



product development
technologies, inc.

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Nothing NEO in Sight
Untangling Alzheimers



NEOCON 2009: Nothing Neo in Sight

Neocon takes place each year down the street from our Chicago studio at the illustrious Merchandise Mart. Every year, more than 50,000 trade professionals go to see the largest exhibition of contract furnishings in North America. We go to be inspired by the trends and concepts that promise to be under that big roof.

This being my first visit to the famed NEOCON design showcase, I was hoping to catch a glimpse of cutting edge design, innovation and the latest trends in the industry. On the contrary, I observed a great deal of repetition amongst the brands present, many having subtle, if not indistinguishable, variations on their competitor's products. Additionally, many of these "new" products were nothing more than revamped past versions, slightly tweaked with a face-lift to show off the trendy colors and materials of the season. I found myself wishing the show could have been framed as an opportunity for firms to step out of their comfort zones and experiment with revolutionary lines of thinking... and to truly design something different.

Mind: The Powermat breaks all barriers in how we've previously envisioned charging electronic devices



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For better or worse, the term "design" has become a buzz word that is thrown out quite liberally and is used by firms looking for an edge in promoting their new products. At this point, one should understand that the term "design," taken in the truest sense of the word, has an immense depth of meaning and power. It is innovation that is more than skin deep- something with value, substance; a valid reason for being produced that addresses relevant human needs. It is important to understand that design is comprised of distinct areas that when harnessed together have the power to create game changing, disruptive solutions. I have discovered that many people assume that the term "design" refers to the overall aesthetics of a product, such as the product's form or physical beauty. On the other hand, others use "design" to solely describe a product's technical functionality. While these are partially true, they are very narrow definitions of the term that fail to capture the entire scope of meaning.

What Does Real Design Achieve?

The purpose of design is to create meaningful solutions, tangible or intangible, that provide true benefit. In this way, the term "design" refers a product's ability to simultaneously address the mind, body and heart. I use these criteria to evaluate a product's true value.

- **Mind:** Good design challenges your mind and forces you to revisit the assumptions and beliefs you have about the problem or need. Prior to conducting this step, be cognizant of your mental status and willingness to be open minded to unconventional lines of thought. Allow yourself the possibility of being influenced by new ideas and observe

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Body: Humanscale's Diffrient World Chair has two manual settings - all other adjustments are made automatically, giving the user effortless ergonomic support

how your pattern of thinking has been altered. Be mindful of the importance of having a progressive mindset and make an effort to see the bigger picture.

- **Body:** Good design improves how people interact with a product, often times simplifying steps to improve usability. For example, conducting ethnographic research on the current state of the issue can often times provide a fresh user-centric perspective. In addition, critically observing people's actions, along with understanding who they are as an individual, can go a long way into understanding habits, trends, perceptions and beliefs. Furthermore, the synthesis of this data into actionable direction is vital to enable the formation of proper direction forward.



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• **Soul:** Good design should speak to your heart. The object should evolve the way you think, feel and act about a particular situation. Has it changed your perspective? At this point, one should understand and value the importance of an object's beauty. For example, objects that reside within a patient's room at a healthcare facility today are based upon functionality, and are more sterile

and are more sterile



Soul: Modo's IV Pole for Cardinal Health offered aesthetic improvements combined with functionality, answering user needs

aesthetically than they need to be. Ask yourself the following question, Why can't the forms of these products begin to evoke thoughts towards mental wellness instead?

- Other questions I ask myself when analyzing products:
- o Does the object have a distinct and meaningful purpose that benefits users?
 - o Does the object have a distinct and meaningful purpose that benefits the firm?
 - o Imagine if the product did not exist? Are there equivalent alternatives?

Incremental Innovation

More evident than anything else was what was not present- the Big Idea, the Paradigm Shift, the Game Changer- no matter what you call "it", the show was lacking this vital component. The show lacked an overarching theme to show how a sustained, systemic approach can lead to success on a much larger scale.

One possible reason Incremental Innovation was so wide spread is the global economic situation. It's plausible that many firms may be reluctant to incur the rigor of research and development that significant product advancements require, and instead prefer to take the safe route of patterning their efforts after industry leaders. While this approach by most firms is understandable given the current circumstances, it also highlights that the market is ripe for a leader to create a strategic, sustainable advantage for itself and consequently stand apart from the crowd. Despite the notion that all firms desire to be their respective market leaders, the reality is that many firms are ill prepared to take on this role from an investment perspective. In a market economy there always seems to be room for

progressive, top tier firms as well secondary firms willing to follow the lead. Knowing where your company and brands lie on this continuum will better enable you to drive your business in the appropriate direction.



Because of all this incremental innovation, I found it was nearly impossible to differentiate between brands. I could have easily envisioned a scenario where a product from one showroom would be removed, placed into another space, and completely blend in with the surrounding environment and product line. Here is where the danger lies in incremental innovation and not taking the leap or making the investment in real design. There was a significant opportunity space for firms at NeoCon to differentiate from the competition by utilizing a clearly defined strategic approach.

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Instead, colors, materials, and finishes (CMF) are still heavily used by firms in an effort to differentiate their products and brands. Key observations of CMF examples:

- o White products were abundant throughout the show, appearing as an option in nearly every space observed. In addition, the color palettes on many of these stark looking products also included highly saturated accent colors, such as a vibrant blue or green shade.
- o Real wood and wood like finishes are also still heavily in use. In particular, there are seemingly two directions firms are taking with their use of wood: a raw, sculpted block of wood transformed into a product that has a true to the material approach, or a combination wood finish with complimentary metal and bright colored accents.
- o Patterns, found on items as laser cut details in stainless steel or woven

fabrics, were heavily used to further distinguish between similar products in the space. It seems as though firms are experimenting in this space, trying to create iconic patterns that can alter the appearance of their product, yet do so in a subtle, meaningful way.

Sustainability initiative

In keeping with the 'follow the leader' attitude of the show, many firms also stayed on the 'green' bandwagon. Not news by any means, there were a great number of firms touting how their products or company philosophies embraced being green. For example, GreenGuard indoor air quality signage was in every major manufacturer's space, as well as a few mid-tier vendors. For detailed information on what GreenGuard certification means, visit the GreenGuard Environmental Institute at <http://www.greenguard.org/>

Other ways firms at NeoCon promoted their "green" efforts were through sustainable manufacturing processes, use of sustainable materials such as bamboo, and product development methodologies,

such as a Cradle to Cradle approach.

In the near future the topic of sustainability or being "green" will quickly become a point of parity amongst industry firms rather than a point of differentiation. Users are still in a state of discovery as to how products affect their lives, and as they increasingly become aware they will demand alternatives that align with their values. At the moment, it seems the sustainability initiative is heavily concentrated in the Education and Healthcare furniture markets, but the concept is quite universal and was emerging in many Office furniture showrooms as well. Manufacturers can stop counting on green being a point of differentiation and should be thinking of design – real design- as the best new avenue for finding true advantages in their markets.

While times are undoubtedly tough, they are also presenting the opportunity to manufacturers to really look at and prepare themselves for the inevitable upswing in the market. When things get better will you be armed with real game-changing, worthwhile solutions for your clients that will position you as the leader in your category or will you still be playing follow the leader?

-Erik Moses



The Alzheimer Project: Designing for Hope

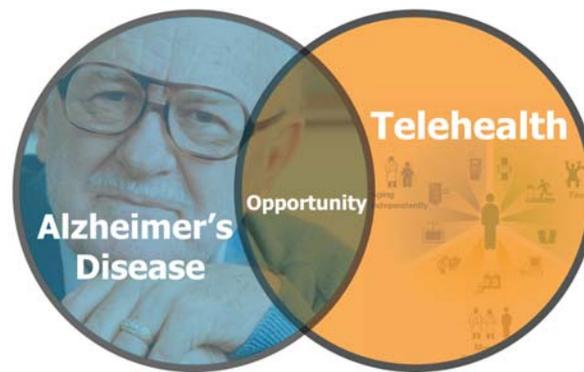
Although PDT develops products in a broad variety of markets, we are particularly well versed in developing innovative solutions for medical devices. Our experience ranges from diabetes care and laboratory diagnostics to Plasmapheresis equipment and implants that overcome nerve damage from stroke. We were even among the first consultancies to attain ISO 13485 certification, certifying that our process meets requirements set by the FDA for the design of medical devices, furthering our commitment to the demands and challenges posed by the medical market.

PDT has also been at the forefront of understanding the human side of integrating innovation into all of the products we design, a capability extending far beyond engineering expertise to encompass the optimization of technology for ease of use and functionality for those it is intended to benefit. That's sometimes the most difficult part of a program, and an aspect of product development often overshadowed by the initial excitement over the promise such new technologies offer.

In the past few years, a movement has gained momentum that marries both new and established communication technologies with the growing need for medical devices designed to aid in managing health more actively and dynamically; it is called TeleHealth. We were intrigued and challenged by the vast possibilities, assembled a team, and set out to identify a

THE TELEHEALTH REVOLUTION

PDT's experience within the medical industry led us to join the Continua Healthcare Alliance, a group of leading technology companies and medical device manufacturers seeking to advance the potential of TeleHealth technologies. Through wireless communication and standardized interoperability guidelines to be defined by the group, medical devices will for the first time interact and work seamlessly together, facilitating an incredibly efficient exchange of health and wellness data and give patients and caregivers real time access to the information needed to make informed treatment decisions.



TeleHealth devices will collect information about symptoms, treatment and patient behavior, and allow that knowledge to be shared among everyone involved with that patient's care. Medication dosage could, for example, be fluidly modified by doctors, and families can be immediately notified of emergencies or conditions requiring their attention. From a holistic perspective, all caregivers will be able to share this information, leading to better treatment and potentially reducing the need for more costly and intrusive activities such as hospital visits.

From an elderly patient's perspective, perhaps the most exciting door TeleHealth opens is a greater potential for continued independent living. Devices which allow a patient's care team to remotely monitor and respond to their needs not only reduce the stress of caregivers, but permit people to live longer – and more safely - in the comfort of their home.

On a larger scale, this technology will have a massive impact on our nation's healthcare system. The aging demographics of the U.S. demand that we come up with innovative ways to meet the needs of this rapidly growing population group, without breaking the back of a healthcare system already on the financial edge. Improved communication through TeleHealth will encourage a new focus on prevention of disease and chronic conditions - rather than merely treatment - to reduce spiraling healthcare costs.

Finally, through the collection of data in a rich contextual fashion – and management of that information in ways that optimize its use to support research efforts – TeleHealth holds the promise of helping to find a cure and improve the treatment of patients who currently have little hope for the quality of life we all aspire to in our later years.

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technology-enabled, human-centered opportunity in health care that would benefit from our experience in a rich mix of medical, consumer and communications technologies. Our goal was to identify strategies and products that can help curb costs, improve the quality of care and enable innovations for treating and managing a disease state.

From a process that we will elaborate later in this article, we identified our opportunity: to untangle the troubled experience of the broader Alzheimers community and reinforce the dignity of individual patients by visualizing a framework that clarifies the needs, issues and interactions across a patient's complex and constantly declining journey.

Defining our Goal

With PDT's extensive experience in all aspects of TeleHealth product development - both medical and telecommunications - it was natural that we would strive to take a leading role in this effort. With that in mind, the team wanted to stretch its creative muscles around a problem that could truly maximize the potential for groundbreaking solutions founded on Continua's mission, and searched for an appropriate focus with the following criteria in place:

- o Significant problem area
- o Underserved and under-covered
- o Provide a significant challenge to identify how technology could provide meaningful impact
- o Allow us to leverage our expertise while extending into a new area

Alzheimer's is not a disease like diabetes, which lends itself to quantifiable data and management in ways that mesh relatively easily with people's everyday lives. The complex factors revolving around almost every aspect of Alzheimer's present unique challenges - and unique opportunities - for the application of PDT's development process. We knew that creating a vision project around Alzheimers would give us the chance to bring attention to patients who stand to benefit in so many ways from the focused confluence of design and TeleHealth technologies.

The empowering possibilities inherent to TeleHealth, for example, will offer the prospect of increased independence and personal empowerment to a population in dire need of alternatives to 24/7 care - a state which currently reduces them to an almost childlike level of responsibility long before such extreme measures may be necessary. The broader impact such solutions would have for everyone responsible for that individual's well being (as well as many indirectly affected by their condition) make for a compelling design program where the outcome is certain to be as meaningful to these people's lives as it will be unique to their particular needs.

Our Opportunity

5.3 Million Americans have it
A new case is diagnosed every 70 seconds
\$148 billion annually in medical and related costs
The 6th leading cause of death in the US
The number of sufferers increases every year
(and the disease is just starting to hit the baby boom generation)
There is no cure

Alzheimer's causes the most common type of dementia, leading to a debilitating inability to remember names or events, impaired judgment, disorientation, confusion, and trouble speaking, swallowing and walking. The disease literally clogs the brain's synapses (responsible for transmission of information among cells), eventually causing dramatic shrinkage of the brain from cell loss. The disease itself (and, in many cases, the repercussions from its symptoms) is always fatal.

The Other Sufferers

Unlike many other chronic diseases, Alzheimers takes an immense toll on those surrounding or involved with those diagnosed with the disease. Constant care and monitoring of Alzheimers patients is required to ensure their safety.

Despite that fact, few healthcare workers have training in the particular needs of elderly patients with Alzheimers. Less than 1 percent of physician assistants, pharmacists and registered nurses - and only about 4 percent of social workers - specialize in geriatrics. As of 2007, the number of physicians certified in geriatric medicine totaled 7,128; by 2030 the need for such specialists is estimated to be about 36,000.

At the same time, almost 10 million Americans currently provide unpaid care for a person with Alzheimer's, that's an estimated 8.5 billion hours of care annually, or about \$94 billion worth of work valued at minimum wage. These are the families, friends and neighbors of people with the disease, while innumerable businesses

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indirectly assume costs through decreased productivity of employees and reduced work hours of these caregivers.

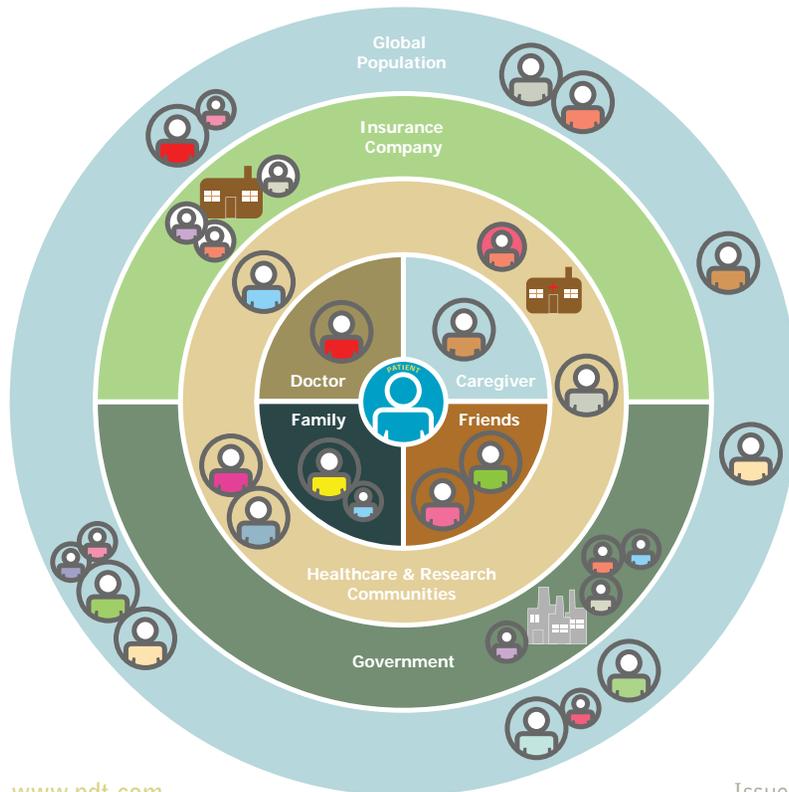
Needless to say, this responsibility takes an incredible emotional, physical and financial toll on these individuals and their families. It's obvious that the burden of Alzheimers falls on many outside the professional healthcare industry, and that the burden must in some way be reduced as our aging population causes the number of cases to explode in coming years.

PDT's Approach to Solutions

Our proprietary process of Informed Innovation™, developed over years of experience in the application of ethnographic and market research to product development, is the foundation of PDT's expertise in the design of medical devices. Our process can be broadly summarized as follows:

o **Envision:** We facilitate workshops to put focused thinking toward developing an opportunity space. In this case, we defined our parameters based on our expertise, experience and market information.

- o **Define:** The entire team takes a deep dive into the problems presented to establish a baseline foundation of knowledge and understanding of the issues and opportunities upon which all solutions can stand.
- o **Identify:** We then build upon that understanding to generate and refine realistic scenarios and stories of user interaction with the service device we are designing, with the goal of uncovering opportunities for how it can find a meaningful place in their lives, environments and daily needs.
- o **Design:** We generate innovative solutions rooted firmly in the opportunities identified, making sure to push beyond boundaries and preconceived limitations of what our ideas should be toward the optimal possibilities of what they can be.
- o **Validate:** Through various research methodologies, we actively pursue feedback from all parties relevant to the use of the device, from patients to physicians. We're not trying to prove ourselves "right," but rather seeking to challenge and improve upon the assumptions we're working under, the opportunities we've targeted and the solutions we've developed.



Effect Network: The multiple layers of people and institutions affected by Alzheimers

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Elizabeth M.

Age: 77

Status: Living at home, with Assisted Living

Location: Hartford, CT.

Family:

Husband, 79 yrs old / Living at home

2- Children, living locally

6- Grandchildren

Activities:

Caring for husband

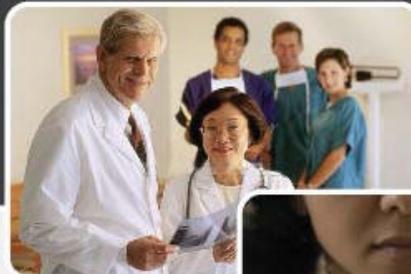
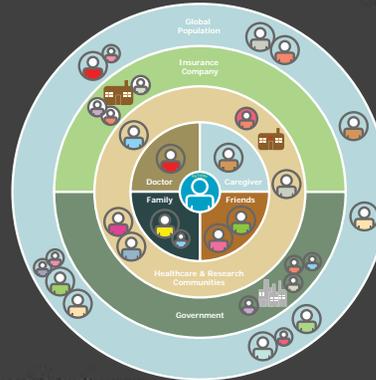
Frequent contact with family

Needs:

Support for her own needs

Management assistance with Medication and Wellness

Socialization and Cognitive stimulation



Follow our Progress, Participate in the Process

This is the first of several articles which will track our team's progress toward solutions to the challenges of Alzheimer's. We will strive to incorporate the most advanced technology in what could materialize as concepts for products, services, systems and/or environments that become integral to the lives of everyone impacted by this disease – patients, the caregivers who treat them, and the families who suffer alongside - often with feelings of helplessness as to how they can actively participate in the well being of those they love.

We invite you to let us know your thoughts, share personal stories or insights, and ask any questions you might have as we move forward. Contact us at askpdt@pdt.com or 847 821 3048 and we'll direct you to one of our team members involved with this project.

- Joel Delman, Erik Moses, Marc Bertaud

Archetype: Helping us understand the user and develop solutions for real needs



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About PDT

At PDT we believe the success of a project relies on our team members' insight into today's product development issues, advances, technologies and trends. We actively seek out the information needed to stay savvy to the issues and opportunities facing our clients, continually building a foundation of knowledge and inspiration that helps our team design products which spark desire, devotion and success in the global marketplace. We are happy to share just a few of our team members' insights, observations and opinions with you in this publication. For more information, please visit us at www.pdt.com or contact us.



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This Issue's Contributors

Marc Bertaud draws on a broad base of experience as a p&l manager and consultant to help clients clarify the opportunity space, envision strategic platforms, and ensure concepts meet both user needs & business objectives. When he's not rattling about with his very active family, serving as their on-demand chef, or recrafting the homestead, you'll find him on a back road, chasing Zen moments astride a thundering chrome horse.

Joel Delman With a background in corporate law, business and industrial design, and more than fifteen years experience executing the complete product development cycle, Joel understands the business side of creativity and how to strategically guide innovation and design. "I'm passionate about helping clients bridge the gap between creative insight and commercial success." He's spent 11 years with PDT, having helped to build our industrial design and research departments. Currently he is focused on strengthening our growing west coast presence, and works regularly with large medical, defense and electronics clients.

Erik Moses is a PDT'er that prefers to think of himself as a progressive strategist located at the intersection of business and design. As an Industrial Design consultant with nine years experience, Erik has worked on projects that span the gamut from branding initiatives to consumer packaging, medical and everything in between. When he is not with his wife Mandy and their son Jakson (2), Erik is focused on finishing up his MBA at the Charles H. Kellstadt Graduate School of Business at DePaul University.



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