PTV GROUP – WHO WE ARE

Founded: 1979
Headquarters: Karlsruhe, Germany
Offices: 5 continents, 12 countries
Employees: 700 worldwide
Turnover: € 83 million

PTV Headquarters, Karlsruhe
PTV AMERICA

PTV America, Portland OR

PTV America, Arlington VA
WE PLAN AND OPTIMIZE EVERYTHING THAT MOVES PEOPLE AND GOODS WORLDWIDE.
OVER 2,000 ORGANIZATIONS AND 5,000 USERS LOCATED IN 105 COUNTRIES
PTV GROUP WORKING IN PARTNERSHIP
PTV VISION TRAFFIC SUITE
REAL-TIME TRAFFIC MANAGEMENT & ITS

OPERATIONAL PLANNING

STRATEGIC PLANNING
PTV TRAFFIC SOFTWARE SUITE

PTV VISUM
Network modelling – large scale, national, regional and local transport network developments and demand modelling

PTV VISSIM
Detailed microscopic modelling of individual vehicles covering all modes of transport – multi-modal micro-simulation

PTV VISWALK
Advanced microscopic pedestrian simulation, both inside and outside buildings

PTV VISTRO
A solution for all traffic analysis needs

PTV OPTIMA
Real-time traffic simulation model, based on offline strategic model (PTV Visum), fused with real-time data

PTV BALANCE
Online traffic signal adaptive network control – model-based

PTV SAFETY
Management tool for accident analysis prevention
TRAFFIC ANALYSIS TOOLS IN PTV VISION SUITE...

Categories of Traffic Analysis Tool (by FHWA)
WHAT IS PTV VISION SUITE?
WHAT IS PTV VISION SUITE?
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WHAT IS PTV VISION SUITE?
WHAT IS THE VISION TRAFFIC SUITE?

PTV VISUM
For strategic planning

PTV VISTRO
For traffic engineering

PTV VISSIM
For detailed simulation analysis
WHAT IS THE VISION TRAFFIC SUITE?

Visum
- Strategic Planning Platform

Vistro
- Intersection Capacity Analysis

Vissim
- Microscopic Traffic & Transit Simulator

PTV Vision is a fully integrated suite of transportation planning/travel demand modeling and traffic simulation for all modes of transportation.

PTV Vision incorporates macro, meso, and microscopic levels analyses dynamically over time.
PTV VISION – VISUM
PTV VISION – VISSIM
PTV VISION - MICROSIMULATION

PTV VISSIM

Exact microscopic modelling of all modes - modal microsimulation.

PTV VISWALK

Microscopic Pedestrian Simulation

www.ptvgroup.com
World-class products
Expertly integrated
VISUM USER EXPERIENCE

Everything in one place
Built-in functionality for all standard procedures
Accessible for beginners. Powerful for experts.
VISUM DATA MODEL

Self-contained relational database
Network objects automatically synchronized
Routes stored for post-assignment analysis
Relational analysis and calculation
Beautiful visual analysis in seconds
Fuse datasets with Intersect and MapMatcher
Integrated and synchronized with data model
Variety of built-in models (scripting is optional):
4-step; EVA; tour-based Visem
Matrix operations such as Fratar and gravity model estimation
Flexibility and extension through customized scripting
VISUM SCRIPTING IS OPTIONAL

STANDARD FUNCTIONS AVAILABLE THROUGH GUI

WRITE PYTHON / VB SCRIPT DIRECTLY WITHIN VISUM

RUN PYTHON / VB SCRIPT FROM EXTERNAL FILES

CONTROL VISUM USING VBA
Leading-edge assignment techniques backed up by academic research

Static assignment with detailed junction modelling

Special assignment for tolls (TRIBUT)

Dynamic assignment
Adjust matrices using a vast variety of measures
Reflect varying confidence in real world data by specifying ranges
Simple projection also available
Create programs as procedure sequences
Build in control loops (e.g. variable demand)
Automate generation of model outputs
Distribute procedures between multiple computers
VISUM SCENARIO MANAGEMENT

Create projects with a base and alternative scenarios
Scenarios created as groups of network and demand modifications
Distribute processes across multiple computers
Multi-user access
Pre-define graphical and tabular scenario comparisons
Graphical junction editor
Signal green and cycle time optimisation based on demand
Dedicated static assignment with junction simulation
Queuing and flow metering
HCM 2010
REAL-TIME

Upgradability from PTV Visum to PTV Optima
Revolutionary real-time traffic management
WHAT IS PTV VISTRO?

Your **COMPLETE** Traffic Engineering Analysis Tool

- **Intersection Level of Service**
  - Choose from a range of industry-standard methodologies
- **New signal timing optimization**
  - Full range of optimization for individual intersections, corridors, and networks
- **TIA functionality**
  - Complete tracking of trip generation, distribution, and assignment for new developments
- **Scenario management**
  - Manage and test existing and future alternatives in one convenient location
- **Comprehensive reporting**
  - Full suite of reports to meet requirements
- **Simulation integration**
  - Direct export to PTV Vissim for microscopic simulation
VISTRO USE CASES

- Conducting Signal Timing and System Evaluations
- Performing Corridor Studies
- Conducting Traffic Impact Analysis (TIA)
- Developing Transportation Master Plans
PTV VISTRO - SIMPLICITY

Simple User Interface

- Visual Display of the Network
- Integrated bing™ maps
  - Aerial Photo or Road Map
- Image files (bitmap, jpeg, etc.)

Network Window

Data Window

- Level of Detail in Tables
- All-in-one Table
- Collapsible Headers
PTV VISTRO - COMPLETENESS

Capacity Analysis

- Four Control Types

- Multiple Analysis Methodologies
  - HCM 2000 / 2010
  - Kimber (Roundabout)
  - Critical Movement (Circular 212 / ICU)

- A “Clear Box” Concept Software
  - Detailed Parameter Sets for Capacity Analysis

- Different Methodologies within the Same Network
PTV VISTRO - COMPLETENESS

Signal Optimization

- Path Based Optimization
  - Flexible Optimization Corridor / Visual Display
  - Optimization Corridor Prioritization

- Multiple Objective Functions
  - Split : V/C Balance or Delay Minimization
  - Offset : User Definable Objective Function (Delay and Number of Stops)

- Multiple Optimization Methodologies
  - Hill Climb Method
  - Genetic Algorithm
PTV VISTRO - COMPLETENESS

Built-in Traffic Impact Analysis (TIA) Functionality

► Network Component for TIA
  ● (Zone), (Gate), (Path)

► Trip Generation
  ● Trip Generation Manual or Custom Trip Generation Data
    ● OTISS Import
  ● One-Click Land Use Updates
  ● Multiple Zones for Redevelopment or Mixed Use Development Cases

► Volume Adjustment
  ● In-process volume, Diverted trips, Pass-by trips, etc.
PTV VISTRO - COMPLETENESS

Built-in Traffic Impact Analysis (TIA) Functionality

- Trip Distribution
  - Table Input
  - Mirror Trips (From / To Trips)

- Trip Assignment
  - Shortest Path Search
  - Manual Input for Paths
  - Visual Display on Paths
  - Automatic Error Check
PTV VISTRO - COMPLETENESS

Scenario Management

- Define, Duplicate, Edit Scenarios
- Each Scenario Incorporates:
  - Geometry, Control, Volumes, Land Use, etc.

Mitigation Analysis

- Test mitigation solution for each intersection
- Apply mitigation strategies on the fly:
  - Lane Configuration / Geometry
  - Intersection Control Type
  - Signal Optimization
PTV VISTRO - COMPLETENESS

Comprehensive Report

- Multiple Formats to choose from:
  - PDF
  - CSV
  - HTML

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Tabular Reports

Signal Warrant Analysis

Graphics (Figures)

Optimization Report

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Tabular Reports

<table>
<thead>
<tr>
<th>ID</th>
<th>Intersection Name</th>
<th>Control Type</th>
<th>Method</th>
<th>Worst Hour</th>
<th>Delay (s/hour)</th>
<th>LOE</th>
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<td>NBR</td>
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<td>NBR</td>
<td>0.035</td>
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<td>EDT</td>
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PTV VISWALK AND VISSIM ARE FULLY INTEGRATED

- Pedestrians, motorized traffic, cycles and public transport can be simulated together.
- At crossings pedestrians obey traffic lights, at non-signalized crossings either pedestrians or vehicles can be given priority.
- Pedestrians can alight from trains and board trains.
VISWALK

What is pedestrian engineering?

It is the discipline that focuses on the most prevalent mode of transport – walking

Viswalk is used to

- plan for pedestrians (inside and outside stations and buildings)
- evaluate planning alternatives
- plan operations
- simulate evacuations
- determine travel times
- create 3D-simulations
WHAT IS PEDESTRIAN MICRO-SIMULATION?

- The accurate simulated representation of people walking - every step
- Simulation of the interaction of pedestrians in crowds
- Simulation of the interaction between pedestrians and the built environment
- The accurate simulation of the interaction between pedestrians and private or public modes of transport
PTV’s Pedestrian Simulation software has been developed based upon the Social Force Model (SFM) originally introduced in 1995 by Prof. Helbing.

The SFM is now well accepted amongst the transport planning and academic communities.

The force on a pedestrian is calculated at any time from the influences of their desire, other pedestrians and the built environment such as walls or buildings.
THE SOCIAL FORCE MODEL

PTV Enhancements

PTV enhanced the Social Force Model with additional functionality to enable modelling:

- Movement through multi-storey buildings,
- Crossing streets (with or without regulation)
- Board and alight from trains,
- Queue in elaborate queuing systems,
- Bi-directional movement through extended narrow corridors
VISWALK USES

Interchange between modes of Transport
- Rail and Metro
- Buses
- Taxi
- Walking
- Cycling
- Private car
VISWALK USES

Traffic and Streets

- Signal Timings
- Interaction with traffic (cars, buses, freight and cycles)
- Public Transport boarding and alighting
VISWALK USES

Stations

- Boarding, Alighting, Platforms, Escalators, Ticket Gates etc
VISWALK USES

Stadiums

- Operations, ticket turnstiles, stairs, evacuation, retail placement, links to public transport
VISWALK USES

Buildings

- Access
- Internal Layout
- Stairs, lifts
- Evacuation
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CONTACT

Bill Cisco, PE
Senior Associate
Tel.: 503.297.2556

bill.cisco@ptvgroup.com