



Lucid Design Group
Little changes, big impacts



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Green social media dashboard built on the Adobe® Flash® Platform uses web, kiosk, and mobile to deliver dynamic energy-use stats, inspiring consumers to conserve resources

Personal choices, such as unplugging appliances, turning off lights, and enabling energy-saving features on your PC obviously make a difference in resource consumption. But, generally, people are too far removed from numerical data to really understand how small changes in daily habits can have a big impact on the environment.

Lucid Design Group has proven that real-time feedback on resource use can stimulate conservation, change behavior, and encourage people living, working, and playing indoors to make smarter resource choices. That research began at Oberlin, where Lucid’s founders turned an academic data visualization project into a contest to see which dorm could save the most energy. The competition spread virally across campus—before social media was readily available, but during a time when environmental consciousness was gaining momentum.

Having incubated from campus to commerce, the result is today’s award-winning Building Dashboard solution, a sophisticated data visualization and communication application available via the web, kiosks, and mobile devices. A 2010 Adobe MAX Awards finalist in the social computing category, Building Dashboard—which was developed largely using the Adobe Flash Platform and Adobe Creative Suite® Design Premium—can be deployed in commercial buildings as a Software as a Service (SaaS) application. The groundbreaking service has demonstrated consistent energy reductions of between 10-20% for Fortune 500 companies, universities, and others using the service.

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Challenge

- Engage, educate, and motivate occupants to reduce consumption in the buildings they live and work

Solution

- Social network data visualization dashboard

Lucid Design Group is using the Adobe Flash Platform to develop and deliver Building Dashboard, which inspires energy conservation by giving people easy access to resource-consumption data via an interactive network, kiosk, and mobile applications.

Benefits

- Consistently decreased energy use an average of 10-20% for corporate, education, and residential customers
- Enabled customers to realize 6-10% increase in revenue per project
- Leveraged social media capabilities to elevate environmental consciousness
- Reduced design and development time by 1/3, using Adobe Flash Builder™
- Rich, user-friendly user interface increased use and understanding of data

"The Adobe Flash Platform is the ideal way to develop and deliver dynamic applications that get non-technical users engaged with their consumption patterns," says Andrew deCoriolis, director of public programs at Lucid. Early on, Lucid built one-off solutions for every customer, but improvements in Adobe technology changed that. "The biggest advantage of the Adobe Flash Platform is that it has enabled us to easily replicate our platform while still allowing for customizations for individual clients—an advance that dramatically transformed our business."

Technology serves social purpose

Lucid customers see Building Dashboard as an engaging, feature-rich, communication platform that facilitates social networking around the topic of resource conservation. Lucid's design, development, and marketing teams have continually asked tough questions since the product launched in 2004, including:

- How can organizational personnel best communicate with users, such as school sustainability officers, students, teachers, or visitors?
- How can a single, highly-flexible interface be implemented—one that works for every building, despite the myriad differences between facilities?
- How can a tool extract data from virtually all energy management and building automation systems and make it engaging, entertaining, and informative to all audiences?

Building Dashboard answers all those questions, due in large part to the social aspect of the solution. Coined "the first social network for buildings," the platform uses widgets, apps, maps, and flow lists to encourage building occupants to save resources by giving them a better understanding of their resource consumption.

"Conserving energy is a social obligation. By leveraging the rich powerful data visualization capabilities of the Adobe Flash Platform, we are helping consumers discover ways to dramatically curtail energy consumption," notes Michael Murray, CEO at Lucid Design. From encouraging people to publicly promise to use less energy to hosting online flash mobs, Building Dashboard serves an important environmental imperative by monitoring use of electricity, water, natural gas, heating, cooling, solar and wind electricity, solar thermal and geothermal energy, rainwater collection, and more.

In Building Dashboard, physical structures—not people—have profiles. A compelling use case is found at Hamilton College, a liberal arts college in upstate New York, and one of nearly 100 U.S. educational institutions including Harvard, Yale, and Stanford that use Building Dashboard to support key sustainability initiatives aimed at reducing carbon dioxide emissions in residence halls, classrooms, dining facilities, and sports arenas.

Building Dashboard Network—running on the Adobe Flash Platform—connects with social networking websites and feeds and also monitors and displays resource use. Recently, during a two-week competition at Hamilton College, the winning residence hall saw a 40% reduction in energy consumption. In terms of costs, the competition also saved Hamilton \$6,000 and 60,000 pounds of carbon dioxide in just two weeks.



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At Hamilton, Building Dashboard monitors and displays resource use by accessing performance data through the school's building automation system and pushing it to the campus community. During a recent two-week dorm-wide competition, the winning residence hall saw a 40% reduction in energy consumption; overall the competition saved Hamilton \$6,000 and 60,000 pounds of carbon dioxide in just two weeks.

Hamilton's facilities management staff is using Building Dashboard administratively to compare historical data to current operations, leveraging the application's powerful data visualization capabilities for diagnostics and usage patterns. Pinpointing mechanical problems helps keep maintenance costs in check.

In the commercial space, DPR Construction's San Diego headquarters, ranked among the top general contractors in the United States, pushes the sustainability envelope with Building Dashboard. DPR constructed its first net-zero energy office building that includes the use of Building Dashboard to monitor and display resource consumption throughout the building via networks, and a centrally located touchscreen kiosk.

“Building Dashboard has really created a sense of collective effort. It democratized our efforts to the point where we no longer have a ‘green team,’ but a green office,” says Whitney Dorn, project manager and sustainability support at DPR.

Integrated tools accelerate time to market

Integration across a wide range of Adobe software and technologies made working on this project—both collaboratively and autonomously—a streamlined and enjoyable process for the dozen or so members of Lucid's design and development team, according to Vladi Shunturov, chief technology officer and co-founder at Lucid.

“From a time-to-market standpoint, the improved integration across the Flex® framework, Adobe Flash Professional, Adobe Photoshop®, and Adobe Flash Catalyst® reduces design and development time of functional mockups by a third,” says Shunturov. “It is much faster to build a rich, Internet solution in Flex than any other technology.”

Flex makes it easy to apply best design and development practices, and its modular development and event-driven model enabled Lucid's Flex and Flash teams to collaborate seamlessly on different parts of the same project. Shunturov adds that the ability of Adobe Flash Player to perform consistently across different platforms, devices, and operating systems, testing time was cut in half.

Flex charting made graphs interact with animated gauges, while Flex components helped to quickly replicate and skin user elements. The Flex framework facilitated everything from authenticating with Facebook to easily connecting to a wide variety of backend technologies.

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Toolkit

Adobe Flash Platform. Components used include:

- Adobe Flash Builder
- Adobe Flash Player
- Flex

Adobe Creative Suite Design Premium. Components used include:

- Adobe Flash Professional
- Adobe Flash Catalyst
- Adobe Photoshop
- Adobe Illustrator®
- Adobe Fireworks®
- Adobe Dreamweaver®

Adobe Flash Builder greatly improved the Flex development process, Shunturov continues, due to improved debugging and profiling tools, design view for MXML™, and improved integration with projects in Flash Professional. The code templates, a new feature in Flash Builder 4.5, helped the team members adopt a consistent coding style.

The Lucid developers imported entire Adobe Flash Catalyst projects into Flash Builder. From initial storyboarding through wireframes to final imaging, the Lucid team relied on Adobe Creative Suite Design Premium software to create vector assets that were delivered to Flash and Flex developers.

As Building Dashboard continues to inspire conservation, its inventors plan to focus on mobile applications in the near future. "With our framework firmly anchored on the Adobe Flash Platform, we can rapidly roll out new products across screens, devices, and computing platforms moving forward," concludes deCoriolis.

For more information

www.adobe.com/products/flashplatform



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