# Plotting the Future

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*Sustaining* Infrastructure

If a glimpse of the *future* is possible, it must come from an intimacy with the *present* clarified by the great works of the *past.*

**- Robert Kaplan**

# Past

## Plotting

Traditionally meant the printing of large format CAD Drawings

## Technology

Mainframe > WorkStation > Engineering PC

Pen > Electrostatic > Inkjet & LED

## Deliverables

Paper: Toner, Color, Resolution, Speed

Digital: Raster (Cals/TIFF/JPG), Vector (CGM, PS, HPGL)

## Products

Address display deficiencies

Predictability of output

Performance of system

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# Present

**Plotting**

    Referred to as "Printing" or "Wide-format Printing"

**Technology**

    64-bit, Dual Core machines w/Virtualized servers

    Printers: Incremental improvements, but nothing earth-shattering

**Deliverables**

    Paper: Toner, Color, Resolution, Speed

    Digital: PDF

**Focus**

    Distributed Environments

    Heterogeneous Documents

    Application Integration

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# Present

## ProjectWise InterPlot

- Integrated Suite of Publishing Tools
- Intelligent eDeliverables for sharing
- Consistent look/feel across all deliverables
- High-volume & High-performance publishing

## MicroStation Printing

- Single or multi-sheet desktop printing
- DGN specific, stateless printing
- Low-volume

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# Present

| ProjectWise InterPlot V8*i*– What's New | |
|---|---|
| ProjectWise Resource Integration | Enables centralized management of all publishing resources using ProjectWise Integration Server |
| MicroStation Project Explorer Integration | Gives convenient access to publishing set directly from MicroStation. |
| Property Publishing | Include properties of design components like doors, guardrails, pumps & parcels in eDeliverables for easy searching and viewing |
| GhostScript Support | Print Specs to PDF without requiring Acrobat for on-demand or scheduled publishing |
| Hardcopy Specifications Printing | One tool to print plans and specifications to paper or digital<br>On-demand or scheduled publishing |

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# Present

| MicroStation V8*i* Printing – What's New | |
| --- | --- |
| Print Organizer | Replaces BatchPrint and establishes easy to use tool for composing and publishing plan sets |
| Hierarchical Organization | Allows users to organize plan sets logically using hierarchical folders |
| Multi &In-place Editing | Single or multi-edit plot properties in-place for quick and easy updates |
| Print Styles | Define and reuse collections of print definition properties through DGN Libraries for shared use |
| Named Expressions | Create rule-based names for print definitions and output print files for standards adherence |
| PDF | Produce PDF with hierarchical bookmarks so deliverables are organized for easy navigation |

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# Present

**Landscape**

- Economy

- Energy Costs

- Infrastructure

- Going Green

- Design/Build

# Present

## Investments

- Improve Operational Efficiency

- Increase Personnel Productivity

- Gain Competitive Advantage

# Future

## Operational Efficiency

– Improving an organization's efficiency through unified composition interfaces, centralized publishing infrastructure and support for current IT standards

## Self-Service

– Advancing an organization's ability to service information requests by publishing information to formats and locations that are easily accessible and intuitive to use

## Review Automation

– Automating the review and commenting process by providing published information conducive to an organization's existing business process and allows for intelligent, hands-free collection, management, and presentation of those comments

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# Operational Efficiency

- **Common Printing Interface**
  - Common interface across MicroStation and ProjectWise InterPlot that becomes the lingua franca of Bentley Publishing.

- **Server-Side Printing**
  - Offload all print processing to the server so users can return quickly to their assigned tasks and administrators can maximize central printing resources

- **IT Infrastructure**
  - Support IT standards to advance the distribution and usage of current technology across the enterprise
    - 64-bit Operating System (Drivers & Server)
    - Windows 2008 Server

- **3D Printers**
  - Support 3D printers for product design and prototyping, as well as use in proposals, focus groups and marketing campaigns

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# Self-Service

- **PDF Transformation**
  - Automated and on-demand publishing of project content (CAD and Office) through a web-accessible site to provide easy access to current project information without requiring the original content or requiring additional applications

- **Property Publishing**
  - Provide application intelligence (Doors, Windows, Pumps, Guardrails and their attributes) in PDF or Paper (Dynamic Plots) that is viewable, searchable in Adobe Reader or hand-held to provide real-time access to information at the point of need

- **Geo-Referencing**
  - Include 2D and 3D geographical coordinate information in AEC and GIS drawings through PDF for easy access by users who require spatial referencing of components or associated comments

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# Self-Service

- **Provenance**
  - Quickly and accurately validate the version of both paper and PDF drawings to ensure that decision-makers and field workers have the most current information

- **Component Query**
  - Query and view business data using just the component graphics on a drawing

# Review Automation

- **Reader-enabled PDF**
  - Publish drawings as Adobe Reader-enabled PDF to facilitate digital reviewing/commenting using freely available and easy to use Adobe Reader

- **PDF Shared Review**
  - Manage multi-user, PDF-based review workflows in ProjectWise using Adobe Reader

- **Markup Capture and Synchronization**
  - Automatically capture, manage, and transform markup to native content from published Paper or PDF drawings without changing your existing business processes or requiring additional training

- **Intelligent Markups**
  - Associate intent with drawing markups for intelligent incorporation back into original design

- **Digital Forms**
  - Publish Forms for that can capture field input and integrate results directly into project content

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# Plotting Roundtable
## Sample topics

### Operational Efficiency

- 64-bit Support (Drivers/Server)
- Windows Server 2008
- Common Printing I/F
- Server-Side Printing
- 3D Printers

### Self Service

- **2D Geo PDF**
- 3D Geo PDF
- **PDF Transformation**
- **Property Publishing**
- Provenance
- **Component Query**

### Review Automation

- **Reader Enabled PDF**
- PDF Shared Review
- Markup Capture/Sync
  - Paper
  - PDF
- Intelligent Markups
- Digital Forms

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# Future

| | Operational Efficiency | Self Service | Review Automation |
|---|---|---|---|
| Operational Costs | ✓ | ✓ | ✓ |
| Personnel Productivity | ✓ | ✓ | ✓ |
| Competitive Advantage | ✓ | ✓ | ✓ |

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# One faces the future with one's past

### - Pearl Buck

Operational Efficiency, Self-Service, Review Automation

Distributed Environments, Heterogeneous Documents, Application Integration

Address display deficiencies, Predictability of output, System Performance

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# Summary

- Plotting is no longer just about producing 2D CAD drawings

- Plotting is about a better, more efficient, means of distributing information to all project participants

- Positioned for significant breakthroughs in how Plotting is used today to facilitate all phases of the DBO lifecycle

- Not only can Plotting help make the operations more efficient and people more productive, it can provide a competitive edge from an overlooked source

- Evolution, not revolution – these advancements are closer than you think

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The best way to predict the future is to invent it.

- [Alan Kay](#)