

It Seemed Like a Good Idea at the Time

The Importance of Systems Thinking and Integration in Project Delivery

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Recently the global marketplace has been buffeted about by news of the recall of children's toys by several major manufacturers and by the collapse of the subprime lending market including its investment derivatives and related impacts on credit and capital markets worldwide. These items might seem completely unrelated to each other, not your typical project management or construction topic. Try this; think about each scenario as a portrait of a system and consider the impact on a project if the system components are misaligned.

The toy story goes like this: a major manufacturer looks for a cheaper way to make products – and increase the profit margin – so he negotiates hard and outsources the manufacturing to an off-shore shop at a great price. Of course, his quest for lower production costs pushes the offshore manufacturer's price down, so she looks to lower her costs and leans on her materials supplier to “do better.” To maintain their margins they get a ‘deal’ on some paint and, voila, lead paint on a toy truck! So who is to blame? The paint guy because he didn't supply to spec? The contract manufacturer because she used the wrong paint (or possibly didn't check)? Or the toy manufacturer for looking for lower production costs and poo-hooing the potential impact on quality control? What about us – the consumers? We insist on buying all our toys from tables with smiley face signs hawking “Low Prices” swaying in the HVAC induced breeze. How do you think those prices got so low?

Assuming there was no wanton skullduggery in mind – remember, those toys show up on store shelves everywhere – could it be that there was a breakdown in identifying all the elements of “value” in the supply chain? At some point “cost reduction” took precedence over safety in the manufacture of the toys and the manufacturer maybe did not emphasize enough the importance of using the right materials. It would seem that the ‘toy making system’ sought to optimize individual “processes” based on a limited perception of value in the overall process. The “Cost of Production” made the most noise and the ‘safety process’ didn't have a loud enough champion to make its voice heard clearly in all the clamor. The result was an optimized price...but at a cost. Making products cheaply that you cannot sell is *not* saving money.

Or take some of the recent calamities in the banking world as a result of the subprime meltdown. There have been runs on banks; sizeable and once stable banks because of depositors' fears of bank insolvency. These fears were not wholly unjustified! Many banks expand their capacity to lend by seeking to increase their deposits, while other banks get “creative.” They increase ‘assets’ by purchasing what they believe are secure debt instruments from other bundlers of debt. From there they lent out to others, based on the *promise* of money inherent in these debt instruments. Apparently these instruments were not as secure as the banks thought. And the result is a shortfall of cash

(or the appearance thereof) which prompts people to withdraw their deposits which creates...a shortfall of cash.

One reasonably 'big' name is that of a UK institution and it doesn't make many subprime loans...but it did provide loans based on packaged 'collateralized debt obligations' and similar slice and dice financial tools which were based on dodgy loans and have come to bite the bank where it hurts. The bank's failure? It assumed that the people bundling the debt products for 'resale' were as concerned about the likelihood of repayment as the bank would be. Of course, they weren't because once the 'financial instrument' is "off their desk" that bundler has largely shed his risk.

Once again there is a misalignment (and maybe a little skullduggery) wherein the middle tier middle men were not quite as diligent about vetting the certainty of those loans being repaid as the bank might be. Instead, maybe they were looking for better returns via higher interest rates, but of course with higher returns (typically) comes greater risks and banks are typically pretty risk averse. The 'system' in this case optimized on rate of return at the expense of concerns about the 'quality' of the investment and its liquidity. Banks need to have a ready cashflow or access to liquidity to serve their 'retail' customers but hedge fund managers and PE firms aren't quite so attached to "Granny Smith" coming in to cash out her Christmas Club. "Can you please come back Tuesday for your money?" is not going to play well with the customers.

So how do these relate to getting projects done and risk management? In both instances the 'end user' (excluding consumers) of the product or service went to sources outside their conventional framework – and hence 'perspective' – and suffered as a result. Conventional wisdom says that finding multiple suppliers spreads risk and reduces the load on the core entity. But in these scenarios, "outsourcing" a key activity actually increased the risk to the point of failure. The problem? In using outside sources it seems that neither the toy company nor the bank properly considered the 'frame of reference' of their outsourcing partner in the execution of the project. What drives the 'out source' and what drives the bank or manufacturer? What drives the broker in the middle (there is always someone in the middle)? This is not a suggestion to prohibit going outside the box for a solution, just a reminder that when you do you may need to spend some time making sure that your non-conventional solution has properly considered and addressed your 'every day' concerns.

In both cases there is a misalignment of motivating factors for one 'link' in the chain with those of the other links in that same chain. I am not suggesting that the team members suffer some sort of misanthropic Machiavellianism which makes them want to jam their neighbor, but that their respective business models are not configured such that the prosperity coming from performance at the end of the chain is shared equitably with the links at the other end of the chain. To modify this requires a change in the structure of the deal and a change in the definition of a 'good job' for all of the 'links' in the chain.

Two philosophies in the capital projects world can help create this change. The first is systems-based thinking as applied to project execution and the second is the integrated

delivery process. These ideas are intertwined and have been touched upon in previous Advisor issues. The concept of systems thinking rests upon taking a more holistic view of project constraints, resources, requirements and operations where the 'whole' is optimized rather than an attempt to optimize each 'part' without concern of the impact of that action on the other parts.

In fact, using a systems-based approach at the outset can help us to figure out if we even need a chain or not. By applying the systems-based approach to the project execution process we can begin to ascertain the true nature of the risks involved and be better able to address those risks. If done well, the downside of using lead paint should bubble to the surface.

If a systems-based approach facilitates a horizontally-integrated, wide-angle view of the project necessary for effective project planning, then integrated project delivery is the hands-on application of systems thinking at the "boots on the ground" level.

Integrated delivery creates the collaborative atmosphere and framework necessary to capture and integrate the thinking of the various project participants across the entire project landscape. It takes all of those pieces captured in the wide-angle screen and arranges them to make a coherent picture. The intent is to capture the best combination of ideas to optimize the final product for the client. Traditional project execution strategies often keep team members trapped in their silos and as a result each solution is developed largely in the absence of the other participants. While this seems like it should optimize the design within a particular silo, in many instances what is best for one part is not best for many other parts. The result is often 'sub prime' and an owner wonders why his toy never looks quite as good when he takes it out of the box as it does in the picture on the box.

At the center of the integrated delivery concept is communication. While this seems obvious, it is astounding how often the 'obvious' is overlooked. Early on in the project, it is imperative that the goals and objectives of the project be clearly defined and shared with the team. This includes reasonable budget and time constraints. From a systems perspective, it is important to clarify the 'role' of the project in the overall business strategy. The importance of establishing this communication protocol early cannot be overstated. First there is the tangible benefit of helping the project team to clearly understand the issues before they proceed too far down the path of execution and second is the less tangible, but not insignificant, benefit of establishing an atmosphere and tone of open communication and that includes the freedom to share ideas and opinions. Stifled, stilted and less than candid communication channels where all information is guarded or treated as 'suspect' destroys the links that bind a team together.

There are some tangible techniques that can be used to capture and disseminate key project data to the entire team in a way that embraces transparency and rapidly allows the team to target the key parameters for overall project success. Throughout the year, we will explore those techniques in subsequent issues of the MDC Advisor.