Sustainable Transportation in Silicon Valley

Leadership Sunnyvale

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International Institute of Sustainable Transportation

June 6, 2014
We are consuming more than one planet

Global Ecological Footprint: 1965 - 2007
There will be consequences

Oil & Gas Production 1950-2050

Source: Association for the Study of Peak Oil (ASPO) / Campbell 2011
We can't solve problems by using the same kind of thinking we used when we created them.

– Albert Einstein
We can't solve problems by using the same kind of thinking we used when we created them.

Pete Christensen

– Albert Einstein
Stanford to divest from coal companies

Acting on a recommendation of Stanford's Advisory Panel on Investment Responsibility and Licensing, the Board of Trustees announced that Stanford will not make direct investments in coal mining companies. The move reflects the availability of alternate energy sources with lower greenhouse gas emissions than coal.
A little history … I went to Mexico in 1992…
... and raced across the USA & Australia
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There is more evidence of Japanese engagement in thinking ahead.
Almost 20 years later, Toyota is still leading the way, sponsoring EV learning in Mexico!
International
We can learn from Europe

CityMobil is a partnership of

1. Universities
2. Cities
3. Industry
We can learn from Mexico

Modutram is a consortium of

1. Universities
2. Government
3. Industry
We can learn from Sweden

US – Sweden Memorandum of Cooperation
New urban infrastructure requires multi-sector engagement

1. Universities

2. Cities

3. Industry
Sustainable
Speaking of Coal… Today’s Quiz: What’s the difference between…

Power … … Energy?

_time!_
Let’s revisit that Quiz: What’s the difference between…

Sustainability is defined as balancing economic, environmental and equity interests.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

… *time*
San José asked industry if an ATN system could be powered by solar:

- Ensure that the ATN system is built … utilizing renewable energy
- … maximize energy efficiency and potentially be powered in whole or part by renewable energy.
- … and calculating carbon emissions reductions achievable through renewable energy
- evaluate cost/benefits of using renewable energy to offset all or a portion of the energy requirements
- Provide analysis of cost/savings and recommend specifications to execute energy-efficiency and renewable energy strategies…
So let’s see if solar energy is sufficient to meet SJ’s challenge

Solar Race Car averages 90 km/hr with 6 m² solar panel

Knowing it can be done, let’s ramp onto the Solar Skyway ...

2 seconds apart @ 90 km/hr = 50 m

... Podcars have 50 m ÷ 3 m = 17 X more collection area than solar race cars!
Typical trip patterns closely match the pattern of sunshine, with evening extension.
But if industry can’t figure out how to do it, maybe young people can

So INIST issued the *Solar Skyways* Challenge
Universities
The first student team from Delft University demonstrated the concept by animation.
San José State ME’s joined the challenge
San José State won the first place $5k award from INIST

Bryan Burlingame receiving the award from Ron Swenson, co-founder of INIST
Uppsala University won second place, designing a solar ATN at 60° N.
More teams have now joined the challenge.
SJSU Industrial Design students are thinking outside the transit vehicle ‘box’
Expert Heuristic Analysis

Navigation: Why

Control
There are good elements here. Users can tap on the close icon, anywhere on the screen (outside of the nav), or even swipe to close it.

Visibility
The arch is very visible, and is immediately attended to on tap. This will lead to users finding the information they are searching for quickly.

Accessibility
This design caters to both right and left handed users. Properly designed interfaces cater to all types of users.

Follows Fitts’ Law
This leads to a better user experience because it is easy to locate the primary buttons and options here. The bigger the target is, the easier and quicker it is to reach it. Interfaces that provide large touch targets and adequate spacing are easier to use.
Cities
INIST is building a coalition of cities developing ATN
INIST is building a coalition of cities developing ATN

www.atna.us

You are welcome to join us!

2013
INIST is training students to create 4D models of ATN networks

With urban planning students and mentors

2014
In partnership with Encitra ...
Urban planning students are creating 4D models for an urban village
Industry
Industry is sponsoring and mentoring San José State students
The academic - industry - city financial relationship is now being defined

Presidio MBA students have developed the business case for ATNs, based on Public Private Partnerships
We must raise the bar to succeed

10 X
Leadership Sunnyvale: More Info

Universities
www.superway.us
www.solarskyways.com

Cities
www.atna.us
www.encitra.com

Industry
www.podcarcity.org

Thank you!

www.inist.org