CV5515 - On the Road to AutoCAD Civil 3D

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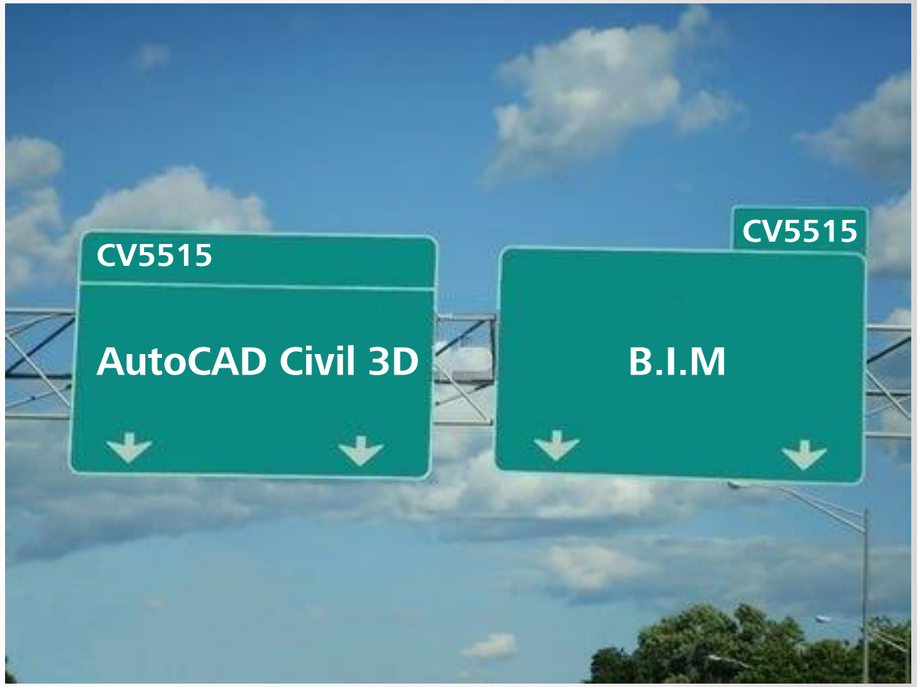
Egis

Class summary

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



Key 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

Autodesk Consulting & Egis

Autodesk Consulting

Experience & Expertise

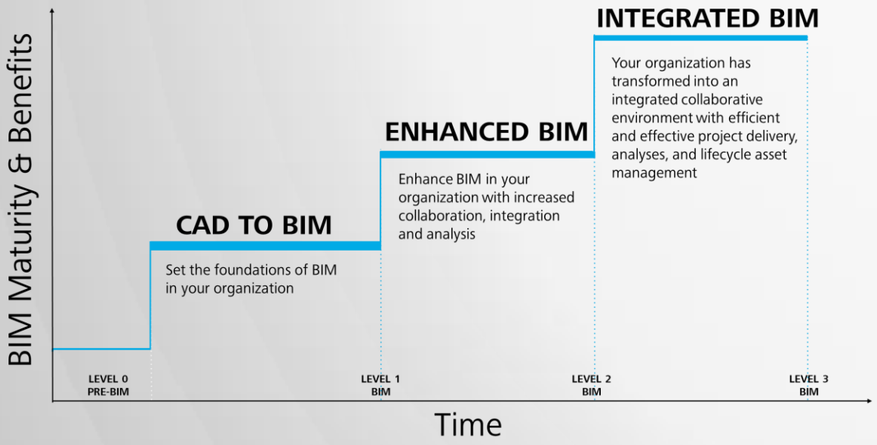
- Global team of professionals and network of partners
- Operate across all Autodesk industry practices
- Skilled in building strategic alignment & consensus
- Facilitator between business and IT organizations
- Deep knowledge of Autodesk products & partner technos
- Unique connection to Autodesk product development

Customer Value

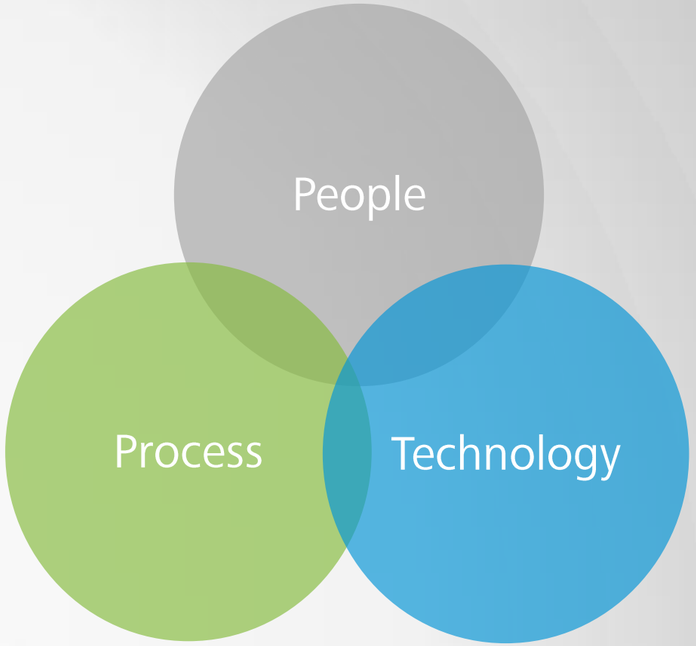
- **Maximize the value of Autodesk technology**
- Realize business benefits sooner
- **Transform critical business processes**
- Enhance productivity
- Mitigate project and technology risks
- Create innovative solutions to business challenges

Autodesk Consulting
BIM Transformation Services

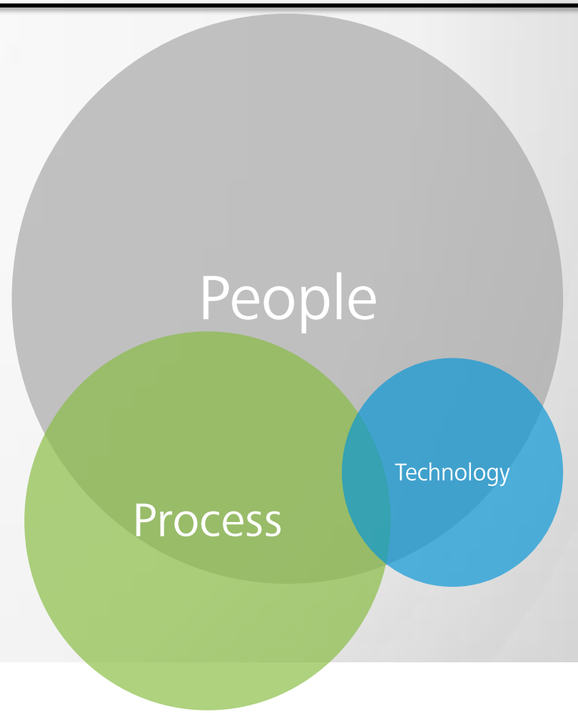
BIM Transformation Services



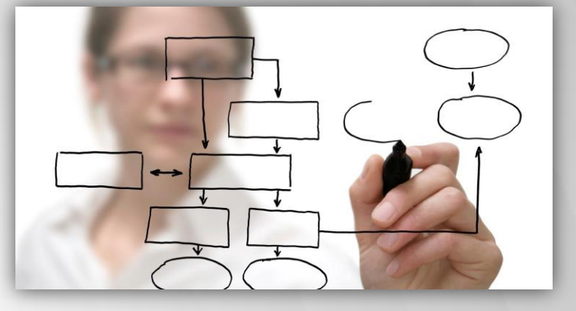
Perception



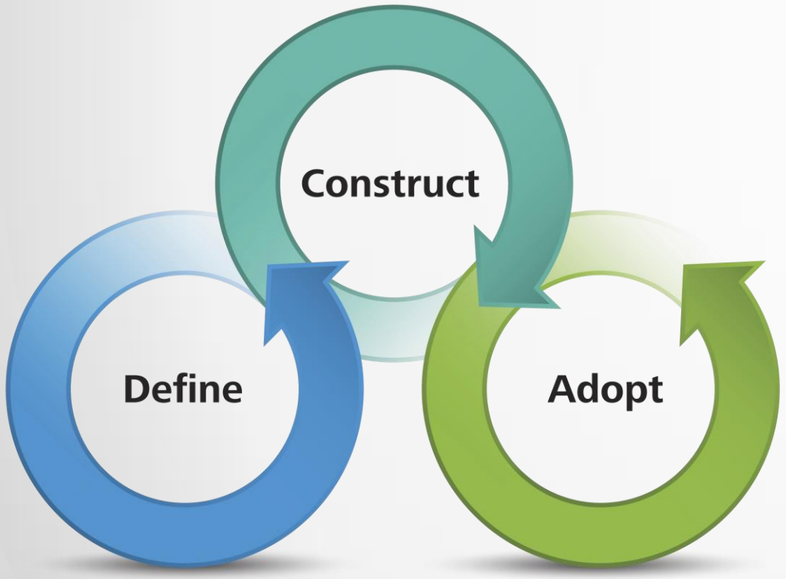
Reality



Autodesk Consulting
Our methodology



AUTODESK®
BUSINESS VALUE
METHODOLOGY



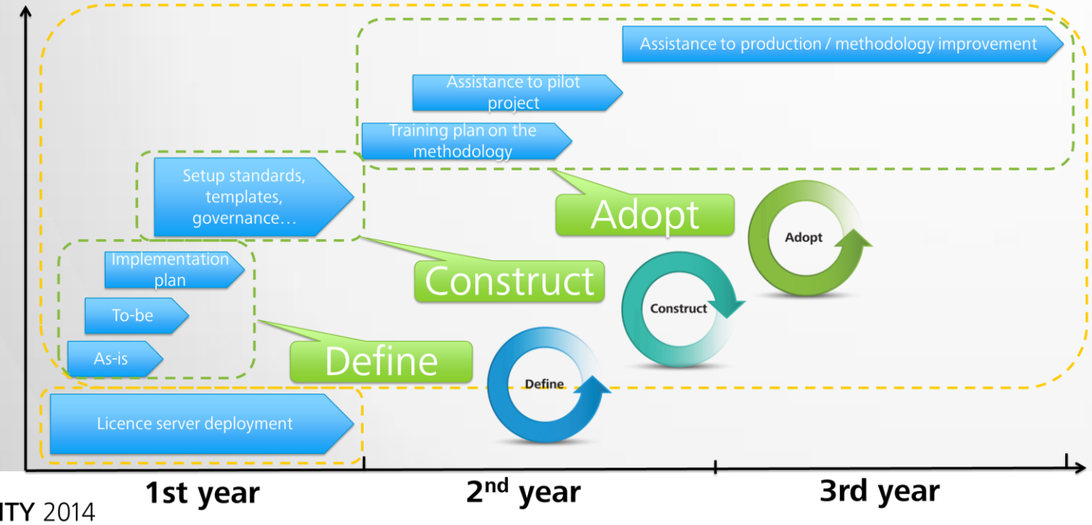
Define Phase
Business value has been agreed. A roadmap and high-level plan are in place. Success metrics have been identified.

Construct Phase
Solution has been designed, developed, and tested. All data has been migrated. Baseline metrics are available. An adoption plan has been created.

Adopt Phase
All users are trained and the solution is in production with ongoing mentoring to ensure productive use. Metrics demonstrate business value.

Autodesk / Egis
Enterprise Business Agreement

- 3,5 years agreement : 2013 → 2016
- Framework for
  - Enterprise-wide technology deployment
  - Successful adoption
  - BIM transformation



Multi-Flex
Flexible software platform

Support
Priority support for enterprise customers

Production Assurance
Technical resources deliver critical project success

Customer Success Manager
Dedicated Consultant to ensure successful adoption

1,400 credits

1/3 time

Egis

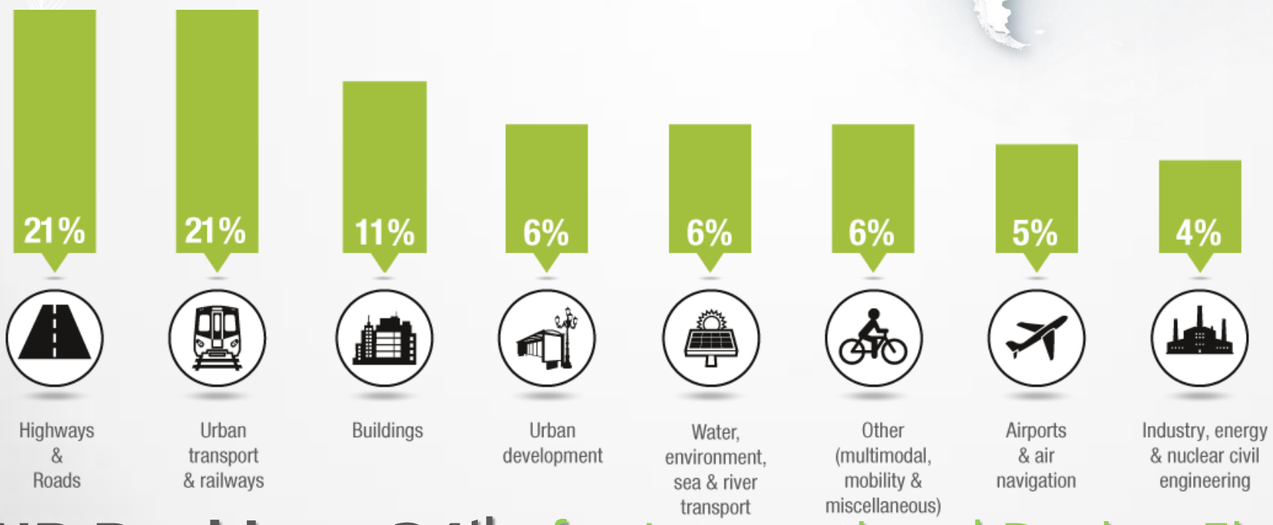
Company profile

TURNOVER BREAKDOWN

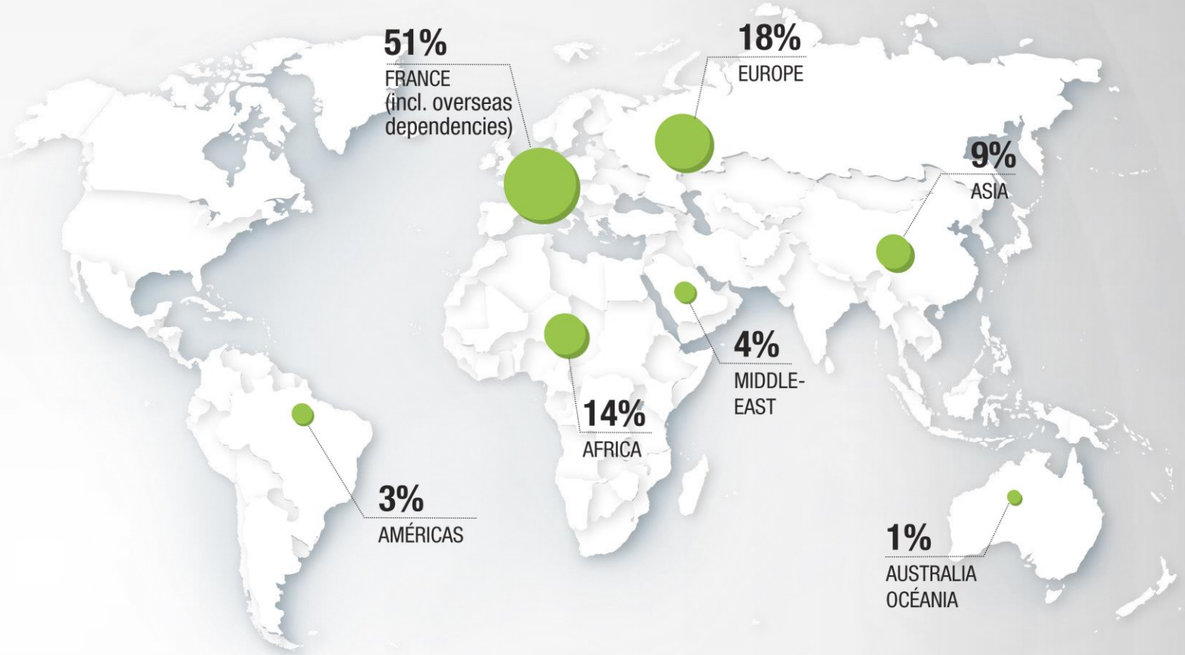
881 M€
Turnover in 2013

20 %
Road and Airport Operation

80 %
Engineering



OUR WORLDWIDE PRESENCE



egis ENR Ranking : 34th for International Design Firms

Egis
Company profile

egis

12 000 EMPLOYEES

Present in over **100** COUNTRIES

17 OVERSEAS SUBSIDIARIES

25 OPERATING COMPANIES

More than **40** OFFICES IN FRANCE

OUR SERVICES

- Engineering
- Architecture, Town planning and Landscaping
- Consulting
- Opération and user services
- Project structuring and turnkey solutions

Riyadh metro - Saudi Arabia
Project management and construction supervision for Lines 1, 2 and 3

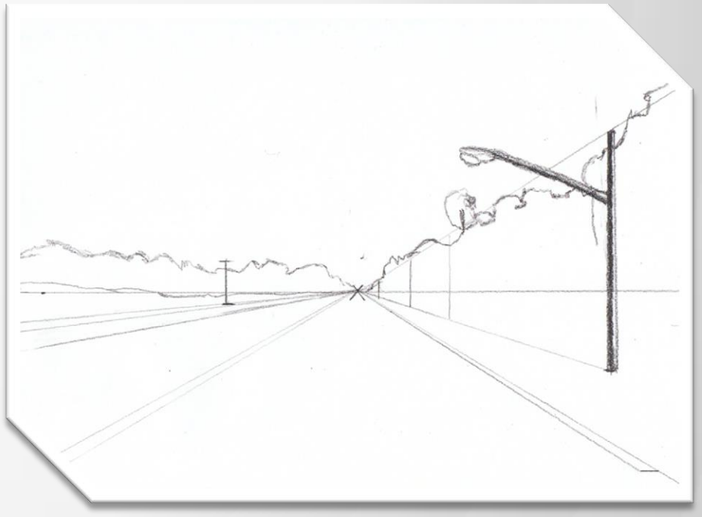
Allianz Riviera stadium in Nice – France
EPCM, environmental studies and special structures

Two projects won within the framework of the "Doha Expressways" road development programme - Qatar.
- Works supervision on the Al Ryyan Road (1st lot) ;
- Surveys and works supervision on 120km of expressway (2nd lot).

Why AutoCAD Civil 3D ?

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

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.

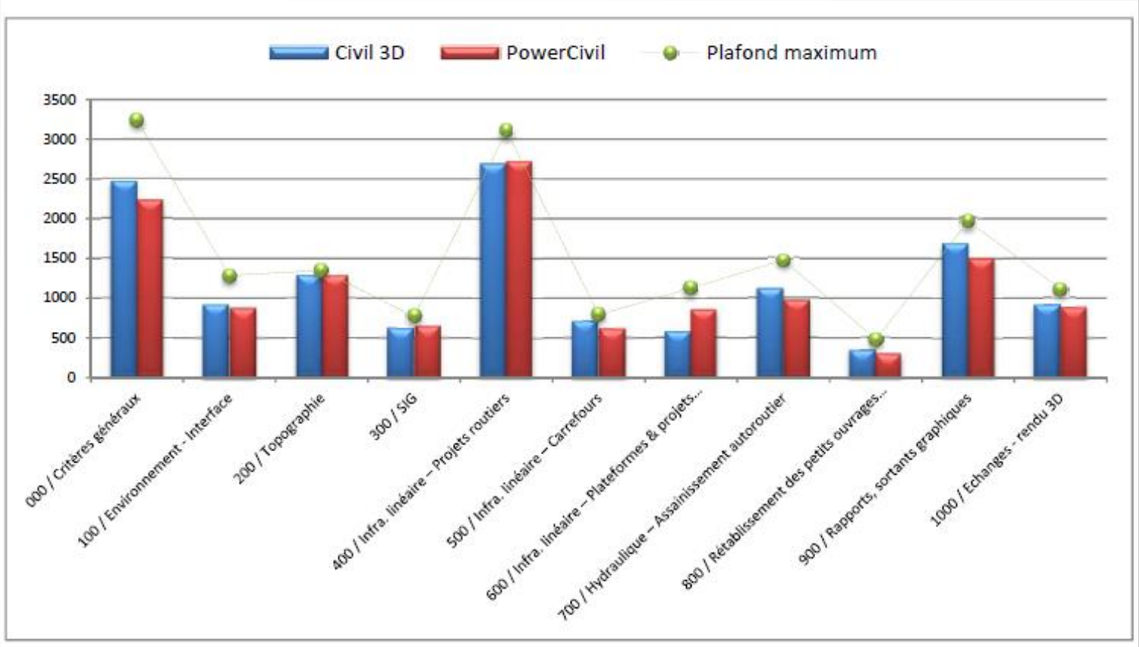
Why AutoCAD Civil 3D ?
Selection criteria

- 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)
  - …

Why AutoCAD Civil 3D ?
Main outcomes

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

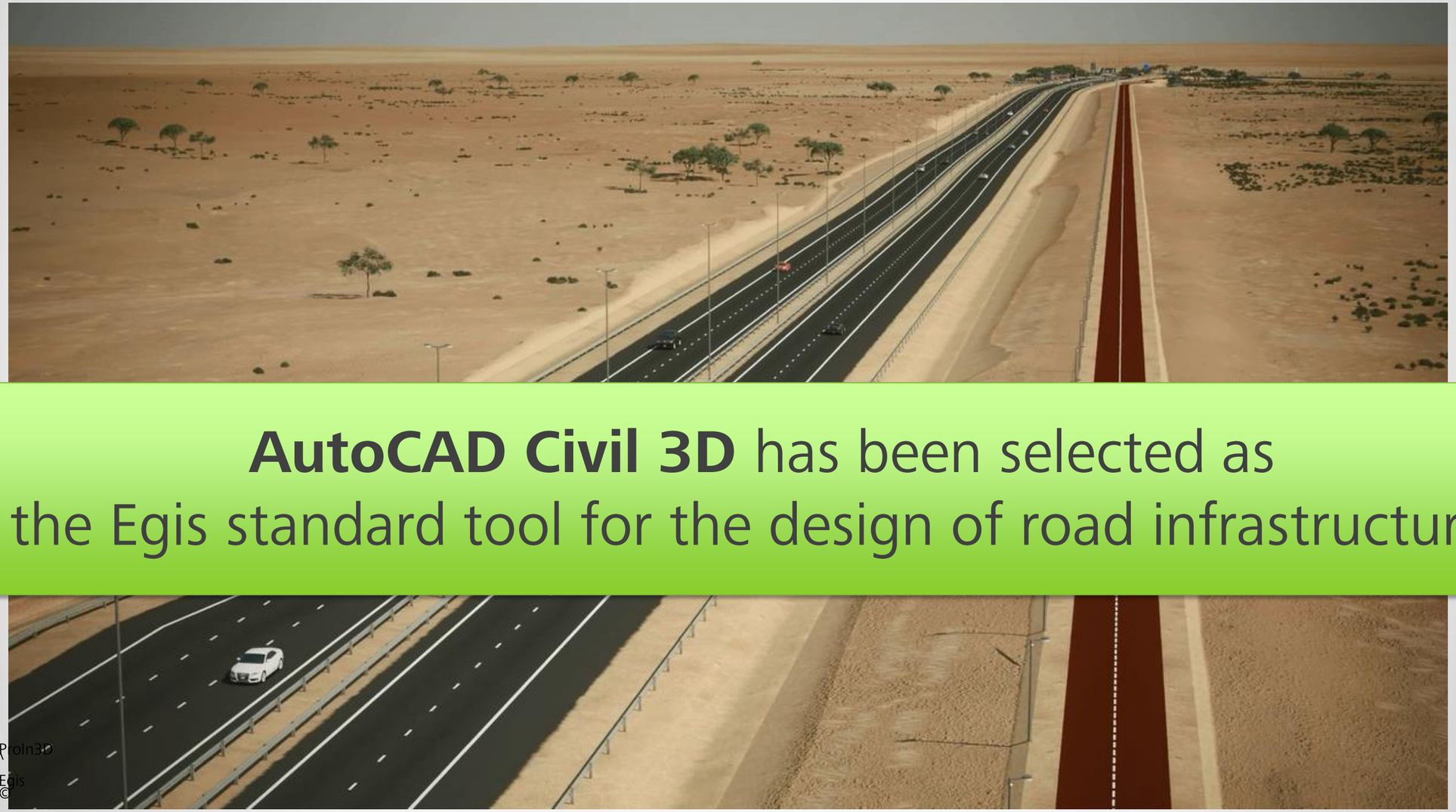


- Room for improvement
  - Performance & stability for large projects
  - Longitudinal profile design
  - Platform design

Addressed through the methodology

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

ProIn3D

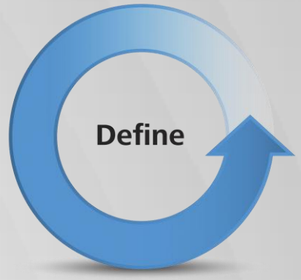
Egis

©

The transition to Civil 3D

The transition to Civil 3D

Goals



Deploy Civil 3D at corporate level

- Share same standards and processes
- Increase reliability of processes
- Harmonize quality of deliverables

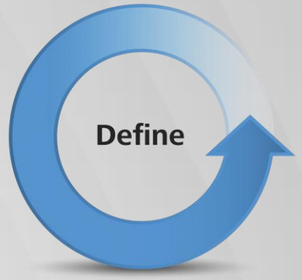
Ease collaboration

- Links Civil 3D / ProjectWise

Take benefit of the C3D capabilities

- BIM compliance
- Storm & Sanitary
- Vehicle tracking

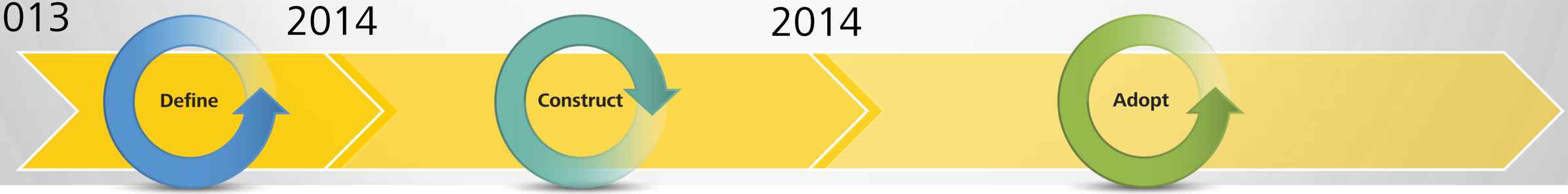
The transition to Civil 3D
Strategy & Roadmap



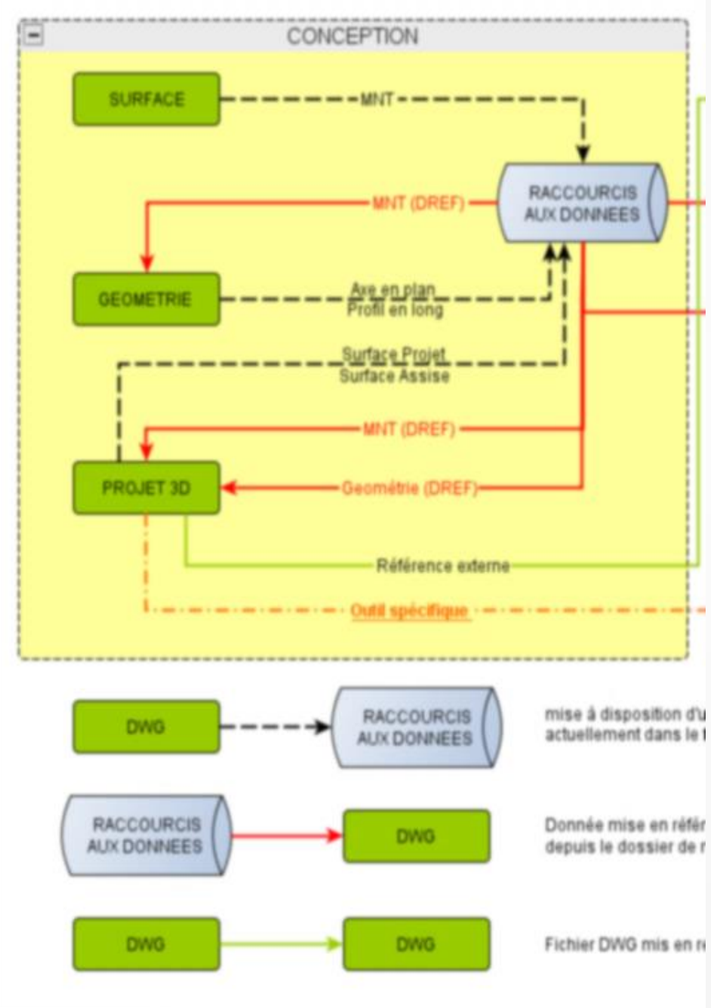
- A comprehensive Strategy

Theoritical	• Methodology & Corporate Kit (Egis signature)
Practical	• Applied on Doha expressways project
Organizational	• Impact on organization (roles & responsabilities)
Technical	• Align methodology with tools capabilities (C3D 2013)

March 2013 — Feb 2014 — Nov 2014



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

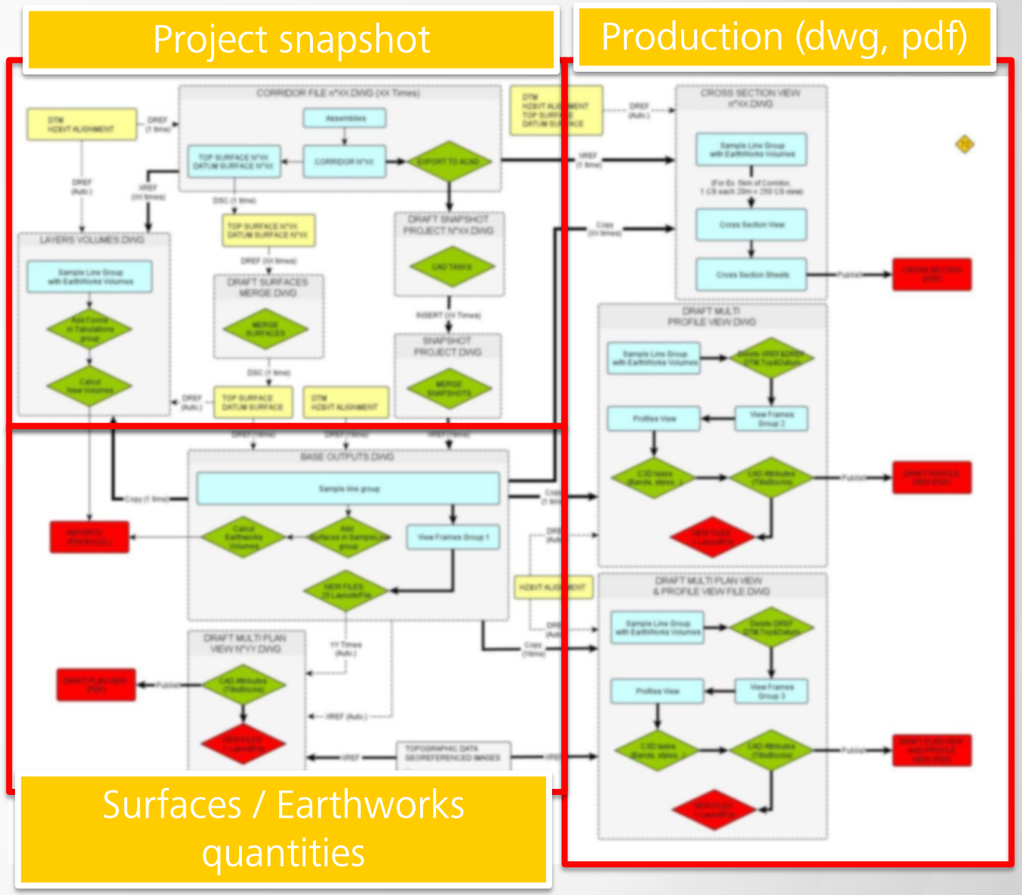
The transition to Civil 3D
Drawing production process

- Example of Key issue

  Ensure consistency and versioning

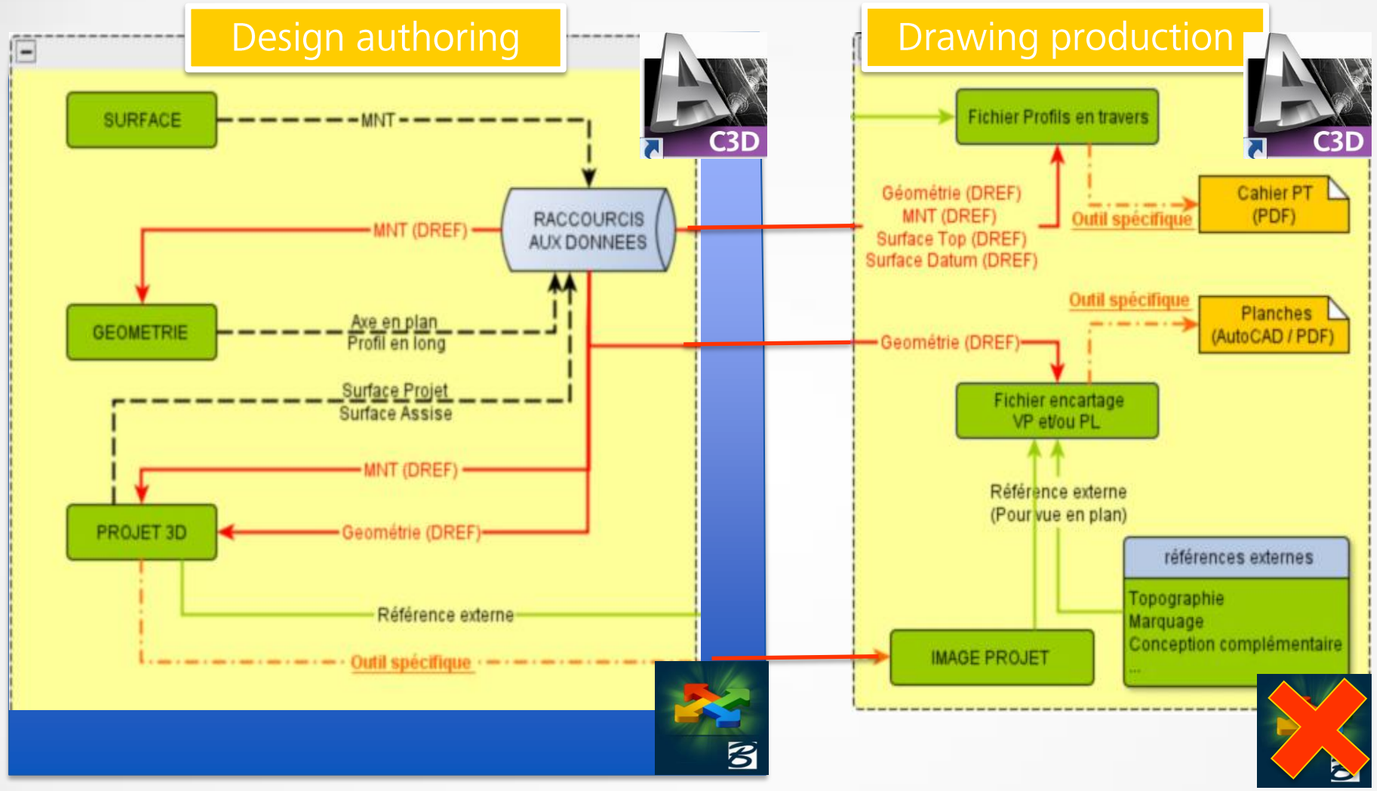
  - Need to develop specific workflows
  - Need to find “a work around” to achieve our own requirements (eg. Project snapshot)

Specific methodology

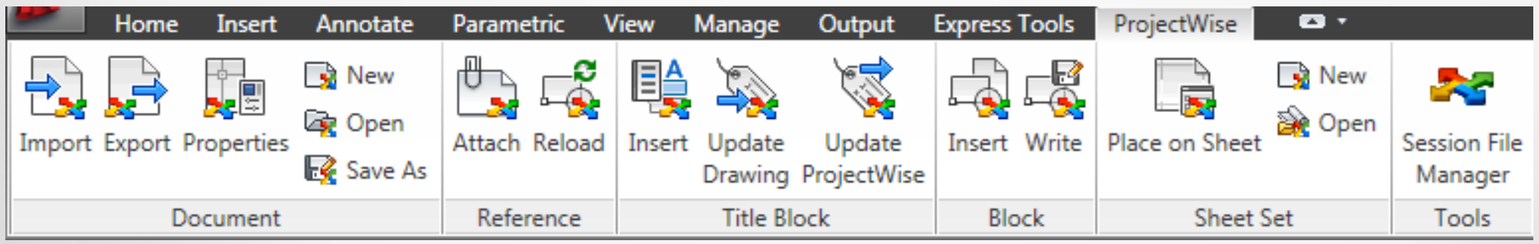


The transition to Civil 3D
Collaboration

Road engineers

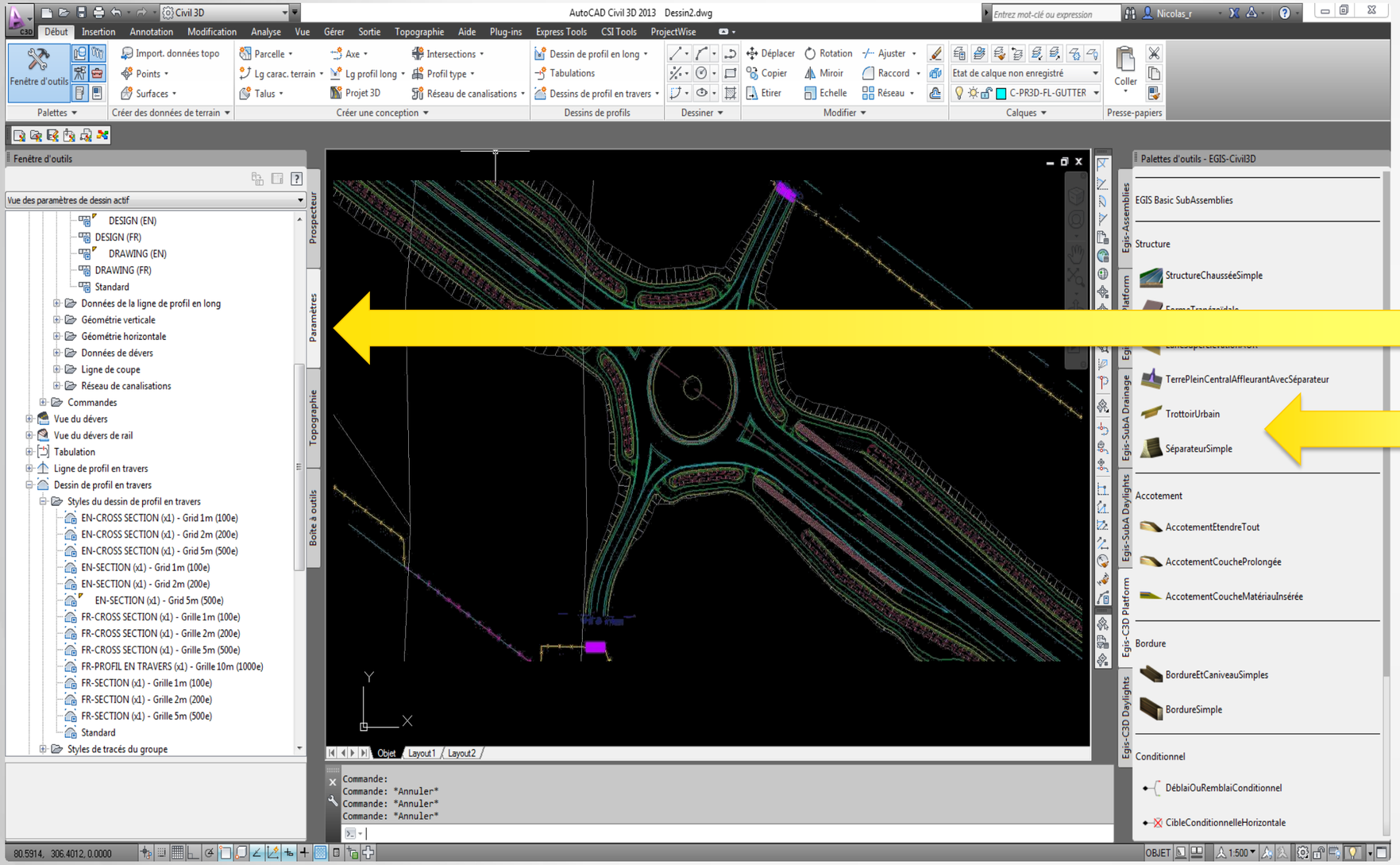


Drafters



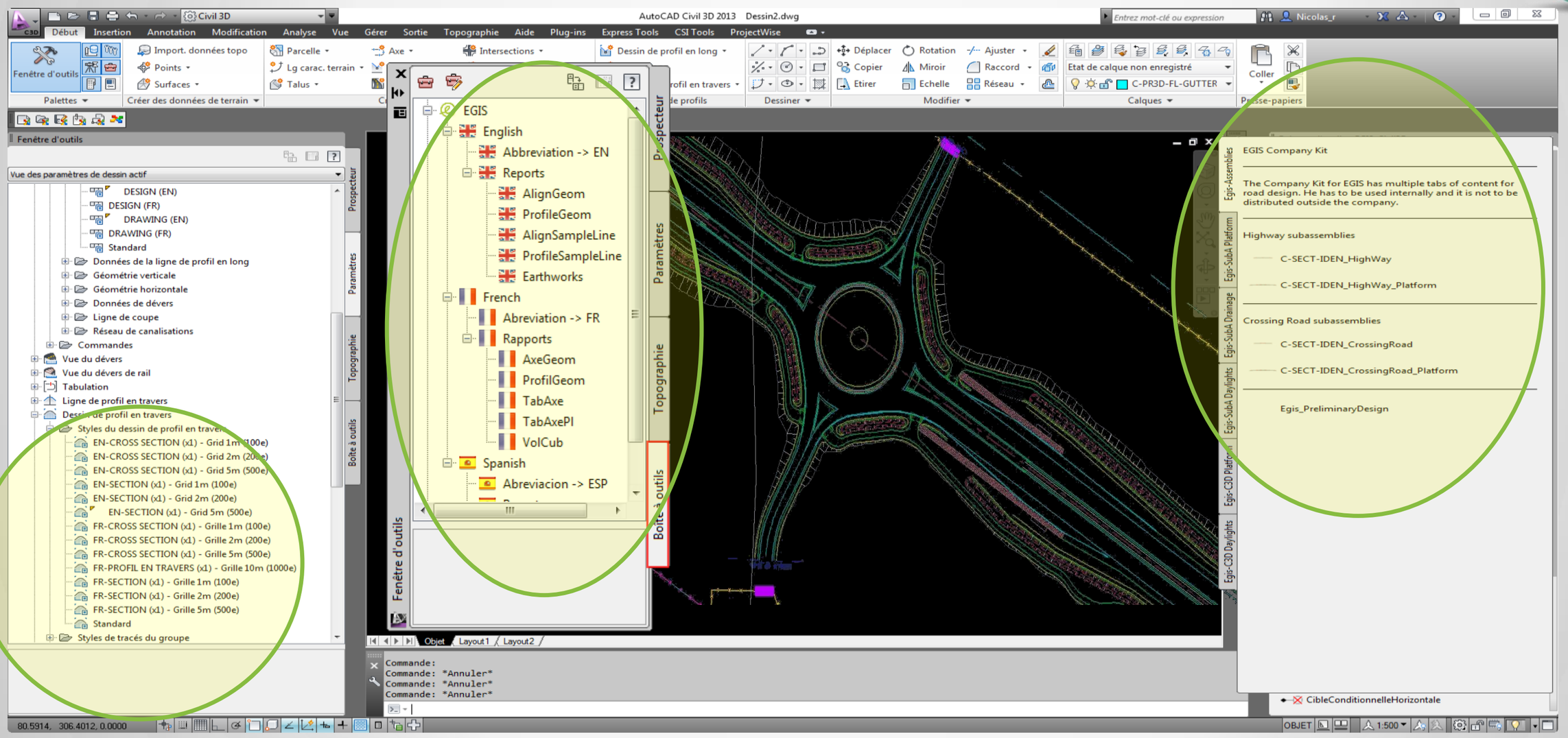
The transition to Civil 3D

Egis Corporate *kit – User Interface*



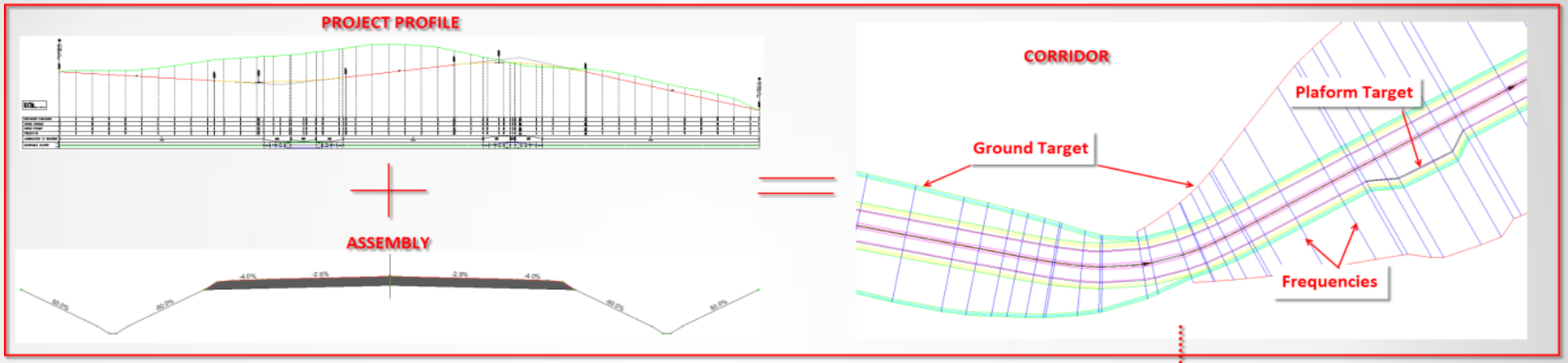
The transition to Civil 3D

Egis Corporate *kit – User Interface*

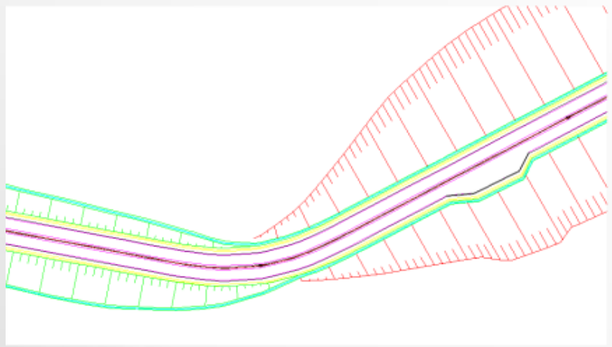


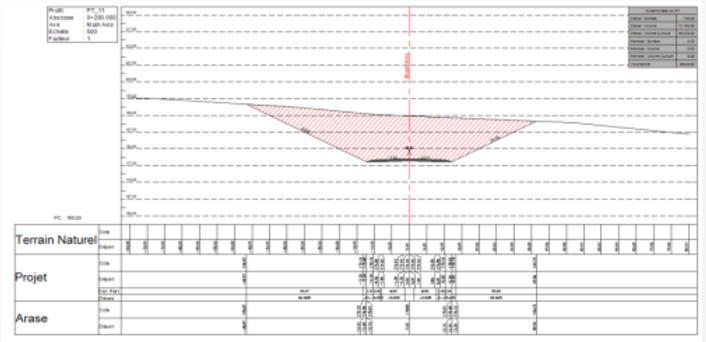
The transition to Civil 3D
Egis Corporate *kit - outputs*

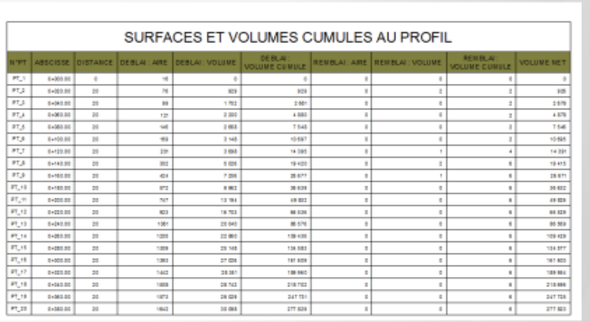
Design Authoring



Drawings Production







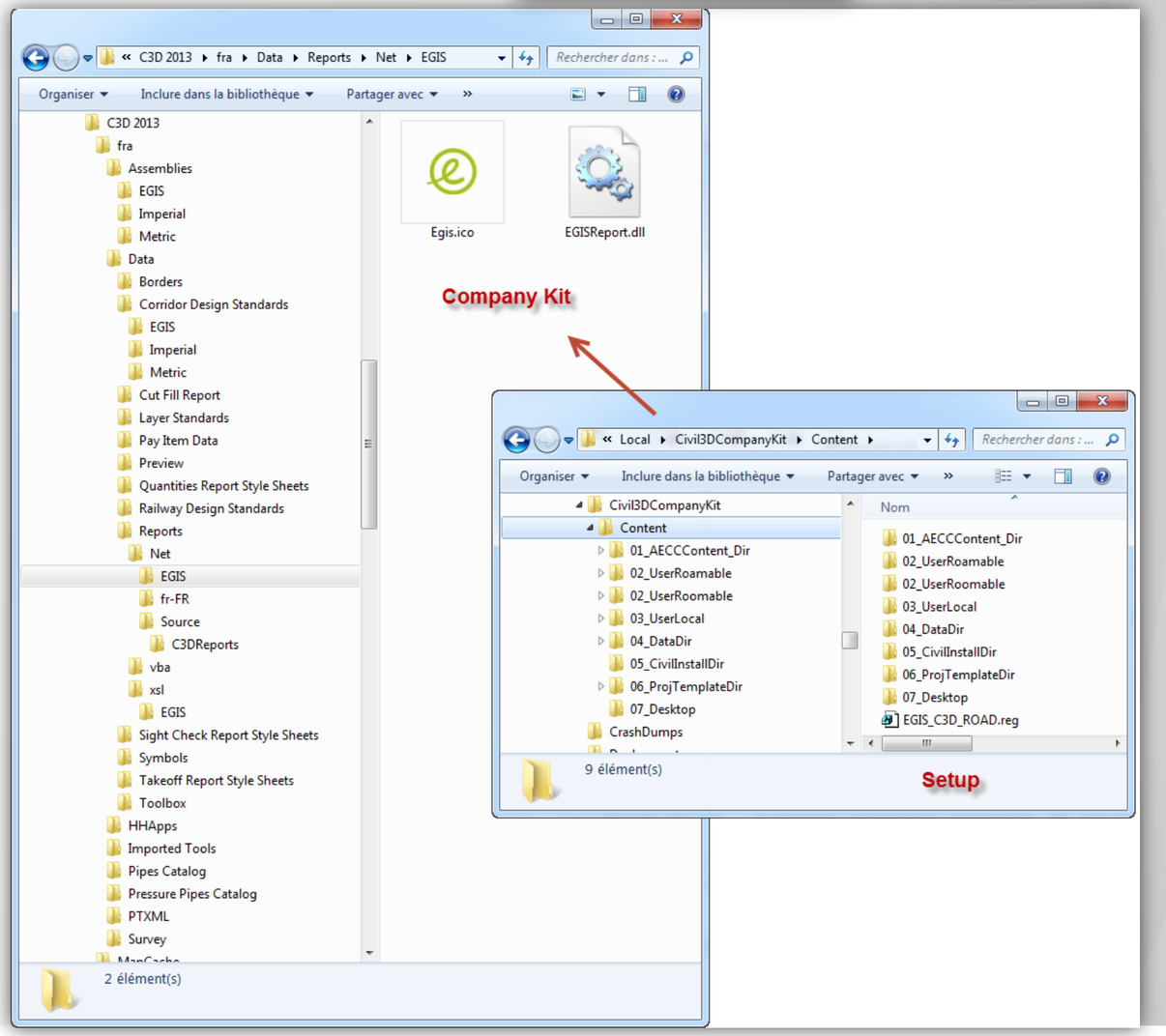
SURFACES ET VOLUMES CUMULES AU PROFIL

N°PT	ABSCISSE	DISTANCE	DEBLAI : AIRE	DEBLAI : VOLUME	DEBLAI : VOLUME CUMULE	REMBLAI : AIRE	REMBLAI : VOLUME	REMBLAI : VOLUME CUMULE	VOLUME NET
PT_1	0+000.00	0	15	0	0	0	0	0	0
PT_2	0+020.00	20	76	909	909	0	2	2	905
PT_3	0+040.00	20	89	1 752	2 661	0	0	2	2 659
PT_4	0+060.00	20	120	2 093	4 755	0	0	2	4 753
PT_5	0+080.00	20	146	2 665	7 420	0	0	2	7 418
PT_6	0+100.00	20	169	3 146	10 567	0	0	2	10 565
PT_7	0+120.00	20	239	3 995	14 561	0	1	4	14 557
PT_8	0+140.00	20	302	5 326	19 888	0	2	6	19 882
PT_9	0+160.00	20	424	7 266	27 154	0	1	8	27 146
PT_10	0+180.00	20	572	9 962	37 116	0	0	8	37 108
PT_11	0+200.00	20	747	13 194	50 310	0	0	8	50 302
PT_12	0+220.00	20	923	16 703	67 013	0	0	8	67 005
PT_13	0+240.00	20	1 081	20 040	87 053	0	0	8	87 045
PT_14	0+260.00	20	1 209	22 900	109 953	0	0	8	109 945
PT_15	0+280.00	20	1 289	25 148	135 101	0	0	8	135 093
PT_16	0+300.00	20	1 383	27 329	162 430	0	0	8	162 422
PT_17	0+320.00	20	1 502	28 851	191 281	0	0	8	191 273
PT_18	0+340.00	20	1 608	31 043	222 324	0	0	8	222 316
PT_19	0+360.00	20	1 673	32 809	255 133	0	0	8	255 125
PT_20	0+380.00	20	1 743	33 984	289 117	0	0	8	289 109

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

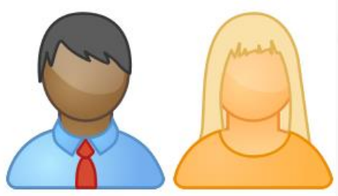
Adoption plan – Training plan

worldwide

> 200 people

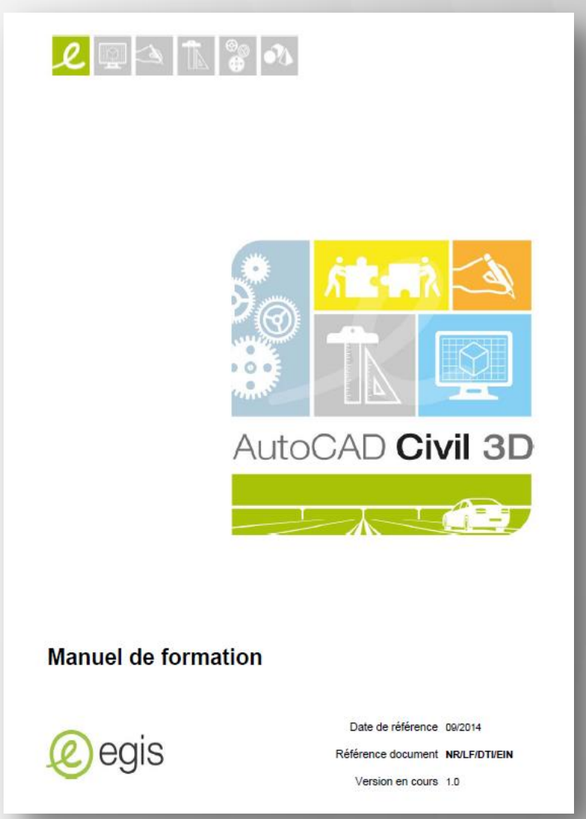
Drafters (50%)

Road Engineers (20%)



Project Engineers (30%)

- AutoCAD basics (3 days)
- Design Authoring (4 days)
- Drawing Production & Deliverables (4 days)
- Civil 3D for Team Leaders (1,5 days)



Support from Graphland

The transition to Civil 3D

Adoption plan – Proactive Support

AUTODESK
Enterprise Priority Support

egis IT Department

Central Board
(for continuous improvement)

Key Users

Users

- **Best practices**
- **Requests for improvements**

Collaboration forum

The transition to Civil 3D
Adoption plan – Evolutions

AUTODESK

New Features

Central Board
Evaluate and define strategy

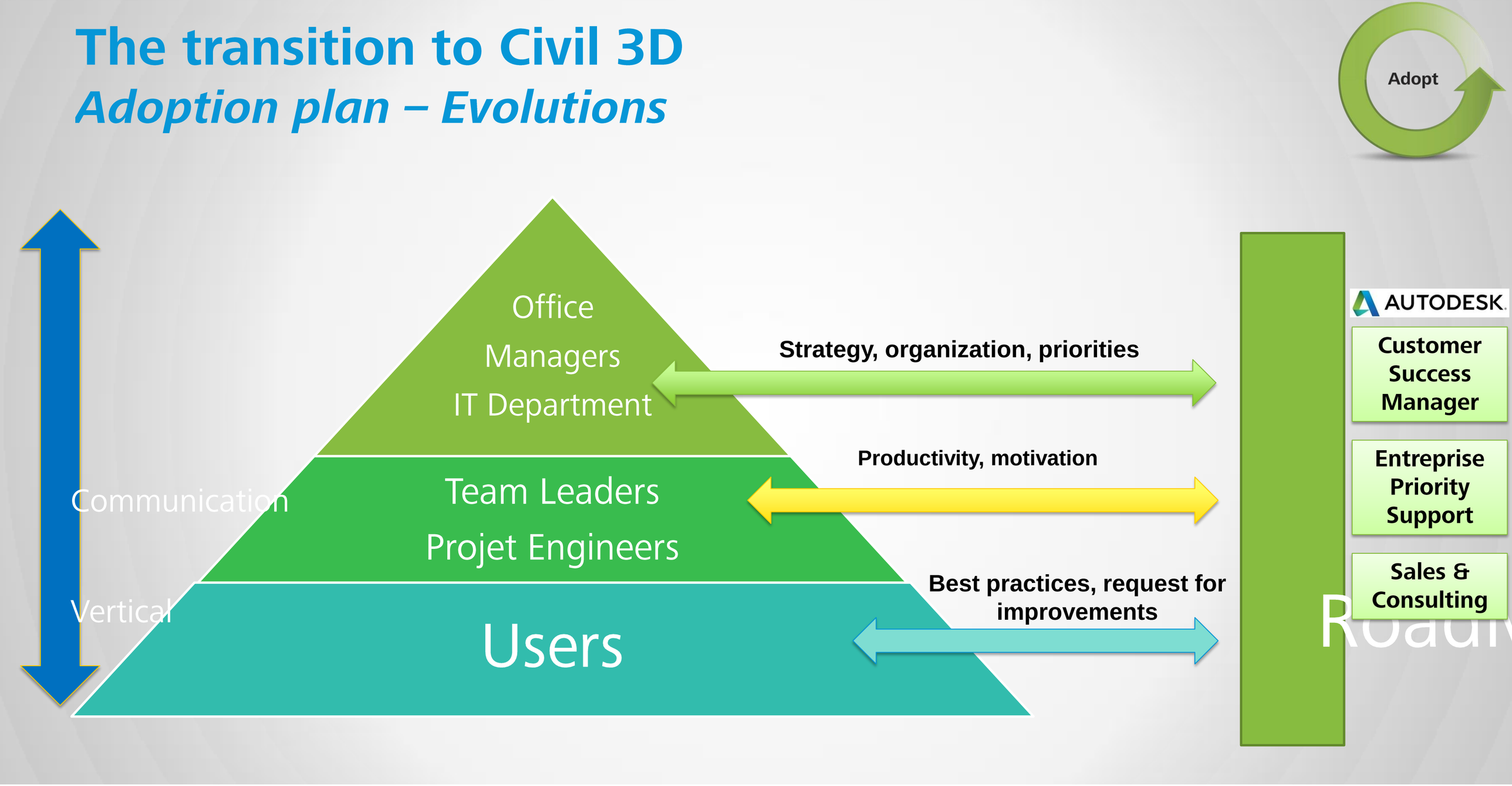
egis IT Department

Key Users

Users

Collaboration forum

The transition to Civil 3D
Adoption plan – Evolutions



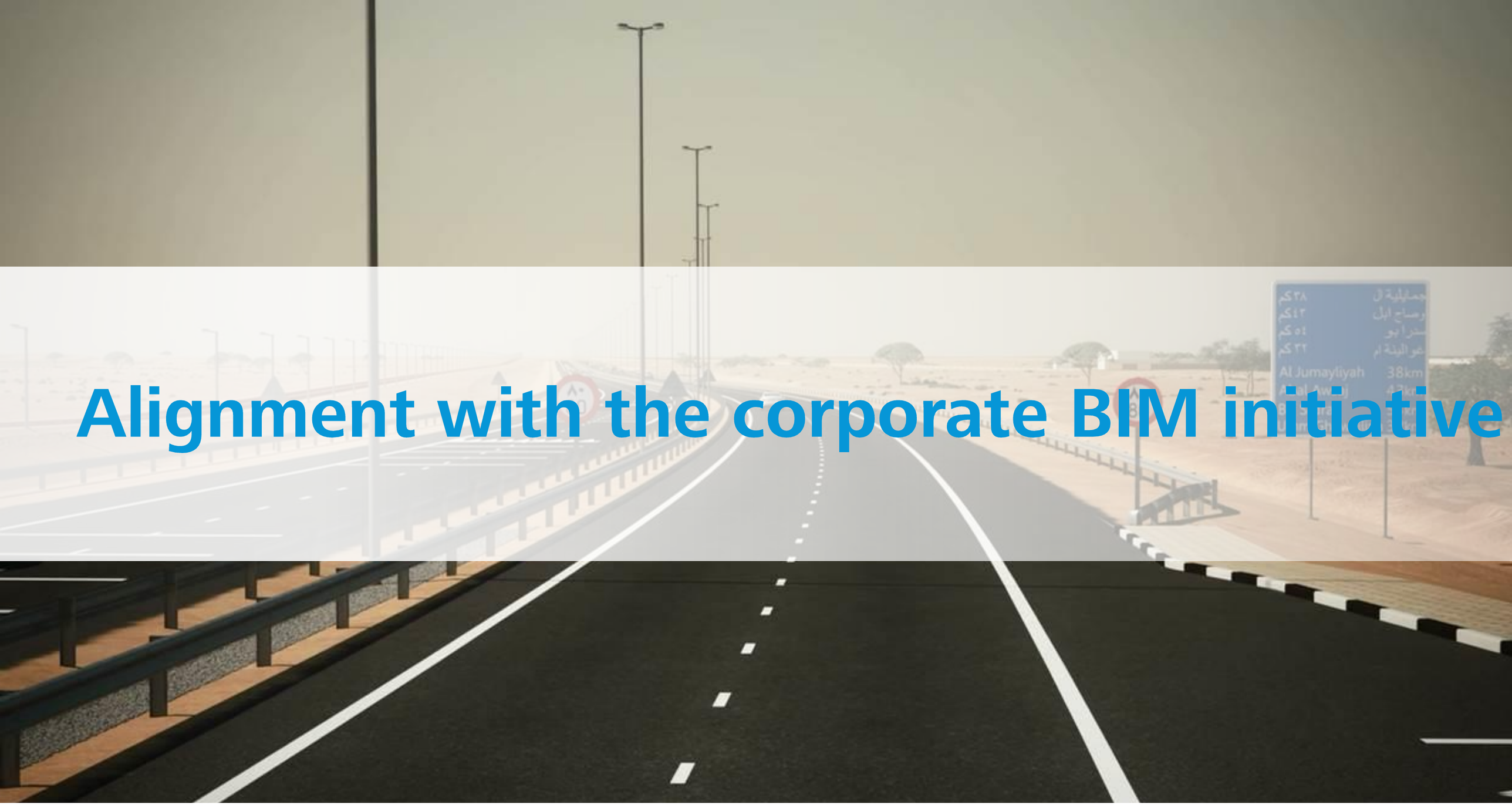
The transition to Civil 3D

Roadmap

- New ribbons, new features…
- Upgrades to last versions (C3D 2015)
- Solution completion
  - Storm & Sanitary Analysis
  - River Analysis
  - Vehicle Tracking
- Adjustments to the real-life

ProIn3D

Egis ©



Alignment with the corporate BIM initiative

Alignment with the corporate BIM initiative
BIM by Egis

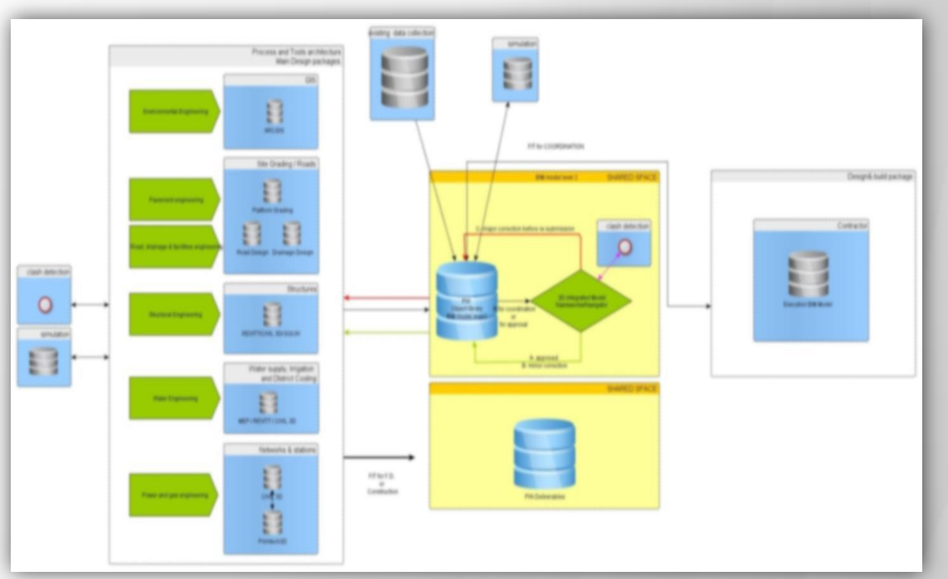
- Egis is a key contributor to OpenBIM :

  BuildingSmart, EU Task Force, CEDR, MINnD…

- BIM processes are part of Egis corporate Project Management Book

- Focus on OpenBIM for infrastructure enablement
  - Refine processes
  - Implement tools consistently, including workflows and data management

New Coastal Highway (12 km), on La Réunion Island



Alignment with the corporate BIM initiative

The Big Picture of the EBA program

Transition to Civil 3D

Other BIM initiatives

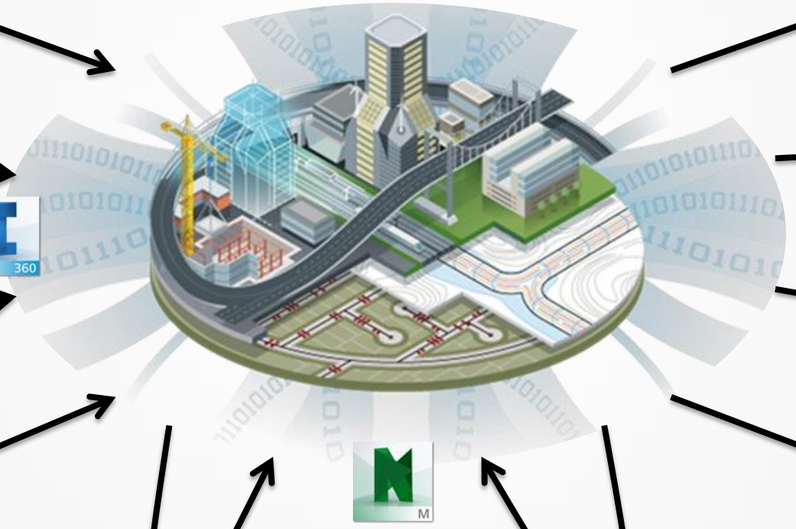
Existing Conditions Modeling

Design Authoring (Roads)

Design Authoring (Bridges)

Design Authoring (Buildings)

BIM Governance (spec book, tools)



3D Coordination

Design Reviews

Visualization

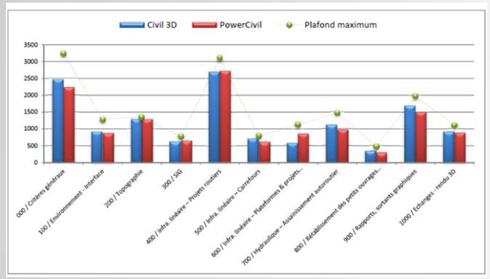
Drawing production (+ reports)

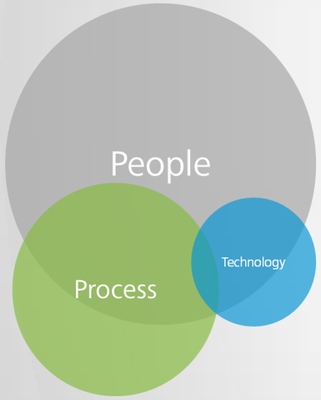
Advanced Analysis (Infrastructure)

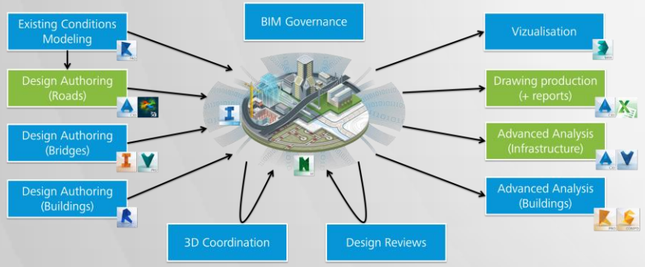
Advanced Analysis (Buildings)

On the Road to AutoCAD Civil 3D

Summary







The choice of AutoCAD Civil 3D

- **Ergonomy** and tasks automation
- **Flexibility** and customization (assemblies and reports)
- **BIM** compliance

The transition to AutoCAD Civil 3D

- **Technology** : configuration and customization (company kit)
- **Processes** : consistent methodology worldwide
- **People** : High focus on the adoption plan

The transition to BIM

- Contribution to the **BIM for Infrastructure** implementation
- **Global approach** mixing Infrastructure and Buildings
- **Strategic partnership** Egis/Autodesk through the EBA