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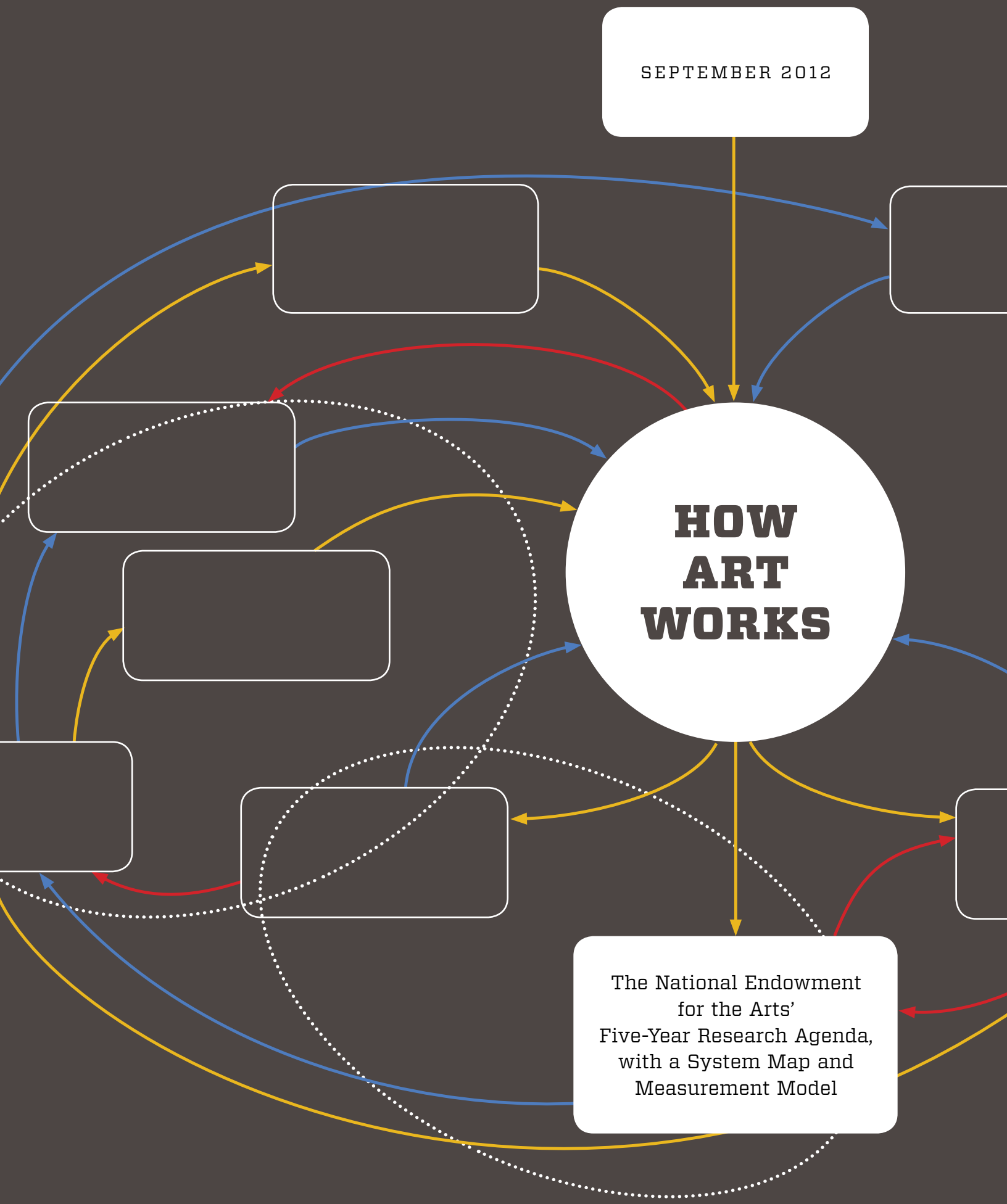

HOW ART WORKS

The National Endowment for the Arts' Five-Year Research Agenda, with a System Map and Measurement Model

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PREFACE

This document sets forth the National Endowment for the Arts' five-year agenda for research, but it does more than that. It provides a conceptual frame for planning and assessing research priorities so that the NEA can improve its ability to meet a core goal: *To Promote Knowledge and Understanding about the Contributions of the Arts.*

This goal appears in the NEA's Strategic Plan for FY 2012–2016. The plan charges the Arts Endowment's Office of Research & Analysis (ORA) with drafting a five-year research agenda with annual milestones for reporting to the White House Office of Management & Budget, Congress, and the American public. Thus, in 2011 ORA developed operating principles for the research agenda and presented them for feedback from a variety of stakeholders. (To view the presentation, visit arts.gov/research/Service-orgs-meeting.html.)

Concurrent with that process, the agency embarked on a series of in-depth dialogues—through interviews, webinars, and workshops—with leading thinkers in a variety of fields and sectors not exclusive to the arts. The goal of those consultations was to establish a feasible, testable hypothesis for understanding how art works in American life.

The rationale for this approach was two-fold. First, much of the NEA's past research on arts and culture has responded directly to the availability of specific datasets; to that extent, such research has been largely descriptive and reactive, rather than theory-driven and pro-active. The second reason for attempting to outline "how art works" is that a theory of change would enable us better to study the arts as a complete system, and thus allow us more clearly to define the arts' "value" and "impact." Understanding those terms is crucial if the NEA is to track progress on achieving its strategic outcome for all research activity: *Evidence of the Value and Impact of the Arts is Expanded and Promoted.*

The result of the NEA's deliberations and expert consultations was a system map and measurement model (shown in Sections Two and Three of this report) that can guide ORA's annual milestone development process as part of its five-year research agenda. This report (in Section Four) lists priority research projects that have emerged from ORA's own operating principles, but it also aligns those projects with key variables identified by the system map. The map organizes the research in a way that permits greater exploration of gaps and opportunities.

The NEA's Office of Research & Analysis is indebted to a long list of bibliographical resources, interview subjects, and workshop and webinar participants for assisting its pursuit of a theory-driven map and measurement model to guide future work. (Those resources and individuals are credited in two online appendices, available here: arts.gov/research/How-Art-Works/index.html.) In particular, ORA relied on the expertise of Tony Siesfeld, Andrew Blau, Lance Potter, Don Derosby, Jessica Gheiler, and the Monitor Group. We now welcome broader public engagement with scholars, arts practitioners, and policy-makers so that the report can provoke fresh research and insights about the value and impact of the arts in America.

Sunil Iyengar
Director, Research & Analysis
National Endowment for the Arts

BACKGROUND NOTE ON GOALS AND METHODS

WHY A SYSTEM MAP?

This report stems from a collaborative research inquiry into the nature and consequences of art in American life. Although it culminates in a research agenda for the National Endowment for the Arts, the document also proposes a way for the nation's cultural researchers, arts practitioners, policy-makers, and the general public to view, analyze, and discuss the arts as a dynamic, complex system.

It is characteristic of complex systems that they afford many points of entry and many different vantages, according to the user. Such systems also have many moving parts, which often interact in mysterious ways. It is frequently the case that examining one or more of these parts in isolation will fail to reveal the cumulative effect of the system or its emergent properties.

A well-established technique for managing this complexity, for the purpose of analysis, is to create a system map. The tool has been used widely in commerce to understand markets, value chains, the birth of new sectors, and how information flows within the walls of a business. System maps have figured in a variety of fields and sectors, ranging from neuroscience and public health to the evolution of economies.

The arts *are* a dynamic, complex system. They have a rich intellectual history of arguments and counterarguments. Thus, their inputs, core components, and impacts are ideally suited for system mapping.

A system map of "how art works" can provide an opportunity to organize recurring themes and concepts. At a time when robust data collection and reporting drives the ability of most U.S. sectors to define themselves and demonstrate their worth, such a map can be all the more valuable. It allows people from diverse backgrounds and viewpoints to arrive at a shared understanding of how the system works, what are its key elements and relationships, and which external factors can alter the system's efficacy. It provides a cartography of current research and exposes gaps in knowledge. Beyond these merits, a system map offers a blueprint for future measurement goals and strategies, suggesting which variables are critical to study for the purpose of communicating impact.

Researchers, policy-makers, and practitioners in the arts sector have had no shortage of ideas for articulating the arts' potential impacts on individuals and communities. Many of those concepts have flowed from original analyses of existing datasets, including studies conducted or commissioned by the National Endowment for the Arts. Researchers from a host of disciplines have contributed to an extensive literature attempting to describe core components of the U.S. arts ecosystem, or to quantify the arts' impact from a variety of perspectives.

Some of the most compelling research has originated in non-arts specialties: cognitive neuroscience, for example, with its discoveries about the arts' role in shaping learning-related outcomes; labor economics, with its lessons about the arts' bearing on national and local productivity; urban planning fieldwork that seeks to understand the arts as a marker of community vitality; and psychological studies that posit the arts' relationship to health and well-being.

The present report begins with the assumption that despite such pioneering efforts, the NEA's Office of Research & Analysis would benefit from a visual interpretation of "how art works." The model should outline a rational, defensible theory of change, and it should carry direct implications for measurement.

Another assumption behind this report is that although many lenses have been applied to understand the arts as a discrete ecosystem, or to measure the various types of impact it produces along different dimensions, seldom has a unified theory been brought to investigate these questions.

Before embarking on a project of this formidable scope, it was necessary to start from a humbler place. The project involved literature reviews and consultations with a broad group of people highly accomplished in their fields, not all of which were arts-related. They came from the academic, government, not-for-profit, and commercial sectors, spanning a breadth of artistic, scientific, and media disciplines, and they participated in a string of interviews, workshops, webinars, and online exchanges. The process

involved "rapid prototyping" to produce a map, variables, and definitions that formed the basis for those in the report. (Go here for a description of the consultation process, a list of participants, and a selective bibliography: arts.gov/research/How-Art-Works/index.html.)

What this report does *not* do is attempt to resolve longstanding points of contention in the arts. Nor does the system map claim to be definitive. Rather, it articulates a theory for understanding how art works, offers an integrative and holistic map for organizing existing research, and illustrates what the National Endowment for the Arts is doing to clarify parts of the map so we might better comprehend the entire system and its implications for the quality of life for all Americans.

We have organized this report into four sections: an overview of our theory of "how art works" (Section One); a detailed description of the system map and its components (Section Two); a measurement model for the map, inclusive of component variables, definitional questions, and methodological challenges (Section Three); and the NEA's planned research projects over a five-year period (Section Four).

To a large extent, the *How Art Works* system map reflects the strengths, limitations, and potential of existing research on the arts. Alternatives to the map—or future iterations—may generate even better research questions and methodologies to explore the nature of art, its contributions to human and societal development, and its place in American life.

SECTION ONE

ESTABLISHING A THEORY OF HOW ART WORKS AS A SYSTEM

Historically, generations of artists, philosophers, critics, and social scientists have struggled to define the role and impacts of art in terms of public value. They have asked questions as fundamental as: What *is* art? What is the nature of an artistic experience? What factors and conditions contribute to that experience, and how do they manifest in individuals and societies? What benefits do the arts confer, how, and to whom, and how might those effects be better known?

Such questions propelled this project, which has generated a system map of art's impacts on quality of life, an analysis of the system's key variables and how they might be measured, and a conceptual basis for presenting and reviewing the NEA's five-year research agenda.

The project entailed a substantive literature review (more than 150 documents ranging from academic research studies to data sets) and a series of consultations with a broad spectrum of "experts." We use the term expansively: our experts came from the arts, from disciplines focused on the well-being of communities and individuals (e.g., demographers, psychologists, politicians and policy experts, economists, and industry executives), and from adjacent disciplines that endeavor to map and understand other complex, dynamic systems (e.g., weather, public health, Type II diabetes, and the theory of system dynamics). We sought informed judgment from various perspectives as we laid out key issues and then worked together to map a system of the arts and their impacts.

After 11 months and a series of collaborative working sessions, we produced a map that attempts to synthesize main elements of the system and their relationships to each other.[1] Our underlying hypothesis is that engagement in art contributes to quality of life. Quality of life contributes to society's capacity to invent, create, and express itself. This capacity contributes back to art, both directly and indirectly. When the system works, arts engagement expands and deepens, quality of life is enhanced, and the creative capacity of a society increases.

At the individual level, a person who engages in art—who creates, witnesses, is made angry by, or is enraptured by art—has the possibility of being changed. These changes are not certain, and most often are subtle. Over many instances of engagement, with different art or with the same art many times (or both), there is a good chance that a person's viewpoint and capacity for encountering other experiences will change. Over many people, over time, such changes can be profound. They can manifest as differences in people's cognitive, social, and emotional development. Engagement in art can expand the perspectives a person can take, deepen one's appreciation of things new and familiar, facilitate or enhance a feeling of spirituality, and lead to a sense of connection that was not originally present.

Within a community—a collection of people bound by some common element, be it geography, history, an area of interest, or some other shared characteristic—engaging in art can foster a sense of identity and belonging. It can promote and signal cultural vitality and communal values such as a tolerance of diversity and an openness to questions.[2] These communal values are ties that bind. At their best, such ties contribute to unity, identity, a sense of solidarity, higher levels of civic engagement, and ultimately the expectation of the right to culture. But these ties also can be exclusive, serving to reinforce a "right" and a "wrong" way of participating in a group.

Somewhat different from this community benefit are the economic benefits of art, both direct and indirect. This variable has been much investigated lately, with some studies purporting that geographically bound communities where artists have settled tend to produce higher real estate values, more tourism, and the growth of entertainment industries. In other words, arts engagement produces local economic activity.

Most directly, both the artist and the buyer gain through the exchange. The artist—and gallery or theater or other venue, if one is involved—earns income, and the patron gets artwork or an arts experience that both pleases and enriches. And, in the case of a tangible piece of art, the work may be sold and bought in the future. There are also indirect economic benefits.

Maybe through local policy and support, through the availability of inexpensive space that can be used as an artist's studio, or through the appeal of sharing a community of kindred souls, artists concentrate in a given area. Arts patrons frequenting the area may spur local revenue growth through food and drink purchases, hotel stays, and tourism spending. Not all artists benefit, and some may be forced to move on for less expensive space or some other reason, but the long-term effect is that the neighborhood is now economically better off.

These benefits "talk to each other." They feed each other. A more vibrant community is one in which businesses are likely to want to operate. An active business life will enhance the community, and attract more people.

We hypothesize that these individual and community benefits of art represent its primary and most measurable contributions. When people engage in art, they themselves may change and "grow," they and their communities can become more vital, and the economic benefits to artists and the overall market can increase and accrue. Art contributes to and enriches the overall quality of life.

Much more indirectly, a healthy and robust engagement in the arts can raise the aptitude of a society for invention, creativity, and expression. Although the aptitude itself may be difficult to witness directly, it can be seen in the creation of new forms and outlets for expression. A contemporary example of this phenomenon is the combination of digital video, easy-to-use editing software, and the Internet, all of which gave rise to YouTube, Myspace, and other places where a wide range of people are able to post their own creative expressions. A more fundamental instance of the capacity of our society to innovate and to express ideas is in the exercise of freedom of speech.

Our societal capacity to innovate and to express ideas can lead to support for arts infrastructure (e.g., government funding, or grants or other support from foundations, businesses, and individuals). It can result also in stronger commitments to formal and informal instruction in both the creation and appreciation of art. Arts infrastructure provides the financial support, materials, and human resources necessary for arts participation and arts creation, while education and training provide important knowledge and skills.

Beyond training and opportunity, something in human nature—an impulse to create and to express—fuels the artist, the creation of art, and ongoing arts engagement. Engagement in art contributes to an enhanced quality of life. As quality of life improves, more arts engagement occurs, strengthening a society's capacity to express ideas and to create. As this societal capacity increases, even greater levels of arts engagement can result directly and indirectly. Thus, when the system works, it builds itself and leads to healthier, more productive outcomes.

As a simplification of the real world, the system described here is inherently imperfect. The system sits in a wider system that influences individuals, communities, our economy and our very society. But in the system here described, art is central, though its impacts may be subtle.

In dialogue with experts from various backgrounds, we found that we could articulate a map of this complex, dynamic system linking arts participation, quality of life, and broad capabilities in our society. Our map depicts a Theory of Change for art—providing insight into how, why, and when arts engagement enhances the lives of individuals and communities.

The map reflects several key assumptions that arose from this collaborative research project. For example:

- Arts engagement—creating art or otherwise experiencing it—is at the heart of how art works. Art matters. It is an essential contributing factor to health, happiness, and prosperity.
- The raw fuel needed to keep the system going is the human impulse to create and express.
- Benefits can accrue separately to individuals and communities, and these benefits are not all equally distributed. Nor are they always reliably present.
- Arts engagement makes important contributions to the broad capacity of our society to invent and express itself.

The system map helps put long-standing controversies and disputes into a context that allows multiple perspectives to exist. It provides what Keats called "negative capability"—the ability to imagine the system without having to resolve apparently contradictory aspects. For instance, in the current map:

- Art can be an artifact, an action, or an ongoing process. It can be restricted to "high art" or expanded to

"popular art." It can refer to one or more art forms. Nevertheless, how one sets the boundaries and limits to these concepts will determine which impacts can be evaluated. In this system, moreover, art does have to be a human endeavor, the invention and expression of a person.

- There are a multitude of individual-level and community-level outcomes associated with arts engagement. None is privileged (in the sense that one is more important or more valuable than others), not all need be present in every circumstance, and the outcomes may register subjectively or objectively. Our system anticipates many subtle influences of arts engagement, over time and differentially over people.
- Art contributes to the greater quality of life of individuals and communities. Our single biggest measurement challenge will be to identify quality-of-life outcomes that can be attributed exclusively to arts engagement.

The system map provides an integrative and holistic model for organizing research to measure the arts' impacts. In Section Four of this report, we locate the NEA's planned and ongoing projects on the map. This exercise reveals potential areas that might be underrepresented in the agency's current research portfolio. In the same way, the nation's larger body of research on art's impacts can be organized by the system map, showing where distinct areas of research can be brought together for new insight.

This map is a beginning, not the end. It should provoke conversation, debate, and research. The results of these exchanges will help deepen and enrich the map, making it a better and more faithful representation of the complex, dynamic system of art's impacts.

As it currently stands, the map can be used to "explain" how art works as a system, and to provide a basis for planning future research.

Notes

[1] System mapping is an analytical technique broadly applied in both the social and physical sciences. It allows analysts to picture complex interactions between large numbers of variables combining to generate single outcomes. The constellation of causal variables is referred to as a "system." The "mapping" is the process of first imagining and then testing how variables interact with one another over time to produce impact. The basis of the method is the recognition that the structure of any system—the many circular, interlocking, sometimes time-delayed relationships among its components—is often just as important in determining its behavior as the individual components themselves.

Recent applications of system mapping have proved instrumental in moving policy conversations forward on topics as difficult as the causes, consequences, and policy options for climate change, or the interactions between consumer confidence and financial market performance, or the interplay between charitable giving and social cohesion. While contributions to the field of system-mapping have been made by many leading scientists and social scientists, the Massachusetts Institute of Technology has perhaps contributed more to the field than any other single institution, according to Monitor Institute, the NEA's primary consultant throughout this process. Monitor's approach in Phase II of this initiative drew heavily from the particular contributions of Jay W. Forrester, Peter Senge, and John Sterman, each with deep ties to MIT.

The primary benefit of system mapping is that it often facilitates a breakthrough understanding of contradictions, trade-offs, and tensions routinely found in environments where a wide variety of causes interact with one another across space and time to produce the results of interest. Given the prevalence of these "puzzles" in the discussion of the benefits of art, and in attempts to link art and quality of life, the method suggested itself as an obvious choice for the *How Art Works* project.

[2] The term "cultural vitality" is defined by Rosario Jackson et al.: "Evidence of creating, disseminating, validating, and supporting arts and culture as a dimension of everyday life in communities," from *Cultural Vitality in Communities,* Washington, DC: The Urban Institute (2006).

SECTION TWO

MAPPING THE SYSTEM OF HOW ART WORKS

Overview

To tell the story of *How Art Works,* the NEA's Office of Research & Analysis and the strategy consulting firm Monitor Institute engaged citizens representing a wide range of shaping experiences and perspectives—including artists and non-artists, academics, policymakers, and business people—to develop a common view of the relationship between art and individual and community outcomes. This series of exchanges produced a system map of art and its impacts (see Illustration 1).

What is this map? It is an abstract representation of the interplay among:

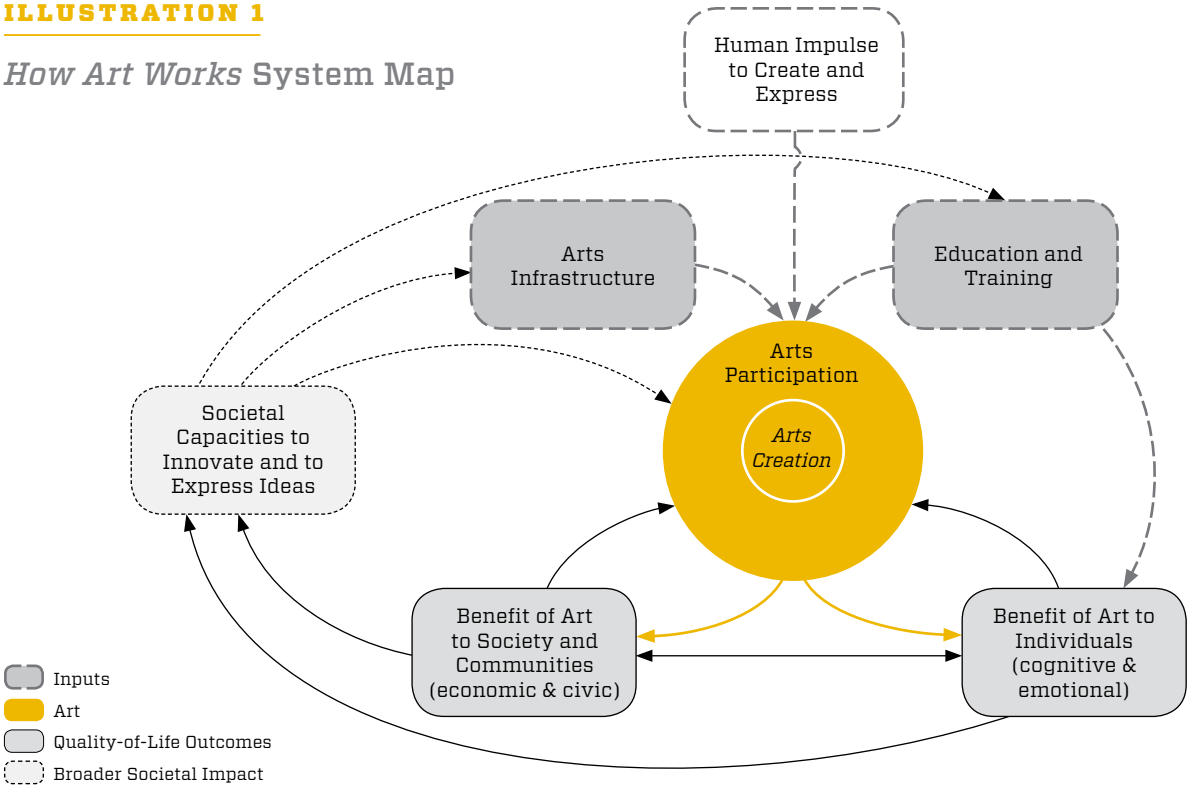
- Arts participation, inclusive of arts creation;
- The artist, the artwork, and audience;
- How arts participation influences the lives of individuals and their communities; and
- How individuals and their communities influence artists and their work.

The system map we created is a community effort, reflecting a series of discussions, literature searches, and interviews. (Go here for a description of the consultation process, a list of participants, and a selective bibliography: arts.gov/research/How-Art-Works/index.html.)

The map is both very simple and extremely complicated. At its simplest, it says that with motivation and opportunity, a person (the artist) conceives of and expresses an idea. This idea, when it reaches another person, has an impact. This impact may be seen within the individual who engaged with the artwork, within

ILLUSTRATION 1

How Art Works System Map



the community, and/or in an economic exchange. This impact flows to the greater society, influencing its creative capacity, as well as its means and ability for expression. The impact also flows back to the artist, directly in some instances (e.g., the artist sells a work of art) and indirectly through education, infrastructure, and society's general embrace of creativity and freedom of expression.

Dig a layer deeper into the map and it reveals more complexity. For instance, the question of who has the "right" to call a work a piece of art—the artist, the audience, or an informed third party—does not need an answer in the system map. All these perspectives are possible but no one perspective is privileged. Choosing one perspective influences which effects are observed, and at what level of magnitude. Likewise, the distinction between high and low art need not be made, as both are accommodated in this map. But changing the "breadth" of the definition of art will change the number of people engaged, and therefore how many people can be affected and how large (relative to the total population) the impacts are. Whether or not our definition includes publishing, radio, and/or movies, for example, strongly influences how many people engage with art—and, in particular, how much direct economic benefit accrues from art.

One risk of system mapping is the tendency to try to accommodate everything within the map. To limit this risk in the context of *How Art Works,* we have assumed that a work of art is **an act of creative expression done within the confines of a set of known or emerging practices and precedence that is intended to communicate richly to others** (e.g., a symphony performance, a teenager's final art project, and a grandmother's crochet practice). As we are interested specifically in the impact of art on individuals and communities, in our definition we stipulate that at least one person other than the artist is required to engage with the work.

In addition to depicting the story of *How Art Works,* the map implies a number of things about measuring art's impact. We will turn to those implications presently. First, let's tour the map.

The *How Art Works* system consists of four parts: inputs; art itself; quality-of-life outcomes (first-order outcomes); and broader societal impacts (second-order outcomes). Primary inputs are factors and forces providing foundational structure to artists and arts participation. Art comes in the form of both artifacts and experiences. Quality-of-life outcomes are primary and more immediate effects of art and arts participation. Broader societal impacts result from quality-of-life outcomes.

System Components

Human Impulse to Create and Express

This is the primary motive that powers the system: the basic drive for virtually all humans across all time to express themselves at some point, to make a creative mark.

How Art Works takes *Human Impulse to Create and Express* as the animating force behind arts participation (which can be to create something, to express something, or to receive or interact with the creative expression of another), and all of its social consequences; accordingly, it is a constant in the system, and a fundamentally different type of input from *Arts Infrastructure* and *Education and Training.* This impulse is a necessary but insufficient condition for arts engagement. Arts engagement requires opportunity. Much of the context for this opportunity is provided by the inputs below.

Inputs

System inputs enable a context for arts creation and arts participation. In this system, there are two broad inputs:

- *Arts Infrastructure* refers to the institutions, places, spaces, and formal and informal social support systems that facilitate the creation and consumption of art.
- *Education and Training* refers to the standards, best practices, knowledge models, and skills that inform artistic expression on the one hand, and consumption of art on the other. *Education and Training* spans the spectrum of formal and informal instruction, from YouTube and street jam sessions, to K-12 and adult arts education, to apprenticeships and conservatory training.

Combined, *Human Impulse to Create and Express, Arts Infrastructure,* and *Education and Training* lend the context and motivation on which artistic endeavors, audience experiences, and any resulting benefits are built.

Art

Art, especially arts engagement, sits at the heart of the system. To understand it as intended here, we need to acknowledge that Art includes artistic acts (arts creation) and the consumption of those outputs (arts participation). Regarded this way—and in the context of the map—Art is both noun and verb; it is the thing and the act of producing and experiencing it.

- The act of producing, interpreting, curating, and otherwise experiencing art is *Arts Participation*.
- In the system map, we call out *Arts Creation* as one essential aspect of *Arts Participation*. The agent of *Arts Creation* is the artist, broadly and inclusively defined as a person who expresses herself or himself within the confines of a set of known or emerging practices and precedence, with the intention of communicating richly to others. Art, in this system, is created by someone with intention.

Quality-of-Life Outcomes (First-Order Outcomes)

Quality-of-life outcomes are community and individual benefits derived from interacting with the arts. These benefits can have a positive or negative value in the context of the system map (i.e., you can have "more" or "less" economic, social and community, or individual benefits). And because of demographic heterogeneity across the United States, it is possible for more benefits to accrue to one individual, group, institution, or community than to others. We have grouped quality-of-life outcomes into two broad categories.

- The first is the *Benefit of Art to Individuals,* which refers to the cognitive, emotional, behavioral, and physiological effects that arts participation can produce in individuals, including transformations in thinking, social skills, and character development over time.[3]
- The second is *Benefit of Art to Society and Communities.* This outcome refers to:
  - The role that art plays as an agent of cultural vitality, a contributor to sense of place and sense of belonging, a vehicle for transfer of values and ideals, and a promoter of political dialogue.[4]
  - The role it plays as a source of economic benefit. This is both the direct income derived from the arts (e.g., the price paid for an arts experience or artifact of the commercial arts) and the indirect financial returns of the arts (e.g., increases in the value of real estate, or benefits to the hospitality industry).[5]

Discussions of the value of art invariably seek to highlight a portion of one of these factors, often at the exclusion of other parts. Our research in developing an integrated system suggests that the civic and economic components of art's benefit to communities and the emotional and cognitive components of art's benefit to individuals are best acknowledged at all points in time and that the particular value of one type of benefit over the other can be understood only in unique circumstances. Recent arts policy and case-making for the arts has overemphasized the critical value of art's direct and indirect economic impacts on society. Although those analyses and resulting numbers certainly matter and are attractive because of their concrete nature, our research suggests that the other individual and community values of art—if they were more directly quantifiable—in all likelihood far outweigh the measurable financial values of the arts.

Broader Societal Impacts (Second-Order Outcomes)

To complete the systems perspective of how art works, we need to take into consideration a final category of variables we label here as broader societal impact. The overall impact is *Societal Capacities to Innovate and to Express Ideas.* But a more detailed system map (see Illustration 3 in Section Three of this report) reveals two attendant types of outcomes. One is *New Forms of Self-Expression,* which reflects new ideas and new idioms, and the other is *Outlets for Creative Expression,* which reflects how technological changes are altering the sources and reach of creative expression. These variables are downstream from our core quality-of-life indicators; yet they are essential to understanding how the arts can shape broader life experiences of Americans.

- *Societal Capacities to Innovate and to Express Ideas* refers to the ability of community members to "develop, design, or create new applications, ideas, relationships, systems, or products"—individually and collectively.[6]
- *New Forms of Self-Expression* (see Illustration 3, Section Three) refers to the emerging methods, techniques, and materials we have for conveying

emotional states and ideas, from new art modalities to data visualization.

- *Outlets for Creative Expression* (see Illustration 3, Section Three) refers to the platforms that support these new forms of expression, such as YouTube, Myspace and Facebook. New outlets and forms of expression not only become new media in which artists can express themselves—they also enable more individuals to become artists, forcing us to alter the ways we think about art forms and fields.

Our capacity to innovate and to express ideas, and its links to forms and outlets for expression, also point up a core liberty within our society: freedom of expression. This freedom requires certain individual- and community-level attitudes that are facilitated by the arts: for example, the courage to express oneself and a tolerance of new ideas and vehicles for creative expression. The system map implies a link between arts participation and our ability, opportunity, and likelihood to express ourselves freely.

The benefits of these broader societal impacts spill over to creative problem-solving as it applies to a whole range of other endeavors, from the sciences to design and mass media. Regarded this way, the broader societal impacts of the arts are both greater in scope and more difficult to track directly back to the arts as classically defined. As we will highlight below, these impacts interact with "system multipliers," influencing society well beyond arts participation.

By explicitly acknowledging the impacts of *Societal Capacities to Innovate and to Express Ideas, New Forms of Self-Expression,* and *Outlets for Creative Expression* as part of an expanded system map, we establish critical ties between the arts and the pollination that takes place between the arts and the highly innovative (and often commercial) spaces that have birthed phenomena as disparate as self-publishing through blogging, socially networked arts funding engines (e.g., Kickstarter), media arts-initiated social or political activism, and open-source software platforms.

Broader societal impacts in the system also provide essential links back to *Arts Infrastructure, Education and Training,* and *Arts Participation*. They complete feedback loops that we know exist in the real world; core inputs feed artistic production, artistic production feeds quality of life, quality of life enables the *Societal Capacities to Innovate and to Express Ideas,* and this creative capacity reinforces basic inputs.

System Multipliers

Multipliers are factors and forces that broadly influence particular states of the arts system at points in time, and may act through many system variables, even simultaneously. To understand the state of the system at any point in time, we need to take stock of how the multipliers are affecting it. By isolating these five essential multipliers, we are able to characterize changes to the system as time passes. We propose five primary multipliers: Markets and Subsidies; Politics; Technology; Demographics and Cultural Traditions; and Space and Time (see Illustration 2).

1) Markets and Subsidies: Refers to the supply-and-demand factors outside the system, including policy mechanisms that direct money and resources to different parts of the arts universe at different points in time.

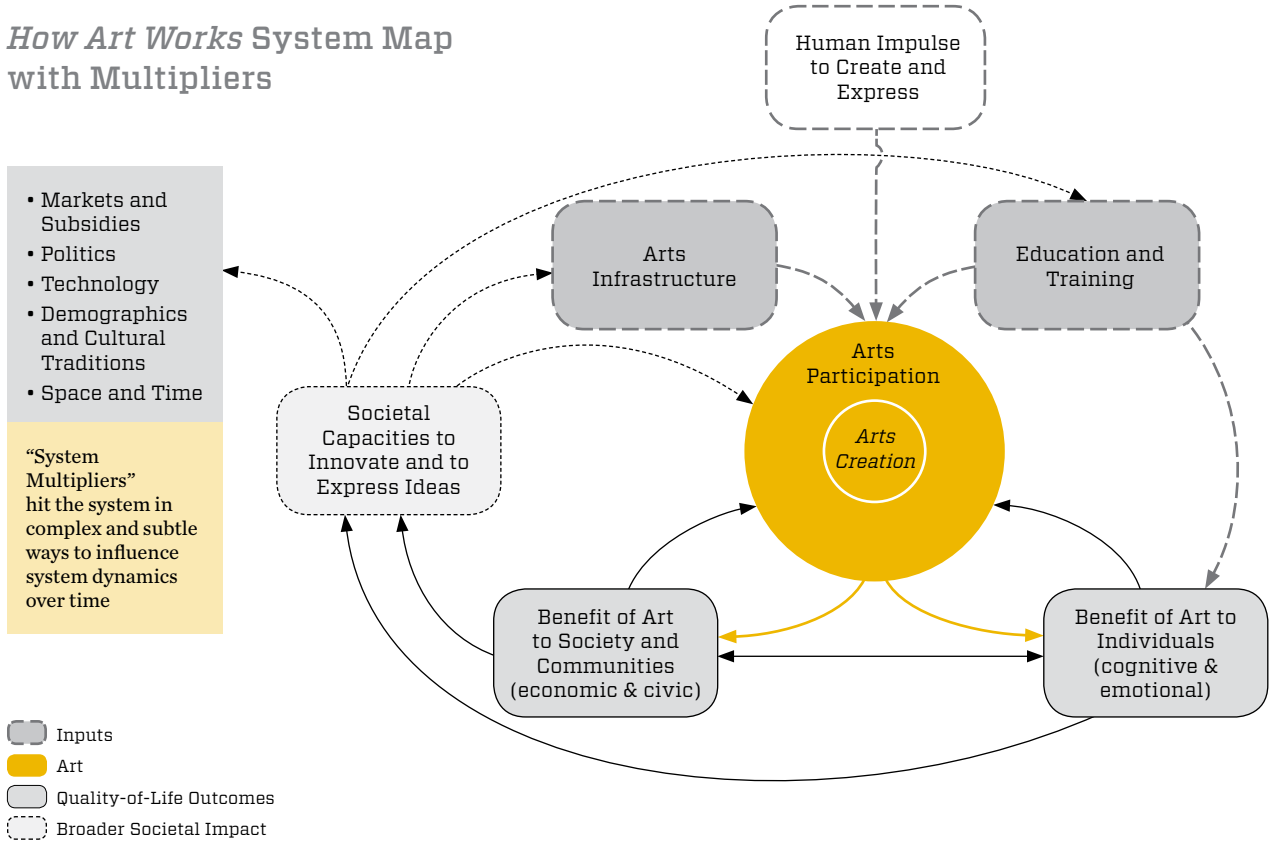
2) Politics: Refers to the public dialogue and legislative practices that help set the rules of the game through which arts are acknowledged, rewarded, and occasionally vilified.

3) Technology: Refers to human-made devices with the capability to magnify impact, collapse distance, and distort time. These devices sometimes affect the arts by making new forms and outlets for expression possible, e.g., digital media and basic tech tools supporting new crafts, or by transforming existing expressions into new modalities that can be broadly distributed and consumed at will.

4) Demographics and Cultural Traditions: Refers to the size and composition of human populations over time. This multiplier captures the critical influence of emigration and immigration, the bulging population of cities, and the simultaneous shrinking population in the countryside. It captures complexities associated with the resulting cultural mash-ups and cross-pollination of artistic forms, and group-based preferences and tastes. The demographic profiles of communities also directly influence the amount of disposable income that can be contributed to the arts as well as the amount of direct income that is likely to be

ILLUSTRATION 2

How Art Works System Map with Multipliers



derived. It captures the power of taste and communal standards for beauty.

5) Space and Time: Space and time are dimensions that help us understand the influence that the arts have over the centuries and across traditional geographic boundaries. Accounting for time as a multiplier allows us to think about how the arts from past millennia remain relevant today, as well as how today's artistic production might influence future generations. This multiplier also indicates variability in the time taken for different impacts to flow through the system; not all impacts occur at the same speed, and, in some circumstances, it may take lifetimes for a change to register. Space helps us think about how particularly rich forms of artistic expression, while produced locally, can with surprising impact migrate globally.

To sum up, the system map is a conceptual diagram of how variables relevant to the topic of *How Art Works* "talk" to one another. It is a picture of the complexity inherent in discussions of art's impact and it suggests a set of hypotheses about the relationships between arts engagement and the arts' impacts on individuals and their communities. The map offers a platform for mounting a research agenda to test the strength of these relationships and their underlying hypotheses.

In the next two sections, we outline measurement implications of the *How Art Works* system map. Section Three discusses in-depth definitions of key variables and how they might be made operational. Section Four presents the National Endowment for the Arts' five-year research agenda in light of the map and measurement model.

Notes

[3] It is conceivable that some types of art can lead to negative individual outcomes, either directly (i.e., as a direct result of engagement) or indirectly (e.g., due to tradeoffs in time that occur when an individual engages in a specific type of art versus another activity).

[4] Because communities do not all have the same values, ideals, or political inclinations, art that is seen as beneficial by one community can appear threatening to another. For an empirical analysis of this phenomenon in 71 U.S. cities, see *Not Here, Not Now, Not That! Protest over Art and Culture in America,* by Steven J. Tepper.

[5] *Economic Benefits of Art* to an individual or group can at times be at odds with economic benefits to another individual or group (e.g., rising real estate prices in artistic communities benefit local government and real estate agents but burden low-income residents—including some artists—who no longer can afford to pay rent).

[6] The definition of this term comes from literature on creative capacity , specifically from McGranahan and Wojan's (2007) characterization of "thinking creatively," which is rooted in Richard Florida's concept of a "creative class." McGranahan and Wojan, "The Creative Class: A Key to Rural Growth," *Amber Waves* 5:2 (April 2007):16–21.

SECTION THREE

DISSECTING THE MAP FOR THE PURPOSE OF MEASUREMENT

Overview

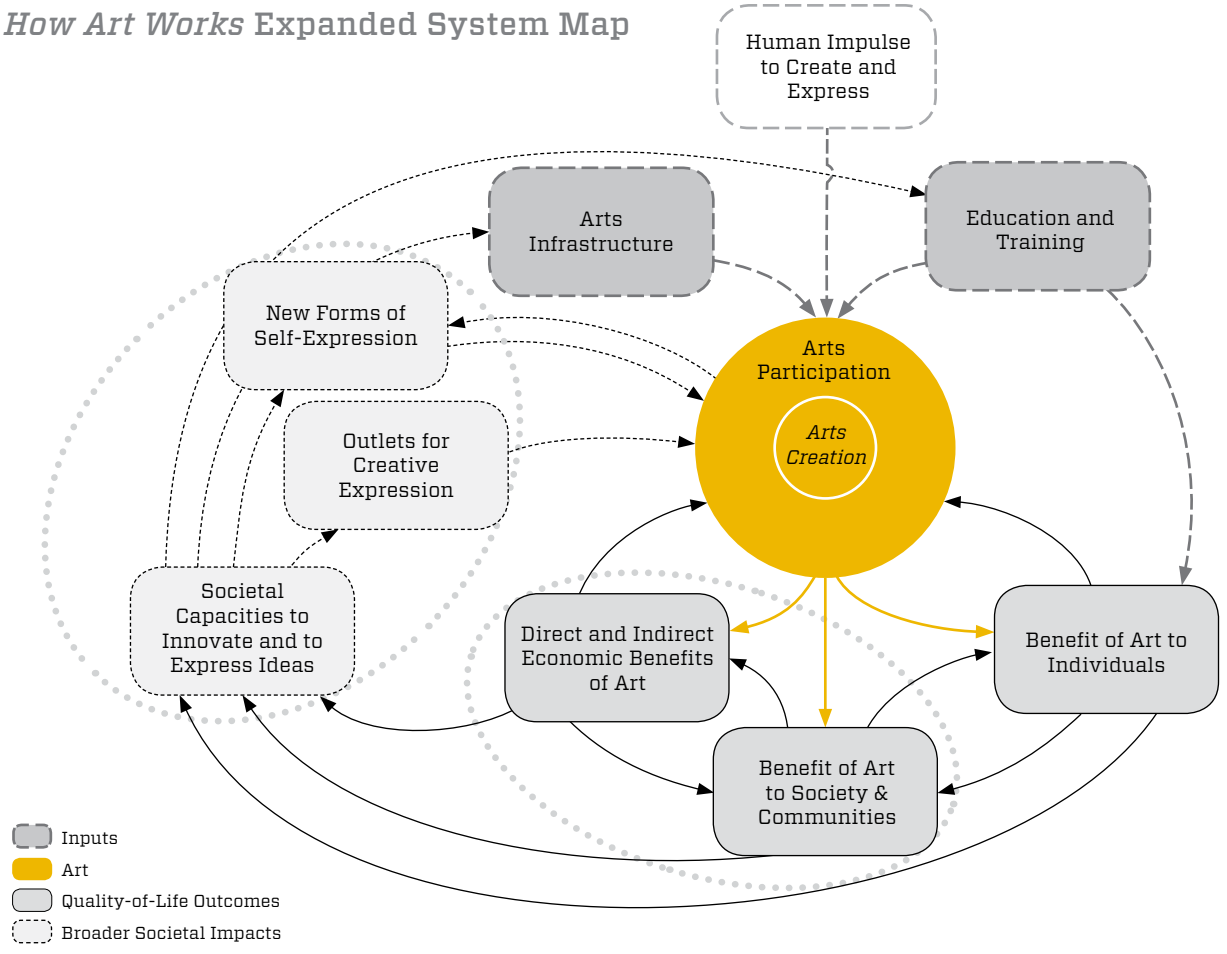
Compellingly specified variables will prove essential if we are to test the hypotheses embedded in the *How Art Works* system map. Any research, regardless of caliber and scale, can be challenged by the argument that variables are mischaracterized. And the outcomes of arts engagement in particular involve many difficult-to-measure concepts. In effect, each node in the system map needs to be further defined and operationalized (i.e., defined in terms of properties that can be independently measured) to support a robust research agenda.

This section of the report constructs key variables that can populate the nodes on the system map. The choice of variables in each construct will determine which steps are needed to establish a comprehensive measurement model for the system.

Each construct is illustrated as a sample "multi-level measurement structure" for the node under review. The structures draw from existing research in the field, as well as from multiple interviews, webinars, and

ILLUSTRATION 3

How Art Works Expanded System Map



convenings.[7] (For a partial list of relevant studies and data sources, and for a complete list of experts consulted, see the report's online appendices: arts.gov/research/How-Art-Works/index.html.) Finally, these constructs are incomplete; in most cases, fuller elaboration and detailed development of subordinate variables are necessary. Gaps are denoted with "placeholder" labels.

But first, for the purpose of understanding the variables in greater detail, we consulted an expanded version of the system map (see Illustration 3). In this version, we separate the benefits to a community from the economic benefits (thus reflecting the substantial body of research existing in each domain), and we isolate the societal benefits of "new forms of self-expression" and "outlets for creative expression" from the larger societal capacity "to innovate and to express ideas."

This section focuses specifically on the nodes of ***Inputs, Art,*** and ***Quality-of-Life Outcomes.*** The broad societal impact nodes, in our view, should be explored only once a stronger research program is in place for the primary (quality-of-life) effects. Nevertheless, we acknowledge the broad societal impacts as important outcomes.

We are not specifying the variable *Human Impulse to Express and Create,* since in the system map it represents the fundamental spark of human creativity.

Accordingly, we discuss the following nodes reflected in the expanded system map:

- Input variables
  - › *Arts Infrastructure*
  - › *Education and Training*
- Intervening variables
  - › *Arts Creation*
  - › *Arts Participation*
- Quality-of-life outcomes
  - › *Direct and Indirect Economic Benefits of Art*
  - › *Benefit of Art to Individuals*
  - › *Benefit of Art to Society and Communities*
- Broader societal impact
  - › *Societal Capacities to Innovate and to Express Ideas*

Initial Construct of Input Variables

Arts Infrastructure

INITIAL DEFINITION

Arts Infrastructure refers to the institutions, places, spaces, and formal and informal social support systems that facilitate the creation and consumption of art.

ISSUES TO EXPLORE IN VARIABLE CREATION

To create variables using this definition, it is necessary at minimum to determine:

1) How broadly to define infrastructure;
2) How to capture all types of non-financial support; and
3) Whether to include place-based distinctions.

The categories listed in the sample measurement structure below cover a wide range of infrastructure types, including physical spaces, organizations, associations, and other financial and non-financial support.

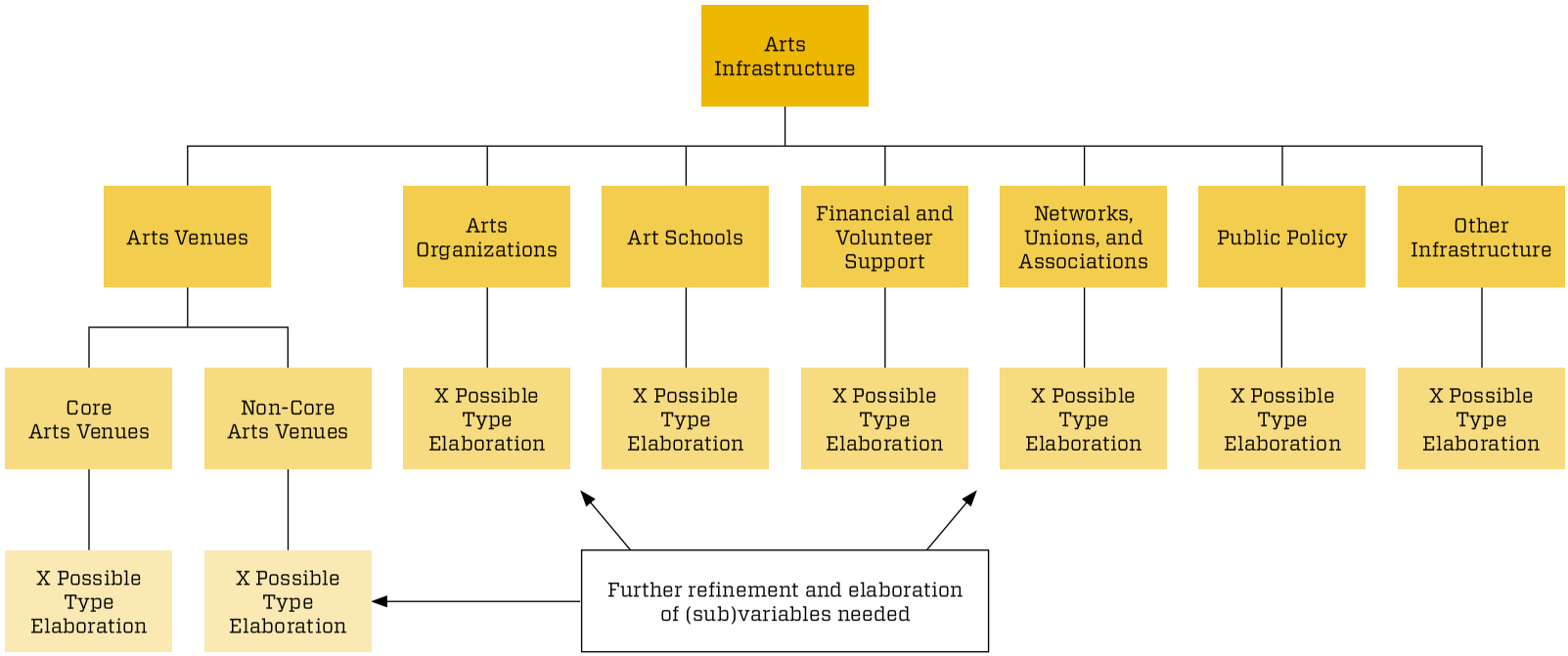
In the sample measurement structure, "Arts Venues" is divided into "Core" and "Non-Core" venues to indicate the possible relevance of *both* spaces that are primarily used for art-based work *and* those which have another primary function but may include artistic programming (e.g., "core" would include museums and theaters devoted to musical or theatrical performance while "non-core" would include schools and parks, which can serve as venues for exhibits or performances, but which have primary functions other than being arts venues). "Possible Type Elaboration" placeholders indicate that further refinement of the variable is needed for each type of infrastructure.

The sample measurement structure also includes an "Other Infrastructure" placeholder, which reflects the possibility of including additional infrastructure types such as new technology-enabled platforms (e.g., social-network fundraising) and other types of support structures (e.g., health insurance and other benefits, equipment and materials, and access to information).

For additional examples of how *Arts Infrastructure* variables might be defined, please see a selection of relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html.

ILLUSTRATION 4

Example of *Arts Infrastructure* as a Multi-Level Measurement Structure

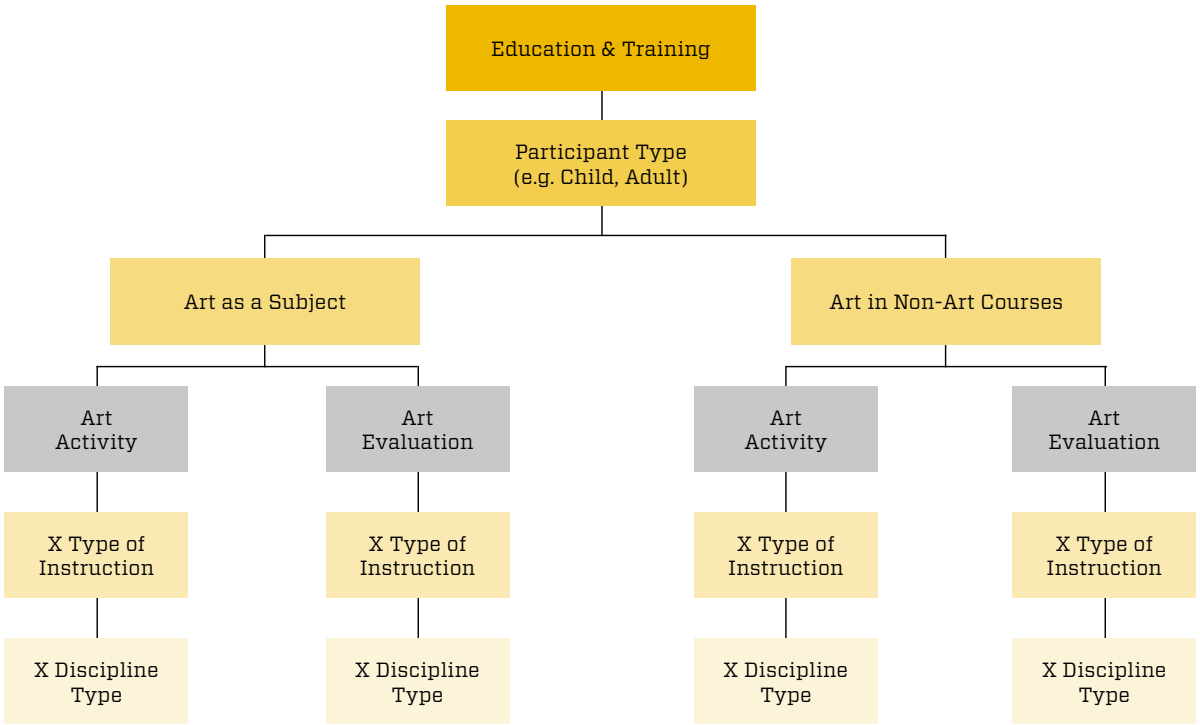


SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available.
- Type of infrastructure may be more important than quantity.
- The impact of increasing infrastructure density may not be linear (e.g., more may not always be better).
- Additional political or community context may matter in mediating the importance of arts infrastructure.
- It is critical to ensure that arts infrastructure variables are distinct from variables of *Economic Benefits of Art,* since they could be defined in ways that overlap; treatment of labor will be of particular importance.

ILLUSTRATION 5

Example of *Education and Training* as a Multi-Level Measurement Structure



SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available, particularly with respect to informal arts education (e.g. through the Internet, learning about the arts at home, and self-taught arts).
- There is an issue of confoundedness with education, as some education that is not directly arts-related closely influences arts appreciation (e.g., knowledge of mythology).
- Additional dimensions could focus on quality, frequency, specific exposure (e.g., ability to play a musical instrument), and/or access.
- Quality of arts education may be difficult to measure without the creation and distribution of cost-effective, replicable tools for assessing student and teacher learning in the arts across a variety of arts disciplines.
- It is difficult to capture arts exposure in non-arts classes.
- As with other education, there may be a threshold effect (e.g., each year of participation is not equivalent in terms of outcomes) regarding arts content.
- Educational impact may depend on learning styles of students (e.g., there may be a large impact on some students but a small effect overall).
- This sample measurement structure does not account for the infrastructure variables of U.S. public and private school systems, inclusive of state departments of education, school districts, schools, and public and private two-year and four-year colleges, for example. The unique definitional issues and methodological challenges that apply to data-collection within these systems will further complicate measurement of *Education and Training* within the *How Art Works* system.

Education and Training

INITIAL DEFINITION

Education and Training refers to the standards, best practices, knowledge models, and skills that help inform artistic expression on the one hand, and consumption of art on the other. *Education and Training* spans the spectrum of formal and informal instruction, from YouTube and street jam sessions, to K-12 and adult arts education, to apprenticeship and conservatory training.

ISSUES TO EXPLORE IN VARIABLE CREATION

To create variables using this definition, it is necessary at minimum to determine:

1) Whether and how to differentiate between youth and adult education;
2) How broadly to define education;
3) How to incorporate informal education;
4) Whether to capture some measure of quality or intensity; and
5) Whether and how to include break-downs by disciplines.

For example, the categories listed in the sample measurement structure (Illustration 5) begin with the differentiation between youth and adult participant types, since there is considerable focus in the arts literature on childhood arts education in particular. The sample measurement model then distinguishes between education where art is the explicit subject and classes where art is not the primary focus but is nonetheless an important component (e.g., a language class that includes literature). These variables are further differentiated by whether the educational experience is focused on activity (such as arts production) or evaluation (such as arts appreciation or criticism).

The sample model also includes "Type of Instruction" placeholders to indicate the potential relevance of education delivery method, such as conservatory learning or online arts education. Finally, the sample model includes placeholders for arts disciplines.

For additional examples of how *Education and Training* variables might be defined, please see a selection of relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html.

Initial Construct of Intervening Variables

Arts Creation

INITIAL DEFINITION

The essential agents of *Arts Creation* are the artists, a broadly and inclusively defined group that includes humans who express themselves—within the confines of a set of known or emerging practices and precedence—with the intention of communicating richly to others.

ISSUES TO EXPLORE IN VARIABLE CREATION

To create variables with this definition, it is necessary at minimum to determine:

1) Which categories of production count for the purpose of determining who is an artist;
2) How to capture amateur artists / art hobbyists;
3) Whether there should be a minimum time regularly spent on artistic production to qualify as an artist; and
4) Whether any other parameters should be included.

The artist categories listed in the sample measurement structure (Illustration 6) come from the occupational categories derived from U.S. Census data and used by the NEA's *Artist in the Workforce* report series. The measurement structure has been expanded to include those who do not earn a living from the production of art. It also includes a placeholder for a time threshold, since it may be preferable to require a weekly or monthly minimum time spent on artistic production to qualify as an artist.

Finally, the sample measurement structure includes an "Other" category placeholder. This "Other" category is meant to capture the possibility of a more expansive definition of arts production that does not fit into the occupational categories currently used.

For additional examples of how *Artist* variables might be defined, please see a selection of relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html.

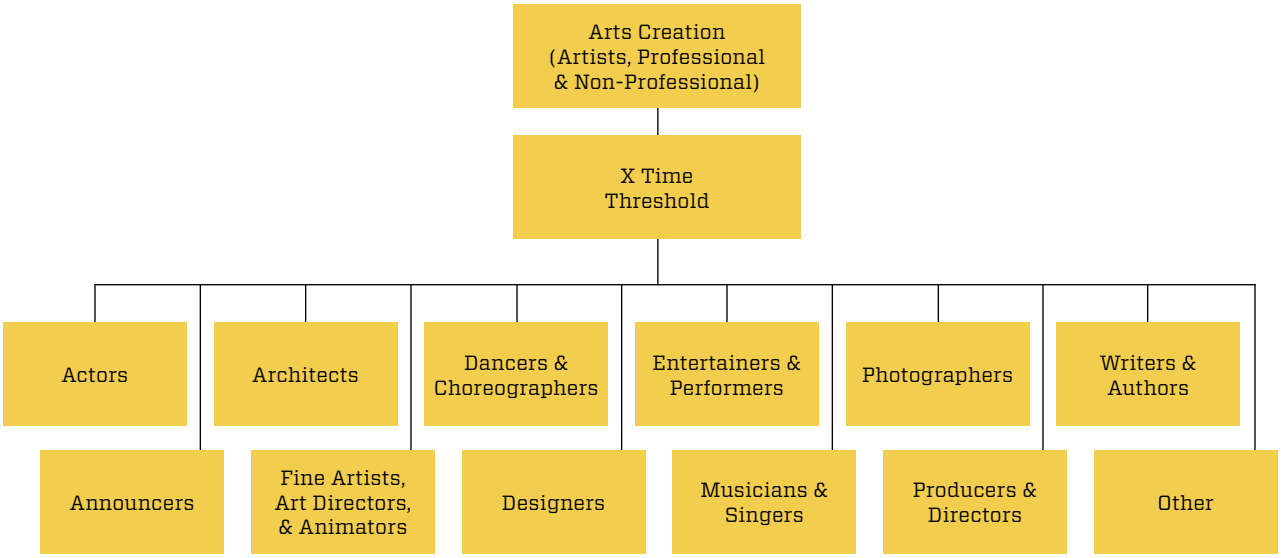
Arts Participation

INITIAL DEFINITION

Arts Participation is the act of producing, interpreting, curating, and experiencing art. It includes artistic acts (e.g., creating an artifact or directing an arts performance) and the consumption of those outputs.

ILLUSTRATION 6

Example of *Arts Creation* as a Multi-Level Measurement Structure



SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available with respect to non-professional artists. (For instance, there are issues with measuring artistic employment as a secondary occupation, using U.S. Census Bureau methodology.)
- The existing categories might not capture some emergent forms of art production.
- It should be determined whether individuals can define themselves as artists, or whether this variable should be externally defined.
- It is important to ensure that *Arts Creation* variables are sufficiently distinct from variables of *Arts Participation, Economic Benefits of Art,* and *Societal Capacities to Innovate and to Express Ideas,* since they could be defined in ways that overlap unproductively.

ISSUES TO EXPLORE IN VARIABLE CREATION

To create a variable using this definition, it is necessary at minimum to determine:

1) Which categories of participation to use as a starting point for types of activities covered;

2) How widely to define participation; and

3) Whether to break down participation by hours spent or by another measure (e.g., frequency of discrete activities).

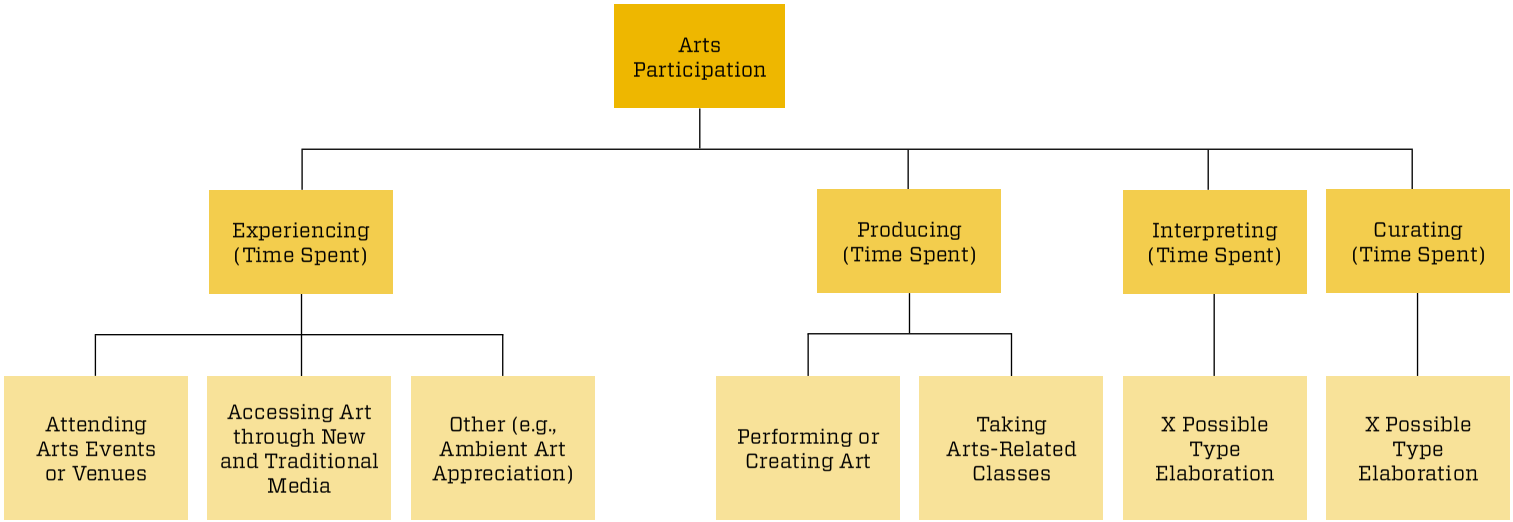
The high-level participation categories in the sample model (Illustration 7) are drawn directly from the definition, while the more detailed categories come primarily from the NEA's Survey of Public Participation in the Arts.

Time spent is included to delineate level of participation, although intensity might be measured instead as the number of times an activity is performed. The "Other" category placeholder indicates the possibility of more expansive definitions of arts experience. The "Possible Type Elaboration" placeholder signifies that multiple types of arts interpretation and curation may be relevant.

For additional examples of how *Arts Participation* variables might be defined, please see a selection of relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html.

ILLUSTRATION 7

Example of *Arts Participation* as a Multi-Level Measurement Structure

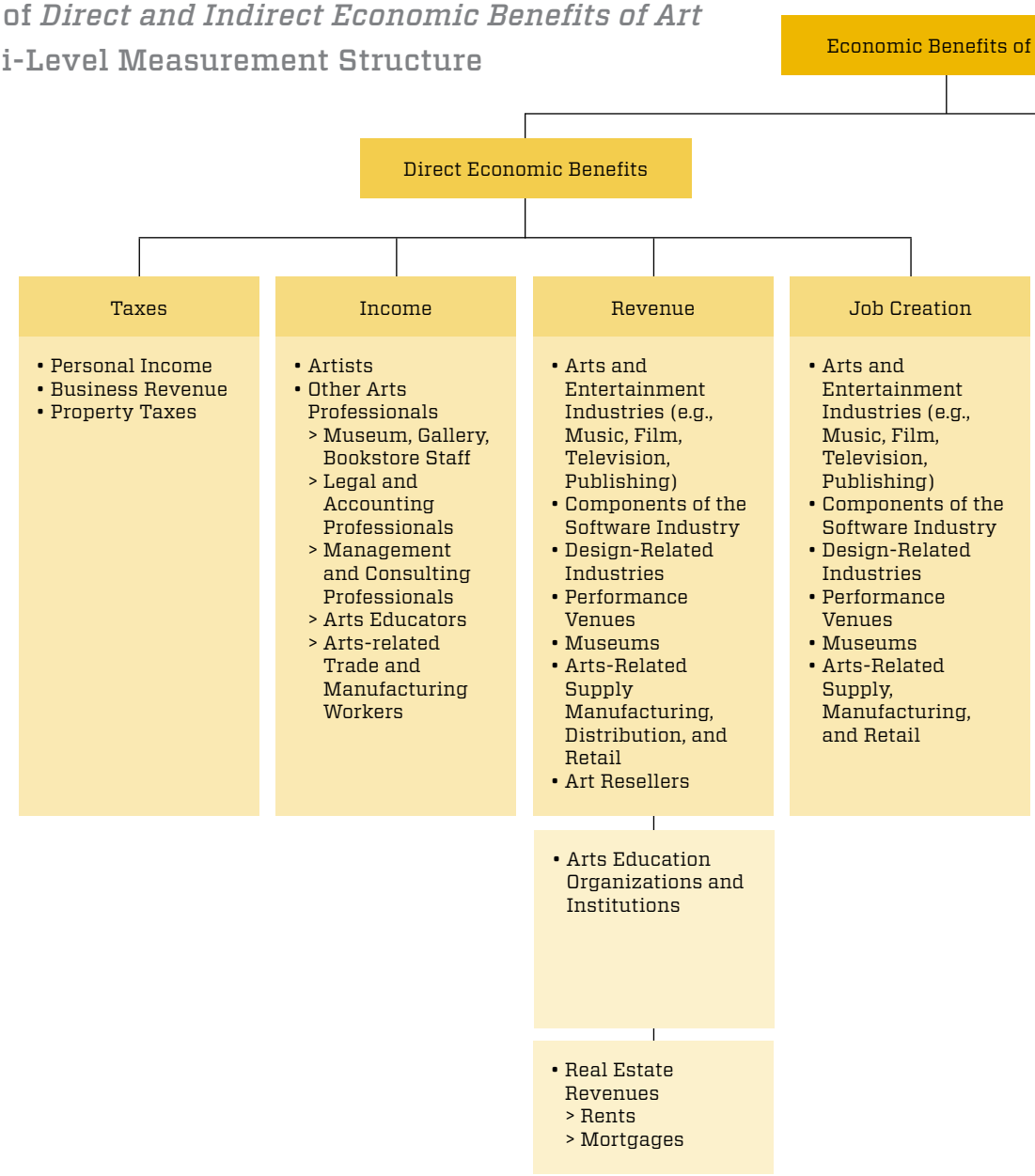


SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available, particularly with respect to elements such as "ambient" art enjoyment.
- There is a need to determine how broadly to define art (e.g., whether or not an audience is needed, whether or not there is an aesthetic standard, who defines what is art, and whether creative intention distinguishes art from personal expression).
- It is difficult to capture emergent art forms (i.e., activities that may not yet recognized as art).
- Context matters in mediating the arts experience.
- Different types of participation may matter more for different individuals or populations.
- There is a need to avoid the fallacy of treatment (e.g., that all forms of arts participation produce the same effects).[8]
- There is a need to avoid the fallacy of linearity (e.g., the assumption that more arts participation leads to greater effect).[9]

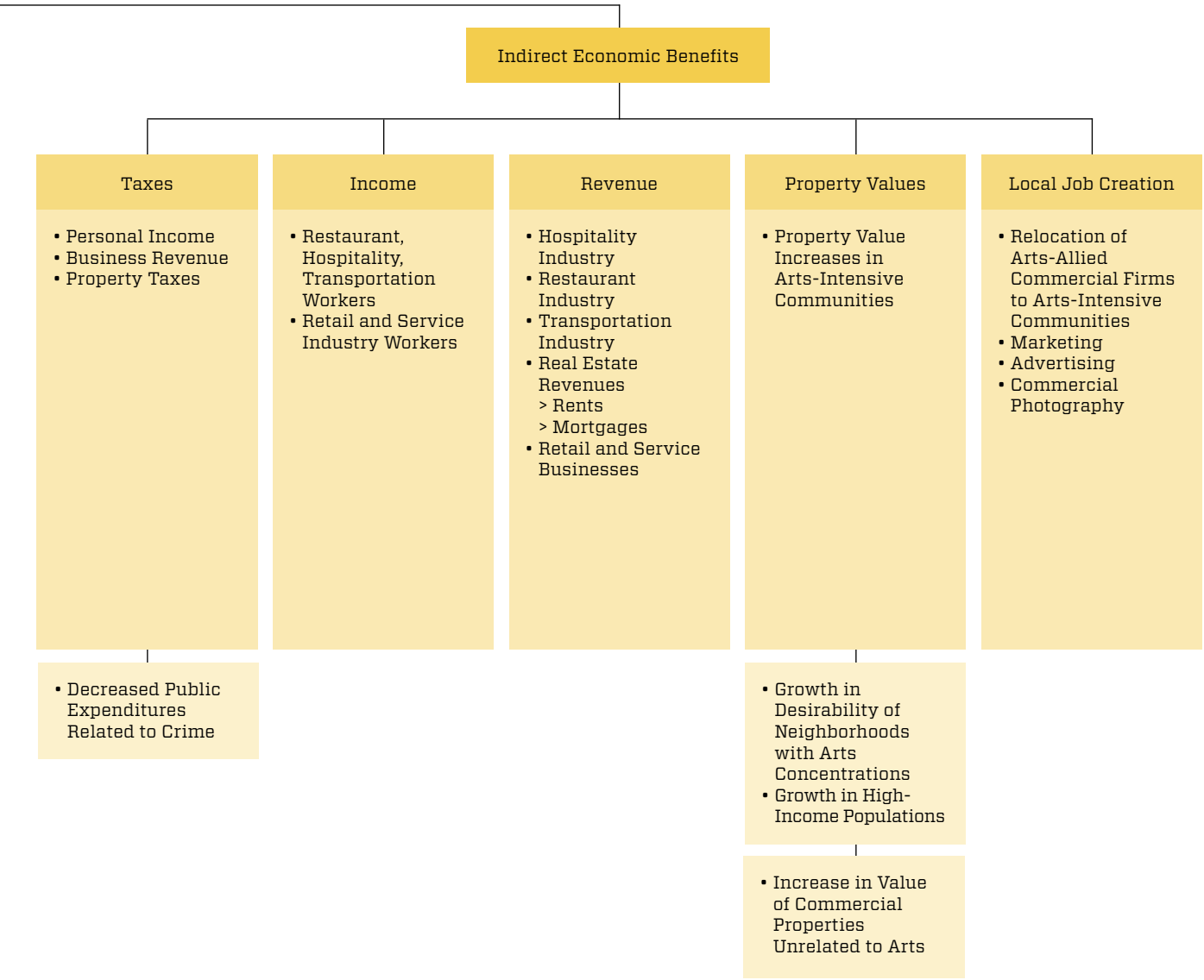
ILLUSTRATION 8

Example of *Direct and Indirect Economic Benefits of Art* as a Multi-Level Measurement Structure



SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available, particularly with respect to indirect benefits.
- Measuring "money" has some distinct and significant challenges. For instance, it is challenging to separate the flow of new money from the redistribution of money within a community (such as a city). Determining whether increased arts participation is inducing new demand (thus, new money) or is the reallocation of existing demand (less money spent on alternatives so more can be spent on participation) requires sophisticated research techniques and controls.
- It is important to ensure that economic benefit variables are distinct from variables of *Arts Infrastructure* and *Benefit of Art to Society and Communities,* since they could be defined in ways that overlap. For instance, should individual donations

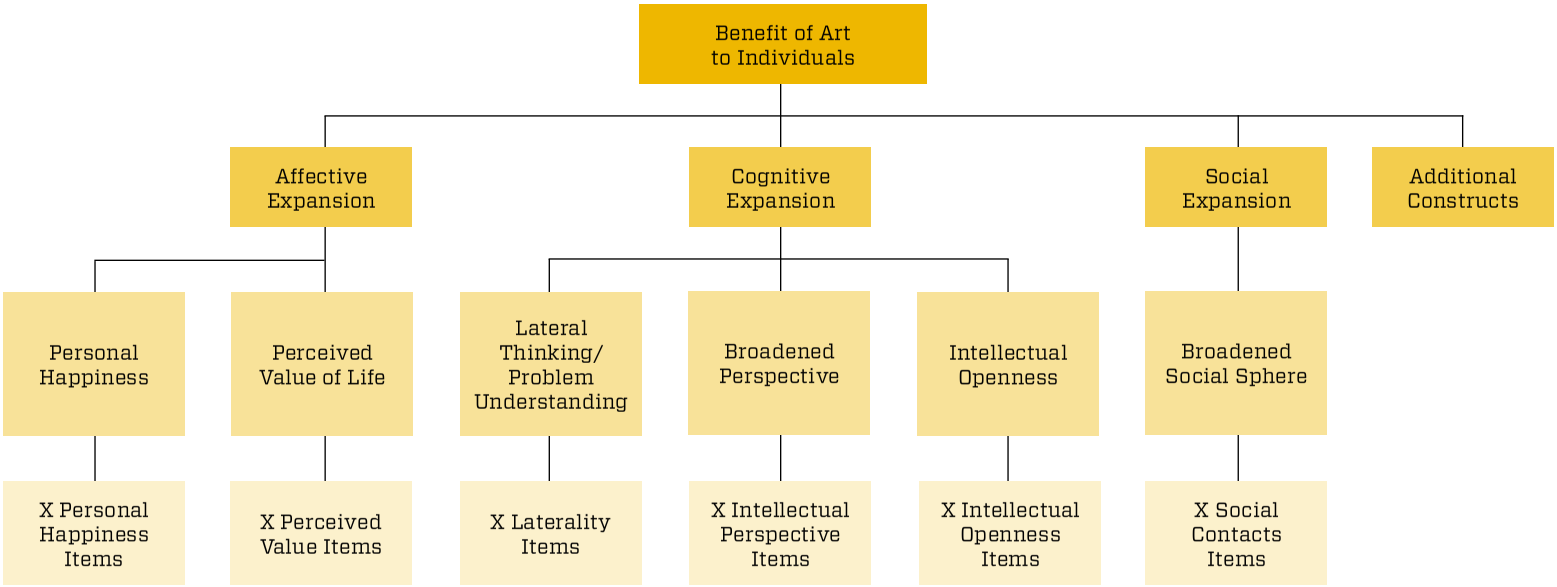


to a museum from people living outside the area be considered economic development, even though those donations may go to support the construction of new buildings?

- It is difficult to capture time lag effects in the creation of economic value, particularly in terms of indirect benefits. What are the long-term, residual benefits of arts-inspired urban development? And, once new businesses and new residents have moved in and are established, how much of current economic activity can be rightly attributed back to the original development?
- Impact may depend on the type of art and arts participation.
- It will be difficult to determine whether the arts' impact is unique.
- Arts economics studies have traditionally over-focused on metropolitan areas.[10]
- There is a need to define which industries get counted, as part of the economic value of the arts, within federal statistical systems.

ILLUSTRATION 9

Example of *Benefit of Art to Individuals* as a Multi-Level Measurement Structure



SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available, particularly by way of longitudinal assessments of the impacts of art on neurological and motor skill development, creative processes, socialization, critical thinking skills, and illness and disability.[11]
- Impact may depend on type of art and type and frequency of arts participation.
- It may difficult to capture the diffuse and "shallow" effects of a limited but meaningful engagement with art.
- There is a distributional issue, in that a smaller number of people may be very engaged and affected, while a large number may be less affected.
- Some impacts may be more relevant for particular subgroups (e.g., young people).
- Individual responses to art are subjective (e.g., one person may be greatly moved while another remains unmoved).
- It may be difficult to disentangle impacts from other activities in a person's life.
- Consequences can be too removed in space and time for reliable and efficient measurements of cause and effect.
- Impact of arts exposure is influenced by, among other factors, context, relevance, and psychological state.[12]
- There is a need to avoid the fallacy of homogeneity (e.g., that the arts will have the same effects on different types of participants).[13]
- It may be difficult to capture time lag effects.
- It would be ideal to capture the art's benefits relative to exposure to other activities.

Initial Construct of First-Order Outcome Variables

Direct and Indirect Economic Benefits of Art

INITIAL DEFINITION

This node refers to both the direct income derived from the arts (e.g., the price paid for an arts experience or artifact) and the indirect financial returns of the arts (e.g., spending on food, lodgings, and travel that might be associated with going to an arts event). In this context, "benefit" is a neutral word. There can be positive benefit—an artist makes a reasonable income—and there can be negative benefit, such as when an artist cannot support herself because of small or diminishing economic returns, or when someone instead of the artist profits from the artwork at a disproportionate level.

ISSUES TO EXPLORE IN VARIABLE CREATION

To create variables using this definition, it is necessary at minimum to determine:

1) How to define direct and indirect benefits;
2) How in particular to capture indirect benefits; and
3) Which industries and occupations to include.

The categories listed in the sample measurement structure (Illustration 8) begin with the distinction of direct and indirect benefits. This distinction reflects the strength of connection to arts activity. For example, rental income from an artist's studio or a theater space is a direct effect, while rental income from an arts-district restaurant is indirect.

From this distinction we have derived broad categories of effects, using "income" to denote personal financial benefit and "revenue" to describe dollars flowing to companies and organizations. The difference is somewhat artificial, since most income is paid via salaries, but it is necessary to isolate wage growth from business expansion. Many other forms of economic value occur in both direct and indirect forms, including tax benefits that are derived from nearly every source of direct and indirect value. Similarly, job creation is a direct effect if a staff position is created at a gallery or music venue, but an indirect effect if a restaurant adds staff to accommodate crowds.

There may be multiple degrees of indirectness. For example, hospitality industry effects are a first order of indirect effects (e.g., restaurants and hotels serve visitors to arts destinations). But it may be that industries not engaged in the arts, but which frequently make use of personnel with arts training, relocate to arts-intensive communities to take advantage of a skilled labor pool. Marketing and design firms, advertising agencies, and software companies produce non-arts products but can make use of staff with arts training. This possibility is flagged by the construct "Local Job Creation." Any final measure will require a determination of how inclusive we want to be in capturing indirect effects.

There may also be other components in the final creation of any economic-benefit-of-arts variable. For additional examples of how *Economic Benefits of Art* variables might be defined, please see a selection of relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html. Further research could also draw from broader economics and community development literatures.

Benefit of Art to Individuals

INITIAL DEFINITION

Benefit of Art to Individuals refers to the cognitive, emotional, behavioral, and physiological effects that arts participation can produce in individuals, including transformations in thinking, social skills, and character development over time.

ISSUES TO EXPLORE IN VARIABLE CREATION

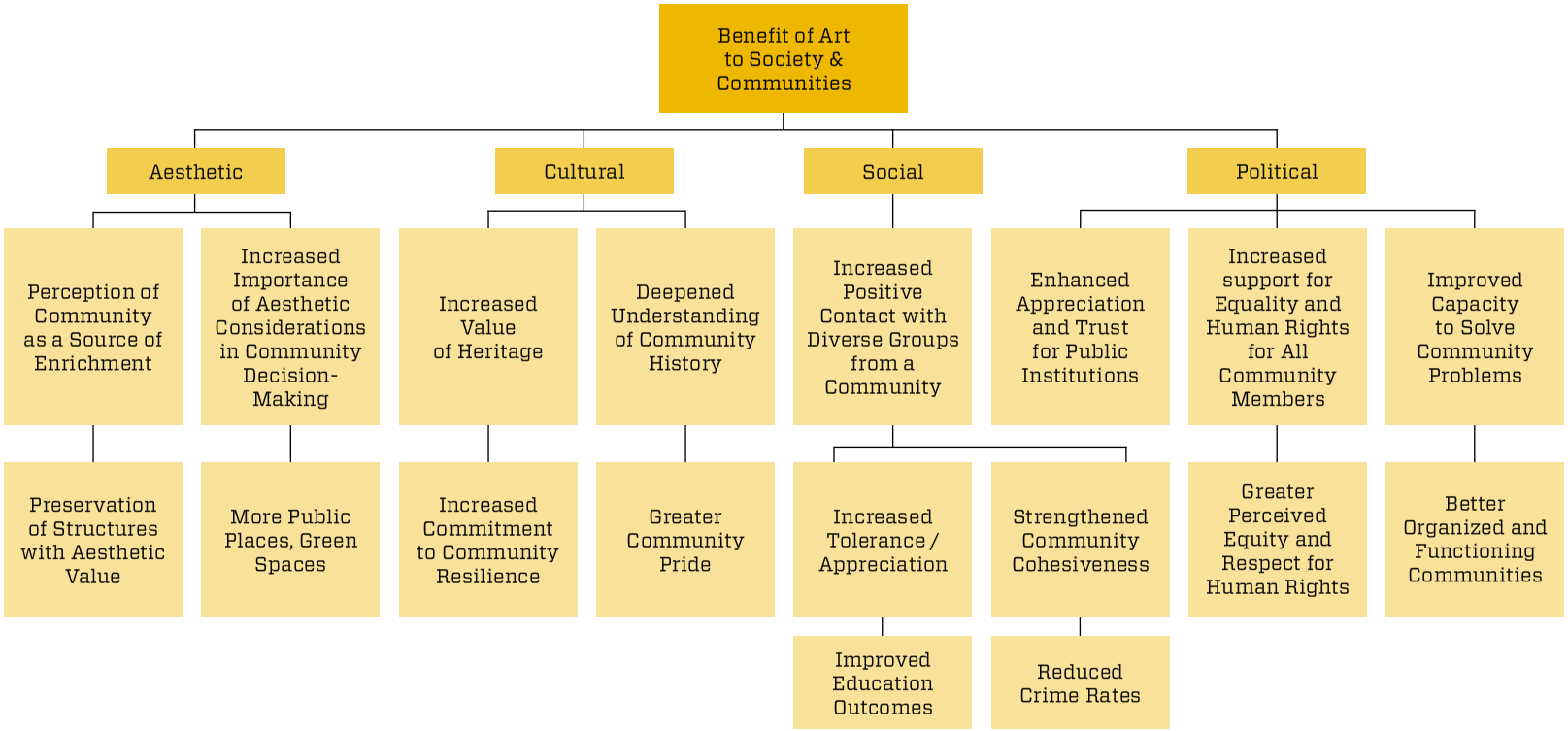
To create a variable using this definition, it is necessary at minimum to determine:

1) What broad categories of individual impact to include;
2) How to measure elements such as aesthetic sensibility, spirituality, and disposition; and
3) Whether to differentiate between the impact on children and adults.

In current literature on the arts' impacts, multiple models seek to identify benefits to individuals. The sample measurement model (Illustration 9) identifies only a few of the potential variables for illustrative purposes. Most of the existing models have significant overlaps and/or slight variations of core concepts. Empirical studies will be needed to determine which factors are most measurable and hold unique variance.

ILLUSTRATION 10

Example of *Benefit of Art to Society and Communities* as a Multi-Level Measurement Structure



SOME DEFINITIONAL QUESTIONS AND METHODOLOGICAL CHALLENGES

- There may be insufficient data available, particularly with respect to broad livability elements.
- It may be difficult to determine whether art's impact is unique, particularly given the general social benefit associated with activities that bring people together.[15]
- It may be difficult to capture time lag effects.
- There is a need to differentiate elements from indicators of *Arts Infrastructure* (e.g., arts volunteers, or outdoor venues where arts performances can occur).
- The "social" column of this structure may overlap with the "cognitive expansion" and "social expansion" columns of the *Benefit of Art to Individuals* structure.
- There is a need to avoid the fallacy of homogeneity (e.g., that the arts will have the same effects in different types of communities).[16]
- Studies have traditionally over-focused on metropolitan areas.[17]
- It may be important to assess relative effects compared to other spending.[18]
- Impact may depend on the type of art and type of arts participation.
- More diverse communities may be a source of creativity or the result of creative activities.[19]
- It would be ideal to have longitudinal data.[20]

This sample measurement structure identifies a series of personal characteristics or cognitive states that are frequently cited as elements of a high-quality life. We have focused primarily on internal and social qualities rather than material elements of life-quality, reflecting our view that an arts-sensitive definition of life-quality will be more internal than external. The elements that compose benefit to individuals are not only largely internal; they address a series of psychological constructs that have not been well-established as discrete concepts. Consequently, a key requirement of early research will be developing validation for the variables that are selected.

For additional examples of how a *Benefit of Art to Individuals* variable might be defined, please see a selection of relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html. Further research could also draw from broader cognitive science, child development, social psychology, and quality-of-life literatures.

Benefit of Art to Society and Communities

INITIAL DEFINITION

Benefit of Art to Society and Communities refers to the role that art plays as an agent of cultural vitality, a contributor to sense of place and sense of belonging, a vehicle for transfer of values and ideals, and a promoter of political dialogue.[14]

ISSUES TO EXPLORE IN VARIABLE CREATION

To create variables using this definition, it is necessary at minimum to determine:

1) What elements to include in community benefits;
2) How to define a community; and
3) How to capture heightened social interaction.

The categories listed in the sample measurement structure (Illustration 10) draw from the range of existing constructs hypothesizing benefits of the arts to communities. Some of these indicators can be assessed via community-level variables such as crime rates or educational outcomes. Others—such as cultural and political benefits—must be distinguished from individual-level outcomes so that they are distinct from variables in the *Benefit of Art to Individuals* node.

(In the system map, outcome variables are portrayed as distinct from one another. While this choice has value for comprehending the key elements of the system, some of the map's components may, in practice, be tough to differentiate. Economic and community benefits, for example, interact in complex ways that challenge simple isolation. Therefore, it is worth acknowledging here that the system map depicts components as more distinct than they are when observed in detail.)

The measurement model posits four broad value dimensions of the arts for communities:

1) Communities develop a shared aesthetic appreciation for the character of their place, which assists community decision-making by providing a common frame of aesthetic value;
2) Communities value the shared heritage of their citizenry and value the complex interrelationships among groups of all types;
3) Communities facilitate interaction among people of diverse experiences; and
4) Community members often work cooperatively to solve problems, moved in part by a desire to maintain and improve the aesthetic, cultural, and social value of their shared space.

The system map hypothesizes that arts engagement enhances these qualities.

For additional examples of how a *Benefit of Art to Society and Communities* variable might be defined, please see the relevant studies listed in the corresponding section of Appendix A, online: arts.gov/research/How-Art-Works/index.html. Further research could also draw from the broader community development and political science literatures.

Initial Construct of Second-Order Outcome Variable: A Work in Progress

Societal Capacities to Innovate and to Express Ideas

INITIAL DEFINITION

Societal Capacities to Innovate and to Express Ideas refers to the capacities of community members to "develop, design, or create new applications, ideas, relationships, systems, or products"—individually and collectively.[21]

ISSUES TO EXPLORE IN VARIABLE CREATION

Societal Capacities to Innovate and to Express Ideas is the least developed of the nodes in the *How Art Works* system map. The experts we assembled agreed on the need for a construct that represents creative energy at a community or societal level. They suggested that variations in a society's capacity to innovate and to express seem observable, and that a higher-order construct might capture this insight. They also held to the belief that the development of the capacity to express is linked with and contributes to a fundamental freedom: our right to express ourselves. This freedom requires certain individual- and community-level attitudes that are facilitated by the arts—for example, the courage to express oneself and a tolerance and even an appetite for new ideas, forms, and outlets for creative expression. As with many abstract constructs, however, arriving at a uniform definition proved difficult. In the course of our work we found that other researchers also have attempted to define and operationalize this capacity, but in our view none has succeeded completely, and there is currently no consensus in the field.[22] Thus, further exploration of the concept remains a future assignment.

Despite definitional issues, there was broad agreement that this capacity is distinct from "generativity" (e.g., revenue earned from sales of a creative product). Therefore, this node currently reflects the potential for creative action, not actual expression (which is found in the attendant nodes *Outlets for Creative Expression* and *New Forms of Self-Expression*) or actual production of economic value (which is covered by the *Direct and Indirect Economic Benefits of Art* node).

Acknowledging this uncertainty, we have chosen not to provide a multilevel measurement structure for *Societal Capacities to Innovate and to Express Ideas,* though perhaps others will explore doing so by leveraging what is known about creative thinking throughout human history. A plausible resource is Steven Johnson's book *Where Good Ideas Come From,* in which the author examines environments that foster the development of "good" ideas that push our careers, our lives, our society, and our culture forward, drawing on subjects as disparate as neurobiology and popular culture. (Johnson identifies population density, access to information, opportunity for nurturing slow hunches, serendipity, acceptance of error, opportunity for exaptation, and presence of layered platforms as elements of innovative environments.) Johnson's ideas express much within the core of notion of *Societal Capacities to Innovate and to Express,* although his work more directly addresses personal creativity rather than a community concept. Nevertheless, Johnson's ideas may offer a reasonable starting point for further efforts to define a social construct of this node and to create a measurement structure for it.

Notes

[7] A measurement structure for each node can be developed and validated by one or more methods. There are both theory-driven and data-driven techniques available for developing variables. In a theory-driven approach, theories are used to identify the elements of any measurement model. In a data-driven approach, pilot data are collected and the elements of the model are selected based largely on statistical criteria. In general, theory-driven models are more powerful because they provide more opportunities for confirmation and rejection. However, arts engagement theory does not seem established enough to rely solely on a theory-driven approach. Thus, we would suggest that the literature be employed to construct initial measurements, but that final research constructs be determined by statistical means.

[8] See McCarthy et al., *Gifts of the Muse,* Santa Monica, CA: RAND Research in the Arts (2004), citing DiMaggio.

[9] Ibid.

[10] See McCarthy et al. (2004).

[11] This assessment of data gaps comes partly from the 2011 white paper *The Arts and Human Development: Framing A Research Agenda for The Arts, Lifelong Learning, and Individual Well-Being,* by the National Endowment for the Arts and the U.S. Department of Health and Human Services.

[12] See Brown and Novak, "Assessing the Intrinsic Impacts of a Live Performance," WolfBrown (2007).

[13] See McCarthy et al. (2004), citing DiMaggio.

[14] Access and participation in cultural activities can also be viewed as an indicator of fairness and social equity. See Aotearo, "Cultural Indicators for New Zealand," Statistics NZ (2006).

[15] See McCarthy et al. (2004).

[16] See McCarthy et al. (2004), citing DiMaggio.

[17] See McCarthy et al. (2004).

[18] Ibid.

[19] See Stern and Seifert, "Cultivating 'Natural' Cultural Districts," The Reinvestment Fund (2007).

[20] See McCarthy et al. (2004).

[21] The definition of this term comes from literature on creative capacity, specifically from McGranahan and Wojan's (2007) characterization of "thinking creatively," which they used to elaborate their understanding of "creative class." For the present purpose, it is the concept of creative thinking rather than any specific occupational assignment that is most relevant.

[22] For example, Florida (2003) situates the creative capabilities of a community in individuals whose work creates meaningful new forms and in creative professionals who work in knowledge-intensive industries. For Florida, members of the creative class share common values of creativity, individuality, difference, and merit. A Creativity Index can be measured through elements such as the percentage of the creative class out of a total workforce, amount of high-tech industry, patents per capita and a measure of diversity. In contrast to Florida's work, Hoyman and Faricy (2009) found that human capital predicts economic growth and development, while social capital predicts average wage growth. McGranahan and Wojan (2007) call upon a slight redefinition of creative class in their assessment of creative capacity in rural areas, since Florida's definition maps to virtually all occupations that require a high level of schooling. McGranahan and Wojan instead include occupations that involve "thinking creatively," defined as "developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions" (p. 5). Markusen et al. (2006) avoid the term "creative class" entirely and focus instead on the presence of cultural industries and occupations: those involved in the production of texts and symbols for a society.

SECTION FOUR

PLOTTING A RESEARCH AGENDA ON THE MAP

Overview and Key Assumptions

So far, we have closely examined one potential model of how art works. We have reviewed inputs to the model, we have placed arts participation (inclusive of arts creation) at the model's center, and we have described a series of first-order outcomes reflecting quality of life for individuals and communities. Further downstream, we have theorized about second-order, "broader societal impacts" that involve capacities for creativity, innovation, and self-expression beyond the arts.

In the preceding chapter, we unpacked the variables that make up the central nodes of our system map: variables related to arts infrastructure and education/training; to arts participation; and to individual and community-level benefits. Our aim now is to determine which parts of the system map align with the NEA's current research priorities, and how the map can guide the agency's future research directions.

This exercise is not purely speculative. In the Arts Endowment's strategic plan for fiscal years 2012–2016, the agency pledged to develop a five-year Research Agenda with annual milestones. The NEA's Office of Research & Analysis (ORA) consequently has drafted a framework for establishing research priorities on a yearly basis. This framework aligns with the NEA's strategic goal to *Promote Public Knowledge and Understanding about the Contributions of the Arts* so that, as a direct outcome, *Evidence of the Value and Impact of the Arts is Expanded and Promoted.*

The framework for the NEA's Research Agenda hinges, therefore, on an understanding of two key terms as they pertain to evidence about the arts: "value" and "impact." ORA distinguishes between these terms in the following manner.

Evidence of the arts' value: Descriptive information, primarily statistical, that measures or clarifies factors, characteristics, and conditions of the U.S. arts ecosystem—specifically as they relate to four components:

- Arts Participants and Arts Learners
- Artists and Arts Workers
- Arts Organizations and Arts Industries
- Arts Funders and Arts Volunteers

Evidence of the arts' impact: Quantitative and/or qualitative research data that measure or clarify the benefits of the arts to other domains of American life, including:

- Health and Well-Being
- Cognitive Capacity, Learning, and Creativity
- Community Livability
- Economic Prosperity

As another dimension of the NEA's Research Agenda framework, ORA has identified three overarching goals to guide the unit's annual priority-setting process for research project selection. These goals are:

1) Identify and cultivate new and existing data sources in the arts.

2) Investigate the value of the U.S. arts ecosystem and the impact of the arts on other domains of American life.

3) Elevate the public profile of arts-related research.[23]

These goals are not mutually exclusive. For example, one can imagine a brand-new data source emerging as a byproduct of a study that seeks to explore a particular variable of the U.S. arts ecosystem—just as one inadvertently may "elevate the public profile of arts-related research" through creation of a new dataset. The important point, however, is that ORA has established key objectives for these goals as part of its Research Agenda framework, which will guide ORA's annual priority-setting process.

Collectively, the goals can be viewed as a self-reinforcing feedback loop. High-quality, relevant data sources are a prerequisite for meaningful research to investigate arts topics. New datasets will build capacity among researchers in the field while inspiring scholars from other disciplines to participate in arts-related research. And findings from studies about the arts' value and impact will be distributed widely, to broaden and deepen public engagement with arts-related research questions.

Finding Previous NEA Research on the Map

Now we return to the system map (Illustration 1) from earlier in the document.

Even a cursory review of a list of research publications that the NEA has issued over the past few decades—see arts.gov/research—will reveal that much of the agency's research efforts to date have focused on measuring key variables within the system's "inputs" (*Arts Infrastructure* or *Education and Training*) or within the *Arts Participation* node (inclusive of *Arts Creation*). NEA research also has explored the relationships—indicated on the map by arrows—between the inputs and the central node.

Examples of past NEA research publications that have explored variables of *Arts Infrastructure* are plentiful. They include studies of artists and arts workers, but also arts organizations, arts funders, and even the arts volunteer sector. There are fewer examples of NEA studies focusing on *Education and Training,* though some notable publications have examined trends in exposure to arts education. More common are NEA studies reporting data about *Arts Participation* and *Arts Creation*. These reports stem from the NEA's Survey of Public Participation in the Arts (SPPA), a large, cross-sectional survey of the nation's adults that the U.S. Census Bureau has conducted periodically since 1982.

As noted, there even have been NEA studies that describe the relationship of *Arts Infrastructure* and/or *Education and Training* to *Arts Participation*. Examples include research publications about the comparative role of venues (e.g., formal or non-formal) to arts-going, and studies about the relationship of literacy skills to the frequency of reading literary works. But perhaps the most conspicuous of these types of studies are reports establishing arts education as a significant predictor of arts participation later in life.

Let's move to the first-order outcomes of arts participation, shown at the bottom of the system map. Historically, the proportion of NEA research devoted to these two distinct but clearly interrelated nodes has been slim indeed.

To be sure, recent years have seen growth in this area, via NEA reports on the links between arts participation and civic engagement (which may be regarded as research on the *Benefit of Art to Society and Communities*), or via NEA research on the positive academic and social outcomes associated with arts engagement among at-risk youth (which may be regarded as research on the *Benefit of Art to Individuals*). Still, there is limited NEA research available about causal inferences that might be drawn from those relationships.

Now see Section Three, Illustration 3, for an "expanded" system map of *How Art Works*. In this depiction, there is an additional first-order outcome of arts participation—namely, the *Direct and Indirect Economic Benefits of Art*. (These benefits fall within the *Benefit of Art to Society and Communities* node in the simpler version of the map.) The NEA has a strong track record of reporting direct economic benefits from the arts. This research typically has been based on reports from the U.S. Bureau of Economic Analysis, Department of Commerce, that show the arts' contribution to Gross Domestic Product for a limited range of industries. As will be seen presently, this reporting capacity could improve substantially in the next few years, as a result of the NEA's Research Agenda.

Stepping back and viewing the system map as a whole, we perceive a research gap associated with the nodes and relationships on the left side of the map: *Societal Capacities to Innovate and to Express Ideas,* and, in the expanded version of the map, *New Forms of Self-Expression* and *Outlets for Creative Expression*.

This deficit is not surprising. As stated earlier in the document, these "second-order" outcomes still require clearer definitions of terms and differentiation of key variables. For researchers, these nodes are signposts. They mark a vast unsettled terrain—a "Wild West" that will yield to only the most intrepid explorers. And yet, over the long term, it ultimately may hold the most promise and profit for those seeking to measure arts-related impacts.

From System Map to Road Map

Although the majority of the NEA's past research has focused on the input variables, intervening variables, and first-order outcomes—as shown on the system map—it is again worth noting that much remains to be done in improving our measurement capacity for these nodes and their relationships. As shown in Section Three, each of these nodes suggests a "multi-level measurement structure" with attendant "definitional questions and methodological challenges."

Because of sizeable advances in clarifying these issues over the last several years, moreover, the

rewards of short- and near-term investments likely will prove greater and more immediate than for research on second-order outcomes. Accordingly, most of the NEA's research agenda for the next five years will continue to focus on arts infrastructure, education/training, arts participation and creation, and individual and community-level benefits.

The NEA's Office of Research & Analysis has other considerations in making strategic investments. As noted earlier, a primary goal of the office is to *Identify and cultivate new and existing data sources*. Over the next few years, ORA will consolidate large amounts of arts-related data and make them available through user-friendly systems to the public. Although ORA already provides access to raw data and user's manuals for its Survey of Public Participation in the Arts, the office aims to supplement this resource with data and visualizations from other federal, not-for-profit, and industry sources.

Regarding data collection and sharing, the office is uniquely placed to collaborate with federal statistical agencies and with research units elsewhere in the U.S. government. The NEA is a core sponsor agency, along with other federal funders, of the National Academies' Committee on National Statistics. Similarly, in keeping with the NEA's recent history of attracting multiple federal partners for the purpose of serving a broader segment of the population, ORA has forged many research alliances—both formal and informal—with other government agencies. The cultivation of these partnerships will reap many long-term dividends for arts and cultural researchers nationwide.

These investments support the NEA's Research Agenda for FY 2012–2016, given below. They are discussed further in the "Conclusions" section of this report.

NEA Research Agenda by Project Title, Summary, and Placement on the System Map

Below is a list of NEA research projects that were identified in FY 2011 or later as priorities for the five-year period starting in FY 2012. At the end of each project summary, the status of the project ("completed," "planned," or "ongoing") is duly noted.

Each summary also includes one or more symbols to indicate the node/s where the project falls on the system map. (AI = *Arts Infrastructure;* E/T = *Education and Training;* AP/AC = *Arts Participation and Arts Creation;* BAI = *Benefit of Art to Individuals;* BASC = *Benefit of Art to Society and Communities;* DIEBA = *Direct and Indirect Economic Benefits of Art;* and SCIEI = *Societal Capacities to Innovate and to Express Ideas*.) Where multiple symbols are listed for an individual research project, the symbol appearing first in sequence refers to the **primary node** covered by the project.

The project titles are enumerated not necessarily in order of priority or chronology, but mainly so that the accompanying digits can be displayed on the system map illustration to follow. This method enables a visual comparison of the NEA's research priorities by primary node, the results of which comparison might inform project planning in FY 2013 and beyond.

Projects Covering Input Variables

These projects are intended to yield valuable descriptive information primarily about either the Arts Infrastructure *or the* Education and Training *nodes.*

1) ***Artists and Art Workers in the United States:*** Use American Community Survey data to enumerate the nation's artists and to describe their demographic traits, work patterns, and nationwide concentration. Explore links between individual artist occupations and specific industries, and report occupational and industry patterns for workers who obtained arts-related degrees in college. Use a separate data source, the 2010 Quarterly Census of Employment and Wages, to identify state and metropolitan-level concentrations of employment within arts industries. (AI) COMPLETED

2) In-Depth Analysis of Artists in the U.S. Workforce: Provide long-term trend analysis and detailed geographical information (at the state and metro area levels) for 11 distinct artist occupations as captured by American Community Survey data. (AI) PLANNED

3) ***How the United States Funds the Arts:*** Update the NEA's publication about the nation's decentralized approach to financing arts and cultural activities. This publication will use the most recently available statistics from public and private funders and not-for-profit arts organizations. (AI) ONGOING

4) Federal-State Arts Partnership Data Portal: Explore creation of a publicly accessible web portal that displays data and visualizations about activities

undertaken by state arts agencies and regional arts organizations, particularly as a result of the NEA's investments. (AI) ONGOING

5) ***Improving Standards and Assessment in Arts Education:*** Host and webcast a roundtable event that will provide an opportunity for researchers, educators, and policy-makers to consider the implications of a NEA-commissioned nationwide study of arts assessment tools and practices. (E/T) COMPLETED

6) SPPA 2012 Report on Arts Education: Use the 2012 Survey of Public Participation in the Arts to produce analyses about the frequency and types of arts education that American adults engage in, report for their children, and/or recollect from childhood. (E/T) PLANNED

7) Understanding Arts Education Access by School and School District Characteristics: Analyze raw data from the U.S. Department of Education 's 2010 Fast Response Survey of arts education in public schools, in light of contextual variables from the Department's Common Core of Data. (E/T) PLANNED

Projects Covering Intervening Variables

These projects are intended to yield valuable descriptive information about Arts Participation, *inclusive or exclusive of* Arts Creation, *and how this node relates to the input variables.*

8) ***An Average Day in the Arts:*** Report Americans' daily time-use patterns involving arts participation (e.g., performing arts attendance, museum-going, arts/crafts activity, writing for personal interest), based on a state-level analysis of the American Time Use Survey for 2006–2010. (AP/AC) COMPLETED

9) SPPA 2012 First Look, Summary Report, and Monograph Series: Release preliminary findings, followed by a comprehensive summary report and a series of monographs based on the 2012 Survey of Public Participation in the Arts, inclusive of data visualizations for the public and user's guides for researchers. Examine trends in arts participation for various disciplines; report baseline data for new disciplines, methods, or forms of participation; and analyze demographic, geographic, and self-reported preferences and behaviors associated with arts participation. (AP/AC) PLANNED

10) ABS Summary Report: Release report, data visualizations, and a data user's guide based on the NEA's 2013 and 2014 Arts Benchmark Survey (ABS), to be conducted by the U.S. Census Bureau. This short-form questionnaire will collect nationally representative data on adult participation in the arts, inclusive of creation, allowing for capture of U.S. trends in years when the more detailed SPPA is not conducted. (AP/AC) PLANNED

11) GSS Arts Supplement Report and Monograph/s: Release a summary report, one or more monographs, data visualizations, and a data user's guide based on the General Social Survey (GSS) arts supplement, designed by the NEA to inquire about U.S. adults' motivations for attending (or not attending) arts activities. Data from the supplement will be analyzed in combination with other variables from this large, nationally representative household survey. (AP/AC) PLANNED

12) Innovative Practices in Audience Engagement: Conduct a series of case studies profiling innovative methods of audience engagement, based on a sample of NEA grants, likely in the Arts Presenting category. (AP/AC) PLANNED

Projects Covering First-Order Outcome Variables

These projects are intended to yield valuable descriptive information about the Benefit of Art to Individuals, *the* Benefit of Art to Society and Communities, *and the* Direct and Indirect Economic Benefits of Art, *and, where possible, how those nodes relate to the input and/or intervening variables.*

13) Audience Impact Survey: Measure how audiences register cognitive or emotional "affect" to live exhibits, performances, or film festivals in a sample of NEA grant projects. (BAI, AP/AC) ONGOING

14) The Arts and Subjective Well-Being: Commission or conduct an analysis of the arts' relationship to subjective well-being, potentially using national data from Gallup's Healthways Index. (BAI) PLANNED

15) NEA-NIH Literature Review and Gap-Analysis: Collaborate with the National Institutes of Health program officers and librarians, along with other members of the NEA's Interagency Task Force on the Arts and Human Development, to conduct a review and gap-analysis of peer-reviewed literature featuring arts interventions at various stages of human development. Results from this analysis are intended

to guide future research investments by funding agencies. (BAI) ONGOING

16) NEA-NIH-NAS Public Workshop and Paper Series on the Arts and Aging: Collaborate with three National Institutes of Health entities (the National Institute on Aging, the Office of Behavioral & Social Sciences Research, and the National Center for Complementary & Alternative Medicine) and the National Academy of Sciences to produce a workshop on the arts' relationship to health and well-being in older adults. The workshop, and five commissioned papers, will identify research gaps and opportunities for further investment by the funding agencies. (BAI) ONGOING

17) NEA-National Intrepid Center of Excellence Research Partnership: Assist and advise in protocol development for a research study to assess clinical outcomes associated with expressive writing therapy as part of a comprehensive care regimen for warriors experiencing traumatic brain injury, post-traumatic stress, and other psychological illnesses. (BAI) ONGOING

18) National Children's Study Arts/Music Supplement: Collaborate with the National Institutes of Health (National Institute of Child Health & Human Development), the Centers for Disease Control & Prevention, and the Environmental Protection Agency to include variables about arts and, specifically, music exposure in early childhood development, for the purpose of long-term analysis of the impact of this variable on cognitive, emotional, health, and educational outcomes in a longitudinal study population. (BAI,BASC) ONGOING

19) *The Arts and Achievement in At-Risk Youth:* Report on an analysis of arts-related variables from four large datasets—three maintained by the U.S. Department of Education and one by the Department of Labor—to understand the relationship between arts engagement and positive academic and social outcomes in children and young adults of low socioeconomic status. (BAI, BASC) COMPLETED

20) Analysis of Arts Participation Among Children and Families: Explore the strength of the relationship between arts participation in children and families and their reported behavioral outcomes over time, based on the Panel Study of Income Dynamics. (BAI, BASC) ONGOING

21) Health Retirement Study Arts Supplement: Design an arts-related module for inclusion in a longitudinal survey of Americans over 50 years old, to investigate health and well-being variables in relation to creativity and arts participation. (BAI, BASC) PLANNED

22) Randomized, Controlled Trial of Arts Education: Conduct a feasibility study for a randomized, controlled trial investigating the long-term effects of an arts education intervention on a metropolitan-area cohort. (BAI,BASC) PLANNED

23) Arts and Livability Indicators: Design, validate, and publish a set of national indicators that can be used to measure outcomes that align with the goals of creative placemaking projects. Publish a directory of local data sources that can be used to create comparable indicators at the local community level. (BASC) ONGOING

24) American Housing Survey Arts Supplement: Collaborate with the U.S. Department of Housing & Urban Development to explore the design of survey questions—for inclusion on the American Housing Survey—to investigate the role of arts and cultural participation in choosing place of residency, as well as arts/design considerations in home selection and renovation. (BASC) PLANNED

25) Arts and Cultural Production Satellite Account: Work with the Bureau of Economic Analysis, Department of Commerce, to establish a national account of arts and cultural industries, including annual estimates on number of establishments, their employment, compensation, output, and "value added" to Gross Domestic Product. (DIEBA) ONGOING

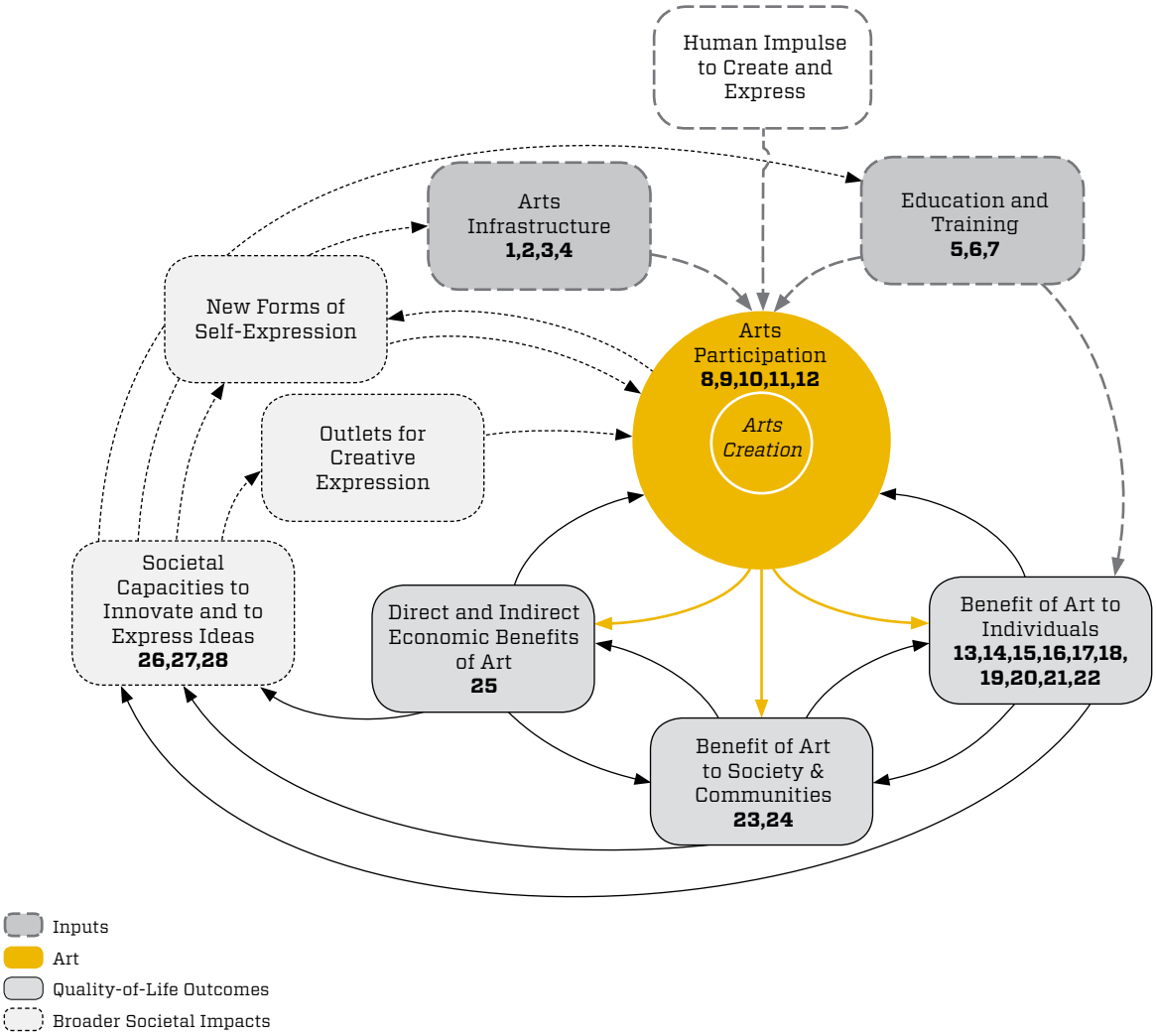
Projects Covering Second-Order Outcome Variables

These projects are intended to yield valuable descriptive information about the Benefit of Art to Societal Capacities to Innovate and to Express Ideas, *and, where possible, how this node relates to the input and/or intervening variables.*

26) *The Arts, New Growth Theory, and Economic Development:* Commission, present, and publish a paper series examining potential applications of endogenous growth theory and other innovative economic models to the study of art's impact. (SCIEI) ONGOING

ILLUSTRATION 11

NEA Research Projects for Fiscal Years 2012–2016, Identified by Primary Node on the *How Art Works* System Map



HOW TO READ THIS MAP

This map is an expanded version of the *How Art Works* system map, also shown in Illustration 3, but with a difference. Most of the nodes contain numbers that are linked to specific projects on the NEA's five-year research agenda. (See the accompanying "NEA Research Agenda by Project Title, Summary, and Placement on the System Map.") If a number appears on a node, then the project associated with that number falls primarily within the domain of inquiry represented by the node.

27) Analysis of Arts Variables in the Rural Establishment Innovation Survey: Examine the potential impact of arts and entertainment options on companies' decisions to locate in a particular community, based on an item proposed by ORA and subsequently included in a U.S. Department of Agriculture survey. (SCIEI) PLANNED

28) Study of Design Patents and Product Innovation: Collaborate with the U.S. Patent & Trademark Office on a research paper exploring the relationship between design and utility patent-holders, with an emphasis on innovative product development. (SCIEI) PLANNED

Projects Covering All Nodes

These projects are intended to build long-term capacity for the field to undertake studies that can enable measurement of any given node and/or its relationship to other nodes. Because the projects do not relate to one node in particular, they do not appear on the system map illustration above.

29) *Research: Art Works:* Adjudicate, recommend for funding, and award grants to support research and analysis to investigate the value of the U.S. arts ecosystem and the impact of the arts on other domains of American life. The NEA will post research findings, methodology, data sources, and where possible, raw data on the agency's website. ONGOING

30) Online Data Repository: Build a data repository with arts-related datasets, visualizations, and research resources for broad public access, including specialized tools for researchers. ONGOING

31) Virtual Research Network: Create or sponsor an online portal and/or listserv that allows arts and cultural researchers to interact and to share working papers, methodological problems and solutions, and data sources, for the purpose of fostering collaborative inquiries about the value and impact of the arts. PLANNED

Analysis

By aligning the Arts Endowment's five-year research priorities with the system map components shown above, the NEA's Office of Research & Analysis (ORA) can achieve a better understanding of how all the items in its portfolio relate to each other conceptually. ORA can track the relative allocation of recent, planned, and current research projects to different nodes on the map of *How Art Works*: the system's inputs, the intervening variables that sit at its center, and its first- and second-order outcomes. Based on results from this ongoing assessment, ORA can take action to fill gaps in its portfolio, or to bring it into balance with emerging needs and realities that affect the system.

An initial review of ORA's research agenda as it fits on the map suggests at least four points for discussion and potential action:

- For volume of research projects per node, *Arts Participation* (inclusive of *Arts Creation*) and *Benefit of Art to Individuals* each claim the largest share. This fact reflects the NEA's programmatic emphasis on the values of creativity, arts engagement, and the arts' relationship to quality of life—but it is also a function of available data sources and opportunities for data collection. Most projects on these nodes, or on the *Arts Infrastructure* and *Education and Training* nodes, are made possible only by historical data collections (e.g., the SPPA) or new or planned surveys (e.g., the National Children's Study).

  For example, with *Direct and Indirect Economic Benefits of Art* and *Benefit of Art to Society and Communities,* there is a clear need to build national time-series (preferably longitudinal) data collections including arts variables. This need could be partly met by ORA's project #25, "Arts and Cultural Production Satellite Account," which may produce time-series data on the value added to the U.S. GDP by arts and cultural industries. Availability of such data may fuel additional research projects to populate that node.
- The detailed component variables of the system map—as presented in Section Three of this report—warrant further analysis for the purpose of developing a comprehensive measurement model of the arts as a system. Rather than attempt to construct and validate those variables node by node, the NEA's Office of Research & Analysis likely will consult the model throughout the five-year agenda period so that any advances in measurement may be reached in the context of individual research projects. Similarly, the impacts of various "system multipliers" (see Section Two) may be tracked on a periodic basis.

- ORA will need to determine the extent to which it can plan studies within a five-year period to address the nodes of *Outlets for Creative Expression, New Forms of Self-Expression,* and, though technically a catalyst of the system itself, *Human Impulse to Create and Express*. (In the latter category, for example, one envisions research of an anthropological bent, perhaps through textual analysis, case histories, or observational studies that clarify primal links between human communication and creativity.) A reasonable approach might be to lodge these concepts in the broader dialectic of the arts research community, so that new hypotheses, research questions, populations, data sources, and methods might be proposed by groups outside the NEA.
- For long-term planning and evaluation of resources, it may be worth establishing a hierarchy among the projects represented on the arrows, by distinguishing among projects that attempt to posit or test correlations between the nodes, and those which seek to establish cause-and-effect relationships, especially since the latter types of projects are traditionally scarce within the arts research field.

Conclusions

The theory-based system map and measurement model in this report will lead to greater reflection and more deliberate planning within the NEA's Office of Research & Analysis. Beyond this outcome, the report invites researchers, practitioners, and policymakers in the arts and in other sectors to examine the constructs and definitions used, and to question the choices made in including or excluding certain variables. The map may even generate alternative hypotheses or measurement models that can be tested alongside those in the report. The net results of such inquiries would strengthen the field of arts research as a whole, and, secondarily, would inform policy and practice with more relevant and meaningful data.

For now, the system map offers a platform not only for the NEA's own research and measurement activity, but also for other public and private stakeholders who may see fit to tackle one or more of the definitional or methodological challenges raised by the report.

It is unlikely that any single agency or organization can set into motion all the processes needed to elaborate the system map's variables and their relationships for the purpose of measurement. But if something like a consensus might emerge among arts researchers, for understanding at least a portion of the map, then perhaps more fruitful collaborations would arise. There would be more targeted research investments, reducing duplicative effort and avoiding the dissonance that sometimes occurs in the field when one seeks to describe the arts' impacts, let alone measure them.

A side benefit of producing this report was taking stock of the growth and accomplishments of the arts research community over the past few decades. The NEA's Office of Research & Analysis aims to build on that impressive body of knowledge while inspiring a new generation of research into the characteristics and contributions of art in American life. From its perch within the U.S. government, the office is poised to advance this work on two frontiers: by throwing a spotlight on large national datasets that may hold value for arts research; and by establishing strategic ties with other federal agencies.

- ***Large national datasets:*** The advent of "big data" provides researchers and policy-makers with a means for supplementing, or even supplanting, traditional survey data. Although many of those opportunities involve use of commercial, transactional data, they also reside in government and not-for-profit sectors, through detailed administrative records.

  Systematic access to such data is staggering to contemplate, and is attended, in some cases, by unresolved issues of privacy and confidentiality. Also, as noted frequently by Robert Groves, former director of the U.S. Census Bureau and current provost of Georgetown University, there are tradeoffs in quality and cost that must be negotiated, particularly by social scientists who have grown accustomed to working with rigorous data quality standards.[24] Yet one would be short-sighted not to explore these possibilities with respect to information about, say, arts participation. In this respect, the arts may be an ideal domain of inquiry, given the prevalence of creativity and self-expression on technological platforms for which commercial data exist.

  Over the period of its research agenda, the NEA's Office of Research & Analysis has committed to make available public datasets and user's

guides—along with the results of analyses—for the large, nationally representative surveys it conducts. The office also will house a data repository that will enable researchers to search for arts variables across a wide range of publicly accessible data and to perform basic analyses and visualizations. It is likely that the repository will include the NEA's own grants data, where applicable, as well as links to research papers resulting from NEA research grants. Those awards support projects that seek to mine secondary data sources for evidence of the arts' value and impact.

- ***Strategic ties with other federal agencies:*** If the NEA is to be successful in promoting public-private partnerships in arts research and in encouraging multidisciplinary research collaborations, then the agency should start close to home. Over the last few years, accordingly, the NEA's Office of Research & Analysis (ORA) has reached out to other federal departments, agencies, offices, and divisions to identify mutual areas of interest and to make available arts-related research information to a broader group of stakeholders than it might have done alone.

  For example, ORA has engaged with the U.S. Census Bureau on two distinct surveys as a supplement to existing data collections. Also regarding data access and availability, ORA has worked with the Bureau of Economic Analysis (Commerce Department) and the Bureau of Labor Statistics (Department of Labor). And the office has teamed formally and informally with the National Science Foundation in projects ranging from inclusion of arts-related questions on a national survey to the public presentation of research about music learning and improved cognitive ability.

  Among the office's most significant accomplishments, by way of federal partnerships, is the creation of an Interagency Task Force on the Arts and Human Development, representing 14 federal entities such as the U.S. Department of Health and Human Services, the National Institutes of Health, the Institute of Museum & Library Services, and the U.S. Department of Education. As one of their first projects, Task Force members cosponsored a public workshop with the National Academy of Sciences, whose National Research Council commissioned papers exploring the relationship between the arts and health and well-being in older Americans.

  Similarly, the office is taking part in protocol development for the National Children's Study—a joint initiative by NIH and the Centers for Disease Control & Prevention and the Environmental Protection Agency—and protocol development for research to validate arts therapy at the National Intrepid Center of Excellence at the Walter Reed National Military Medical Center. In the future, ORA aims to collaborate with researchers at the U.S. Department of Housing and Urban Development to understand the arts' potential role in a series of metrics for livable communities.

These examples give a taste of the complex resource requirements for a sustainable research program in the arts, one that can make demonstrable progress over the next five years in spurring high-quality proposals to study the arts' value and impact. No map or blueprint can show the way entirely. At best it can function like a jazz musician's score: performance will depend partly on skills of interpretation, and partly on gifted improvisation along the way. Yet, with any luck, some of the concepts and research questions throughout this report may in time become "standards," sparking original contributions from a growing ensemble of players. Together, we can bring new talent and resources to answer age-old questions about the arts and their importance to quality of life.

Notes

[23] As a unit, the NEA's Office of Research & Analysis has a fourth goal: "Evaluate the administration of NEA programs for impact and effectiveness." These reviews occur as part of an annual performance measurement plan that informs the NEA's Performance & Accountability (PAR) report to the White House Office of Management & Budget, Congress, and the American public. In addition, ORA routinely conducts grants portfolio reviews to inform agency decision-making. The unit also responds to periodic requests, from leadership, to assess the performance of a specific NEA division, program, or initiative.

[24] "Census Chief Robert Groves: We've Got to Stop Counting Like This," *Washington Post,* Aug. 5, 2012

THE NEA'S INAUGURAL RESEARCH GRANTS PORTFOLIO

Since the establishment of a research program at the National Endowment for the Arts in 1975, the agency has relied mainly on staff expertise and contractors to conduct studies on the arts. In 2011, for the first time, the NEA's Office of Research & Analysis announced a competitive grants opportunity for research proposals that will mine secondary datasets for information about the arts' value and/or impact. Under *Research: Art Works,* 14 grant awards were made in 2012, totaling nearly $250,000. Below is the list of funded projects. As with the list of FY 2012–2016 Research Agenda projects shown earlier in this section, the FY 2012 *Research: Art Works* project descriptions appear with symbols (in parenthesis) reflecting particular "nodes" on the *How Art Works* system map.

Guidelines for FY 2013 research grant applications are available at nea.gov/grants/apply/Research/index.html. The application deadline is Nov. 6, 2012.

Brown University
PROVIDENCE, RI
To support a study to identify the long-term social and cognitive impacts on children and teenagers who received music training. The research will examine results from a 50-year longitudinal data collection, the New England Family Study, to demonstrate the impacts of music training on teen and adult criminal behavior and other adverse social outcomes (e.g., substance use, low self-esteem), as well as long-term cognitive effects. (BAI, BASC)

Creative Alliance Milwaukee
MILWAUKEE, WI
To support an inventory and analysis of datasets and definitions used to profile creative economies or industries. The results will yield a "core" definition and dataset that national and local policymakers can adopt to understand the relationship of arts and cultural sectors to other creative industries. Also, the project seeks to place creative industries in a broader economic policy context. (SCIEI, DIEBA)

Fordham University
NEW YORK, NY
To support a study of the impact of arts programming on the social skills and mental health outcomes of at-risk youth. Data will be examined from two Florida programs that served youth who had been arrested or had received multiple suspensions from school. By comparing outcomes in youth who participated in arts programs with outcomes in youth who did not, this project will help fulfill a critical knowledge gap that may have consequences for youth intervention programs and greater public policy concerning at-risk populations. (BAI, BASC)

Georgia Tech Research Corporation
ATLANTA, GA
To support a two-phase study investigating: (1) the value of time spent by Americans on arts-related activities, and (2) an analysis of the impacts of arts districts on neighborhood characteristics. The first phase of the study will examine costs of activities such as traveling to and from arts events, based on data from the U.S. Department of Labor's American Time Use Survey and the U.S. Census Bureau's Current Population Survey. A second phase of the study will use a proprietary dataset to analyze the relationship between arts district clustering and the economic value and socioeconomic characteristics of U.S. neighborhoods. (AP/AC, DIEBA, BASC)

Harvard University
CAMBRIDGE, MA
To support a study of causal factors pertaining to the "birth" and "death" rates of arts and cultural institutions. This project will analyze IRS Form 990s from nonprofit arts and cultural institutions in six urban centers to compare survival rates between 1989 and 2009. Among factors that will be explored are: size of organization; funding sources and levels; type of organization; location; and geographic concentration. The resulting knowledge will contribute to public understanding of factors related to the sustainability of a U.S. arts infrastructure. (AI)

National Dance Education Organization
SILVER SPRING, MD
To support a project to identify, analyze, and summarize data that demonstrate the impact of dance education across multiple domains. The researchers will mine the Dance Education Literature and Research descriptive index, a database including 5,000 citations of dance education research from 1926 to the present. This meta-analysis will result in three separate research reports. The reports will describe the value of dance education as a learning modality for creative and critical thinking skills and social and emotional development. (E/T, BAI)

University of Dayton
DAYTON, OH
To support a study of the relationship between arts engagement and quality of life, as reflected by economic well-being and civic engagement patterns. The study will examine data from several waves of the Current Population Survey and its Survey of Public Participation in the Arts supplements in order to explore this relationship. Researchers will use factor analysis and structural equation modeling of survey variables to create constructs of economic well-being and civic engagement; logistic regression will be used to predict the impact of arts engagement on these constructs. Further, by differentiating between "traditional" and "customized" arts participation, the study will add a finer-grained analysis to complement existing research about the arts and civic engagement. (AP/AC, BASC)

University of Georgia
ATHENS, GA
To support a qualitative research analysis to generate a hypothesis about community-built practices to inform policies and programs. The term "community-built" describes a practice whereby artists and designers involve local volunteers in the design, organization, and construction of projects such as playgrounds, mosaic sculptures, murals, community gardens, and amphitheaters. Literature to be analyzed will include press articles, websites, and books written by members of the Community Built Association, founded in 1989. This research will expand knowledge of the arts by defining a new area of study within the fields of art and design. (AP/AC, BASC)

University of Illinois at Chicago
CHICAGO, IL
To support a study to examine the impact of arts exposure and artistic expression on society, including civic engagement and social tolerance. Using behavioral data collected from the General Social Survey—a nationally representative sample of U.S. households—the study will use multivariate analysis to test hypotheses about the impact of arts exposure on society and the impact of artistic expression on individual civil behavior. (BASC)

University of Maryland at College Park
COLLEGE PARK, MD
To support analysis of the cognitive, behavioral, and social outcomes of adolescents who study the arts in comparison with teenagers who do not. Analysis will be conducted with data from the National Longitudinal Study of Adolescent Health, a multi-year study of American adolescents that tracked participants from adolescence through early adulthood. The arts and non-arts students will be compared in terms of their school engagement, psychological adjustment, delinquency, involvement in risky behaviors, and substance use during adolescence. (BAI, BASC)

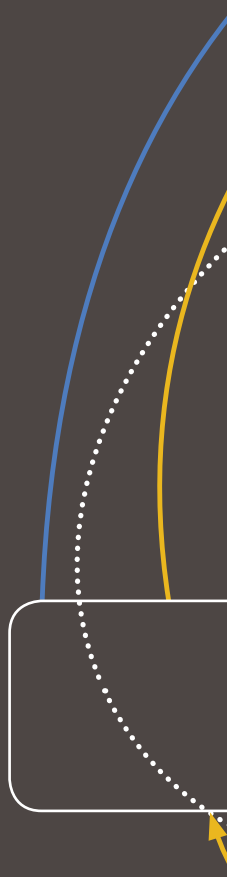
University of Texas at Arlington
ARLINGTON, TX
To support a cross-sectional analysis of 30 U.S. cities over three decades to identify neighborhood attributes driving location preferences for artists and artistic businesses. The use of multivariate time-series data and geospatial mapping will enable statistical methods to test a causal relationship between the presence of the arts and neighborhood development. The results could contribute to the development and refinement of social and economic policies that promote positive neighborhood change. (BASC, AI)

University of Texas at Austin
AUSTIN, TX
To support a study to examine current levels of diversity among arts boards and audiences, and identify factors associated with fostering or inhibiting greater board and audience diversity. This study will explore the Urban Institute's National Survey of Nonprofit Governance, a dataset of 476 arts, culture, and

humanities organizations, as well as 4,639 nonprofit organizations in other fields of activity, thus allowing for comparative analysis. Arts organizations and their supporters increasingly have expressed a commitment to greater diversity. This study will provide arts organizations, funders, and policymakers with information to help them assess and improve strategies for achieving that goal. (AI, AP/AC)

Vanderbilt University
NASHVILLE, TN
To support an analysis of the relationship between creative practice and subjective well-being in individuals studied by three national surveys. Using data from the Strategic National Arts Alumni Project, the DDB Needham Life Style Survey, and a Teagle Foundation-funded study of students with double-majors, researchers will explore potential correlations between art-making and quality of life. The resulting report will offer a theoretical basis for understanding links between creative practice and subjective well-being, and it will test those links empirically. Following this study, cultural policymakers will have a better opportunity to align the arts with public policy about individual and community vitality. (BAI)

Williams College
WILLIAMSTOWN, MA
To support a study that will examine whether a causal link exists between cultural activities and economic prosperity, and which investigates the tendency of arts and cultural organizations to cluster in specific neighborhoods. This study uses two novel methodologies—from other, non-arts sectors—to establish a causal relationship between increases in per-capita arts program expenditures and long-run gains in Gross Domestic Product within urban areas. The resulting evidence, and successful use of the methodologies themselves, will enhance public understanding of the arts' economic impact. (DIEBA)



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