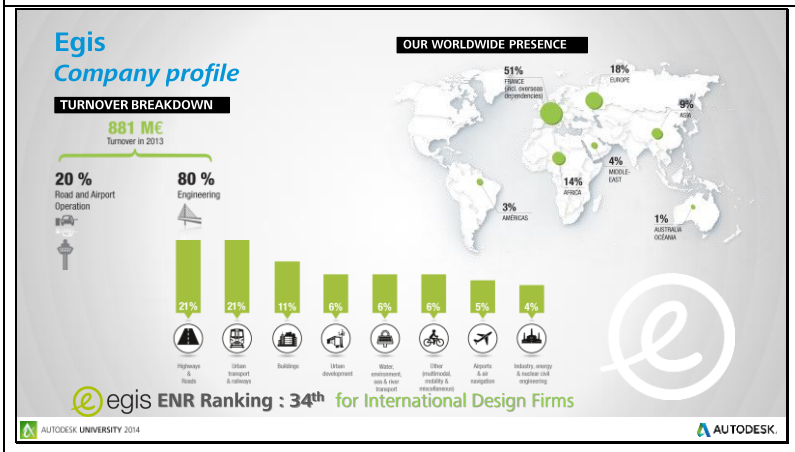


What we are describing in this presentation is a part of an Enterprise Business Agreement signed in 2013 between EGIS and Autodesk, for a period of 3,5 years
This agreement comprises 4 components :

- The licensing model : in that case it's a multi-flex
- The Enterprise Priority Support : Ultimate level of support, proactive and dedicated
- The Customer Success Manager : a dedicated Consultant to ensure successful adoption; for EGIS → 1/3 of his time
- The Production Assurance : a pool of credits to deliver the projects being part of the program; for EGIS we are talking about 1,400 credits

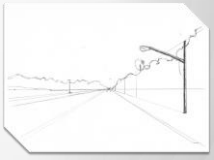
Obviously, a program of 3 years or more is a nice framework

- For an enterprise wide technology deployment
- For a successful adoption
- And specifically to make a significant progress on the BIM transformation



Why AutoCAD Civil 3D ?
Context & Strategy

- Context
  - Egis developed and used Geomacao as a road design software since 1984
  - In 2012, Bentley stopped to upgrade Geomacao
  - Rising BIM requirements
- Strategy
  - Select a new tool for road design
    - Interoperable
    - Consistent with our processes and projects
  - Deploy this tool at a corporate level



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Why AutoCAD Civil 3D ?
Selection process

Tools	Vendor	Country	International
PowerCivil	Bentley	US	Yes
MxRoad	Bentley	US	Yes
AutoCAD Civil 3D	Autodesk	US	Yes
NovaPoint	Vianova	Norway	Yes
Mensura	Geomensura	France	No
Covadis	Geomedia	France	No

- Benchmark
  - Evaluation grid to preselect 2 products
  - Trial tests of the 2 selected software :
    - AutoCAD Civil 3D *vs* Bentley Power Civil
    - Test by design office teams / IT Dpt. representatives
  - 3 days « live » benchmark
    - Real project conditions
    - Detailed requirements
  - Benchmark synthesis and report by IT Dpt.

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Why AutoCAD Civil 3D ?
Selection criteria

- Pre-Selection criteria
  - Multi-lingual / multi-standards
  - User base / worldwide recognized
  - Already used by Egis

- Benchmark criteria : 217, divided into 11 topics
  - Overall characteristics (eg. Efficiency of support teams)
  - Environment – Interface (eg. Dedicated tools by discipline)
  - Technical criteria (eg. Coordination Axis/profile design)
  - …

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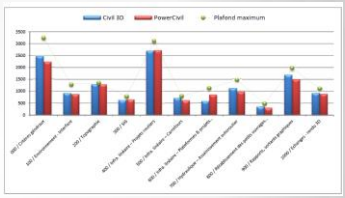
Why AutoCAD Civil 3D ?
Main outcomes

- Strengths
  - Ergonomy and interactivity
  - Ease to configure assemblies
  - Assisted drawing production



- Room for improvement
  - Performance & stability for large projects
  - Longitudinal profile design
  - Platform design

Addressed through the methodology

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Why AutoCAD Civil 3D ?
And the winner is…

AutoCAD Civil 3D has been selected as
the Egis standard tool for the design of road infrastructures

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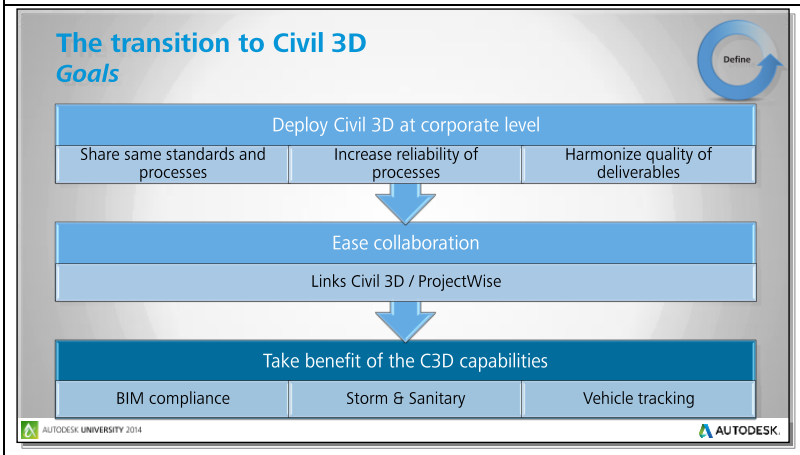
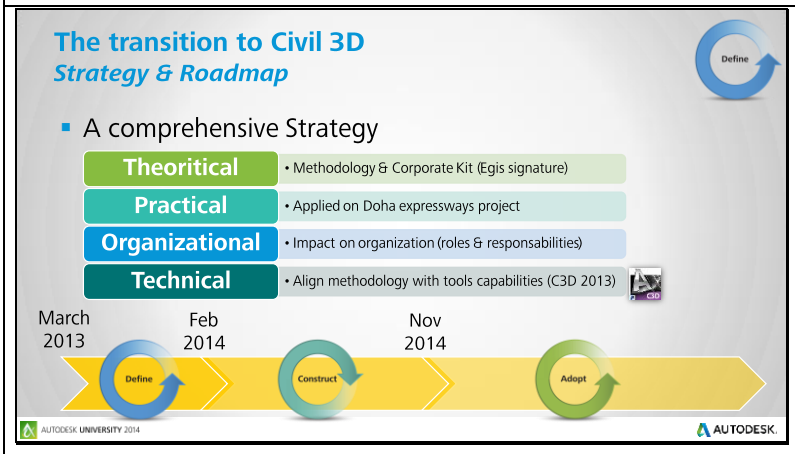
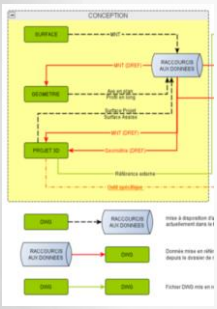


To allow the use of Autocad Civil 3D on future projects, ensuring the support of technicians by engineers during the transition phase
To ensure reliability and quality of our production
To enhance collaborative workflows between teams and entities using Projectwise
To catch opportunities allowed by the new software, including those linked to the BIM



The transition to Civil 3D
Design authoring process



- Example of Key issue
  Data Organization and Sub-section split (10 km)
  - Highway projects too long to be design in one corridor
  - Need for several team members to work together

Need to define rules to be respected by everyone

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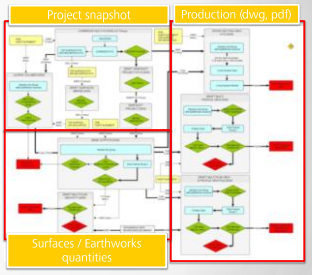
The transition to Civil 3D
Drawing production process

- Example of Key issue
  Ensure consistency and versioning
  - Need to develop specific workflows
  - Need to find "a work around" to achieve our own requirements (eg. Project snapshot)

Specific methodology



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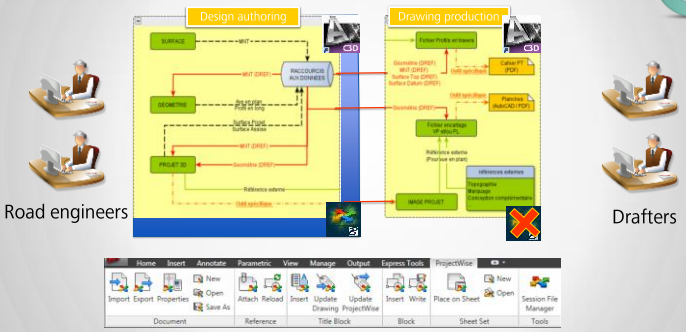
The transition to Civil 3D
Collaboration



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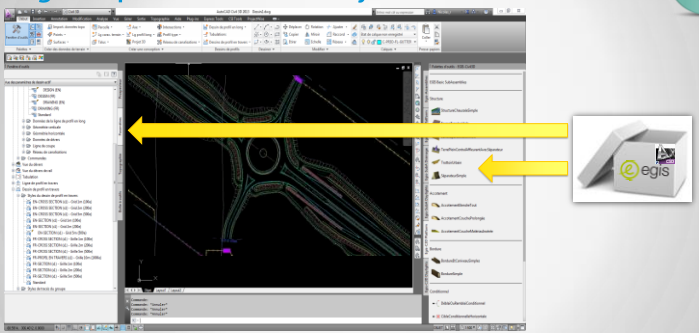
The transition to Civil 3D
Egis Corporate *kit – User Interface*



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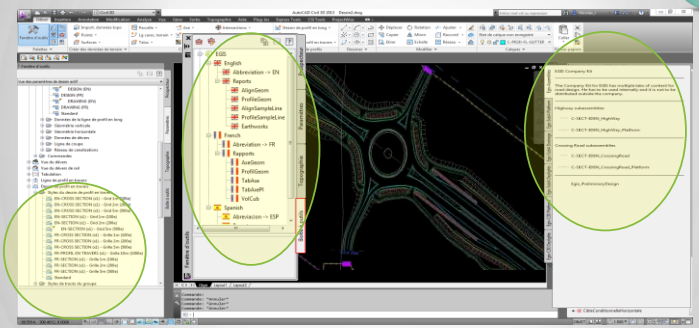
The transition to Civil 3D
Egis Corporate *kit – User Interface*



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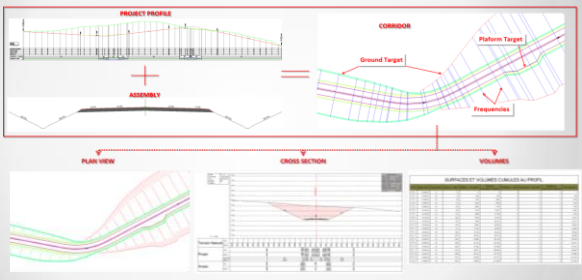
The transition to Civil 3D
Egis Corporate *kit - outputs*

Design Authoring

Drawings Production



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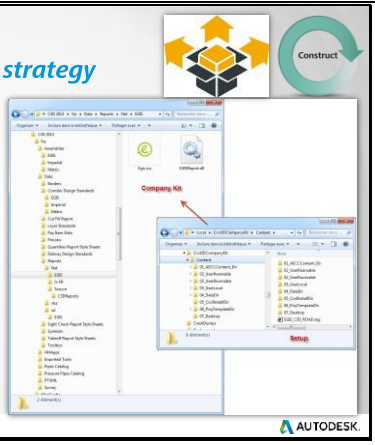
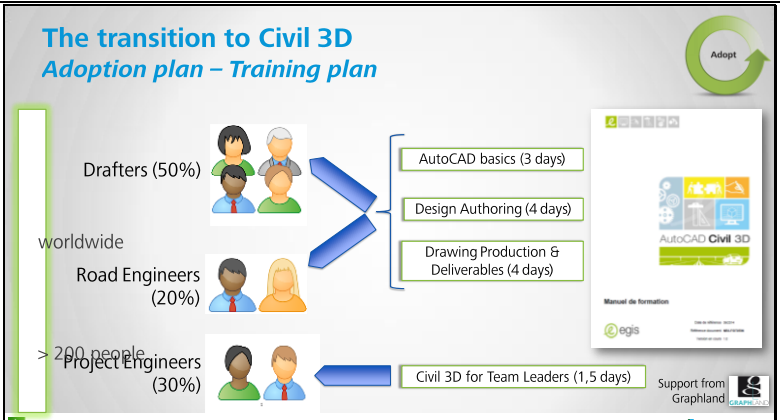
The transition to Civil 3D
Egis corporate kit – Deployment strategy

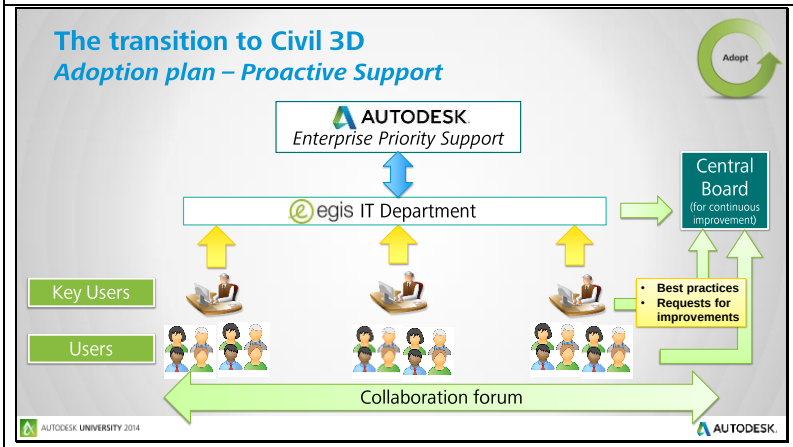
- No country kit installed
- Installer (.msi) containing
  - Toolpalette (Assemblies)
  - Toolbox (Tools, reports)
  - Templates (layouts, layers, ..)
  - Standards
- Upgrades
  - Differential (fixes, new reports…)
  - Files impacted deployed centrally

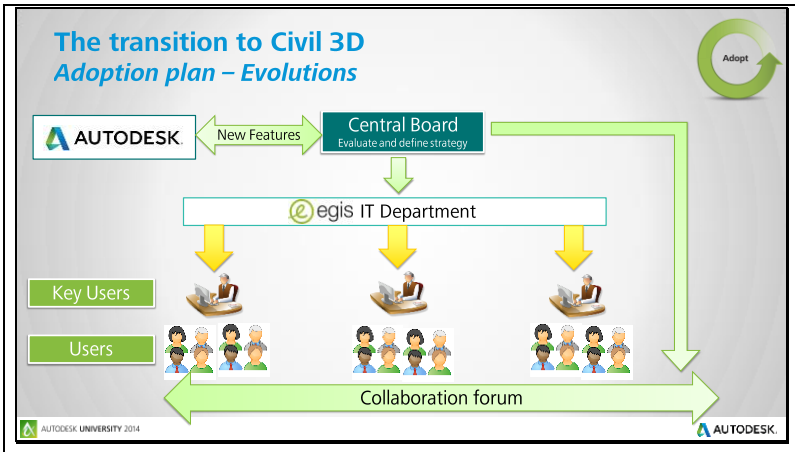


The transition to Civil 3D
Adoption plan – Training plan



The transition to Civil 3D
Adoption plan – Proactive Support




The transition to Civil 3D
Adoption plan – Evolutions
Adopt
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New Features
Central Board
Evaluate and define strategy
egis IT Department
Key Users
Users
Collaboration forum
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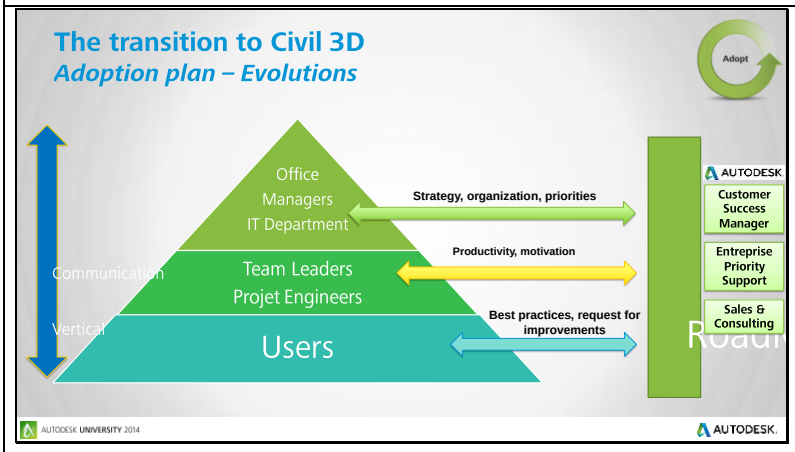
The transition to Civil 3D
Adoption plan – Evolutions
Adopt
Office
Managers
IT Department
Strategy, organization, priorities
Team Leaders
Projet Engineers
Productivity, motivation
Communication
Vertical
Users
Best practices, request for improvements
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Customer Success Manager
Entreprise Priority Support
Sales & Consulting
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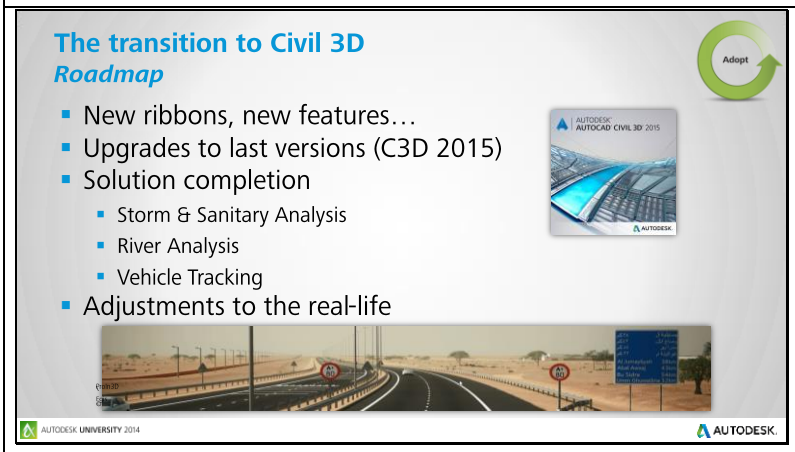
The transition to Civil 3D
Roadmap
Adopt
New ribbons, new features…
Upgrades to last versions (C3D 2015)
Solution completion
Storm & Sanitary Analysis
River Analysis
Vehicle Tracking
Adjustments to the real-life
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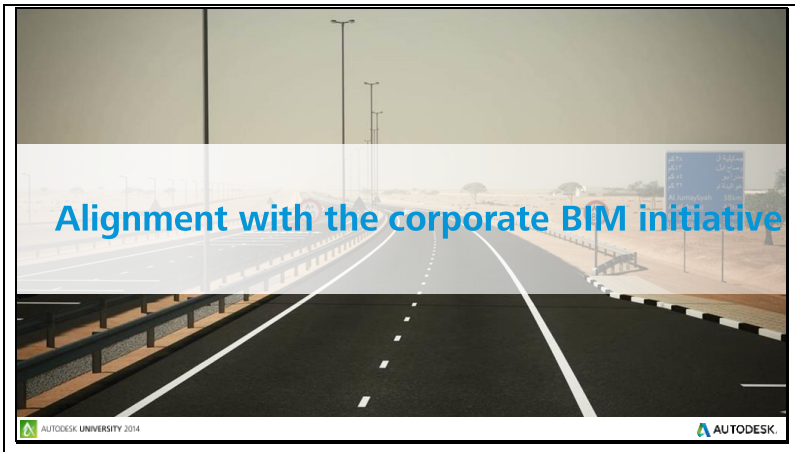
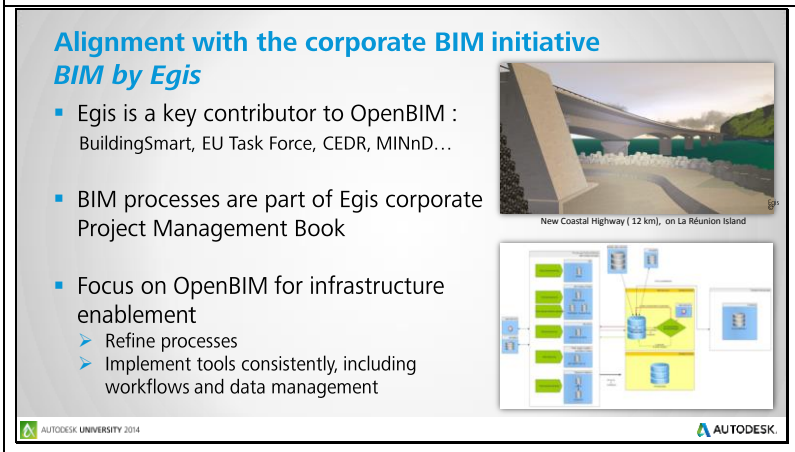




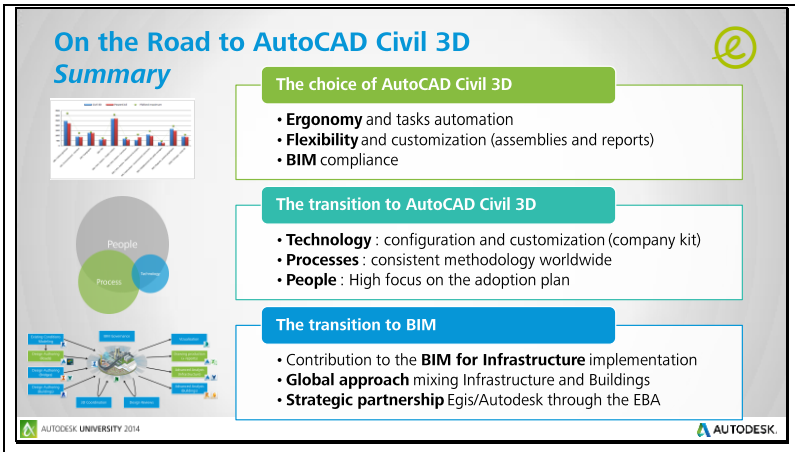
Egis is a key actor for the development of BIM, especially in France and in Europe.
As an example, Egis is currently chairing the international BuildingSmart infrastructure room, in charge of the IFC alignment development and IFC bridge extension.
Further to other task forces and research groups in France and in Europe, Egis has decided to develop its own corporate project called BIM by Egis
The aim of this project is to implement BIM processes within the Corporate processes through the corporate Project Management Book.
The approach is global, but the focus is clearly on the BIM for infrastructure, where there is still a lot to do.

Coming back to the Enterprise Business Agreement, let's take a step back to see the big picture of the program.

Conceptually, in the middle of BIM, let's put a 3D model mixing infrastructure and building data.
In terms of BIM uses,

- what we have just described, the transition to Civil 3D, is addressing the Design authoring for Roads with Civil 3D and ProjectWise, the drawing production

	and the advanced analysis, with the reports like Earthworks quantities for instance.
	• In parallel, we are supporting the design authoring on bridges, with Inventor and Vault, and on Buildings, with Revit.
	• We are planning to address the existing conditions modeling, with other products like Recap
	• We are working at the moment on an initiative around Infraworks to aggregate all those inputs
	• We have planned to work on the visualization with 3DSMax, on advanced analysis for infra with Vehicle tracking and SSA, on advanced analysis for buildings with the simulation product line, like Robot or CFD
	• On top of that, we are working on the BIM governance
	  • We have delivered a BIM specification book covering the 3D coordination and Design Review, where Navisworks is playing a central role,
	  • And we are providing tools to equip the BIM Managers on every project, like Model Development Specification, a consulting tool describing the content of the model at any given stage of the project lifecycle
	  • depending on the project phase, the discipline, the level of development, and the BIM use



To summarize the three main topics.

First, the choice of Civil 3D is based on

- the ergonomy and flexibility of the product
- the possibility to automate some tasks and to cutomize the user interface and the outputs
- the compliance with BIM

Then, the transition to Civil 3D is based

- On technology, with the configuration and the customization, deployed through the company kit
- On processes, with a consistent methodology worldwide
- On people, with a high focus on the adoption plan and governance

Finally, this transition to Civil 3D is part of a more global transition to BIM

- Focused on BIM for Infrastructure
- But mixing Infrastructure and Building in a global approach
- And facilitated by the strategic partnership between EGIS and Autodesk through the Entrerprise Business agreement