DESIGNX

THE DESIGNX COLLABORATIVE [1]

DesignX is a new, evidence-based approach for addressing many of the complex and serious problems facing the world today. It adds to and augments today's design methods, reformulating the role that design can play. Modern design has grown from a focus on products and services to a robust set of methods that is applicable to a wide range of societal issues. When combined with the knowledge and expertise of specialized disciplines, these design methods provide powerful ways to develop practical approaches to large, complex issues.

The major problems facing humanity today involve complex systems of stakeholders and issues. These challenges often involve large numbers of people and institutions intermingled with technologies, especially those of communication, computation, and transportation. Health, education, urbanization, and environmental issues have these characteristics, as do the issues of sustainability, energy, economics, politics, and overall well-being.

To understand how design can assist with these issues it is useful to do a quick review of the history of the design profession. The modern practice of design had its roots in the industrial revolution. Design and its predecessor professions offered a systematic way to help industry create products and information for the emerging middle class in Europe and America. The primary focus of the designer was improving the intrinsic value and profitability for industry in the context of developments in mass manufacturing and assembly.

Design changed its focus after World War II to an emphasis upon appearance, often unrelated to how products performed or how they were used. As the development of electronic circuits and computer chips allowed devices to have increased functions, the emphasis on appearance resulted in complicated and confusing interactions. The next stage in design, which is where we are today, is correcting these problems by developing methods of designing for the needs and capabilities of people. The result is more understandable and pleasurable interactions between people and technology.

The emphasis on meeting human needs and abilities also led to the development of tools for discovering the deep, fundamental (root) issues underlying these needs. Today, there is growing recognition that these new methods can be applied to a wide variety of issues, including management, organizational structure, and, most importantly, the large,

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ambiguous, complex, and fast changing problems facing society. However, although the current tools of design begin to address these issues, more comprehensive methods are required.

DesignX aims to enhance the tools required to assist people, organizations, and societies in developing systems and procedures that address major human and societal needs. DesignX builds upon the design profession's emphasis of thinking by doing, thinking by drawing, sketching, testing, and making coupled with intensive observational techniques, deep analyses of the entire system, and repeated, iterative testing, reflection and modification.

Within academic institutions, traditional disciplines analyze issues in depth. Design differs from these approaches. Instead of deep analysis, design leverages the knowledge of the many disciplines relevant to any issue in order to yield practical approaches that can help enhance current conditions. Design is a discipline of doing, applying its methods in areas that lack deep understanding but are in need of continual improvement. Design aims to be practical, always attempting to improve upon current conditions, even where full solutions cannot be achieved.

In the past, design has focused upon products and services, but the design methods of continual, iterative cycles of exploration, reflection, implementation and validation can be applied to many societal problems.

DesignX is a compilation and expansion of work being done by numerous organizations, private and public, universities and companies. DesignX attacks the larger problems, those that involve complex systems, where people with different skills need to creatively and reliably work together. There exist numerous examples of this within the past decade by pioneering organizations that provide the foundations upon which to build.

DesignX concentrates on human needs, exploring issues in depth to find root causes, aiming to attack the fundamental problems. It integrates and builds upon the specialized knowledge of the domains, but always attempting to provide practical solutions that are of value today rather than relieving symptoms.

DesignX is particularly suited to and specifically aimed at problems involving a mix of human and societal needs where solutions involve technology. Most of these problems involve networked systems of people, groups, and artifacts, including intelligent systems, partially or fully automated, with different levels of communication among components. DesignX focuses on the resulting complex mix of networked natural and artificial systems.

Complex problems require complex solutions. To accomplish this requires a team composed of all the disciplines relevant to understanding the issues and potential solutions. Teams must be problem-based, with all the required members bringing their talents to bear on the problem in a cohesive and collaborative way. DesignX designers must work closely with people from many disciplines, building

upon their knowledge and methods, applying whichever method is most effective for the problem at hand, negotiating the multiple constraints, interests, and differing perspectives of all the participants.

DesignX requires skills, knowledge, and a vocabulary that enable it to engage effectively with stakeholders and professionals of many kinds. Design, as a field, has a mixed set of techniques. Some are based on science and experiment, but much still relies on the skill, wisdom, and creativity of the designers. To be successful, DesignX requires a larger set of techniques that have been verified and tested, which means an emphasis upon evidence-based design. Some methods will be based upon and constructed through scientific investigation. Others will be frameworks and design patterns. Still others will be heuristics for continual refinement and evaluation to ensure that the strengths, weaknesses, and appropriate situations for application are known, understood, and verified.

Problems are more volatile than ever before, and information often changes faster than it can be validated. This is why we need a new research tradition to explore the issues involved in models of education as well as models of practice. We need a theoretical foundation to support new ways of research and education. We need an innovative and inclusive social eco-system to enable the application of new knowledge and methods for positive social and economic change. And we need to develop new methods of experimentation to allow rapid assessment, test, and deployment of prototypes, test trials, and even mock "solutions," the better to give rapid feedback and allow for repeated iterations toward superior results. The mantra should be "learn fast, learn continuously."

Education must also change. Today, universities are focused upon discipline-based education that no longer suffices to deal with large, complex problems that involve multiple disciplines, technology, art, the social sciences, politics, and business. We need robust, new models for education, some based upon disciplinary skills, others based upon problems rather than disciplines, where experts and students from many backgrounds work together on a specific issue. This requires adding problem-based education to the existing emphasis upon disciplines.

It is important to strengthen dialogue between the multiple cultures of the world. It is time to emphasize world-wide conditions that will provide sustainability with alternative measures of quality and performance that move beyond systems requiring high energy and resource consumption.

We seek a radical reformation of design practice, education, and research. It is time for a new era of design activism.