



THE MOORESVILLE HYDRAIL INITIATIVE

Hydrail Meets Niccolo Machiavelli: “The Difficulty of Change”

Presented by Bill Thunberg

To the

9th International Hydrail Conference

Neumünster, Schleswig-Holstein, Germany

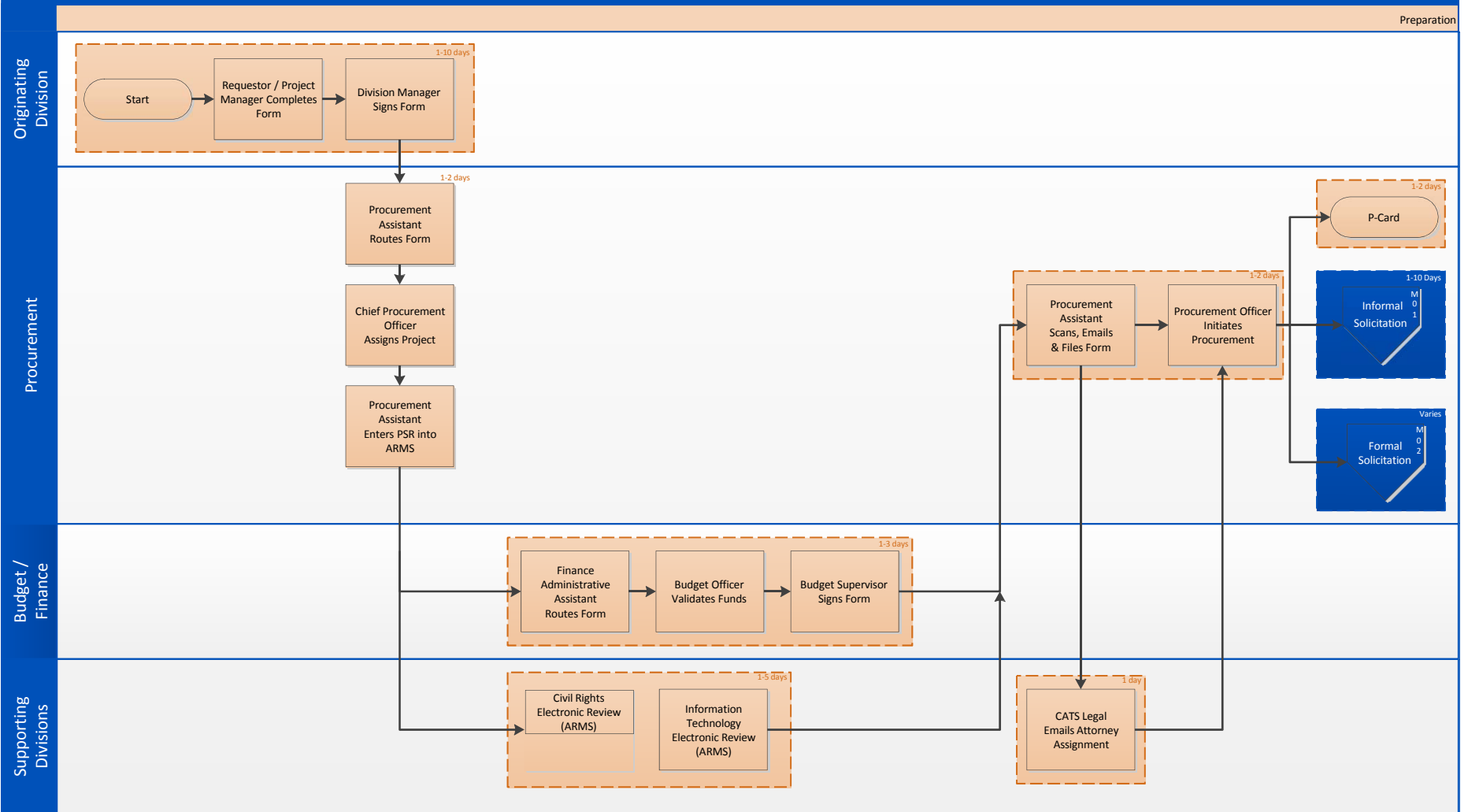
16 June, 2014

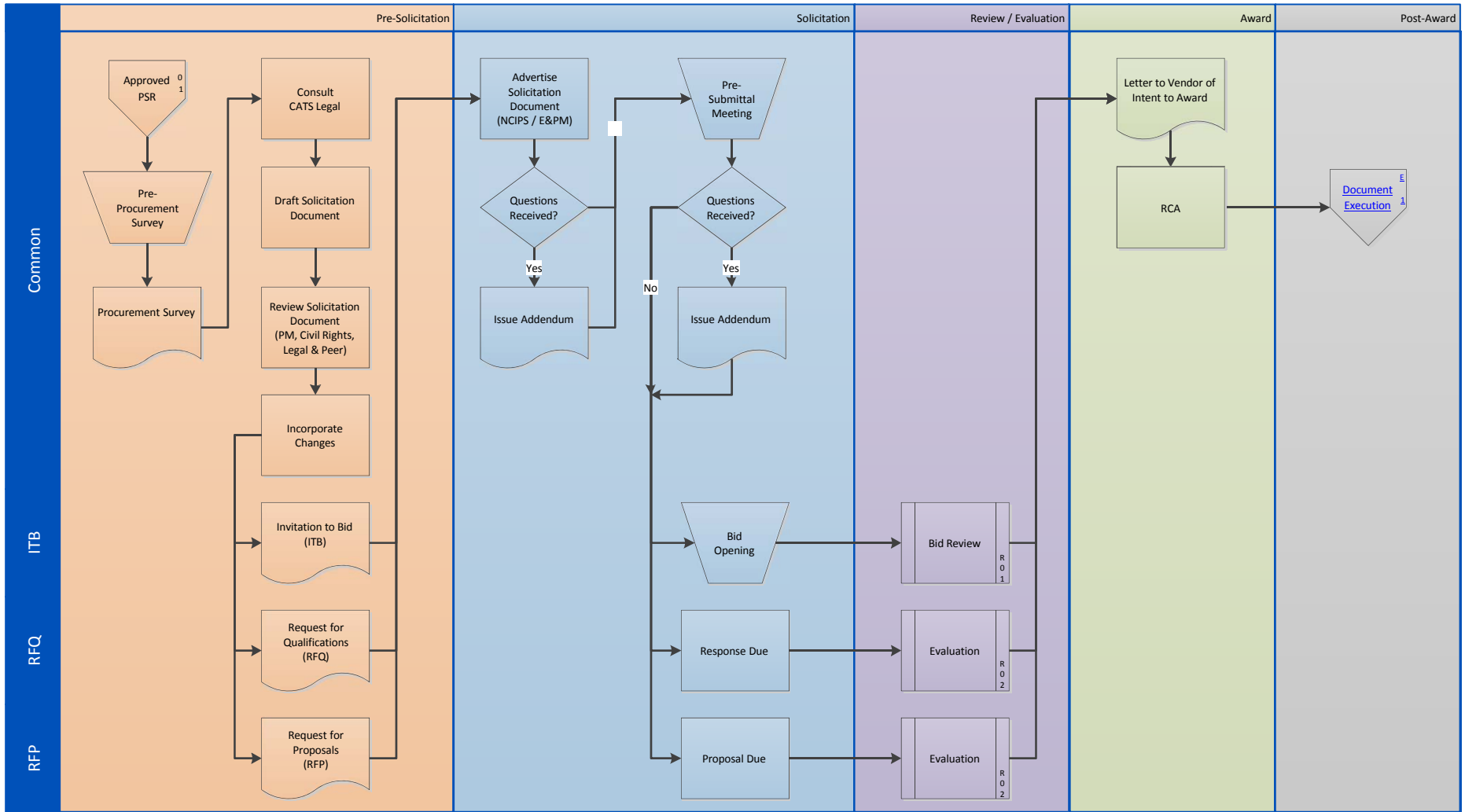


“...there is nothing more difficult and dangerous, or more doubtful of success, than an attempt to introduce a new order of things... whenever the opponents of the new order of things have the opportunity to attack it, they will do it with the zeal of partisans, whilst the others defend it but feebly...”

- Niccolo Machiavelli, *The Prince*



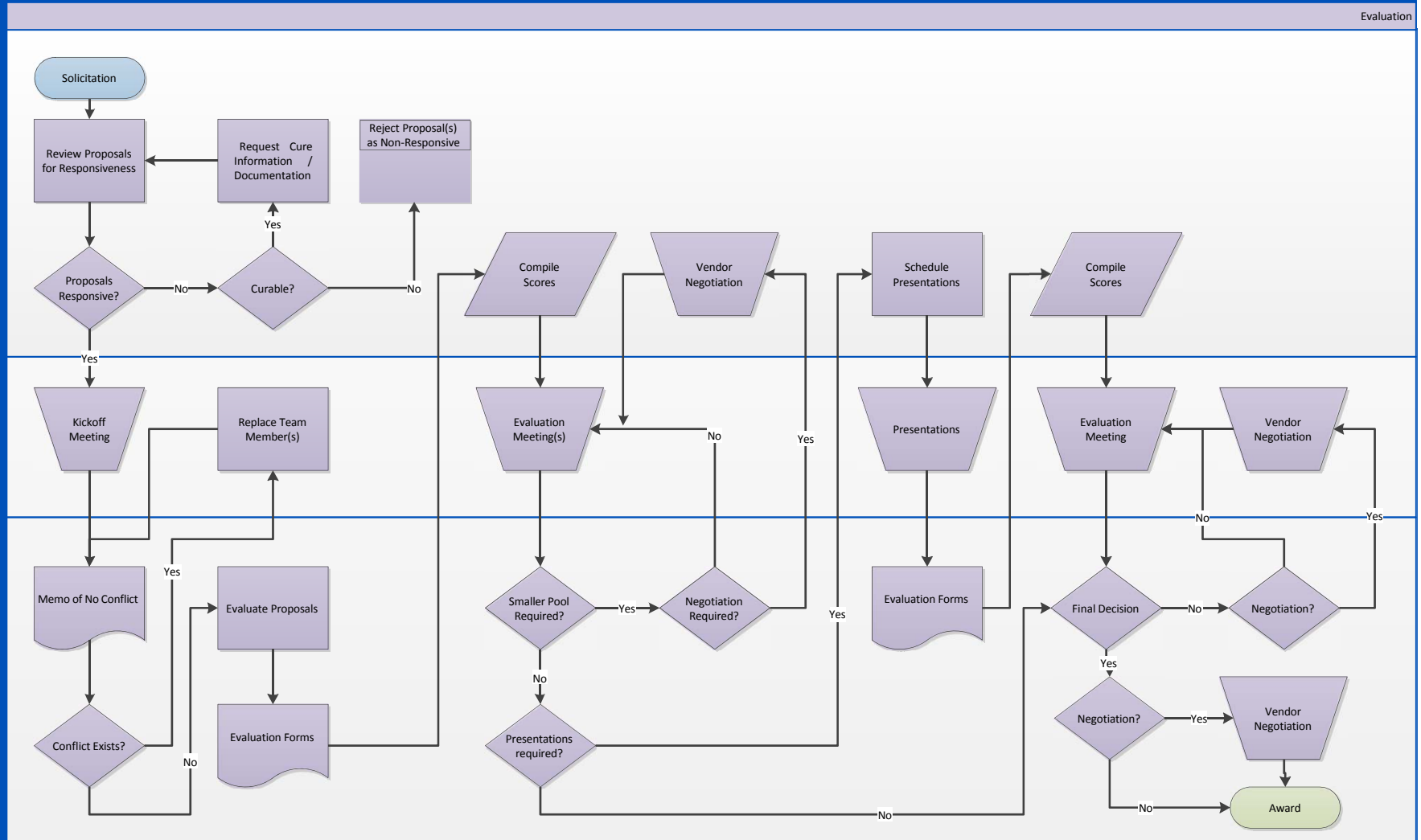




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Each step of the process is managed or completed by people...people who have absolutely no incentive to try something new and every incentive to avoid risk.

Indeed, these people – transit employees or consultants – perceive their professional survival as linked to *not considering change*...only considering incumbent technology...so that the “proven” method becomes the unquestionable default.



The only timely way to “cut this Gordian Knot” is to make the public very aware that a wireless alternative (hydrail) is now emerging which—at least in the USA—costs about *€4 million less per km* to construct...and eliminates the whole unsightly tangle of overhead catenary wiring.

Sunlight—media directed public awareness—is the only "solvent" that can dissolve the bureaucratic "glue" that holds barriers to innovation, like hydrail, in place.



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There is an honest tension between the interests of legacy rail technologies, including carbon...



... and the interests of society:





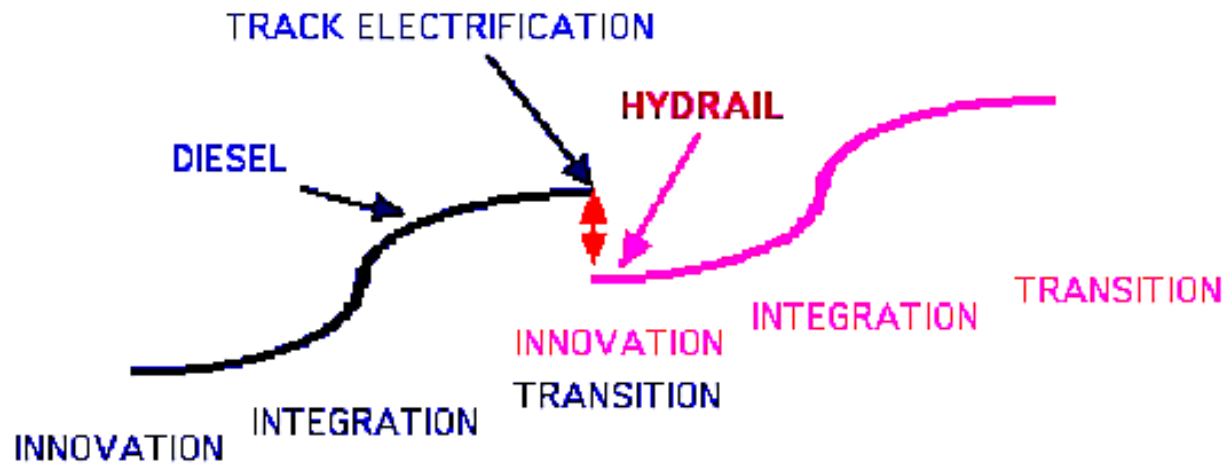
There is a reason why companies that build very long lasting infrastructure tend to have very conservative cultures:

The *very thought* of change is so painful that innovators are marginalized or weeded-out.





But even to the heaviest, most capital-intensive industries, *disruptive change must come*:



The objective is to manage this transition to yield the best outcome for both society *and* industry.



Depend upon it:

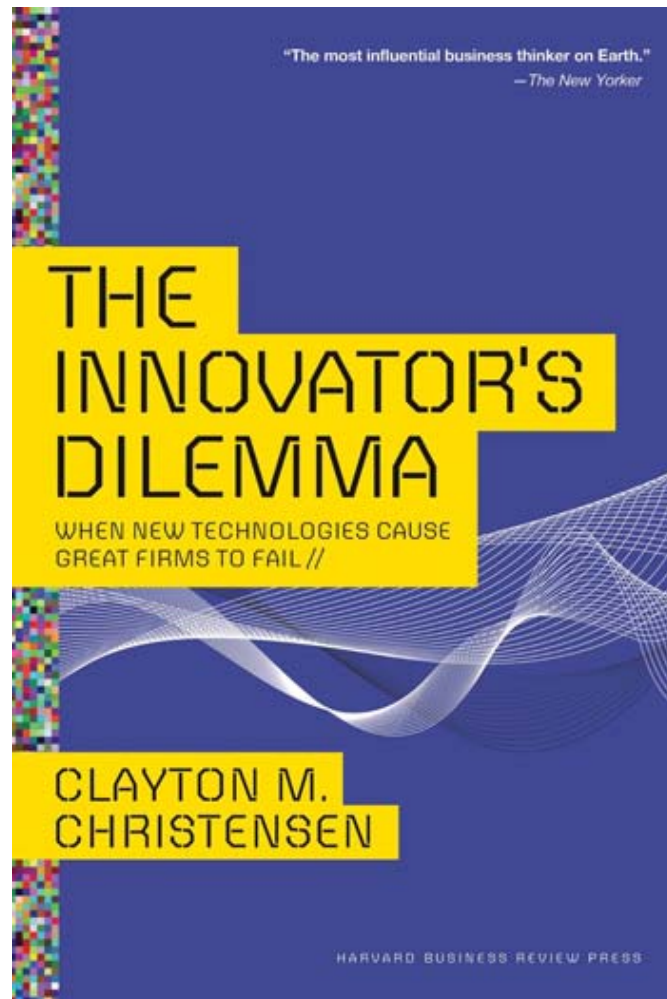
- Climate change *will* be disruptive.
- Adaptation of technologies to the defend against it *and* the technology change opportunities it creates will be *very* disruptive.
- **Hydrail** will be a defense—if we wait—but an opportunity...*if* we “pre-act” to climate change.



Whether we “pre-act” or “react” is a *choice* now—
but it may not remain *optional* much longer.



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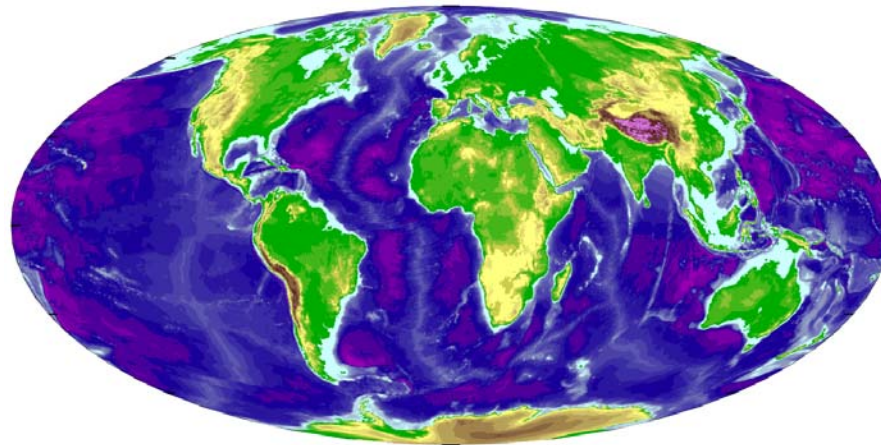


The best way around this tension may be Clayton Christensen's solution, as described in his book *The Innovator's Dilemma*.

It might be called "ideas in exile".



Buy, merge or partner with a smaller company far, far away...where the disruptive idea is not a threat.



Plant the disruptive technology there; water it with cash; watch early versions die; and then...



...when the feared innovation is proved viable,
bring it home and introduce it to the
corporate family.





How could hydrail fit this process? One instance: GE's hybrid Evolution[®] locomotive could be shipped—minus its diesel genset—for “hydrailizing” in Turkey.

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Turkey may lead global hydrail industry

ISTANBUL - Hürriyet Daily News | 7/4/2010 12:00:00 AM | DANIEL LANYON

Speaking in Istanbul, Herbert Wancura, chief executive of a Spanish energy consulting firm, says Turkey may become a key hydrogen fuel cell innovation center, as there is a possibility of its major railway networks running entirely on hydrogen fuel cell technology. A tourist passenger ferry utilizing hydrogen fuel cell technology will be operational in one year, says a Turkish company official

Turkey is poised to become a major hydrogen fuel cell innovation center, and even the world's first fuel cell hub, with the possibility of major railway networks running entirely on hydrogen fuel cell technology.



No technology lasts forever...not even in the railroad industry. The options?

- Transition gracefully and economically now...or
- Wait for a climate crisis to absolve us from having to choose or plan.



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