City Engineers Association of Minnesota: Session 3

Session Moderator: Morgan Dawley P.E, WSB
Session Speaker: Tom Girtz, President and CEO - RTVision, Inc.
Session Co-Speaker: Wayne Fingalson P.E., Retired Wright County Engineer
Session References: City Of Bloomington, City Of Northfield, City Of Roseville, City Of Fergus Falls

EFFECTIVE PROJECT MANAGEMENT
What Is Effective Project Management?
“It’s All About Getting The Most Out Of Your Budget Dollars”
To help you get the most from your budget with Effective Project Management we will address four questions.

1) What value does it offer to me?

2) What are some current examples?

3) Why will this be required more in the future?

4) How do I address the challenge associated to change?
Value – What’s In It For Me?

What’s In It For Me?

→ User Buy-In
→ Data Accuracy
→ 360° View
→ Collaborative
→ Personal Gain
“We will use supporting information provided by the independent research firm, IDC”

International Data Corporation (IDC), an American market research, analysis and advisory firm, specializes in information technology, telecommunications, and consumer technology. A wholly owned subsidiary of the International Data Group (IDG) company (first founded in 1964), IDC has its headquarters in Framingham, Massachusetts, United States (U.S.). The corporation employs over 1,000 analysts, who provide consultancy in relation to technology opportunities and trends for over 110 countries.
Even as The Internet Age Emerged...

The 2001 IDC survey found that 76% of Managers considered information to be “mission critical” and their most important asset. Yet, 60% felt that time constraints and lack of understanding of how to find information were preventing their employees from finding the information they needed.

Source: The High Cost of Not Finding Information
An IDC White Paper
Analysts: Susan Feldman and Chris Sherman
In 2011 AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION confirmed the importance of information and recognized the same time constraints.

Working to improve the safety on local roads can be a challenge for officials, particularly those faced with limited staff and financial resources. The extensive depth and breadth of information pertaining to safety analysis and treatments can be daunting to these officials, particularly when they are tasked with a variety of other daily duties. These officials may know a safety problem exists at a given highway location (ex. a high number of crashes occurring at a particular site), but the time to identify and assess the available solutions to address that problem is not necessarily available. Furthermore, conveying both the problem and potential solutions to non-engineers (elected officials, the general public), can also be a challenge. Finally, identifying and obtaining funding for potential safety improvements can be difficult. Consequently, there is a need for a general guide which local officials can utilize to identify and quantify existing safety issues, identify potential solutions to those issues, and identifying potential state and local partnerships to fund them.
No matter how you look at it, finding and accessing information is gaining importance as transparency models become a norm.
How much of your time is spent locating, retrieving or recreating information to complete your work?

- 5-10%
- 15-20%
- 15-25%
- 30-40%
‘IDC’s research concluded that 15-25% of our annual budget is wasted or squandered due to an inability to locate and retrieve information to needed complete our work’

Source: The High Cost of Not Finding Information
An IDC White Paper
Analysts: Susan Feldman and Chris Sherman
Are You Budgeting For Your Knowledge Workers Time?

(employee time spent working with information)

- Creating
- Searching
- Coordination
- Accessing
What are the true costs of Project Management processes that are not integrated, automated or real time and have redundant operations?
Because your Project Management information decision cycle is an ongoing, daily activity

How will I apply and/or re-use this information?
Would you build a road which created barriers to get to your destination?
Effective Project Management provides seamless access to get your information...24/7

- Infrastructure Management
- Permitting Management
- Capital Improvement Planning
- Right-Of-Way Management
- Construction Management
Effective Project Management combines collected information as it happens, to answer new questions.

- Construction Permitting
- Infrastructure Capital Improvement Planning

Easily finding the correct information in the field may require the combination of several processes.

**Emergency** Report / Query Needed At My **Current** GPS Location

<table>
<thead>
<tr>
<th>Utility Permit Status</th>
<th>Infrastructure asset rating</th>
<th>Construction history</th>
<th>Legal Jurisdiction</th>
<th>Budget</th>
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Effective Project Management builds bridges, removing the barriers for reliable, employee information access.
Which of these creates problems when locating, retrieving or recreating information to help complete your work?

- Paper
- Spreadsheets
- PDF
- Islands of Automation
- Silo’s of data
- All of the above
Why are spreadsheets the biggest budget stealing culprit? They provide you with a false sense of low cost, when you are...

• Managing and maintaining group-related data.
• Retyping data from spreadsheet to spreadsheet.
• Maintaining references between multiple spreadsheets.
• Consolidating multiple spreadsheets.
• Cross-checking to make sure numbers agree across multiple spreadsheets.
• Maintaining spreadsheets.
• Hard-coding data from reports to spreadsheets or re-entering data to new reports.
• Rearranging spreadsheets to show new perspectives on the data.
• Restructuring spreadsheet models to reflect changes in the City organization.
• Converting between different proprietary spreadsheet applications.
Financial savings information relating to WEB Databases vs spreadsheets might be subjective...

Safety is not subjective
Scenario 1 – Time Wasted Searching

Formula (we use 20 emp and $50k)

- Knowledge worker salary = $80,000 and + benefits
- 1,000 knowledge workers x 2.5 hours / day searching
- Calculation of cost $80,000 (52 weeks(40 hours/week x 2.5 hours / week searching x 1,000 knowledge workers x 50% Unindexed)
- Conclusion: an enterprise employing 1,000 knowledge workers wastes $48,000 per week, or nearly $2.5 million per year, due to an inability to locate and retrieve information

Source: The High Cost of Not Finding Information
An IDC White Paper
Analysts: Susan Feldman and Chris Sherman
Annual time(money) wasted searching of a 20 Person department (50k/Year/emp) ?

☐ $15,660
☐ $31,249
☐ $35,167
☐ $28,432
Scenario 2 – Time Wasted Reworking

Formula (we use 20 emp and $50k)

• Knowledge worker salary = $80,000 and + benefits
• 1,000 knowledge workers x $5,000 per year (knowledge deficit)
• Calculation of cost: 1,000 knowledge workers x $5,000 per year
• Conclusion: An enterprise employing 1,000 knowledge workers wastes $5 million per year because employees spend too much time duplicating information that already exists within the enterprise. If we apply this finding to the Fortune 1000, we see that in aggregate, enterprises are wasting $5 billion annually. And this is a conservative estimate, since many corporations employ more than 1,000 knowledge workers. The productivity cost is staggering.

Source: The High Cost of Not Finding Information
An IDC White Paper
Analysts: Susan Feldman and Chris Sherman
Annual cost of reworking information of a 20 Person department (50k/year/emp) ?

- $65,000
- $50,000
- $100,000
- $75,000
Effective Project Management eliminates the re-invention of Knowledge and…

...Allows lower cost, more accurate decision making

...Eliminates employee frustration

...Improves job satisfaction

...Delivers improved customer service
“Several studies in the past five years point to significant ROI for improved access to information. ROI figures range from 38% to over 600%, ”

Source: The High Cost of Not Finding Information An IDC White Paper Analysts: Susan Feldman and Chris Sherman
Effective Project Management is sustainable, when you retain the knowledge, wisdom and experience that is kept through employee attrition, resulting in a wealth of City Knowledge.
Minnesota City examples of successful implementations of a WEB database
City Of Northfield, City Of Bloomington
Effective Project Management – One data location
City Of Northfield, City Of Bloomington Advancing Efficiency

Automated Electronic Approval and Routing

Addenda Approval & Routing

Contract Change Approval and Routing
Number Project Databases:
City Of Bloomington: 172
City Of Northfield: 25

Project Finance in Database
City Of Bloomington: $141,640,198.06
City Of Northfield: $21,858,724.57

Electronic paperless approvals in DB
City Of Bloomington: 695
City Of Northfield: 55
City of Northfield and City Of Bloomington
The Next Possible Steps!

Right-Of-Way

CONSTRUCTION
ADVERTISING

CITY PLAN ROOM

CIP

WorkCentral

ONLINE BIDDING
City Of Fergus Falls - 1 day of training
City Of Roseville - 2 days of training

7 Projects
$4,553,325.95
The Future Of Project Management

Dynamic Communications
What is driving the need for advanced Dynamic Project Management

PRIVATE OPPORTUNITY

PUBLIC INITIATIVES

Government Wants Cars To Talk To Each Other

"V2V" technology could prevent 80 percent of accidents, Department of Transportation says

By Elana Dockterman @edockterman | Feb. 03, 2014 | 5 Comments

The Department of Transportation announced plans Monday to move forward with technology that will allow vehicles to communicate with each other in order to prevent collisions.

The government agency estimates that vehicle-to-vehicle (v2v) communication could prevent up to 80 percent of accidents that don’t involve drunk drivers or mechanical failure.

The DoT proposed new guidelines for manufacturers of communication systems to help ensure widespread adoption of the technology, which has the potential to drastically reduce the number of traffic deaths and injuries.
How Will RtVision’s Dynamic Project Management Work For You?

CITY CRASH FIELD REVIEW

ROAD SAFETY AUDIT

A New Question Is Automatically Added To Future RSA’s “What is the expected crash response time”

INFRASTRUCTURE

PERMITTING

CONSTRUCTION

CRASH DATA REPORTING

Unsatisfactory Crash Response Time Logged Into Field Report
Much Of This Technology is already approved...with more on the way.
The relationships between pavement markings, lane changing technology and crash reporting...
The relationships between pavement markings, lane changing technology and crash reporting can be combined to create entirely new Online Crash Data reports and incorporating databases from FHWA, ATSSA and NHTSA...
The relationships between pavement markings, lane changing technology and crash reporting can be combined to create entirely new Crash Data reports and incorporating databases from FHWA, ATSSA and NHTSA. Which when combined with County/City Construction and Maintenance current information, can create new Online reports and databases for Engineering and Transportation Alliance Groups to support funding requests.
“Linked Data Systems That Permit Multi-Dimensional Analysis”

Exploit Information Technology to Create a Foundation for Safety Research, Policy Decision-Making and Safety Impact Evaluation:

- Support for State, community and private sector safety data collection and analyses crucial to problem identification and effectiveness measurement.

- Specialized approaches to data systems such as the Crash Outcome Data Evaluation System (CODES), Crash Injury Research and Engineering Network (CIREN) and community systems (for Safe Communities problem identification) to meet specific safety needs.

- New injury databases that report true costs as well as long-term effects on quality of life.

- Linked data systems that permit multi-dimensional analyses, including linkage of crash injury and medical treatment data, vehicle engineering and injury causation data with crash investigation findings, and injury data, prevention strategies and health care costs.

- Interconnection of various data systems to permit safety information flow among various governmental and private organizations internationally.

- Advanced techniques to expand analytic capability, including simulation and modeling of human behavior and vehicular operations.
“NHTSA - Linked Data Systems That Permit Multi-Dimensional Analysis”

• Linked data systems that permit multi-dimensional analyses, including linkage of crash injury and medical treatment data, vehicle engineering and injury causation data with crash investigation findings, and injury data, prevention strategies and health care costs.

• Interconnection of various data systems to permit safety information flow among various governmental and private organizations internationally.
Several States have already adopted policy that addresses Autonomous cars...The information collected will help drive Project Management...

“Information collection will become more prevalent in the future. Eventually, car makers hope to open up the lines of communications between individual cars on the road to better avoid traffic jams and prevent crashes.”
Expect Challenges Moving To A Web Database

Protesting Against New Technology - The Early Days
What may be the biggest challenge for you to move forward with more Effective and Efficient Project Management?

CHANGE
What are some road blocks to change?

1) Misunderstanding the investment opportunity
2) Inability adapting to new methodologies
3) Unaware of the entire P.W. process today and in future
4) Not addressing “WIIFM” (What’s In It For Me)
How do you encourage change?

✓ Documenting your financial and professional justification (ROI/ROE)
✓ Providing regular training opportunities to learn
✓ Explaining the importance of meeting the growing needs of Citizens
✓ Showing the value and benefits of cost effective knowledge retention
So Where Do I begin and How Do I Get Started?

- Right-Of-Way
- CONSTRUCTION
- ADVERTISING
- CITY PLAN ROOM
- CIP
- WorkCentral
- ONLINE BIDDING