

Creativity & Collaboration: Revisiting Cybernetic Serendipity

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<http://www.nasonline.org/Sackler-Creativity-Collaboration>

Our ambition is to redirect the history of ideas, restoring the Leonardo-like close linkage between art/design and science/engineering through widespread use of internet-enabled creativity and collaboration.

50 years ago in an era of political turmoil, the artistic response was captured in a famed exhibit on Cybernetic Serendipity that celebrated how individual artists could creatively transform new technologies and computers into art machines. The rock-star artists entranced 60,000 viewers with never-before seen images, films, music, and sculpture. The goals were to delight, surprise, and sometimes annoy audiences with their creations.

50 years later in another time of political turmoil, the capacity to make art of all types, images, films, music, performance, and sculpture, has been dramatically expanded to billions of users who create and publish their work online to their mega-million audiences. Creative work spanning art, science, and technology has expanded from the narrow museum galleries to the hyper-connected networked world in which ideas travel rapidly, collaborations flourish, and impacts are instantly visible in comments, likes, and page view counts. Digital Culture has led to the rapid sharing of tools and methods, which enable new forms of collaboration, such as citizen science. Art and design profoundly influence the emergence of powerful research tools such as information visualization.

Research has also been transformed from a solitary experience to teamwork, producing the twin-win of validated solutions and breakthrough theories. More than 90% of published papers in science and engineering are produced by teams compared to 50% just 50 years ago. These changes were necessary because diverse skills are needed to achieve meaningful results for the grand challenges of our times.

Research methods have also expanded from the narrow world of the scientific method, shaped by reductionist thinking that leads to hypothesis testing in controlled laboratory experiments. These are still important, but engineering methods based on modular designs, whose efficacy is measured in tests of iterative prototypes, are now valued in achieving the twin-wins of innovation and discovery. Still newer research methods based on divergent design thinking, invigorated by empathic engagement with multiple stakeholders, have opened up fresh pathways to valuable inventions and new knowledge.

This colloquium will use the historical framework of Cybernetic Serendipity to look at how the context has changed. This will form the foundation for asking questions of how creativity and collaboration are impacting practice and research today. How should we re-envision research policy and educational approaches to maximize the impact of partnerships with design, art, and humanities? How can we productively engage business, government, and non-governmental organizations as research and educational partners?