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art

DESIGN WORKSHOP
景观设计事务所

Designs That Matter
有影响力的设计

作者：弗里茨•斯坦纳
Author: Fritz Steiner

"预测未来最好的方法是设计未来。" —— 巴克敏斯特•富勒

设计代表着人类适应变化和创造美好未来的最有力的工具之一。设计既包含构想理想的未来住所和对象的过程，也包含为达到这个未来理想而需要的对其过程的管理。设计师的信息库帮助他们知道怎样做有效、怎样做无效，来指导这个过程。好的城市设计和景观设计需参考以往的设计案例，但是也需要完全了解该特定地区的自然、文化、经济和政治条件。要想将这些复杂的信息成功地结合起来则需要熟练设计师来展现其艺术性的创造 。

Design Workshop拥有由众多优秀设计师组成的专业团队，因此一直在建筑环境领域引领积极变化、走在行业前沿位置，是设计行业的领袖公司之一。Design Workshop起源于学术领域：作为北卡罗来纳州立大学的年轻教授，乔•波特和丹•恩赛因带领学生和同事合力组织了一些集中设计活动来解决实际项目，并且在1969年创办公司时也以这种设计方法为要点。该公司的名称Design Workshop则体现了这个带学术性的工作室的合作氛围。在Design Workshop创办的时候，当时大多数公司都是以创办人的名字命名的。以设计理念及合作方法命名从一开始就奠定了其实践模式。在成功服务于私人客户和政府部门的同时，Design Workshop仍然保持着其学术定位，强调的是理论和度量。他们着眼于分析和图形表达，每一个项目都是从项目主要矛盾陈述和主题陈述开始，明确面临的主要挑战，并提出可能的解决方案。因此，设计团队能够以相同的框架模式着手处理每一个项目，但也能够根据每一个项目的独特情况灵活地作出调整。

虽然不同的项目可以采用共同的框架，但是，每一份设计都必须对其特定的情况作出回应。在这一点上，设计项目类似于科学实验，分析结构可预先计划，但结果未知。

理论上，Design Workshop是通过修改和优化可持续发展的三重底线而明确其设计理想。可持续发展的支持者主张在生态利益、经济利益和社会公平这"三大利益"中维持平衡。Design Workshop的DW Legacy Design®设计理念包含"综合性、可持续性的思维方式"，把环境、经济、社区和艺术融为一体。艺术通过五官将我们与周围环境相连。艺术通过人的感官体验把人和环境联系在一起。这些联系对可持续发展至关重要，因为人们只有对某个地方有感情，才有可能去保护这个地方，并将其世世代代传承下去。美感呈现的是我们的文化价值观，因此对实现社会质量和环境质量是至关重要的。

Design Workshop会仔细考量其项目产生的影响。每个项目一开始都会举行一场以探索为导向的会议，在会议期间，设计团队会明确主题及希望达到的结果，然后选择相关的度量指标来实现预期效果。该公司已制定出原创的设计度量指标表，来指导团队明确其可持续发展目标并衡量对环境、经济、社区和艺术产生的影响。除了其自身的度量指标之外，Design Workshop还采用美国绿色建筑委员会的"针对邻里发展的能源与环境设计先导"(LEED® ND)及可持续网站倡议™(SITES™)绩效测量系统。Design Workshop在早期就采用了LEED® ND，并作为试点工程来协助开发SITES™。该公司采用这些度量指标的目的是确保其团队尽可能全面地、整体地考虑到其项目产生的影响。度量指标有助于指导设计师从整合、创新和试验的角度提出问题。此外，该公司衡量这些影响的目的是评估成败、了解产生的价值并帮助完善未来的设计。对项目产生的影响进行衡量，这对建筑及景观建筑的循证设计发展体系至关重要。

跟其学术界同仁一样，Design Workshop也力求扩展其景观建筑、城市设计和城镇规划方面的知识。Design Workshop 的员工是反思型实践者，他们通过仔细、公开的评估他们的项目而增加专业方面的知识。作为一个执业事务所，他们当然必须关注其业务的可持续性，但他们也力求提升其专业知识。最好的设计师能够边学边做，从而通过反思修改其实践。对自己的工作进行诚恳的分析需要的是自律和虚心。

我很幸运能够认识Design Workshop的大部分领导。他们无一例外地通过服务于景观建筑基金会、美国景观建筑协会(ASLA)专业人士及学生评委会、《景观建筑杂志》编辑部、ASLA CEO圆桌会议、文化景观基金会、美国规划协会分部以及其他许多专业组织而获得专业上的提升。值得注目的是，他们对历史有着敏锐的触觉。他们既从自己以往工作中的先例学习，也在前辈奥姆斯特德(主要在美国创办了景观建筑和规划专业)和伊恩•麦克哈格(创建了一套基于生态学的新型设计和规划理论)确定的领域范围内上下求索。

Design Workshop的专业人士是其同龄人的良师益友和热心支持者。他们在Design Workshop内部以及世界各地的大学传播知识和技能。例如，Design Workshop有一项称之为"设计你自己"的公司内部员工学习机制。几乎每个星期他们都会召开"午餐及学习"研讨会，是由公司内部的专家员工主持，来反思与讨论自己的一些经历与所得。此外，他们还特邀外部专家参加"午餐及学习"研讨会，着眼于当下论题。Design Workshop的六个办事处(美国阿斯彭和丹佛、科罗拉多；奥斯丁、德克萨斯州；阿什维尔、北卡罗来纳州；塔霍湖、内华达州；盐湖城、犹他州)通过网络、音频和视频会议相联系，这样可以使不同办事处的设计师能够在一起学习和分享知识，从而强调他们是"一个带有长廊的办事处"，而不是六个办事处。

在外部，Design Workshop创建了一项驻院老师计划，从而强化其学术联系，并与"设计周"的各大院校通力合作，培养学生、实践者和教授之间的相互交流。实质上，这些"设计周"有助于复兴并延伸丹•恩赛因和 乔•波特在20世纪60年代创建的模式。他们举办协作型研讨会的目的是使学生接触到实践者的方法和思路。

将一个人的工作写下来恐怕是最单纯的反思形式。在Design Workshop，这样的作品——这样的反思——尤为棘手，因为参与写作的不只一人 。与集体设计一样(所有好设计都是集体的，即使是挂在"明星建筑师"的名字下的设计)，集体作品需要付出、接受和让步。这并不意味着设计写作无法传达强有力的观点。在过去10年里，该公司已出版了四部作品：《美国西部的新园林》(2003年)、《设计走向完美》(2007年)、《精品花园》(2010年)和《品质恒久的景观》(2013年)。通过出版著作，Design Workshop不仅表达了其自身的理念，而且有助于专业探索，并允许大家对其项目进行批判与检验。Design Workshop当然是行胜于言。不久前，我和托德•约翰逊(Design Workshop的首席设计官)一起为《景观建筑杂志》写了几篇文章。这要求我们彼此之间相互合作，但更重要的是其中也涉及到与以下知名设计师(和知名人士)的合作：劳里•奥林、鲍勃•汉纳、凯罗尔•富兰克林、莱斯利•萨奥尔、科林•富兰克林、罗尔夫•萨奥尔、乔安妮•杰克逊和塞西莉•基恩，我们也对其作品进行了概要分析。我们试图将托德•哈佛设计研究院的观点与汉纳•奥林、安德罗伯根、杰克逊•基恩以及我自己融汇受麦克哈格影响的宾夕法尼亚大学生态观结合在一起。哈佛研究院与宾夕法尼亚大学之间关于设计理念的学术竞争类似于中国高等院校之间的竞争，如：清华大学与北京大学。我和托德的工作尝试略显大胆，但最终是令人愉悦并有所收获的。我们通过对特定项目的审视，力求了解人类应用生态学知识产生的效果。我们也想了解生态学知识在已实现的设计中是否明显。那么，设计范围内的生态学知识仅仅是设计师带进工作室的那些自己早已获得的经验和知识还是在项目背景下的研究成果呢？此外，我和托德对设计师对其工作的反思深感好奇。我们的书写过程也是托德及其他Design Workshop同事每日的工作情况的一个缩影。他们无所畏惧，大胆尝试，也能够享受其带来的快乐和成功。Design Workshop 致力于设计知识的提升，正如我和托德为《景观建筑杂志》写文章所倡导的一样。

虽然他们的工作相当大胆——对德州人深爱的德克萨斯州蓝洞的游泳场所进行改造、在新墨西哥的创建一个崭新社区兰乔维埃罗、利用河滨公园为丹佛市建造一个新的中心 ——但是，这些Design Workshop的项目都非常适当的融入到其所在的景观环境。这些项目不融入景观，又改造景观。这些项目既融入景观，又塑造景观。这些作品的氛围是为当地居民而创建的，而不仅仅是为了设计师而创建。

犹他州自然历史博物馆最近的一个深受大家喜爱的项目，虽然该项目并没有在接下来的一系列文章中提到。该博物馆是与Ennead建筑师事务所共同创建的，表现出对犹他州的自然历史和文化历史的深刻理解。这种理解凸显了Design Workshop对合作和研究的承诺。Ennead与Design Workshop在这一项目的合作，阐明了学院式研究的价值以及严谨的研究无需局限于高等院校这一事实。我仅仅在照片中见过犹他州自然历史博物馆，这些照片令人赞叹，体现出建筑与景观随季节变化的总体效果。该博物馆立即成为明星建筑，尽管建筑体量庞大，该博物馆还是融入到了古老的湖阶地，为周边自然景色增添了庄严的色彩。（请见图1、图2）

在书写关于Design Workshop的过程中，我无疑是迷上了他们的作品，且沉迷了一段时间。麦克哈格生态学分析普遍存在于景观建筑与规划教育中，当然，中国也是如此，其在景观建筑学位课程、研究院中的实践机会大幅度增加。乔•波特、丹•恩赛因、迪克•威尔金森和文斯•福特的作品及其对麦克哈格分析法的优化把景观分析提升为一种艺术。他们对地质学、水文学及动植物生态学的描绘，可与麦克哈格及其图解天才伙伴纳德拉•詹尼加的图示与解析相媲美。尽管地理信息系统（GIS）技术大幅度增强了我们的分析能力，但是没有几个GIS绘图可与早期Design Workshop 或具有代表性才华的麦克哈格-詹尼加的绘图相提并论。（请见图3、图4、图5）

目前，在库尔特•卡伯特森、理查德•萧、特勒尔•巴奇、杰夫•齐默尔曼、吉姆•麦克雷、丽贝卡•伦纳德、史蒂文•斯皮尔斯和托德 •约翰逊的领导下，Design Workshop继续创新、继续领先。当我帮助启动奥斯汀德克萨斯州大学景观建筑系时，许多实践

者都给予了支持。卡伯特森和约翰逊(及其两名年轻同事)也在也在旁极力助威，并帮助教导我们第一个班级，要知道我们当时并没有一个景观建筑教授或讲师。Design Workshop这样做实际上是无偿的(这是我这名学术管理人员 尤为感激的事情)。这种贡献再次彰显了Design Workshop对教学和研究的使命感，也体现了Design Workshop帮助培养下一代设计与规划专业人士的愿望。

Design Workshop一直在超越——超越期望，超越平凡。他们承接复杂、具有挑战性的、涉及多学科的项目，扩展了公司的视野和影响范围 。例如，他们承接了难度较大的经济社会课题，而其他许多景观建筑师对这些课题是退避三舍的。他们触及复杂的场所并综合探讨该场所的环境、经济、社会和审美特质。全球有一半以上的人口都居住在城市，因此，Design Workshop的工作相关性变得越来越有意义。这种相关性在中国尤为重要。无论是在城市化方面还是在城市化带来的挑战方面，中国都居于世界领先地位。Design Workshop对场所和机构影响与改造，使我们的生活变得更美好。

作者简介

弗雷德里克（弗里茨）•斯坦纳是一名景观建筑教育家和规划师，自2001年起一直担任奥斯汀德克萨斯州大学建筑学院院长一职。自1997年以来，他在美国五所大学均担任过景观建筑和规划教师一职。斯坦纳是荷兰瓦赫宁根大学的富布莱特学者、罗马美国学院的罗马奖学金获得者以及北京清华大学的客座教授。他获得了费城宾夕法尼亚州立大学的哲学博士学位、文学硕士学位和区域规划硕士学位以及俄亥俄州辛辛那提大学的科学设计学士学位。

图1 (fig. 1)
CREDIT: D.A. Horchner/Design Workshop
The Utah Museum of Natural History building reaches out into its natural setting and blends with the natural terraces of the site.
在自然环境中的犹他州自然历史博物馆大楼，与场地的自然湖阶地融为一体。

"The best way to predict the future is to design it." - Buckminster Fuller

Design represents one of our species' most powerful tools for adapting to change and shaping preferred futures. Design involves both the process of conceiving ideal future places and objects as well as managing toward successful results of that effort. Designers guide the process with a storehouse of information about what has worked and what has not. Good urban and landscape designs build on precedents, but also demand a thorough understanding of natural, cultural, economic and political conditions of specific places. The successful combination of such complex information requires the art of skilled designers.

Largely because of its dedicated team of talented designers, Design Workshop represents a practice on the forefront of realizing positive changes in the built environment, and, over four decades, this firm has maintained design leadership. The origins of Design Workshop are in the academy: as young professors at North Carolina State University, Joe Porter and Don Ensign organized design workshops with their students and colleagues to tackle real projects, and they adopted this approach when they established the firm in 1969. The firm's name – Design Workshop – reflects the collaborative atmosphere of the academic studio. At the time Design Workshop was established, most practices were named after the founding principals. Naming a firm after a philosophy and collaborative approach shaped the practice from the outset. While successfully serving private and public clients, Design Workshop's approach retains an academic orientation with an emphasis on theory and on measurement. They emphasize analysis and diagramming, starting each project with dilemma and thesis statements that define the main challenges and posit possible solutions. This enables the design team to approach each project with the same framework, but with the flexibility to adjust to the unique circumstances of each project.

While projects can share a common framework, each design undertaking responds to a specific set of circumstances. In this regard, design projects resemble scientific experiments with premeditated analytical structures but with unknown results.

Theoretically, Design Workshop defines its legacy through a modification and refinement of the triple bottom line of sustainability. Proponents of sustainable development advocate a balance of ecological, economic, and equity interests – the "three e's." Design Workshop's DW Legacy Design® philosophy involves a "comprehensive sustainable approach" which merges environmental, economic, community, and artistic concerns. Art connects us to our surroundings through the five senses. Art and aesthetics link people to our environments at a visceral level. Such connections are vital for sustainability because when people are attached emotionally to a place, they are more likely to protect it and pass it on to future generations. Aesthetics present a portrait of our cultural values and, thus, are crucial to achieve social and environmental quality.

图2 (fig. 2)
CREDIT: D.A. Horchner/Design Workshop
Visitors to the Utah Museum of Natural History can directly experience the region's ecology, geology, wildlife and other natural processes.
犹他州自然历史博物馆的参观者可以直接体验到该地区的生态、地质情况、野生物种以及其他自然状态。

Design Workshop carefully considers the consequences of its projects. Every project begins with a discovery-oriented session during which the design team defines a thesis and desired outcomes, and then selects pertinent metrics employed to achieve the desired results. The firm has developed its own metrics menu sheets to guide teams in defining sustainable objectives and measuring environmental, economic, community and artistic outcomes. In addition to its own metrics, Design Workshop employs the U.S. Green Building Council's Leadership for Energy and Environmental Design for Neighborhood Development (LEED® ND) and the Sustainable Sites Initiative™ (SITES™) performance measurement systems. Design Workshop was an early adopter of LEED® ND and helped develop SITES™ as a participant in its pilot program. The firm uses these metrics to ensure that its teams are considering the impact of their projects as comprehensively and holistically as possible. The metrics help guide the designers to pose questions about integration, innovation, and experimentation. Furthermore, the firm measures outcomes to assess success, to understand value generated, and to help improve future designs. Measurement is central to the growing body of evidence-based design in architecture and landscape architecture.

Like their academic counterparts, Design Workshop seeks to advance knowledge in landscape architecture, urban design, and town planning. Its staff are reflective practitioners who advance knowledge in the profession through careful and open assessments of their projects. As practitioners in private practice, they certainly must be concerned with sustaining their business, but they also seek to elevate their professions. The best designers are able to learn on the job and modify their practice accordingly through reflection. The honest analysis of one's own work requires discipline and an open mind.

I have had the good fortune to know most of Design Workshop's leaders. They have uniformly been involved in advancing their profession through such service on the Landscape Architecture Foundation board, American Society of Landscape Architecture (ASLA) professional and student award juries, *Landscape Architecture Magazine*'s editorial board, the ASLA CEO Roundtable, the Cultural Landscape Foundation, the American Planning Association Divisions, and many other professional organizations. Significantly, they are keenly aware of history: of using precedent in their work and of placing their own endeavors within the arc

established by the Olmsteds (who largely created the landscape architecture and planning professions in the United States) and Ian McHarg (who created a new theory for design and planning grounded in ecology).

Design Workshop's professionals serve as informed critics and enthusiastic supporters of their contemporaries. They mentor and teach within Design Workshop and beyond at universities around the world. For instance, Design Workshop has a robust internal program called "Design U." Almost weekly, "Lunch and Learn" seminars convene and are led by internal staff experts, who reflect on their experience. In addition, they host guest experts for "Lunch and Learn" seminars to focus on timely topics. The six Design Workshop offices (Aspen and Denver, Colorado; Austin, Texas; Asheville, North Carolina; Lake Tahoe, Nevada; Salt Lake City, Utah) are connected via web, audio, and video conference so that the designers can learn together and share knowledge, reinforcing that they are "one office with long hallways."

Externally, Design Workshop created a Faculty-in-Residence program to reinforce their academic connections and partner with universities in "Design Weeks" to foster interactions among students, practitioners, and professors. In essence, these Design Weeks help revive and extend the model created by Ensign and Porter in the 1960s. They conduct collaborative workshops to expose students to the approach and thinking of practitioners.

Writing about one's work, perhaps, is the purest form of reflection. In Design Workshop, such writing – such reflection – is especially tricky because there is more than a sole author at work. Collective writing, like collective design (and all good design is collective, even that under the imprint of a "starchitect") requires give and take and compromise. This does not mean that design writing cannot have a strong voice. The firm has published four books in the past decade: Gardens of the New American West (2003), Toward Legacy (2007), Garden Legacy (2010) and Landscapes of Enduring Quality (2013). Through publication, Design Workshop not only expresses its own ideas but also contributes to professional discoveries and allows for the critique and examination of its projects.
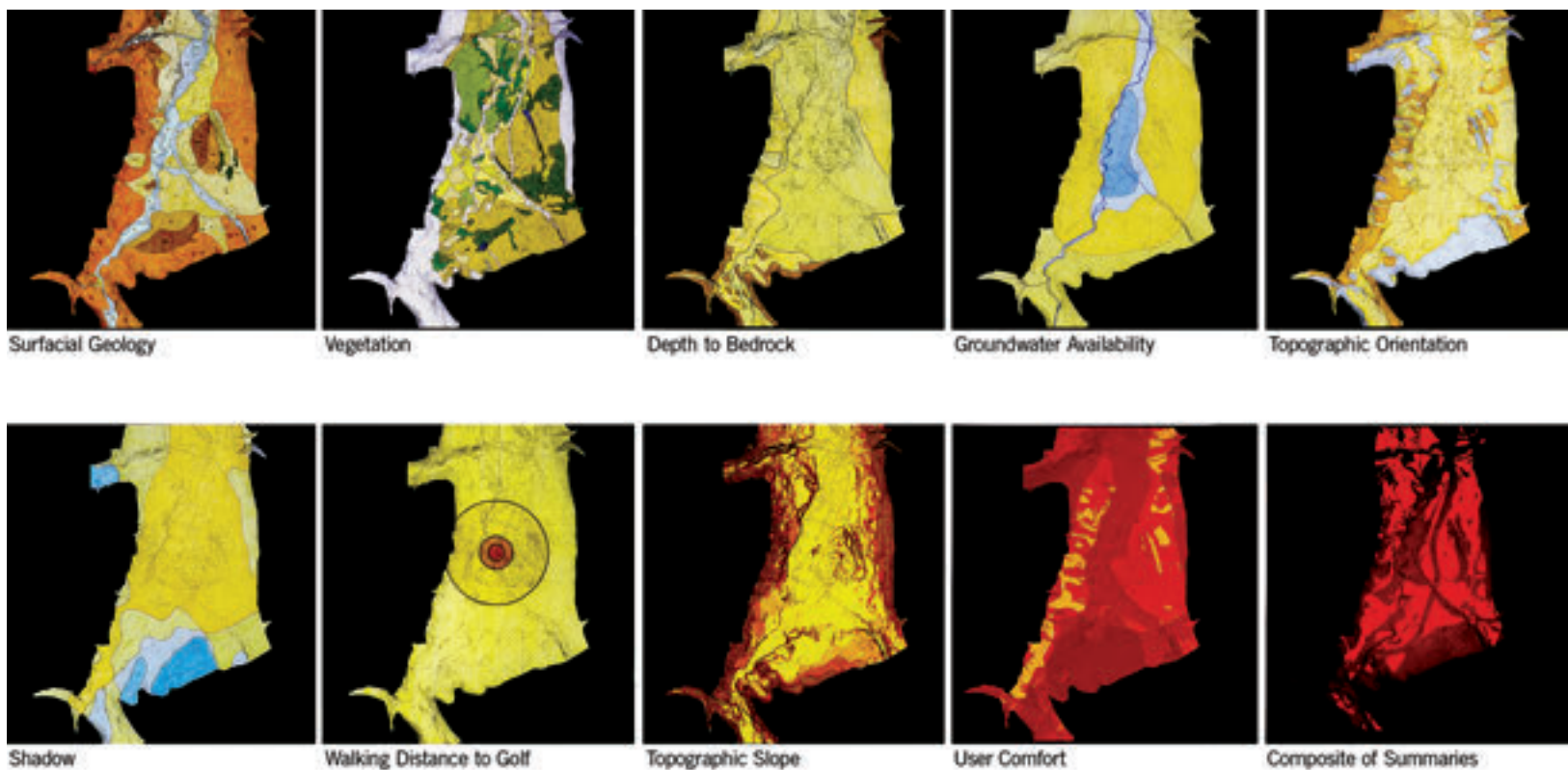
Design Workshop certainly speaks demonstratively. Some time ago, Todd Johnson (Design Workshop's Chief Design Officer) and I wrote a couple of articles together

图3 (fig.3)
CREDIT: Design Workshop
Design Workshop's broad environmental analysis of the Kananaskis Valley yielded a series of maps that determined the location and design of a central village.
Design Workshop对卡纳纳斯斯峡谷广泛的环境分析产生了一系列的详细规划图，确定了一个中心村庄的位置和设计。

Surfacial Geology   Vegetation   Depth to Bedrock   Groundwater Availability   Topographic Orientation

Shadow   Walking Distance to Golf   Topographic Slope   User Comfort   Composite of Summaries

for *Landscape Architecture Magazine*. This required cooperation with each other, but, moreover, involved collaboration with strong designers (and personalities) whose work we were profiling: Laurie Olin, Bob Hanna, Carol Franklin, Leslie Sauer, Colin Franklin, Rolf Sauer, Joanne Jackson, and Cecily Kihn. We attempted to marry Todd's Harvard Graduate School of Design perspective with Hanna-Olin, Andropogon, Jackson-Kihn, and my own McHarg-infused University of Pennsylvania ecological view. The academic rivalries about design philosophy between Harvard and Penn are similar to those of schools in China, for instance, between Tsinghua and Peking Universities. My undertaking with Todd was a somewhat audacious endeavor but ultimately an enjoyable and rewarding one. We sought to understand the human-use consequences of the application of ecological knowledge through an examination of specific projects. We also wanted to question if ecological knowledge was apparent in the realized design. So, is ecological knowledge within design a product of research within the context of the project or just the experience and training (the tacit knowledge) that the designer brings with them into the studio? Furthermore, Todd and I were curious about the designers' reflections on their work. Our writing process is emblematic of the tasks Todd and his other Design Workshop colleagues take on daily. They do not fear the audacious and they embrace fun and success. Design Workshop is committed to advancing design knowledge, as Todd and I did with our *Landscape Architecture Magazine* articles.

While there is considerable boldness in their work – the transformation of a beloved Texas swimming spot at Blue Hole, the creation of a new community with Rancho Viejo in New Mexico, the implementation of a new heart for Denver with Riverfront Park – there is a wonderful sense that these Design Workshop projects fit into the landscape where they are located. They suit the landscape and transform it. These works also feel like they were produced for the people who live there, rather than the designers who guided their creation.

A favorite recent project that is not featured in the series of articles that follow is the Utah Museum of Natural History. Produced with Ennead Architects, the museum reveals a deep understanding of the natural and cultural histories of Utah. This understanding underscores Design Workshop's commitment to collaboration and to research. Ennead and Design Workshop's collaboration on this project illustrates both the value of academic-like research and the fact that rigorous study need not be confined with universities. I have only seen the Utah Museum of Natural History in photographs, and they are dazzling images that depict a seasonally changing ensemble of building and landscape. The museum is at once stunning architecture, but, despite its considerable mass, blends into the ancient lake terrace adding considerable grandeur to its natural context. (see fig. 1 and fig. 2)

Writing about Design Workshop, I am clearly a fan of their work and have been one for some time. McHargian ecological analysis has become ubiquitous in landscape architecture and planning education and certainly in China, which has experienced a dramatic increase in landscape architecture degree programs, institutes, and practices. The works of Porter, Ensign, Dick Wilkinson, and Vince Foote and their refinements of McHargian analysis have elevated landscape analysis to a fine art. Their maps of geology, hydrology, and plant and animal ecology rivaled the beauty in graphic representation and interpretive clarity of McHarg and his graphic genius partner, Narendra Juneja. While geographic information systems (GIS) technology has done much to advance our analytic abilities, few GIS maps match those of early Design Workshop or McHarg-Juneja in representational brilliance. (see fig. 3, fig. 4 and fig. 5)

Today led by Kurt Culbertson, Richard Shaw, Terrall Budge, Jeffrey Zimmerman, Jim MacRae, Rebecca Leonard, Steven Spears and Todd Johnson, Design Workshop continues to innovate and to lead. When I helped start a new graduate landscape architecture program at the University of Texas at Austin, many practitioners were supportive. Culbertson and Johnson (with two of their junior colleagues) went beyond cheerleading from the sidelines and helped teach our first class, as we had started a program without a permanent landscape architecture faculty. Design Workshop did so practically *pro bono* (something especially appreciated by this academic administrator). This contribution again illustrates Design Workshop's

commitment to teaching and research and its desire to help produce the next generation of design and planning professionals.

Design Workshop consistently goes beyond – beyond what is expected and beyond the ordinary. They take on complex, challenging multi-disciplinary projects that expand the firm's reach. For instance, they take on difficult economic and social issues that many other landscape architects shy away from. They embrace the complexities of places, that is, their comprehensive environmental, economic, social, and aesthetic qualities. With over half the global population now living in urban settings, the relevance of Design Workshop's work grows increasingly more significant. This relevance is especially important in China, a world leader in urbanization and its challenges. Design Workshop transforms places and institutions that change lives for the better.

About the author

Frederick (Fritz) Steiner is a landscape architecture educator and planner and has served as dean of the School of Architecture at the University of Texas at Austin since 2001. Since 1977, he has served on the landscape architecture and planning faculties at five United States universities. Steiner was a Fulbright scholar at Wageningen University, the Netherlands; a Rome Prize Fellow at the American Academy in Rome; and a visiting professor at Tsinghua University, Beijing. He received a Ph.D., an M.A., and a Master of Regional Planning from the University of Pennsylvania in Philadelphia, as well as a Master of Community Planning and a Bachelor of Science in Design degree from the University of Cincinnati in Ohio.
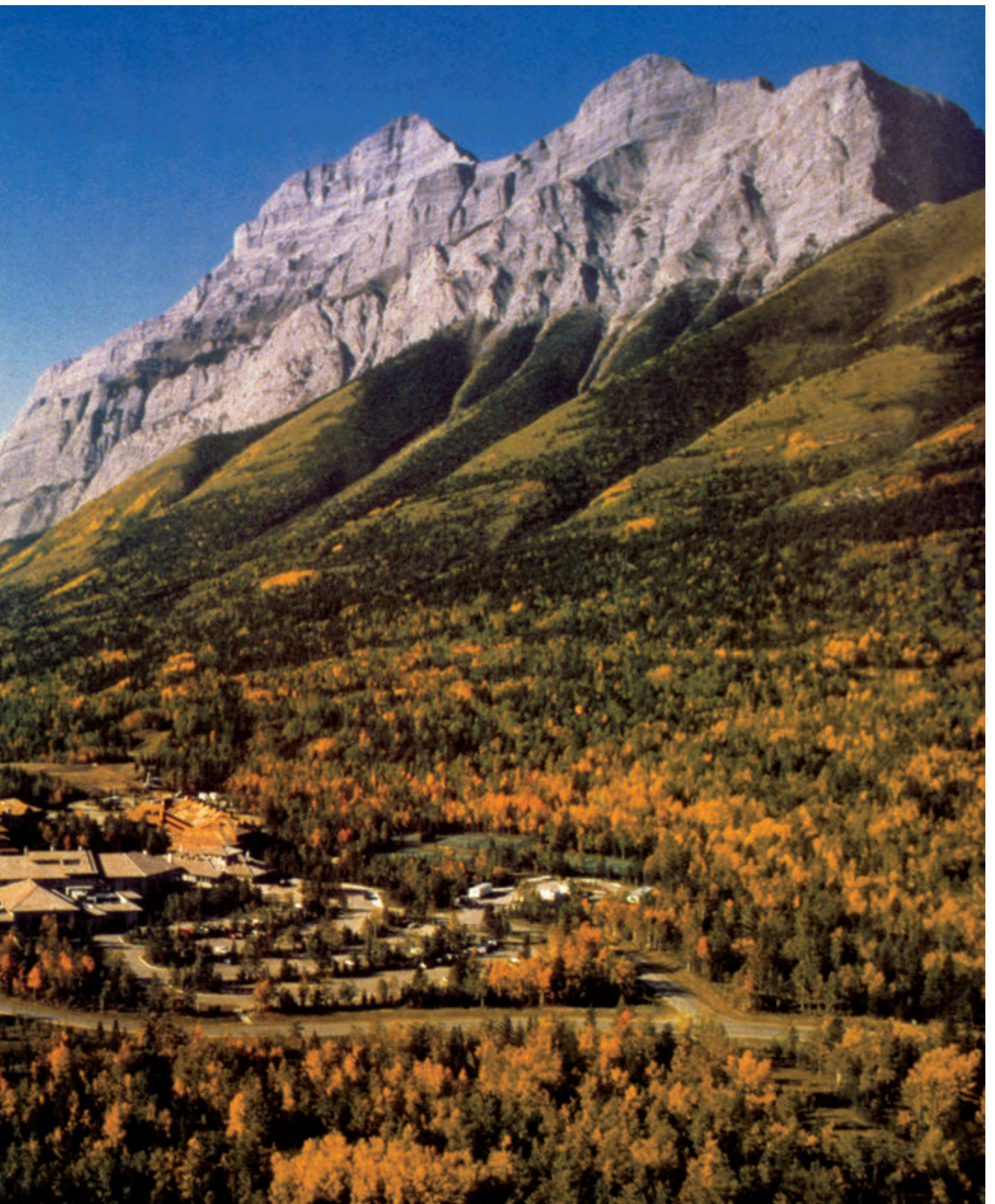
图4 (fig. 4)
CREDIT: Design Workshop
Kananaskis Village Master Plan 卡纳纳斯基村总体规划图

图5 (fig. 5)
CREDIT: Design Workshop
Aerial view of Kananaskis Village　卡纳纳斯斯村鸟瞰图

"通过使设计和开发实践与健康生态系统的功能相一致，可持续场所倡议™（SITES™）认为，设计师、开发商、业主和其他人都能够保护甚至改进场所提供生态系统服务的初始价值。SITES™花了数年的时间来制定景观设计、施工与维护的指南和基准，这些指南和基准以严谨的科学依据为基础，且可应用于每一个场所。SITES™工具承认，在全美（或全世界）的不同区域内设计要求以及计划目标各不相同，因此，应把绩效水平包括在内，才能实现灵活性和创新性。"

– 可持续场所倡议总监丹尼尔•皮拉努奇

注重绩效的设计：实践中的可持续发展模式
Designs That Perform: Sustainability Paradigm in Practice

作者：保狄夫•兰巴
Author: Baldev Lamba

可持续发展的变革

可持续发展概念主张平衡发展所带来的环境、经济和社会的影响，以满足当代人和后代的需求和愿望。联合国世界环境与发展委员会在《我们的共同未来》（1987年）中首次阐明，鉴于环境退化已经危及到许多物种（包括人类）的生命，可持续发展概念可视为应对全球对环境退化问题的一种途径。继1992年里约热内卢地球高峰会议之后，可持续发展的概念顺势而上，引发了当前全面发展的全球可持续发展运动，令人不禁回想起20世纪60年代的环境运动。来自于可持续发展概念的相关压力和政治活动正重新界定我们社会和文化生活的方方面面。不过，对可持续发展的追求一直都是支离破碎的，因为对于如何定义、实现或衡量"可持续性"尚未达成真正的共识。随着对可持续发展实践在许多不同行方面的需求日益增多，设计实践的方式正在改变，更重要的是，设计绩效衡量的方式也正发生改变。

对已经过验证的景观绩效日益增加的关注度已经逐渐成为当今景观建筑行业面临的最大挑战。这种模式的转变要求提升景观建筑实践的技术能力和研究能力。关于景观建筑行业如何定义把行业的艺术性与科学性融为一体的可持续发展的概念，目前尚有争议。这可以看作我们以环境管理关系为行业根基的一种进化过程，这种将生态、社会和文化价值引入景观设计的环境管理关系可以追溯到该行业在美国的创始人弗雷德里克•奥姆斯特德所奠定的设计哲学 。现在，我们必须以某种方式对这些价值予以衡量。

可持续发展的指标、测量和评级

设计师们正面临着挑战，他们既要遵循1990年欧洲建筑研究所环境评估法（BREAM）制定的建筑可持续发展指标和措施，还必须达到各项绩效评估标准。美国绿色建筑委员会（USGBC）于2000年开发的能源与环境设计先导（LEED®）绿色建筑评级系统提供了环境可持续发展设计、施工和维护的标准，且该标准已成为最被广泛认可并使用的绿色建筑评估工具。由于在经济发展方面取得的巨大成就以及建筑项目的持续增加，中华人民共和国正利用LEED®认证来证明其致力于可持续发展的决心并吸引多国的住户。例如，斯蒂文•霍尔建筑事务所设计的北京联接复合体获得了LEED®黄金认证。LEED®引发了地域、区域和全球层面的的机构和市政对可持续发展评级系统和标准的大探索。评级系统目前正朝着以目标为导向的设计结果发展，将在建筑、景观、社区、区域甚至更大的层面上解决都市农业、扩张控制、生态水流和净零能源等问题。

在美国景观建筑师协会、德州大学奥斯汀分校的伯德•约翰逊夫人野花中心和美国植物园的引领下，可持续场所倡议™（SITES™）评级系统用来为那些有或者没有建筑物的景观项目提供解决场地现状的处理方法和机会。SITES™评级系统于2009年正式推出，并在一项两年试点计划中予以检验，代表着景观建筑实践与研究实现卓越基准的生态学和自然科学的基本一致性。Design Workshop 在德克萨斯州奥斯汀设计的Blue Hole区域公园就是SITES™试点项目的参与者，这个项目在2013年八月获得了SITES™的认证。SITES™、LEED®、BREAM、生存建筑挑战等评价系统重新定义了设计与开发的过程，把对资料记录的把详尽和而周密提升到了前所未有的高度，这些系统在改变着与设计相关的信息生成、保存和记录的方式。

景观建筑基金会（LAF）启动的景观绩效系列（LPS）计划旨在开发网络资源交互集成，以促进、衡量和评估设计出来的景观绩效。该计划以案例研究、有益工具包、信息速查系统和学术著作的形式将研究活动、专业实践和学生作品的信息与创新融合在一起，作为数据和知识资源，为专业人士提供可促进景观可持续发展的工具。

实践研究二分法

评级系统、监管机构和强制性法规实施要求设计方案可预测而且站得住脚。把度量指标和可靠数据纳入景观评估日益成为景观建筑师、规划师和建筑师的设计过程中一个不可或缺的部分。21世纪随着设计价值观和设计敏感度的日新月异，不切实际的创意和未经证实而提出的概念已无法吸引客户和公众的关注并满足其价值观。随着设计行业从猜测设计产生的环境和社会影响转变为预测和量化此类影响，设计过程的直观性和艺术性必须尽最大的可能以自然科学和社会科学的结构和原理为基础。虽然制定能量流和水流的定量措施已取得了很大的进展，但是，许多从业者仍然密切关注的是，关于衡量景观建筑的难以切实测量但同样重要的质量上、视觉上以及生理和社会效益上的研究依然缺乏。这些有点模棱两可的经验鼓励使用者尊重和关注文化景观，以提高关键公众对长期可持续发展的公众支持。虽然要应对这些挑战要求增强能力的同时增加生成研究证据的资源量以支持设计判断，但是，我们还是面临着研究与设计之间长期存在且不断深化的分歧，引申开来，这种分歧其实是作为研究生产者的学者与作为研究成果的初级消费层的实践者之间的分歧。然而，在过去30年里开展的大部分学术研究几乎都与实践无关，因此，在很大程度上，从业者并没有把学术界视为专业应用型研究的可用来源。从20世纪50年代至今，受人尊敬的学者（包括：欧文•茱比、罗伯特•莱利和伊丽莎白•迈耶）和实践引领者（包括：加勒特•埃克博、佐佐木英夫、肯•史密斯、OLIN事务所、安德罗伯根、米撒恩和Design Workshop）一直都在 实行并倡导实践与研究一体化，以使我们这个行业具有重大意义、具备强大竞争力且不断发展。虽然尚未全面实现，但是，当可持续性的衡量指标需求出现时，这一概念感受到了全新的时代紧迫感。

了解并超越艺术领域与科学领域之间（引申开来，是设计人员与研究人员之间、从业者与学者之间）的历史张力和二分法思维方式，对于解决21世纪与建成环境有关的日益复杂的环境和社会问题的整体方法是至关重要的。

图1 (fig. 1)
CREDIT: Design Workshop
The Lafitte Greenway and Corridor are shown within the broader New Orleans context which illustrates the potential to connect Lake Pontchartrain and City Park to the French Quarter.
拉菲特绿道和廊道展现在更广阔的新奥尔良城市环境中，表明了其连接庞恰特雷恩湖和法国区的可能性。

实践文化

一直以来，从奥姆斯特德开始的从业者的作品都在成为提高和生成设计行业知识的主要来源。在职业道德和环境道德的驱动下，设计师再次出现在寻找将设计敏感度带进当代可持续发展概念中的创意和创新方式的最前沿。

在与行业实践的领先者进行的交流中显示出他们越来越领悟到研究型实践的重要性。在客户对以研究为基础的可量化成果有更大需求的情况下，从业者必须履行其专业职责。专业服务的费用结构通常不需要像可持续发展评级系统那样严格的、耗时的文件资料。在经济紧缩和专业人士之间的竞争日益剧烈的情况下，一旦涉及到附加费用（也许是计划外的开支），所谓对环境负责任的开发和保护如果仅能预见到感知上的利益和价值对客户而言是很难推广的。此外，从业者还面临着普遍缺乏可用及适用研究来支持他们的设计决策的难题。尽管真心希望可以提升探索的水平，但是，研究相比"实际工作"而言通常被看做是次要的，因为在大多数情况下，研究工作需要花费的时间和资金需要较长的时间才会有回报，因此许多从业者都表示这使得他们很难将其划入项目预算中。

实践领域，被视为以项目为中心的应用实践，包含大量原始的但具有潜在价值的且多半未开发的宝贵创新方法和知识，这些创新和知识的意义远远不只是为项目开发应用而已。从业者基本上每日都在从事研究，因为他们在不断地测试，从不同的项目学到不同的知识。但是，此类研究以及实践生成的知识往往是插曲式的，缺乏学术研究方案；此外，此类研究和知识缺乏详细的记录，也很少被保存下来共享或发表。从业者也关注来源于其工作的专有资料的分享，这些资料被客户视为保密资料。有时，专项研究可以为公司提供竞争优势。即使有许多限制条件，实践还是创造了很多知识，这些知识可以也应当被管理起来用以造福整个行业。一些有高度积极性的从业者意识到实践与研究之间桥接的重要性，尤其对在可持续发展度量指标的新需求方面，他们通过发表文章和演说的形式为所设计出来的景观项目的设计、记录、施工和监控的重新界定做出了重大的贡献。

Design Workshop——反思性实践模式

Design Workshop一直在探索一条研究与设计之间更具包容性、综合性和协作性的道路，这主要体现在其设计理念、组织结构和工作体系中。由于其学术根底，Design Workshop的文化包括通过批判性地检验其实践工作的方方面面来不断进行学习。如斯肯所言，这种定义为"反思性从业者"的典型特征将这类实践定位为设计行业的主要影响因素。公司把每个项目视为一项实验，以便获得更深刻的见解、有创意的学问以及非传统的思维方式，为未来开拓新视觉和新方向。此外，Design Workshop致力于与学术界进行长期会话，这实际上重新定义了景观建筑师的作用和工作范围，使Design Workshop在多学科交叉的团队中居于领导地位。此类实践模式应该用于服务下一代的客户，并采用以指标和绩效为基础的理念体系，提供设计专业人士的科学责任心。

在探索前瞻性和创造性方法来应对围绕可持续发展主题以及传统设计范式向绩效型转变所面临的挑战中，Design Workshop起到了重要的作用。直觉与推理、自然科学与社会科学、从业者与学者、教学与实践以及知识与行动的紧密及系统性合成渗透到公司组织结构的每一个层面。Design Workshop对可持续发展的整体理解体现在公司把环境、经济、艺术和社区这四大范畴整合到每一个项目的设计理念中。由于意识到使用经济论证来支持设计决策的至关重要性，Design Workshop为客户创建了开发服务小组，开展与土地开发与规划有关的市场研究和分析。

社区、环境和艺术/审美主题也是设计会话的一部分，公司的设计过程和项目目标的设定（在该出版物的另一个部分提及）表明公司旨在确保员工认识到并仔细考虑可持续发展的四大范畴的重要性。通过可持续发展的四大范畴对每个项目进行检验，以了解现有的状况，设定清晰、可衡量的目标，制定明确的度量指标并监控项目结果，从而判定项目的绩效。

已被广泛认可的LEED®方法以及新近的SITES™景观建筑评级系统力求提升其在可持续实践和产品中的领导地位。评级系统作为当前充分的可靠标准被专业人员广泛的认可及应用，但是其仍必须改进并不断接受评估，才能为未来可持续发展目标提供更为全面的措施。通过内部教学和学习，在这些评级系统的基础之上，Design Workshop开发出了自己独有的一套模型指标和方法论，可建立并追踪其可持续发展目标，制定项目的研究议程，并可将结果在公司内部甚至外部进行共享。这一进化形成了专业的挑战，在对捕捉、组织、分析和记录定量和定性结果的系统方式方法更加关注的前提下，要求对设计过程中的每一个方面进行重新审核和构建。Design Workshop的设计过程超越了传统的设计到施工的范围，他们的设计过程往往还包括方案后的反思，并通过写作、出版和演讲以及为未来研究确定主题等形式表现出来。

与学术机构的持续对话是Design Workshop实践中的一个不可或缺的部分。这种投入包括在全国各大学术机构开展公司著名的跨学科"设计周"，指导学生论文、提供实习机会并进行辅助教学。Design Workshop最近因其"设计周"的倡议而被美国景观建筑师协会（ASLA）授予2012年"景观建筑卓越奖"。与学术界的合作还包括在Design Workshop举办驻院老师计划，使员工可以接触到该领域的学术专家，同时也可使学者熟悉现行实践项目的学术进展，从而为随后的学术指导提供基础。与学术界的联系形成了一种更为严谨的研究方法方法论，可用以支持该领域的创新工作，并通过出版使其广为人知。

Design Workshop也还一直积极参与最近推出的由景观建筑基金会（LAF）发起的"案例研究调查（CSI）"计划。这是一项由师生团队与领先从业者合作进行的独特研究，以记录整理一些示范性的高绩效景观项目可带来的实际效益。团队制定了量化环境效益、经济效益和社会效益的方法，并为LAF景观绩效系列提供"案例研究摘要"。Design Workshop早期参与这项倡议时进行的工作包括由同行评议的案例研究和方法论，以及试验阶段的项目参与，随后，公司有10个项目被选入该计划。这种与学术界同事的合作涉及方法论和基准线条件方面更深入、更稳健的研究，为未来的工作提供了批判性的反馈信息。LAF网站上有关于案例研究的专题，以便其他相关行业和公众进行详细的了解。

尽管Design Workshop的研究建立在某一个特定项目背景的基础上，但并非每个项目都必须从零开始。将集体知识在公司内部部门门户网路上共享，这就把Design Workshop的六大办事处连接在了一起，使每个办事处的员工无论在哪儿都能够像在一个公司里一样工作。公司中的众多类似项目通过多次应用为项目提供了比较研究的机会，其中所学到的理论和经验要么是受到挑战的，要么是得到肯定的。此类知识还可以通过邀请外部专家作为计划和活动的特邀发言人来进行补充。受邀的专家还会被邀请在全公司范围内对不同办事处类似项目开展的设计评议活动上提供反馈信息和新鲜观点。此外，Design Workshop还与私营企业客户建立了合作关系，对于一些与客户相关的重要课题，这些客户愿意承担相关学术研究的费用，从而开发了与学术界进行合作的额外机会。这代表着景观建筑行业的较新发展，即为研究提供了迫切需要的资源。

Design Workshop起源于学术界，其知识共享的公司文化在其出版的四大书籍中得到了进一步的强化：《美国西部的新园林》（2003年）、《面对遗产》（2007年）、《园林遗产》（2010年）和《品质恒久的景观》（2013年）。这些书籍充满了关于思维，构思和设计理念进化演变的激励人心的故事。知识传播也包括在专业杂志上发表的大量文章、会议演讲、成功登上同行评议杂志及努力追求达到与高标准的的实践并行的学术研究的最高标准。

Design Workshop的创造性工作获得了包括美国景观建筑师协会（ASLA）、美国规划协会和城市用地学会在内的各大机构授予的250多项奖项，充分证明了其项目所涉及的范围之广泛以及质量之卓越。"卓越街道倡议"是公司在密苏里州圣路易斯规划的一项街道景观复兴计划，最近获得了ASLA的"分析与规划范畴的专业奖"，以奖励其严谨的研究和测量所带动的卓越的规划和设计过程。该计划制定了40多项指标（包括步行出行、就业、城市野生动植物和财政回报率等），用于评估设计的成败。这个项目中用于量化街道景观设计效益的方法可以应用于类似的其他项目中。

随着当代对为文化景观提供明确的绩效测量的需求日益增加，在朝着此方向进化演变的过程中，这些倡议在Design Workshop中占据中心位置。公司的设计过程既有利于自然，也有利于社会，这一过程一直在反复强调并推动着自我们行业建立之初便确定的经久不衰的愿景。在关于研究者与从业者如何共同合作以更好地推动设计行业的进步与发展，并扩展其知识体系和提升景观建筑行业在未来的影响范围方面，公司提供了很多切实的案例。

案例研究——路易斯安那州新奥尔良拉斐特绿道 + 廊道复兴项目

应用研究实践

在理想的实践中，以往用于创造性和艺术性设计的经验型智慧要与科学知识和理论相一致，从而能够以可靠、可检验的方式支持设计。设计过程涉及理性推测和直觉推测，基于可靠的基准数据和进一步研究资料的特性这两者的可用性，这两种推测在"提出"和"处理"替代方案之间交互作用，从而将推测转变为可以被证明的绩效。而要想为全面的可持续性标准生成可靠的基准数据则需要在项目建成后进行绩效测量，这使得实践面临着艰巨的挑战。

在拉斐特绿道项目中，Design Workshop的团队检验了景观建筑以及大量的各种相关学科的知识体系，以便指导设计过程并预测和衡量该项目的绩效指标。基于证据的设计方法论涉及到30多种测量指标包括环境问题、社区问题、经济问题和艺术问题。该项目以LEED®和SITES™的标准为基准，但实际上比这些框架走得更远，其实际确定的可持续设计标准更为全面。被纳入考虑的因素如下：雨洪管理；城市热岛效应；城市野生动植物；原生植物的利用；循环回收材料；公共卫生；就业；税收；房产价值；犯罪率以及安全上学路线。该项目探索的问题、使用的方法和预测的结果有助于重新定义设计景观的设计、施工和监控，以应对为项目制定的可持续发展目标所带来的挑战。

项目概况

拉斐特廊道位于路易斯安那州新奥尔良的中心，廊道面积为1375英亩，长度为3.1英

The Lafitte Greenway is a 3.1 mile-long right-of-way that was once used for the transportation of goods along a rail corridor. It is currently envisioned as a multi-modal transportation corridor linking residents to the heart of the French Quarter. 拉斐特绿道是一条3.1英里长的公路用地，先前是一条用于运送货物的铁路走廊，现在作为一条多模式的交通走廊，将居民与法国区的中心联系在一起。
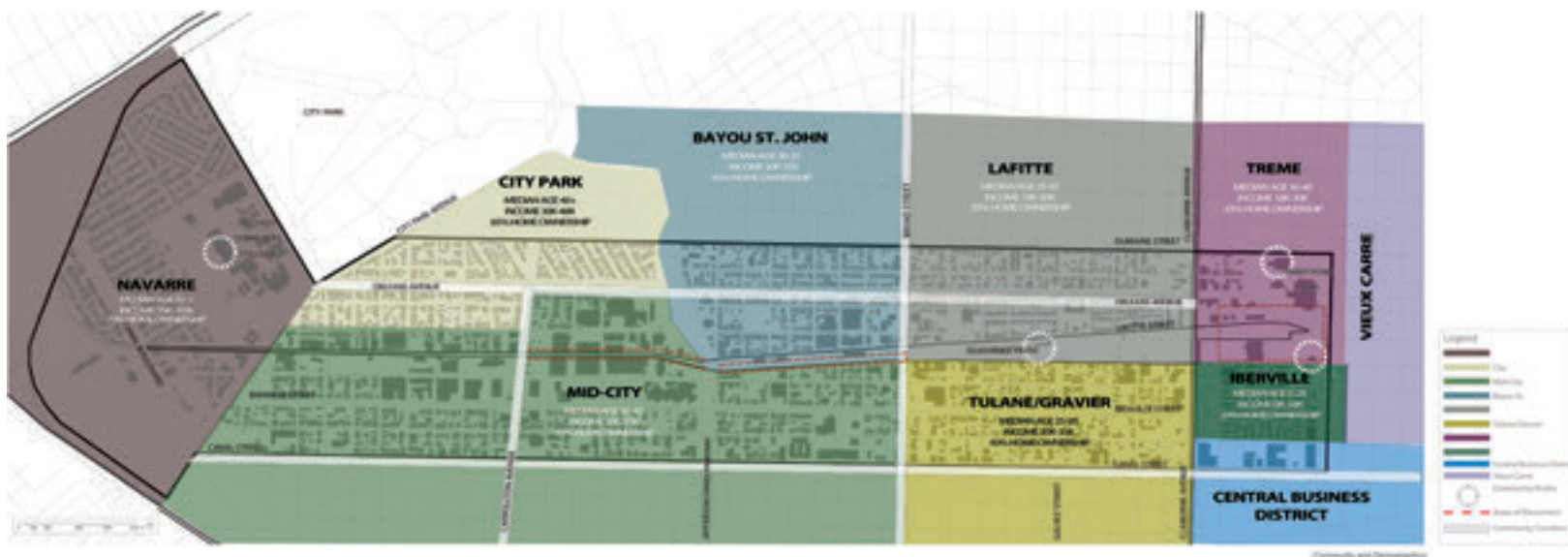
图3 (fig. 3)
CREDIT: Design Workshop
The Lafitte Corridor traverses nine historic New Orleans neighborhoods that make up diverse cultural and socioeconomic backgrounds.
拉菲特走廊穿过新奥尔良的九大历史社区，囊括了各种文化和社会经济背景。

里，包括65英亩拉斐特绿道，集居住、商业和轻工业于一体。拉斐特绿道先前是一条浅河沟，也是把庞恰特雷恩湖和圣约翰河连接到Vieux Carré的铁路通道用地。拉斐特廊道从新奥尔良著名的法国区开始，穿过城市的九大历史社区，横穿整个城市，囊括了200年以来的包括从Vieux Carré殖民时代到20世纪中期Lakeview城郊的各种社区形态（参看图1和2）。在20世纪早期，运河被填平，而毗邻运河的Carondelet Walk则成为拉斐特大街。沿着这个位址有一条铁路线一直运营到20世纪50年代，时至今日，仍然有一部分还在使用。在20世纪前半叶，沿着拉斐特廊道建造了不少公共住房和工业厂房，重新形成了居民区的城市肌理。20世纪80年代末，由于商业活动缺乏、土地用途变更、工业用途被遗弃，导致拉斐特廊道的商业活动大幅减少。近年来，尽管沿着拉斐特廊道仍有一些还未被利用的工业厂房，但是有一些空置的工业厂房已经开始被重建为住宅与商业投资混合用地。目前有13,583名居民居住在拉斐特廊道，这里的社会经济条件和人种构成差异很大，这意味着创造社区的互动将极具挑战性。其中一些居民区的犯罪率很高，因此必须对安全防范和犯罪预防具有敏感度并给予特别关注。

拉斐特绿道和廊道的历史展示了其在连接各大居民区和商业枢纽以及为社区娱乐提供开放空间方面起到的重要作用。长期以来周围的社区就想把这条通道用地转换为一条方便公众进入的集开放空间、娱乐场所和其它便利设施于一体的绿道。

项目范围和目标

拉斐特廊道之友（FOLC）是一个倡导邻里关系的组织，其主张把拉斐特廊道变成带状公园并在"愿景计划"中首先提出了该项目的概念。这项愿景计划是由当地一家景观建筑事务所——布朗•达诺思土地设计有限公司——通过ASLA与国家公园管理局之间签订的合作协议无偿完成的，该文件在社区建设中起到至关重要的作用，它将当选官员、代理商和绿道赞助商连接到了一起。受绿道互助组的委任，瓦戈纳•波尔建筑师有限公司（瓦戈纳+波尔，"拉斐特绿道：可持续水景设计"）开展了第二项研究，提出了一项绿道雨洪管理策略。

Design Workshop被新奥尔良市选中成为一个多学科团队的领导，该团队既有建筑师、土木工程师、生态学家和经济学家，也有公园管理和运营专家以及通过环境设计预防犯罪的专家。Design Workshop之所以被选中，是由于他们提出了拉斐特廊道建造的可靠方案以及综合型规划和设计的可持续发展方法，融合了可持续发展范畴的"四重盈余"，即环境、社区、艺术和经济（称之为DW Legacy Design®）。该项目于2009年春季启动，于2013年8月份开始施工。

拉斐特廊道项目的工作范围包括：总体规划和设计过程、现有的条件与分析、社区参与、采用适用于拉斐特绿道的项目策划、拉斐特绿道设计以及日后运营和维护拉斐特绿道所需的大致步骤。此外，拉斐特廊道复兴计划勾勒出了与兼容性的用地规划和城市设计相关的广泛策略，以及经济开发战略和交通连接。在更为详细的建议中还包括关于土地用途、分区、城市设计、社会公平、公私合伙企业、资本投资、私营市场力量、经济开发、基础设施、公园与娱乐及交通等议题。

设计团队遵循严谨的研究、规划和设计过程，目的是记录和分析现有场地的基线数据、建立绩效基准和制定设计成败衡量策略。

可持续发展的目标和绩效指标

对可持续发展的"四重盈余"（环境、社区、艺术和经济）的了解和应用涉及到开展并协调横跨三个学习分支的多学科研究：1）自然科学；2）社会科学；3）艺术和人文科学。鉴于第一个分支的定量性、客观性和有形性，在解决可持续发展的环境问题方面，它可能会比其它分支更有助于建立绩效指标和标准。而第二和第三个分支则是定性的、主观的、无形的、受信念所驱使的，因此不利于建立标准化的绩效指标。由于意识到有必要将这三个分支的研究和知识融合在一起来解决拉斐特廊道项目所表现出来的复杂环境和社区相关问题，Design Workshop的实践模式包括将与多学科团队以及学者和研究机构进行合作。为了解决项目所面临的各种问题，设计团队在从各学习分支内部寻求研究可适用性的知识方面进行了大量投入。

基于广泛的研究资源，如LEED®中的邻里设计评分系统和美国森林协会以及社区的参与，设计团队制定了一系列的明确目标、绩效指标、基准以及针对环境、社区、经济和美学每个范畴的策略，以便对设计备选方案和项目结果进行评估。在新奥尔良，拉斐特绿道将成为第一个创造了可衡量结果的项目，这些可衡量结果旨在减少城市热岛效应，并提高雨洪管理能力。该项目还大量使用了绿色基础设施和原生植物。

研究与知识的来源

设计团队利用大量的作品、研究和以往经验，为设计过程和研究方法论提供信息。学者、作家和从业者诸如帕特里克•戈德斯、伊恩•麦克哈格、安•惠斯顿•史必恩、迈克尔•霍夫、达尼洛•帕拉特塞尔和弗雷德里克•斯坦纳等所提出的景观建筑生态学方法和城市设计与规划概念为该项目提供了理论框架。

社会科学的研究，包括劳伦斯•弗兰克、彼得•恩戈尔克和托马斯•施密德以及蒂莫西•克罗及戴安娜•扎姆等完成的研究，为社区设计与人类福祉之间关系提供了证据。奥斯卡•纽曼早期的成果以及其他通过环境设计预防犯罪的知识表明，通过创建社区能"拥有的"并为之自豪的开放空间，社区能够控制犯罪率。这一方面已经吸引了杜兰公共卫生学院的关注，该学院很有兴趣追踪拉斐特廊道项目的开发对促进社区体育活动方面的影响，并表示有可能参与到研究中来。值得注意的是，杜兰公共卫生学院曾帮助召开后来成为"拉斐特廊道之友"这个组织的第一次会议，该社区组织的成立旨在把拉斐特廊道创建成一个绿色空间。

与拉斐特廊道复兴有关的许多问题都可归根于社会和经济问题，如：贫困、房地产贬值、犯罪、娱乐资源缺乏和营养不良。在经济方面，拟定的绿道设计可以提升毗邻房地产的价值，这个概念在很大程度上得到包括"衡量城市公园系统的经济价值"在内的经验研究证据的支持。经验证据还表明了纽约市历史悠久的中央公园和新建的布莱恩特公园带来的社会和经济效益。另一方面，一个有问题的公园或年久失修的公园则会使房产价值下降达五个百分点。这一点在当今的拉斐特绿道体现得淋漓尽致。在现

在以及在拉斐特绿道实施后分别追踪拉斐特绿道周围的房地产价值以判断是升值还是贬值，将会为日后的研究可提供定量数据用以证明公园的价值。

设计愿景与设计理念

拉斐特绿道的愿景是提供一个安全的、公众可进入的开放空间，使其体现出周围居民区的需求和愿望以及更大背景下的自然和文化历史。这种愿景在总体设计理念上有所体现，该设计理念以历史生态学原理为基础，建立在该区域历史的丰富层次基础之上，同时也将社区的投入和先前计划考虑在内。从拉斐特绿道的历史用途或潜在未来用途上总结出四个初始概念——工业用途和商业用途【铁路效应】；雨洪管理【与水生活】；把社区拼接在一起【拼接图】；邻里与拉斐特绿道的关系【前门廊】，而这些概念则被发展成了拉斐特绿道的总体设计理念（参看图3）。

空间项目的策划是从周围社区成员和其他利益相关者的愿望中直接提炼出来的。该设计在现有的社区设施与拉斐特绿道的设计元素之间创造了一种协同效应，为正式的和非正式的活动提供了开放空间（参看图4）。如早期的地图所示，18世纪的Carondelet运河与Carondelet Walk的标志为一英里长的落羽杉（Taxodium distichum）树丛，而项目方案对此历史特征的呼应则是将曾经覆盖在场地上的柏树林重新唤醒，找回人们对这一地带的回忆。这条新的用压碎的和回收的砖块建成的Carondelet Walk在公园内部形成了一条次级通道和一条壮观的散步长廊，很像200年前的原型。如果恢复历史上的柏树林树冠面积，可以使拉斐特绿道的树冠覆盖范围增加46%。在十年一遇的暴风雨期间，落到这一带的雨水100%都会被截流并滞留在场地内，并慢慢渗回地下，而无需使用任何排水设施，随着时间的推移，泥土沉降对这一系统的影响也会大幅降低（参看图5和6）。

在这片小柏树林里面有是一个种满原生路易斯安那州鸢尾花的临时性雨水花园。当穿过这片小柏树林，锈迹斑斑的铁路可以将你带到火车轨道的所在处。种植设计充分体现出南路易斯安那州的天然植被格局，沿着拉斐特绿道的一端爬升到梅泰里山脊而另一端延生到密西西比河的自然水域，你会发现湿生植物景观逐渐转变为底层木本植被景观进而演替为山地植物群落。 完全采用原生植物材料原料后，随着时间的流逝，野生动植物和鸟类的数量将会翻两番。

开发拉斐特绿道并复兴拉斐特廊道的发展方案回应了周边社区的需求，同时也传扬了这一带的丰富的历史底蕴，把这一片贫瘠的土地改造成了生态结构丰富、社会多元化、视觉上能唤起回忆的可持续发展区域（参看图7和8）。

结论、挑战与前景

该项目赞成实践与研究一体化，这是许多学者与从业者50多年来所提倡的，并被认为对我们行业的发展至关重要。通过制定并检验综合的研究型定量及定性目标及绩效指标，该项目所应用的模型在推动可持续发展范式的应用方面做出了巨大的贡献。此外，设计过程要协调各种相互矛盾的、有时相互排斥的环境、社会和经济目标，这些目标往往是项目所期望的或者在实现最高水平的可持续发展范式方面被认为是最佳的。在达成这些不同目标的过程中所涉及的延展机会和限制条件又为研究提供了一块潜在领域。

在生成、记录和共享知识的过程中所采用的系统方法，作为当前实践中一个最令人期待但是大部分情况下都未能实现的目标，可以成为一种可用知识的来源。该项目也是一个测试案例，明确了那些仍需解决的挑战以及建立研究合作关系的机遇。例如，与新奥尔良大学的鸟类学家合作作为拉斐特绿道提供了鸟类数量数据的基线。杜兰大学公共卫生系的研究通过拉斐特廊道的居民测量了现有的体育活动水平，与设计团队的研究成果形成互补。这些独立的资源提供了宝贵的基线数据，可用于衡量设计的绩效。

图4 (fig. 4)
CREDIT: Design Workshop
The preferred design alternative is built upon marking and honoring layers of natural and cultural history while meeting the needs of the surrounding communities.
设计在协调和尊重自然和文化历史的同时，满足了周围社区的需要。

Greenway | 3.1 mile trail

Greenway | Broad Street to the French Quarter
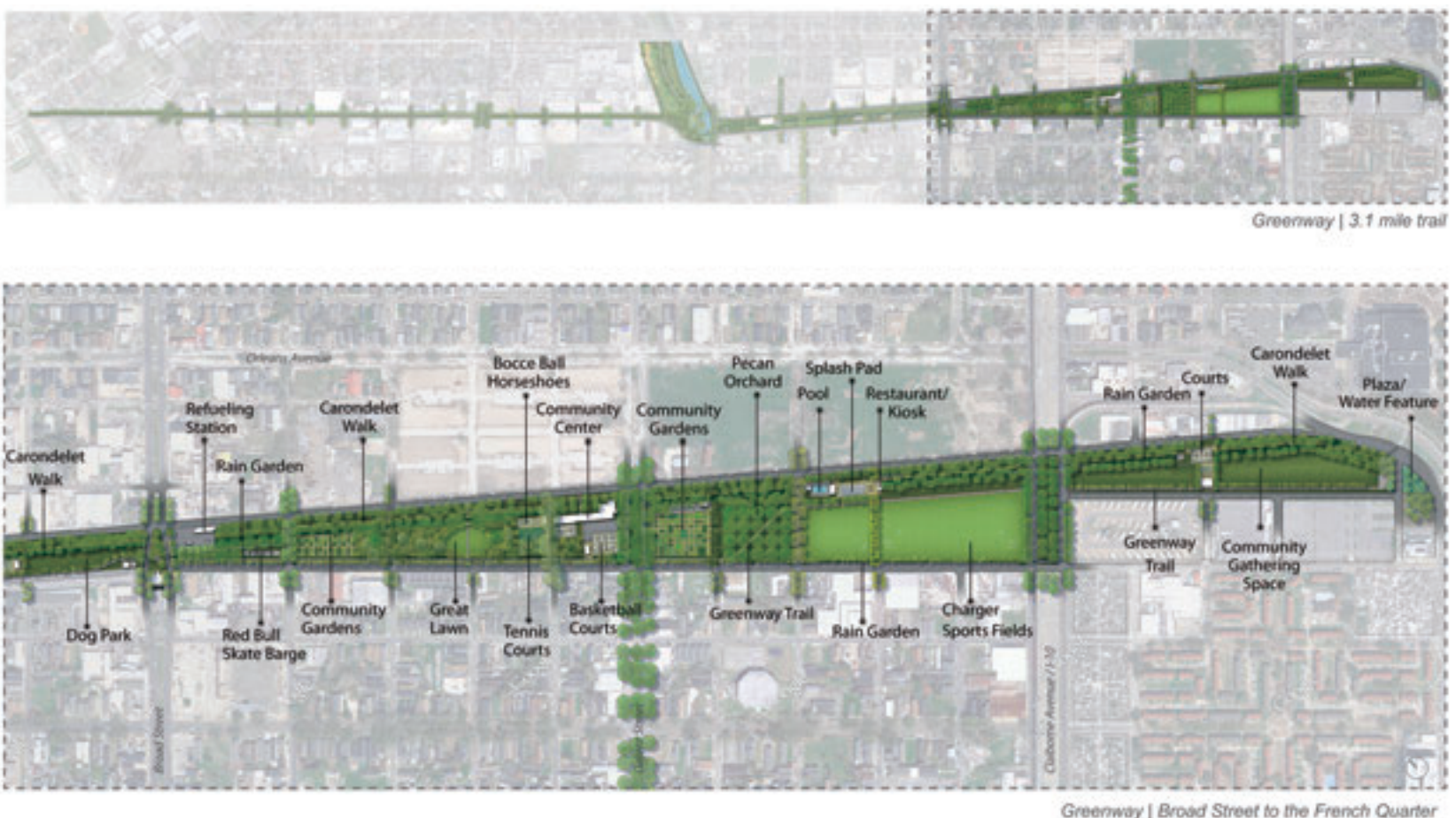
不过，可用于拉斐特廊道项目的犯罪统计资料还不充分，因此难以评估整条廊道改造的娱乐空间和开放空间在安全方面所产生的影响。

这项案例研究调查的范围非常广泛，它表明了未来最大程度地提升研究型实践的潜在效益的关键一步。从根本上讲，景观建筑设计实践一直以来从那些有思想深度的从业者和学者（如：奥姆斯特德、劳伦斯•哈普林和麦克哈格）经久不衰的作品和言语中收益颇深。在过去20年里，我们在自然体系、城市废置景观和高度融合的景观方面的知识在不断拓展，人类的信念与价值观也在不断演变，使我们不得不对长期以来坚持的信念和实践重新检验，从而创造一套全新的理论。在这方面的一个重要的范例是在《设计结合自然》（1969年）出版后，生态学的研究和理论一直在持续的演进。这本书采用的稳定与平衡的概念是定义健康生态系统最具争议的标准之一。近期的有关生态系统的概念包括生态回复力、生态繁衍和生态干预等概念，开始在一些从业者的作品中出现，具体反映在沃尔克•格林姆、埃里克•施密特、克里斯蒂安•威塞尔、斯图尔特•皮科特、彼得•怀特和克里斯多夫•法斯梯等的作品中。保持对理论发展动态的了解是一项挑战，需要把系统性的评估以及对不断发展的研究进行应用作为实践的一个不可分割的部分进行持续投资。像Design Workshop这样的领先从业者已合理定位，引入了更高级别的详细性和学术方案对研究应用进行检验，这是一个持续的过程，涉及到设定清晰的假设、通过行动对这些假设进行检验、记录结果并明确实践面临的挑战，这些步骤对于把设计想法转化为实际应用是十分必要的。

另一个实践问题则纠结在这样的一个事实上：景观项目在施工结束时的绩效水平其实是最低的，之后，景观会以期望的或不期望的方式不断演变。在施工后进行系统性的长期监控和评估，可以产生大量的数据和知识，这些数据和知识对特定项目极其有益，对未来的项目也大有帮助。许多在拉斐特绿道项目竣工后所预期的经过研究的且理由充分的结果都需要一个长期监控的系统追踪项目的实际影响。

绩效指标的应用需要大量的基线数据和使用后的长期监控，这种后期监控需要来自多个学科通过大量学科特定方案来进行操作。这些尚未成为传统专业服务范围和费用结构的一个重要部分，而且还需要额外的专业知识和时间才能实现。制定收集基线数据的方法和使用后的长期监控模型（包括利用环境遥感突破性技术）必将成为未来研究的一个方面，并无疑将成为学术界与实践者之间新的合作空间。同样地，神经科学研究的发展，并随着人类对空间模式和其它环境属性在行为上和心理上的反应的进一步了解，为新的研究领域提供了广阔的前景，从而创造出更令人满意、更具可预见性的人生体验。

拉斐特廊道和绿道项目是一个令人瞩目的模型，可以指导未来日益增多的研究型和多学科景观建筑实践。美国景观建筑师协会（ASLA）授予的"2013年分析与规划范畴的卓越奖"和ASLA德克萨斯州分会授予的"2012年分析与规划范畴的荣誉奖"，均表明该项目已获得了专业的认可。利用合作实践的经营模式，Design Workshop的不断发展的实践，为拓展学术研究和推动研究型设计与规划的范式提供了机遇。

作者简介：

作为一名教育工作者和从业者，保狄夫•兰巴以其研究与创造性工作体现出设计与研究的一体化，并特别强调可持续发展的指标与措施。兰巴是宾夕法尼亚州费城天普大学的景观建筑副教授，因其在设计和教育方面的出色表现而获得景观建筑教育者理事会（CELA）授予的"2012年研究与创造性工作卓越奖"。兰巴及其同伴在景观建筑行业的获奖项目包括：位于哥伦比亚区华盛顿国家广场上的第一夫人水景园和宾夕法尼亚州费城宾夕法尼亚园艺协会弹出式花园，后者还被当选为意大利威尼斯第13届国际威尼斯建筑双年展的美国官方代表项目。

图5 (fig. 5)
CREDIT: Design Workshop
The historic alignment of the Canal is retrofitted as a rain garden with 100-percent native plant material. The design achieves environmental sustainability by restoring the native ecology and increasing habitat for wildlife, while providing essential recreation space for the community.
水渠的历史定位是改造为百分之百原生植物材料的雨水花园。设计用恢复当地的生态和增加野生动物栖息地实现环境的可持续发展，同时为社区提供必要的休闲空间。
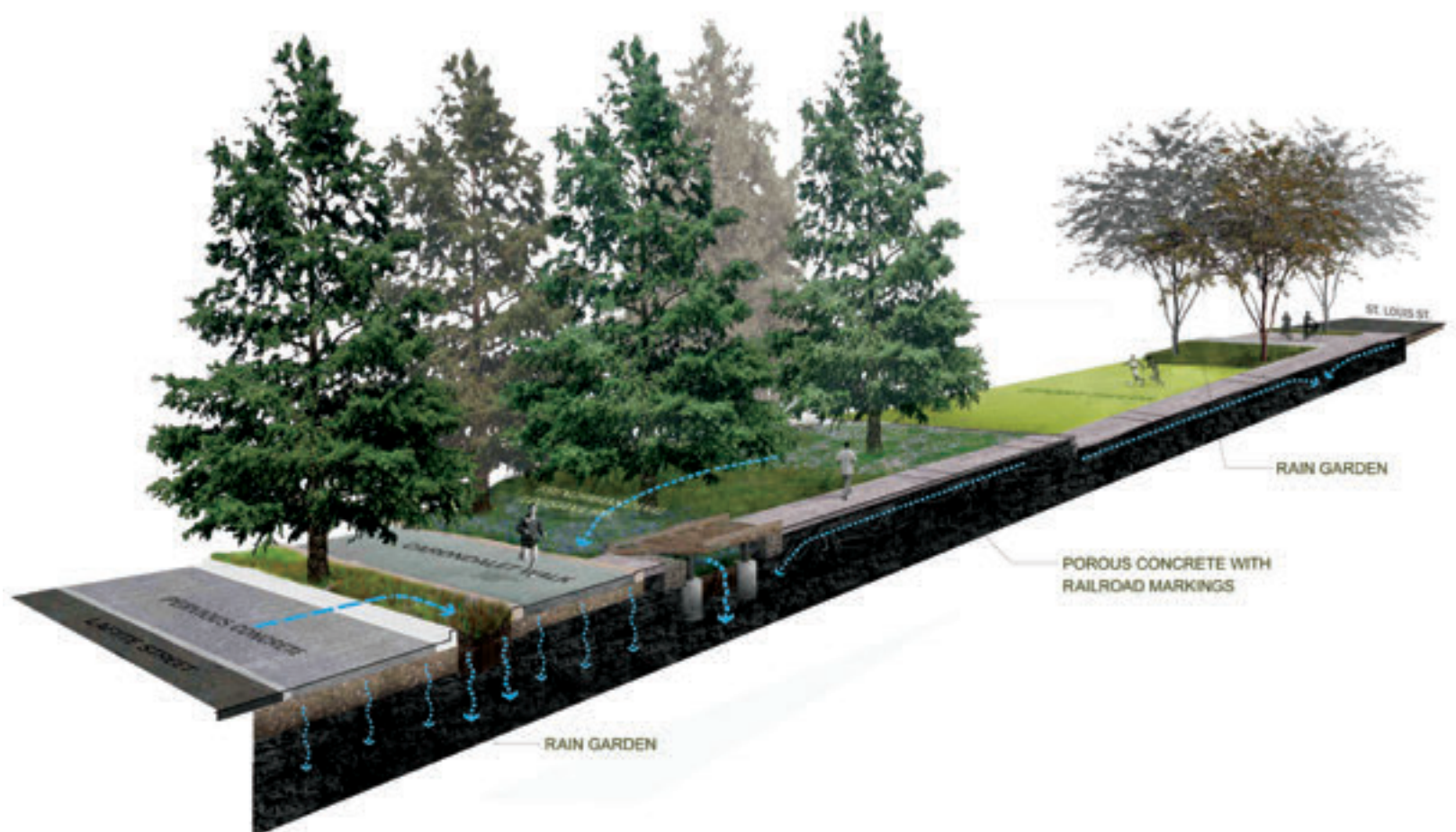
The Sustainability Revolution

Concepts of sustainability advocate a balance among environmental, economic, and social impacts of development in meeting current and future human needs and aspirations. First enunciated in the <u>Our Common Futures</u> report (1987) by the United Nation's World Commission on Environment and Development, concepts of sustainability were seen as a way to address global concerns about a deteriorating environment that threatened the lives of many species, including human. These concepts gained momentum following the Rio de Janeiro Earth Summit in 1992, leading to the current full-blown global sustainability movement, reminiscent of the environmental movement of the 1960s. The pressures and politics associated with the concepts of sustainability are re-defining every aspect of our society and culture. However, the pursuit of sustainability has been fragmented, as there is no real consensus about how "sustainability" is defined, realized or measured. Increasing demand for the application of sustainability practices, in their many manifestations, is altering how design is practiced, and, more importantly, how its performance is measured.

The increasing focus on proven performance is the greatest emerging challenge facing landscape architects today. And it's a paradigm shift that calls for increased technical and research capacity for the practice of landscape architecture. There is current debate around how landscape architects define concepts of sustainability that integrate the artistic as well as the scientific aspects of our profession. This can be seen as an evolution of our profession's roots of environmental stewardship that bring ecological, social and cultural values into our designed landscapes, a design philosophy that goes back to the profession's founder in America, Frederick Law Olmsted. Now these values must somehow be measured.

Metrics, Measures and Ratings of Sustainability

Designers are being challenged to meet various performance rubrics which follow the metrics and measures of sustainability for architecture lead by BREAM (Building Research Establishment Environmental Assessment Method) in Europe in 1990. The Leadership in Energy and Environmental Design (LEED®) Green Building Rating System, developed by the U.S. Green Building Council (USGBC) in 2000, provides the standard for environmentally sustainable design, construction, and maintenance, and this standard has become the most widely recognized and used green building assessment tool. With an impressive record of economic growth and building projects, the People's Republic of China is using the LEED® certification to demonstrate its commitment to sustainability and to attract multinational tenants. For example, the Linked Hybrid complex in Beijing by Steven Holl Architects was designed to qualify for a LEED® Gold certification. LEED® has inspired an explosion of numerous sustainability rating systems and standards at the local, regional and global levels of organizations and municipalities. Rating systems are moving towards goal-oriented outcomes of designs that address issues such as urban agriculture, limits to growth, ecological water flow, and net zero energy for a range of applications including buildings, landscapes, communities, regions, and beyond.

Lead by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center at The University of Texas at Austin, and the United States Botanic Garden, the Sustainable Sites Initiative™ (SITES™) rating system was created to address the site-specific conditions and opportunities for landscape projects with or without buildings. The SITES™ rating system, launched in 2009 and tested in a two-year pilot program, represents a primary alignment of the practice of landscape architecture with ecology and natural sciences in developing the benchmarks of excellence. One of Design Workshop's projects, Blue Hole Regional Park in Austin, Texas, was a participant in the pilot program and received certification from SITES™ in August 2013. Rating systems like SITES™, LEED®, BREAM, Living Building Challenge and others are re-defining the process of design and development to include extensive and thorough documentation to a level not done in the past, and these systems are changing the way design related information is produced, retained and documented.

The Landscape Performance Series (LPS) program started by the Landscape Architecture Foundation (LAF) is designed to develop on-line interactive set of resources to facilitate, measure, and evaluate performance of designed landscapes.

It brings together information and innovations from research, professional practice and student work in the form of case studies, benefits toolkits, fast fact library, and scholarly works as data and knowledge resources to provide professionals with tools to promote development of sustainable landscapes.

Practice Research Dichotomy

Rating systems, regulating agencies, and code enforcements require predictable and defensible design solutions. Incorporating metrics and credible data for landscape assessment is increasingly seen as an integral part of the design process for landscape architects, planners, and architects. With the changing values and sensibilities of the 21st century, the notion of creative leaps and unsubstantiated assertions no longer satisfies the concerns and values of clients and the public at large. As the design professions move from speculating about the environmental and societal impact of our designs to predicting and quantifying those impacts, intuitive and artistic aspects of the design process need to be grounded in the structures and principles of the physical and social sciences to the greatest extent possible. While much progress has been made in devising quantitative measures for flows of energy and water many practitioners are deeply concerned about the lack of research on measuring less tangible but equally important qualitative, visual, physiological, and social benefits of built landscapes. These somewhat ambiguous experiential qualities infuse users with respect and care for cultural landscapes and generate critical public support for long-term sustainability. While meeting these challenges requires enhanced capacity and resources for generating research based evidence to support design decisions, we are faced with a persistent and growing separation between research and design and, by extension, between academics, considered primary producers of research, and practitioners, assumed to be the primary consumers of research. Yet most of the academic research conducted over the last thirty years has had very little relevance to practice, and, for the most part, practitioners do not consider academia a viable source for applicable professional-based research. From the 1950s to the present, respected scholars, including Ervin Zube, Robert Riley, and Elizabeth Meyer, and leading practitioners including Garrett Eckbo, Hideo Sasaki, Ken Smith, the OLIN office, Andropogon, Mithun, and Design Workshop, have and are advocating for the integration of practice and research in order to keep our profession relevant, competitive and growing. While not yet fully realized, with the demands of sustainability metrics the notion has acquired a renewed sense of urgency.

Understanding and transcending the historic tensions and the dichotomous ways of thinking between the artistic and the scientific communities (and by extension between designers and researchers; practitioners and academics) is critical for a holistic approach to solve the increasingly complex environmental and social issues related to the built environment of the 21st century.

The Culture of Practice

Works of practitioners going back to Olmsted have served as major sources for the advancement and production of knowledge for our profession. Motivated by their professional and environmental ethics, practitioners are again emerging at the forefront of finding creative and innovative ways to bringing design sensibilities to the contemporary notions of sustainability in their work.

Interviews with leading practitioners point to increased realization about the importance of research-based practice. Practitioners must carry out their professional responsibilities in the context of greater demands from clients for research-based and quantitative accountability. The stringent time-consuming documentation required to comply with sustainability rating systems is usually not supported by the fee structures for professional services. At this time of economic austerity and increased competition among professionals, the perceived benefits and value for environmentally responsible development can be a hard sell for clients when it involves additional and perhaps unexpected expenses. And practitioners are also faced with a general lack of available and applicable research to support their design decisions. In spite of the sincere desire to raise the level of inquiry, research is generally considered secondary to the 'real work' of practice, and allocating time and streams of funding, with mostly longer-term returns, is proving very difficult for many practitioners to incorporate into project budgets.

图6 (fig. 6)
CREDIT: Design Workshop
Rain water storage units beneath parking lots on the Lafitte Greenway can provide groundwater recharge and increased water quality, while also being used as a source for gray water.
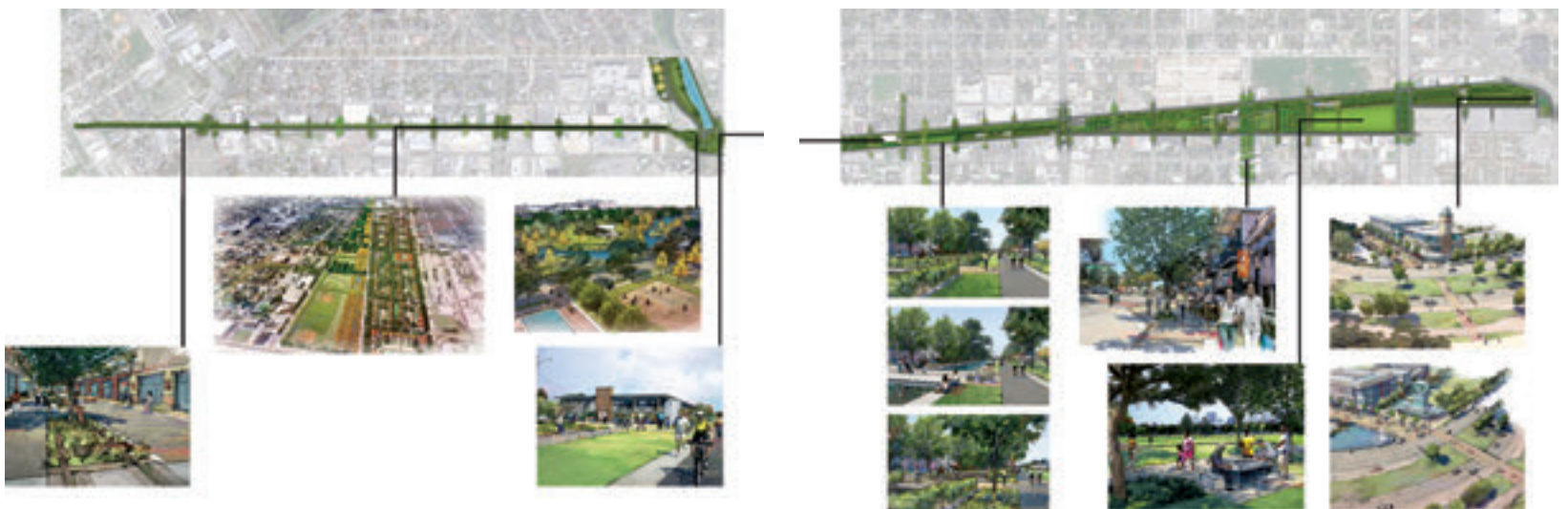在拉菲特绿道停车场下面的雨水储存装置可以提供地下水的补给和提高水的质量，同时也被用作一种可再利用水的水源。

图7 (fig. 7)
CREDIT: Design Workshop
Vignettes show key elements that users of the Lafitte Greenway will experience as they travel the length of the Greenway trail. 插图显示了拉菲特绿道用户因为他们穿行于绿道所能体验的要素。

The world of practice, seen as project-centric applied research, contains a wealth of raw but potentially valuable and mostly untapped innovation and knowledge of great value beyond the singular application of the project for which it was developed. Practitioners are essentially engaged in research on a daily basis as they test things out and learn from project to project. But the nature of this research and the knowledge generated within practice tends to be episodic, lacking in scholarly research protocols; in addition, it is not well documented and is seldom preserved, shared, or published. Practitioners are also concerned about sharing proprietary information derived from their work that is considered confidential by the clients. Sometimes, specialized research gives a firm a competitive edge. Even with the many constraints, practices generate much knowledge that can and should be harnessed for the benefit of the entire profession. Some highly motivated practitioners, recognizing the importance of bridging the divide between practice and research, especially with the new demands of sustainability metrics, are making

significant contributions, through publications and presentations, to re-defining the design, documentation, construction and monitoring of the designed landscapes.

Design Workshop - A Model of Reflective Practice

Design Workshop has managed to chart a more inclusive, integrated, and collaborative pathway between research and design as represented in its philosophy, organizational structure, and body of work. With its origins in academia, Design Workshop's culture involves continuous learning through critically examining every facet of their practice. This defining characteristic of "reflective practitioners," as described by Schön[i], has positioned this practice as a leading influence in the profession. The firm approaches each project as an experiment for gaining greater insights, creative learning, and unconventional thinking, unfolding new perspectives and directions for the future. In addition Design Workshop's commitment to engaging in extended dialogue with the academic community is re-defining the role and scope of work for landscape architects and putting Design Workshop in a leadership position on multidisciplinary teams. Such models of practice are needed to serve the next generation's clients with a metrics and performance-based mindset, providing scientific accountability from design professionals.

Design Workshop is playing an important role in exploring pro-active and creative ways to address the challenges surrounding sustainability and the related paradigm shift towards design performance. A seamless and systematic synthesis of intuition and reason, physical and social sciences, practitioners and academics, teaching and practice, and knowledge and action permeates every level of the firm's organizational structure. Design Workshop's holistic understanding of sustainability is reflected in the firm's design philosophy of creating a synthesis of environmental, economic, artistic and community aspects with every project. Recognizing the paramount importance of making the economic argument to support design decisions, Design Workshop has initiated for clients a Development Services Group that conducts market research and analysis related to land development and planning.

Community, Environment and Art/Aesthetic topics are also part of the design conversations, and the firm's process and project goal setting, addressed in the articles that follow, shows its intentions for making sure that staff are being cognizant and deliberate about all four categories of sustainability. Each project is examined through these four lenses of sustainability in understanding existing conditions, setting clear and measureable goals, developing explicit metrics, and monitoring outcomes to determine performance effectiveness.

Widely acknowledged, the LEED® process together with the more recent SITES™ rating system for landscape architecture strive to promote leadership in embracing sustainable practices and products. Rating systems, considered adequate standards for the present and generally accepted and followed by professionals, must evolve and be continually evaluated in order to address more comprehensive measures of sustainability goals for the future. Building on these systems through internal teaching and learning, Design Workshop has developed its own set of matrices and methodologies that establish and track their sustainability goals, formulate the research agenda for the project, and share the results within and even outside of the firm. This evolution poses professional challenges that require re-examination and re-formulations of every aspect of the design process with increased focus on systematic methods and means for capturing, organizing, analyzing, and documenting quantitative and qualitative outcomes. The design process at Design Workshop goes beyond the traditional scope from design to construction and often includes follow-up reflection through writing, publications, presentations, and identifying topics for further research.

On-going dialogue with the academy is an integral part of the practice at Design Workshop. This involvement includes conducting the firm's well-known interdisciplinary Design Week at institutions around the country along with mentoring thesis students, offering internships, and doing adjunct teaching. Design Workshop was recently honored with the American Society of Landscape Architects (ASLA) 2012 Landscape Architecture Medal of Excellence for its Design Week initiative. Collaboration with academia extends to hosting a Faculty-in-Residence program at Design Workshop

which exposes staff to academic experts in the field, and, at the same time, acquaints academics with current practice thereby informing subsequent academic instruction. Links with academia bring a more rigorous methodology to support the innovative work happening in the field and make it widely known through publications.

Design Workshop has also been actively involved in the recently launched Case Study Investigation (CSI) program, sponsored by the Landscape Architecture Foundation (LAF). It is a unique research collaboration of faculty-student teams working with leading practitioners to document the benefits of exemplary high-performing landscape projects. Teams develop methods to quantify environmental, economic and social benefits and produce Case Study Briefs for LAF's Landscape Performance Series. Design Workshop's early involvement with this initiative included peer-reviewing case studies and methodologies and participation in the pilot phase, followed with ten of the firm's projects selected for this program. This partnership with academic colleagues involves more probing and more robust research about methodologies and baseline conditions and provides critical feedback for future work. The case studies are featured on the LAF website where they are accessible to the wider profession and the public at large.[ii]

Research at Design Workshop takes place in the context of individual projects with the idea that not every project should re-invent the wheel. Sharing collective knowledge on an internal web-based portal connects Design Workshop's six locations and allows staff, regardless of location, to operate as a single firm. Similar projects in the firm provide comparative research opportunities through multiple applications where the theories and lessons learned are challenged or confirmed. This knowledge is supplemented by programs and events with outside experts as guest speakers. Experts are also invited to provide feedback and fresh points of view to the firm-wide design reviews of similar projects in different offices. In addition, Design Workshop has cultivated private sector clients who would be willing to help pay for academic research about things important to the clients, opening additional opportunities for collaborations with the academia. This represents a relatively new development in the profession of landscape architecture that can provide sorely needed resources for research.

Design Workshop's origins in academia and a knowledge-sharing culture is further reinforced by the publications of four books, New Gardens of the American West (2003)[iii], Toward Legacy (2007)[iv], Garden Legacy (2010)[v], and Landscapes of Enduring Quality (2013)[vi], with inspiring stories of the evolution of thoughts, ideas and design philosophy. Knowledge dissemination also includes numerous articles in professional magazines, presentations at conferences, breaking into peer-reviewed journals and aspiring to meet the highest standards of academic research that parallels the high standards of their practice.

Design Workshop's creative efforts have been recognized with more than 250 awards from such organizations as the American Society of Landscape Architects (ASLA), the American Planning Association and the Urban Land Institute, testifying to the extraordinary range and excellence of their projects. The recent ASLA Professional Award in the Analysis & Planning category for the Great Streets Initiative, a streetscape revitalization plan in St. Louis, Missouri, recognizes the planning and design process driven by rigorous research and measurement. It involved developing over forty metrics including pedestrian mobility, employment, urban wildlife and financial rate-of-return to assess the success of the design. The methodology used to quantify performance benefits of this streetscape design can be adapted to similar projects.

All of these initiatives situate Design Workshop front and center in the evolution toward meeting contemporary demands of providing explicit measures of performance for cultural landscapes. The firm's design process benefits both nature and society, reasserting and advancing an enduring vision that reaches back to the founding of our profession. The firm offers many tangible examples of how researchers and practitioners, working together, can better contribute to the progress and growth of our profession, expand its body of knowledge and enhance the landscape architecture profession's sphere of influence into the future.

Case Study - Lafitte Greenway + Revitalization Corridor Project, New Orleans, Louisiana

Practice as Applied Research

Ideally in practice, prior experience-based wisdom used in the creative and artistic appearance of design is reconciled with scientific knowledge and theories to support design in a credible and verifiable way. The design process involves informed and intuitive projections moving interactively between the "proposing" and "disposing" of alternative scenarios[vii] based on the availability of reliable base line data and the identification of additional research to move from speculation to proven performance. Generating reliable baseline data for the full spectrum of sustainability criteria needed to measure post construction performance poses a formidable challenge for practice.

In the Lafitte Greenway project, Design Worship's team tested bodies of knowledge from landscape architecture and numerous related disciplines to direct the design process and to predict and measure the performance metrics established for the project. The design methodology employed an evidence-driven approach that considered over thirty metrics embracing issues of environment, community, economics, and art. The project was benchmarked against the standards of LEED® and SITES™, but it went far beyond these frameworks to establish more holistic standard for sustainable design. Factors considered include the following: stormwater management; effects of urban heat island; urban wildlife; native plant use; recycled content; public health; employment; tax generation; housing values; crime rates; and safe routes to school. The questions probed, the methods used, and the outcomes predicted for this project will contribute to re-defining the design, construction and monitoring of designed landscapes that address the challenges posed by the sustainability goals developed for the project.

Project Overview

Located in the heart of New Orleans, Louisiana, the Lafitte Corridor is a 1,375-acre, 3.1 mile-long district that includes the 65-acre Lafitte Greenway and a rich mix of residential, commercial and light industrial uses. The Lafitte Greenway is a former shallow shipping canal and railroad right-of-way that connected Lake Pontchartrain and Bayou St. John to the Vieux Carré. Starting from New Orleans' famous French Quarter through nine of the city's historic neighborhoods, the corridor's right-of-way traverses a cross-section of the city that captures its 200-year settlement pattern, ranging from the colonial-era settlement of the Vieux Carré to the mid-20th-century suburban neighborhood of Lakeview. During the early 20th century, the canal was filled, and the Carondelet Walk, adjacent the canal, became Lafitte Street. A railroad line was active along this site until the 1950s, and there are still portions of the railroad that remain in operation today. During the first half of the 20th century, public housing sites and industrial buildings were established along the corridor, re-defining the urban fabric of the neighborhoods. Later in the 1980s, lack of business activity, changing land use, and the abandoning of industrial uses resulting in the decline in the Corridor's commercial activity. Recently, some vacant industrial buildings have been renovated as mixed residential and commercial investments, although some unused industrial buildings remain along the corridor site. With 13,583 residents, the corridor presently contains a vast spectrum of socio-economic conditions and racial compositions, creating a challenging context for community engagement. High crime rates in some of the neighborhoods required sensitivity to and special focus on safety and crime prevention. (see fig. 1 and fig. 2)

The history of the Lafitte Greenway and Corridor displays the important role the Corridor could have in connecting the various neighborhoods and commercial nodes and in providing open space for community enjoyment. It has long been the objective of the surrounding communities to convert this special right-of-way into a greenway comprised of publicly accessible open space, recreation areas and other amenities.

Project Scope and Objectives

The concept for this project was first put forth in a 'vision plan' by the Friends of Lafitte Corridor (FOLC), the neighborhood advocacy organization, who advocated for the corridor becoming a linear park. This vision plan was completed, pro bono,

by Brown + Danos landdesign, Inc., a local landscape architectural office through a cooperative agreement between the ASLA and the National Park Service, and this document was critical in building community support for the creation of the corridor among elected officials, agencies, and greenway constituencies. A second study by Waggonner + Ball Architects (Waggonner + Ball, 'Lafitte Greenway: Sustainable Water Design'), commissioned by the greenway's support group, proposed a stormwater strategy for the Greenway.

Design Workshop was retained by the City of New Orleans to lead a multi-disciplinary team that included architects, civil engineers, ecologists, economists, as well as experts in park management and operations and crime prevention through environmental design. Design Workshop was chosen specifically for their credible proposal for this corridor and for their comprehensive sustainability approach to planning and design incorporating the "quadruple bottom line" of sustainability categories: Environment, Community, Art and Economics, termed DW Legacy Design®. The project started in spring 2009 and the construction began in August 2013.

The scope of work for the Lafitte corridor includes addressing the overall planning and design process, existing conditions and analysis, the community engagement, programmatic uses appropriate for the Greenway, the Greenway design, and the general steps needed to operate and maintain the Greenway in the future. In addition, the Lafitte Corridor Revitalization Plan outlines the broader strategies related to compatible land uses and urban design, economic development strategies and transportation connections. Specific recommendations regarding land use, zoning, urban design, social equity, public-private partnerships, capital investments, private market forces, economic development, infrastructure, parks and recreation, and transportation are included.

The design team followed a rigorous research, planning, and design process with the objectives of documenting and analyzing baseline data for the existing site, establishing benchmarks of performance and creating a strategy for measuring the success of the design over time.

Sustainability Goals and Performance Measures

The understanding and application of the "quadruple-bottom-line" of sustainability (Environment, Community, Art and Economics) involves conducting and reconciling multi-disciplinary research spanning the three branches of learning: 1) natural and physical sciences; 2) social sciences; and 3) arts and humanities. The quantitative, objective, and tangible nature of the first branch, addressing the environmental aspect of sustainability, may be more conducive to the establishment of performance metrics and standards than the other branches. The qualitative, descriptive, subjective, intangible value and belief-driven nature of the second and third branches are resistant to the creation of standardized metrics of performance. Recognizing the need for integrating all three branches of research and knowledge to solve the complex environmental and community related problems represented in the Lafitte Corridor, Design Workshop's model of practice included multi-disciplinary teams and partnerships with scholars and institutions. The design team made significant investments in researching applicable knowledge from a cross-section of all branches of learning in answering questions posed in the project.

Based by extensive research sources such as LEED® Neighborhood Design and American Forests as well as community involvement, the design team created a system of explicit goals, performance metrics, benchmarks along with strategies for each of the categories of environment, community, economics and aesthetics to evaluate design alternatives and project outcomes. This Greenway will be the first project in New Orleans to create measurable outcomes that aim to reduce urban heat island effects and to increase stormwater management capacity. The project will also employ extensive applications of green infrastructure and native plants.

Sources of Research and Knowledge

The design team drew upon a broad range of writings, research, and previous experience to inform the design process and research methodologies. Ecological approach to landscape architecture, and concepts of urban design and planning advanced by scholars, authors and practitioners, such as Patrick Geddes, Ian

McHarg, Ann Whiston Spirn, Michael Hough, Danilo Palazzo, and Frederick Steiner provided the theoretical framework for this project.

Research in social sciences, including work done by Lawrence Frank, Peter Engelke and Thomas Schmid, and by Timothy Crowe and Diane Zahm, provided evidence of the relationship of community design to human well-being.[viii] The early work by Oscar Newman[ix] and other knowledge of crime prevention through environmental design suggests that by creating an open space that the community can "possess" and feel proud of will reduce crime. This aspect has attracted the attention and possible involvement by the Tulane School for Public Health, which is interested in tracking the impact of the development of this Corridor on physical activity. Significantly, Tulane's School of Public Health was instrumental in convening the first meeting of what eventually became the Friends of Lafitte Corridor, the community organization formed to advocate for the corridor's creation as a green space.

Many problems associated with the revitalization Corridor can be contributed to the social and economic issues, such as, poverty, depressed real estate values, crime, lack of recreational resources, and poor nutrition. On the economic front, the proposed greenway design can raise adjacent real estate values, a notion supported to a large degree by empirical research including "Measuring the Economic Value of a City Park System."[x] Empirical evidence also suggests the social and economic benefits of historic Central Park, and more recently Bryant Park, in New York City. On the other hand, a park that is problematic or in disrepair has been shown to subtract five percent of home value. This is visible in the Greenway today. Tracking the real estate values surrounding the Greenway now and after the Greenway is implemented to determine the increase (or decrease) offers a venue for future research to provide quantitative data to support the value of parks.

Design Vision and Concept

The vision for the Lafitte Greenway is to provide a safe, publicly accessible open space that reflects the needs and desires of the surrounding neighborhoods as well as the natural and cultural history of the larger context. This vision is reflected in the overall design concept that draws upon principles of historic ecology and builds upon the rich layers of the site's history while also taking into account community input and previous plans. Four initial concepts derived from historical or potential future uses of the Greenway – industrial and commercial uses [Railroad Artifacts]; stormwater management [Living with Water]; stitching communities together [The Quilt]; and the relationship of the neighborhoods to the Greenway [the Front Porch] – and these were developed as concepts for the Greenway's overall design. (see fig. 3 and fig. 4)

Programmed spaces were derived directly from the desires of surrounding community members and other stakeholders. The design creates synergies between existing community facilities and designed elements of the Greenway, providing open space for formal and informal activities (Figure 4). The historic alignment of the 18th century Carondelet Canal and Carondelet Walk, marked by a mile-long bosque of bald cypress (Taxodium distichum) trees, is evocative of the Cipriére au Bois (Cypress Forest) that once covered the site, as shown on early maps. The new Carondelet Walk of crushed, recycled brick provides a secondary path within the park and a grand promenade, much as the original had done 200 years before. Restoring the historic cypress tree canopy will result in an increase of 46 percent tree canopy coverage in the Greenway, and since 100 percent of the stormwater falling on-site during the ten-year storm will be captured without the use of drainage infrastructure by retaining water on-site and allowing it to slowly percolate back into the ground, the impact of soil subsidence will, over time, be substantially reduced. (see fig. 5 and fig. 6)

Within this cypress grove is an ephemeral rain garden filled with displays of native Louisiana iris. Rust-stained bands of paving trace the location of train tracks once traversing the site. Plantings reflect the natural vegetation patterns of south Louisiana with swamp species that transition to bottomland hardwoods and upland species as the Greenway rises to the Metairie Ridge on one end and natural level of the Mississippi River on the other. Through the total use of

native plant material, wildlife and bird populations are projected to quadruple over time.

The proposed development for the Lafitte Greenway and revitalization of the Lafitte Corridor respond to the needs of adjacent communities while celebrating the rich layers of the site's history in transforming the barren stretch of land into an ecologically rich, socially diverse, visually evocative and sustainable environment. (see fig. 7 and fig. 8)

Conclusions, Challenges and Prospects

This project embraces the integration of practice and research, advocated by many scholars and practitioners for over fifty years and considered critical for the growth of our profession. The model applied to this project makes a significant contribution in advancing the application of the sustainability paradigm through the creation and testing of comprehensive research-based quantitative and qualitative goals and performance measures. The design process also required reconciling many competing, and sometimes mutually exclusive, environmental, social and economic goals desired for the project or considered optimum for achieving the highest levels of the sustainability paradigm. The stretching and straining involved in the resolutions of these divergent goals offer a potential area of research.

The systematic approach used in the generation, documentation, and sharing of the knowledge, a much desired but largely unrealized goal in current practice, contributes to providing an accessible source of knowledge. The project also serves as a test case in identifying challenges that still need to be resolved as well as opportunities for creating research partnerships. For instance, collaboration with ornithologists at the University of New Orleans provided a baseline bird count for the Greenway. Research effort by the Tulane University Department of Public Health measured existing levels of physical activity by residents of the corridor, supplementing the design team's efforts. These independent resources provided valuable baseline data against which to measure the performance of the design. However, inadequate crime statistics available for the Lafitte Corridor project will make it difficult to assess the impact on the safety issues of improved recreational and open space opportunities created along the entire corridor.[xi]

This wide-ranging case study investigation represents a critical step in identifying future scenarios for maximizing the potential benefits of research based practice. At the most basic level, practice of landscape architecture has always been influenced by the enduring works and words of thoughtful practitioners and scholars, such as Frederick Law Olmsted, Lawrence Halprin and Ian McHarg. Over the last twenty years, our expanding knowledge of natural systems, urban, abandoned and highly compromised landscapes as well as evolving human beliefs and values has resulted in the re-examination of our long held beliefs and practices, creating a whole new set of theories. An important example is the evolution of research and theories of ecology since publication of Design with Nature (1969)[xii]. The notions of stability and balance, adopted in this book, have been one of the most debated and contested criterions for defining healthy ecosystems. More recent conceptions of eco-systems that include notions of resilience, regeneration, and disturbance, are just beginning to inform the work of some practitioners, and are reflected in the works of Volker Grimm, Eric Schmidt and Christian Wissel; Stewart Pickett and Peter White; Christopher Fastie; and others.[xiii] Staying informed about theoretical developments is a challenge that will require consistent investment for a systematic evaluation and application of evolving research as an integral part of practice. Leading practitioners, like Design Workshop, are well positioned to bring a greater level of specificity and scholarly protocols to testing research applications, a process that involves formulating clearly defined hypotheses, testing them through action, documenting results, and identifying practical challenges as an on-going process necessary for translating the ideal into pragmatic applications.

Another practice issue revolves around the fact that landscape projects are at their lowest level of performance at the end of construction, and that they evolve in both expected and unexpected ways. Systematic long-term post-construction monitoring and evaluation can yield a wealth of data and knowledge that can be extremely beneficial

for the specific project and to support future projects. Many of the well-researched and reasoned outcomes anticipated after the completion of the Lafitte Greenway project will require a long-term monitoring system to track the project's true impact.

The application of performance measures requires extensive base-line data and long-term post-occupancy monitoring from multiple disciplines and through numerous discipline-specific protocols. These have not been an important part of traditional professional scopes of services and fee structures, and they require additional expertise and time to accomplish. Developing means for collecting base-line data and models for monitoring long-term post occupancy, including utilizing breakthroughs in environmental sensing technologies, is certainly an area for further research and is clearly a place for cooperation between those in practice and those in the academy. Similarly, advances in the study of neuroscience and the increasing ability to understand human behavior and physiological responses to spatial form and other environmental attributes offer promising new areas of research for ways to create more desirable and predictable human experiences.

Lafitte Corridor and Greenway project represents a compelling model for the future direction of the increasingly research-based and multi-disciplinary practice of landscape architecture. The 2013 National American Society of Landscape Architects (ASLA) Award of Excellence in the Analysis and Planning category and the 2012 ASLA Texas Chapter Honor Award in the Analysis and Planning category underscores the professional recognition for this project. Operating in a collaborative practice model, the growing practice at Design Workshop offers much-needed opportunities for expanding scholarly inquiry and advancing the paradigm of research-based design and planning.

Notes:

i Donald A. Schön, _The Reflective Practitioner: How Professionals Think in Action_. New York, New York: Basic Books, 1983.

ii http://www.lafoundation.org.

iii Sarah Shaw, _New Gardens of the American West: Residential Landscapes of Design Workshop_. New York, New York: Watson-Guptill Publications, 2003.

iv Design Workshop, Inc., _Toward Legacy_. Washington, DC: Grayson Publishing, 2007.

v Design Workshop, Inc., _Garden Legacy_. Denver, Colorado: Design Workshop, Inc., 2010.

vi Design Workshop, Inc., _Landscapes of Enduring Quality: The Landscapes of Design Workshop_. Shanghai, China: International New Landscapes, 2013.

vii John Lyle, "The alternating current of design process." Landscape Journal, Vol. 4(1), (1985).

viii Research on the relationship of community design to human well-being is the focus of social scientists, including: Lawrence Frank, Peter Engelke and Thomas Schmid, authors of _Health and Community Design: The Impact of the Built Environment on Physical Activity_, Washington, DC: Island Press, 2003; and Timothy Crowe and Diane Zahm, authors of "Crime Prevention Through Environmental Design." Land Development, (Fall 1994).

ix Oscar Newman, _Defensible Space: Crime Prevention Through Urban Design_, New York, New York: Macmillan Publishers, 1973.

x Peter Harnik and Ben Welle, "Measuring the Economic Value of a City Park System." The Trust for Public Land, (2009).

xi Kurt Culbertson and Mary Martinich, "A Holistic Approach to Sustainability: Lessons from the Lafitte Greenway Project in New Orleans, Louisiana." Edinburgh Architecture Research, Vol. 33, (2013).

xii Ian McHarg, _Design with Nature_. New York, New York: American Museum of Natural History/Natural History Press, 1969.

xiii Recent conceptions of eco-systems that include notions of resilience, regeneration, and disturbance, are reflected in the works of: Volker Grimm, Eric Schmidt and Christian Wissel, "On the application of stability concepts in ecology." Ecological Modelling, Vol. 63, (1992); Steward T.A. Pickett and Peter S. White, Eds., _The Ecology of Natural Disturbance of Natural Patch Dynamics_. Waltham, Massachusetts: Academic Press, 1985; and Christopher Fastie, "Causes and Ecosystem Consequences of Multiple Pathways of Primary Succession at Glacier Bay, Alaska." Ecology, Vol. 76, (1995).

About the author:

As an educator and a practitioner, Baldev Lamba's body of research and creative work reflects an integration of design and research with special emphasis on metrics and measures of sustainability. An Associate Professor of Landscape Architecture at Temple University in Philadelphia, Pennsylvania, Lamba received the 2012 Excellence in Research and Creative Work Award from the Council of Educators in Landscape Architecture (CELA) in recognition of his long-term excellence as a designer and an educator. The award-winning projects of Lamba Associates, Landscape Architects, include the First Ladies Water Garden on the National Mall in Washington, DC, and the Pennsylvania Horticultural Society Pop-Up Garden in Philadelphia, Pennsylvania, which was also selected for the official United States presentation at the 13th International Venice Architecture Biennale in Venice, Italy.

图8 (fig. 8)
CREDIT: Design Workshop
The proposed development of the Lafitte Greenway will transform the barren stretch of land into an ecologically rich, socially diverse, and visually evocative environment.
拉菲特绿道的开发方案将贫瘠的土地改造成一个生态结构丰富、社会多元化、视觉上能唤起回忆的可持续发展区域。

"Design Workshop (DW) Legacy Design® 对一种设计过程和道德标准进行了清楚的描述，既考虑周到，也合乎情理。在新兴的景观绩效设计时代，DW以绩效为基础的实践强调了景观建筑行业的价值。近年来，通过与学术机构和'景观建筑基金会'的合作，DW对景观建筑教育和研究的影响与日俱增。"

– 犹他州立大学景观建筑与环境规划部副教授杨波

走向综合
Toward Synthesis

作者：纳塔利•格力罗
Author: Natalie Grillo

"一套技能和价值体系往往会因困境受制于另一套系统。DW Legacy Design®在不同的技能层面和价值系统上追寻广泛的可量化目标，并乐于接受合理设计途径的挑战。"

这些话语出自Design Workshop的首席设计官托德•约翰逊，指的是Design Workshop人为自己设定的任务之艰巨——在设计思路上开拓创新、与时俱进、面面俱到，在解决方案上则遵循多年实践经验所总结出来的设计原则。

实现这种自我强加的强制性任务的一个关键是，创造基于证据的设计——这样的设计围绕着可量化的目标，并建立在所获得数据的基础之上，而这样的设计又可以为公司不断扩展的知识库添砖加瓦。

遵循着"所测即所得"的格言，Design Workshop选择的研究方法之核心在于度量指标，这一核心使公司能够对照项目的预期目标来衡量其工作的效率、绩效、进度或质量。虽然众所周知的是，没有一个目标衡量清单可完全包含景观建筑的广度或范围，甚至仅仅囊括一个特定项目的复杂性和差异性都很困难，但是，Design Workshop仍然坚持在每一个项目中实行目标可量化的设计操作，进而形成设计核对清单，同时也提供设计探索的机会，如此可帮助各个项目团队确定项目目标并预估目标实现后将带来的效益。然而这样的绩效衡量策略只是帮助确定了项目的基本切入点，对于不同项目的最终设计成果而言，在进一步深化设计的过程中都将根据其独特的环境和特定的目标量身定制。对于某个给定的项目，设计证据和DW Legacy Design®的真正力量取决于度量指标的透明度和相关性。这些度量指标必须与设计预想结果相关联，且同时也要与其它选定的度量指标相协调。

公司强调使用这种研究型方法论，早在此方法建立之初的2002年的公司备忘录里，库尔特•卡伯特森董事长就对其进行了最精辟的解释"这些度量指标可成为评估我们是否取得进步的常用词汇。"公司认为，循证方法——无论是否像Design

图1 (fig. 1)
CREDIT: D.A. Horchner/Design Workshop
One of Design Workshop's signature projects, Daybreak, a 4,126-acre (1,670-hectare) new community just 25 miles (40 kilometers) from Utah's capital, Salt Lake City, illustrates the value and power of incorporating a research-based methodology into design.
DW的一个标志性项目，Daybreak，4126英亩（1670公顷）的新社区，离犹他州的首府盐湖城仅25英里（40公里），说明了将研究为基础的方法转化为设计的价值和力量。

Workshop一样以度量指标为中心——都是行业监控规划和建设的成功与不足的关键，也是行业从中学习的关键。（请参看图1）

四重盈余法

DW Legacy Design®是Design Workshop综合型的循证研究和实践的方法论，主要基于四大范畴——景观建筑的传统因素（艺术与环境）与被视为具有同等价值的元素——社区与经济。在这四个范畴所设定的基础上，公司的设计理念为：

环境：人类的生存依赖于对自然体系价值的认知以及对自然体系保护活动的自发组织。设计应该与土地情况相契合，才能造福子孙后代并带来长期的价值。

经济：开发项目所需的资金流以及在项目使用年限内所能产生的收益界定了经济可行性。因此，设计理应提供一套可促进并保护区域的完整性的长期性经济机制。

社区：人与人之间的实体联系构成了家庭、群体、城镇、城市和国家的文化，是这其中每一个要素繁荣昌盛的基础。设计应该将这些社区组织起来以培养他们之间的各种联系并提升彼此间相互包容的能力。

艺术：美学有助于界定真实、独特的场所，赋予生命的意义，并对人文精神的回归产生积极影响。设计应该通过与艺术结合来激发灵感并鼓舞人心，进而提升经济价值，

确保可行性并且吸引资金，从而有助于确保项目恒久长存。

Design Workshop始终相信，最引人入胜的场所是那些把环境、经济、社区与艺术融合在一起的地方（公司称之为四重盈余）。远在20世纪90年代末，公司正式定义了DW Legacy Design®方法之前，团队成员早已将这些原则融合到项目工作中。公司对每一个范畴的深入剖析会逐渐显露在接下来的篇幅里，公司的标识性项目之一，位于犹他州South Jordan 的一个4126 英亩（1670公顷）的大型新社区Daybreak，将会被作为案例进行讲述。

在这里强调Daybreak这个项目，事实上是要强调研究型方法论纳入设计工作的价值和力量。这里将叙述我们在这个项目中进行的各种努力，譬如保护和修复环境采用的特殊方法以及用于振兴社区经济的设计和美学。这些范例可以充分说明景观建筑及其相关学科在实践中的卓越与严谨所创造的成果能够符合当今世界的需求和目标，同时也可为未来世界保留发展机会。Design Workshop指出，如果度量指标的完成仅仅是单一的停留在某一个范畴中，那样的测量方法对我们构建成功社区，提高我们

的文化生活水平，维持长期的财政稳定性以及实现世界的可持续发展将毫无贡献。Design Workshop认为，其方法论的力量在于将这四大范畴整体性的融合到了一起。（请参看图2、图3）

环境

对于塑造建成环境的设计行业人士而言，环境被视为设计与规划过程的一部分，是第二自然。从帕特里克•戈德斯和伊恩•麦克哈格到安妮•惠斯顿•史必恩和查尔斯•瓦尔德海姆，那些在景观建筑领域的学术上和专业实践上的思想领袖们早已强调过设计需要从周边的自然环境中获得启示继而创造或再创造功能性自然体系。

不过，设计师并不是唯一意识到环境和人类之间的影响及依赖关系的人群。全球变暖和大气层的变化促使许多人——政治领袖、规划师、建筑师、经济学家、环境学家和普通大众——都意识到环境并非只是一些可持续发展与节能减排的措施。总体上来说，我们普遍相信，我们不能在使用地球资源的同时不施加足够的积极影响，否则，我们的子孙后代将无法享受与我们相同的生活质量。这里提到的地球资源，不仅包括不可再生资源（如：矿物燃料），也包括可再生资源（如：空气和水）。在当今世界，环境是我们共同的未来赖以生存的最主要关注对象。

Design Workshop对环境的影响以及对设计过程中目标的考虑，主要是基于以下想法：真正可衡量和有意义的设计方案在某种程度上必须主要建立在可重现的科学研究和数据上，当然也不排除某些部分会建立在实践经验的基础上。这意味着，建立一套度量指标去监控和模拟能源利用、建筑和景观绩效以及客户对某种形式的使用时长等等。这意味着不断比较和提炼这些因素，以便减轻景观、建筑、社区、城市甚至是国家对环境产生的影响并提升绩效。

术语"环境度量指标"意味着，测量和比较诸如空气质量、雨水质量及回收利用、能源、野生动物栖息地、噪音污染消减、开放空间的保护或创建以及其它许多定量因素对于一个项目的最终成功是必不可少的。不过，简而言之就是设定一条基线用来确立现状环境中哪些因素需要进行测量，而后获得的实质性数据则有助于为进一步的改进提升明确目标绩效。当这些度量指标典型性地呈现出定量而非定性的特征时，他们就为景观建筑和社区设计的可量化结果指明了内在需求，而这些可测量的结果表明我们对我们的行动与周围自然环境之间的因果关系的关注。

Daybreak社区距离犹他州首府盐湖城仅25英里（40千米），是经过细心规划的，不

图2、图3 (fig. 2 and fig. 3)
CREDIT: D.A. Horchner/Design Workshop
Once the largest open-pit copper mine in the world, Daybreak is now the largest master-planned community in Utah and boasts an extensive trail system, recreational water features, active sports fields, community vegetable gardens, performance space, and demonstration gardens of native plants.
曾经是世界上最大的露天铜矿，Daybreak如今是犹他州最大的总体规划社区并拥有一个广泛的步道系统、娱乐性水景、活跃的运动场地、社区菜园、表演空间以及本地植物示范园。

仅顾及到建设行为与自然环境之间的因果效应，同时也致力于为当代人和后代人创造一个拥有丰富水源和洁净空气的美丽的社区。该社区的开发商Kennecott Land要求Design Workshop为其新社区提供公园和开放空间的系统框架。由于该社区所在的环境非常脆弱而且高度沙漠化，传统的水资源集约化开发和精心设计的地形在这里不仅不可持续而且难以让人满意。为了符合当地的雨水管理条例并适应周边环境基底，设计团队为Daybreak设计的公园和开放空间不仅在视觉上令人赏心悦目，而且在环境上具有可持续性。

水| 在任何涉及到环境因素的设计中，水的利用必然是最重要的。水在我们的日常生活中是无处不在的。它是我们人类最为重要的需求：我们需要水来饮用、烹饪和清洁；我们也需要水来维持环境卫生和预防火灾。没有水我们无法生存。理所当然的，几乎每一个设计项目都需要面对雨洪管理、区域水资源利用、节约用水、水资源保护和废水处理技术等各类与水相关的问题。

如果用Daybreak社区的案例来详细阐述的话，该社区的公共景观设计展示了一套合理利用水资源创造优美、丰富的环境的有效且高效的方式，从而转变了利用大量水资源绿化沙漠的普遍范式。（请参看图4）

由于犹他州的South Jordan年均降水量仅为18.18英寸（46.2厘米），因此，水在Daybreak是非常珍贵的。针对大暴雨情况，设计师通过设计一系列相互连接的生态排水沟、洼地和人工湿地到奥克尔湖（65英亩/26.3公顷，是社区的核心组织特征）形成的雨水管理系统来收集、清洁和过滤所有落到现场土地上的雨水。该体系减少了与地表径流相关的污染，预防了下游洪灾的发生，且有助于补充当地的蓄水层。该设计实现了场地与市政雨洪管网系统连接设备的零需求。考虑到犹他州的大部分住宅社区都需要收集和过滤10年/24小时暴风雨产生的雨水，相较而言，Daybreak社区的系统可以说是非凡的。因为这意味着，如果遇到百年一遇的暴风雨，Daybreak社区所收集和过滤的径流量比犹他州其它大部分的社区会多出44%。连接到区域运河网的次级水系统可为整个开放空间和奥克尔湖提供满足灌溉需求的原水而无需利用市政的饮用水。（请参看图5）

值得注意的是，Daybreak的雨水基础设施带来的不仅仅是环境效益。据工程师估算，在Daybreak项目使用期限内省去的市政影响产生的费用，以及大量减少的水输送的传统基础设施费用，实际设计的雨洪基础设施节约了超过7千万美元（4.32亿人民币）。其中包括3千万美元（1.851亿人民币）的住宅影响费用的节省，业主住宅所有权的增加以及嵌入式基础设施的减少。此外，此基础设施由于创建了公园和集会空间而使社区获益匪浅，同时还由于并创建了优美的开放空间系统网络，增加了社区的美感。这些统计数据充分体现了Design Workshop设计理念一体化所产生的巨大力量。

除了高效的雨洪管理之外，Daybreak也因其节水率高而闻名。每个家庭使用的都是低流量装置、高科技灌溉系统，并栽种了本地耐旱植物，因此，与老居民区的同类家庭相比，Daybreak的家庭每个月平均节约了5206加仑水。截至2009年8月份，社区2106个家庭共节约了79,759,877加仑（3.019亿公升）水，平均每个家庭节约的水量超过41,000加仑（155,202公升）。

乡土植物和节水植物的栽种| 对于给定景观而言，重新引进乡土植物或节水的植物有许多的益处。这些植物有助于满足本地野生动植物的需求（如：栖息地与食物），而不会对当地的植物群落造成长期的损害。它们有助于防止外来入侵植物进入到该区域中。此外，本地乡土植物通常生长得很好，需要的杀虫剂较少，且如上所述，需要的水分较少。（请参看图6）

Design Workshop通过选择乡土植物（包括北美三齿苦树（Purshia tridentate）、接骨木（Sambucus）和Rabbitbrush（Ericameria nauseosa）将Daybreak与其自然历史相接，这里的自然历史包括了延伸到山脉中的生态廊道和区域性的植被肌理。"首创者之村"作为社区内竣工的第一个村庄，其72%的公园和开放空间所用的都是乡土植物或节水植物（需要灌溉的草皮仅限于必要的活动场地）。

总而言之，把乡土植物和节水植物纳入景观是有益的，因为保存了大量的水资源（如上所述），从而为鱼类、小型哺乳类和那些每年都会经过大盐湖上候鸟通道的水禽类提供了栖息地。自社区的湖泊及其湿地建成后，犹他州奥杜邦协会就开始了对栖息地的鸟类的观察活动。迄今为止，湖泊中已记录并识别的鸟类已有100多种。

和采用乡土植物和节水植物所获得的效益一起，Design Workshop还从Daybreak吸取了一些重要的经验，并将这些经验纳入到了未来Daybreak村庄设计中甚至更多的近期项目中（如：Lowry Development——1848英亩[747.9公顷]大的科罗拉多州

丹佛前美国空军基地，Blue Hole 区域公园——126英亩[51公顷]的德克萨斯州温布莱自然保护区）。Design Workshop团队发现，让业主和准买家在文化上接受乡土草本植物存在着很大的挑战，因为这些草本植物在开始成熟和自播繁衍之前会显现出杂草丛生的蓬乱感，而达到成熟和自播繁衍的过程通常需要好几个季节。此外，设计团队还得知，若利用更传统的、修剪整齐的景观作为乡土植物造景的框架，居民会更乐意接受并了解乡土植被覆盖的草地和种植区的意义。简单的将贴近道路旁边的一条2英尺的（0.6米）条状绿地设计为经常修剪的整齐的短草坪，将之后的绿地过度为大面积的乡土植被种植区，可以将乡土草地框出来并可强调构建草地的目的性，这样的方式更容易为越来越多的受众所理解。此外，设计团队还得知，相比在居民买房之后再栽种乡土植物，未来的业主更容易接受那些在出售土地或建筑家园之前就构建好的乡土植物景观。（请参看图7）

碳足迹| 最近，人们花费很大的精力来减少项目开发的碳足迹。事实证明，大的碳足迹对环境具有有害的影响——包括诸如气候变化、资源耗竭以及温室气体排放的增加等。减少碳足迹最好的方法包括：减少消耗量、循环利用废弃物和回收利用旧材料。

Design Workshop通过减少机动车辆交通的需求而帮助Daybreak社区减少其碳足迹。通过设计布局的开放空间系统可以让每家每户在5分钟（或0.25英里/0.4千米）的步行范围内可达。然后这一系统包含的散步径、小路可连接到社区的各个主要的目的地（如：学校、教堂、村中心和轻轨站）。正因为这些居民区的可步行性，有88%的Daybreak学生都是步行去上学，而在周边那些相比下不那么容易步行的居民区内，这个数据只有17%。目前整个社区有22英里（35.4千米）长的散步径，开发商计划在未来的村庄里创建更多这样的路径。到目前为止，这些努力已经阻止了8505.6吨（770万千克）的碳进入大气层（这相当于抵消了177户美国标准家庭所产生的碳排放影响）。（请参看图8）

Design Workshop帮助Daybreak减少其碳足迹的另一个方法是循环和回收利用现有的材料。施工人员和承包商循环回收了四分之三以上的建筑垃圾。有43500吨（3950万千克）来自于邻近宾汉铜矿的废石被用于建设公园和开放空间系统的墙和石笼。石笼墙已成为Daybreak景观的一个标识性元素。这些石笼墙服务于多种不同的目的，贯穿在整个社区中，不仅将美学的价值牢牢地系在场地上还与宾汉铜矿形成了文化关联。

经济

如果资产负债表和基本经济原理是唯一的度量衡，那么，在市场经济方面取得成功则通常是显而易见的。例如，如果某项努力的预期结果是正向的（就是说即使是对于最务实投资者，数字的总和也是有利于投资商的），那么，盈余应等于净利润。经济测量是我们最熟悉的、最容易并得到过优良检验的指标体系。在房地产开发项目中，投资回报率（ROI）是一项普遍流行的绩效指标，原因在于其用途广泛性和简单性。ROI常用于评估某项投资的效益或比较多项不同投资的效益。如果一项投资无法产生正数的ROI，或者，如果还有其它的投资机会可以获得更高的ROI，那么，直觉上讲，这项投资不适宜被采取。

在项目开始之初，确定经济可行性和经济影响所需要的精度将决定对预期结果判断的准确度。这一程序一旦启动，批判性的问题将会被提出度量，指标——（即清晰、公认的标准以及构成"可靠证据"的指南）也将建立，于是成败可能都将被记录、被分享，然后要么成为设计基础，反过来，要么再也不会被重复。不过，对于许多公司而言，真正的成功与否不再以财政绩效为唯一的基线进行判定。目前的判断指标还包括社会和文化的衍生物、环境的影响以及生活质量指标。在景观建筑、设计和规划方面，这种四重盈余法是确定依据和测量点的关键。若每个范畴没有合适的指南，开发商和景观建筑师会在衡量各种结果并确定判断成败依据时承受巨大的压力。

在Daybreak社区所制定的指南以及测量出的结果充分体现了这种方法的有效性。开发商和区域的经济回报是丰厚的，与Design Workshop的所有项目一样，经济可行性与环境敏锐度、社区合作和审美特征相融合，巩固了这些积极的财政业绩。需要重申的是，证据的真正力量取决于度量指标的透明度及其相互融合的能力。

环境保护| 越来越多的证据证明，在可持续发展方面所作的努力不仅仅有利于地球，也有利于人类自身和利润增长。对于某个开发项目，若节省或修复资源的价值超过消耗的资源的价值，就可以说这个该项目取得了财政上的成功。

Daybreak的情况就是这样。许多确立的可持续发展倡议都在社区取得的巨大的财政收益中做出了贡献。如前所述，利用地表雨洪管理系统来消除雨水影响产生的费用，并极大减少了地下管道、基础设施的建设和维护，据估算节约了7000万美元（4.32

亿人民币）。另外，通过循环利用建筑垃圾和重复利用现场旧材料，社区已节约了160万美元（990万人民币）以上的混凝土费用和运输费用。

此外，由于在Daybreak建立的所有家园都必须通过能源之星®的认证，因此，业主平均每年在公共设施费用方面就已节约了400美元（2466人民币）。

投资回报率（ROI）｜ 每个项目的目标ROI都会考虑到当地市场的性质、其它投资机会、项目的风险以及投资商的看法。开发商/投资商的目标是赚的比投的多。

Daybreak的公园和开放空间系统已为社区的土地所有者、业主和未来居住者创造了价值，并为开发商提供了巨大的ROI。2009年至今，依靠在设计、咨询和施工方面共计6730万美元（4.149亿人民币）的投入，Daybreak已然成为犹他州畅销的新家园；盐湖郡五分之一的新家园交易就集中在Daybreak。同样在2009年，在以总体规划为基础进行开发的社区中，Daybreak在全美最畅销社区榜单上排名第六。开发商提出的让所有家庭都紧挨着公园或开放空间的承诺已兑现：三分之一的家庭都面向开放空间，因而价格一直居高不下，转售价比其他地点高出10%。（请参看图9）

就业｜ 新社区开发的成功有一部分取决于创造了多少就业机会以及开发为区域带来了多少收入。

Daybreak全面建成后，计划会新增2万个就业机会。区域轻轨系统刚刚延伸到Daybreak已规划的城镇中心，第一批商业建筑的开发也即将全部竣工（如：刚竣工的South Jordan医疗中心配有24小时急诊室、初级护理设施和专科诊所，力拓集团区域中心[其下属企业肯尼科特犹他铜矿公司是犹他州最大的私营经济动因]以及在SoDa Row的许多小型零售企业）。城镇中心最终会成为各类企业的总部办公区、区域性全方位服务的医疗中心、区域性零售终端、都市住宅区、托管公寓和普通公寓集中区，甚至还有可能会成为大学校园的所在地。Daybreak的设计和布局已经把这些实体也纳入了社区，将为区域创造大量就业机会。

社区

现代的分散型美国城市（住所与工作地点在地理上的距离很远）使所有国民都依赖于自动化。社区分裂、社会交往被剥夺、身体健康状况下降、对城市核心部分的公共投资不足，导致传统的市中心完全废弃和停业。

为了克服这种关联性和实体上的分裂障碍，规划师、设计师和开发商目前正在通过鼓励体育活动、推行可持续设计以及建设以各种散步径、开放空间和集会区连接的公共场地和社区，来创造一种可以鼓励新的生活质量的场所。把这些元素设计到新社区规划的方案中，可以在提升社区定位以及改善人与人之间的互动方式方面起到重大的作用，继而促使一些不良因素如 公众健康状况下降、城市无计划延伸、居民区以汽车为中心且依赖于汽车以及环境退化等转向良性方向发展。

Daybreak的城市街道适宜步行并可使居民区与公园用地之间相关联，而事实证明，城市街道景观可对居民健康产生积极的影响。日常活动量增加，可以减少肥胖的风险，也可以减少由于缺乏锻炼而导致的疾病的发病率。此外，居民区的绿色空间可以减少犯罪，增加社区的安全感，还有可能创建一个更具社会可持续性、更有凝聚力的社区，从而提升社会资本和公民参与度。从全球来看，城市绿色空间可通过改善空气质量、保护流域和连接野生动物栖息地来保护自然生态系统的功能。树木覆盖率、屋顶花园和乡土植被的增加，有助于降低城市热岛效应，从而减少能源需求和燃料消耗，否则，燃料的消耗增加会产生更多温室气体。增加的植被也可作为碳汇，用于减少二氧化碳的含量。绿色街道使人们不再开汽车出行，而选择步行和骑自行车作为交通方式。（请参看图10）

绩效衡量与社区的身心改善有着直接的联系，可与环境标准、经济标准和审美标准互换。从Daybreak社区衍生出的例子可以证实，绩效衡量在于内心是否有愿望为人们提供互动的场所和机会。这是通过观察社区与多重人际关系网的结合方式、设计提升人际关系网和社区各个场所交叉点的方法以及人与人的互动方式和人与空间环境的互动方式而实现的。

可步行｜ 为了抵制社区对汽车的依赖性，开发商和设计师目前正努力地建造适宜步行并提倡步行方式的场所。适宜步行的居民区提供的效益，远远不只是减少车辆排放量所产生的环境效益这么简单。事实证明，适宜步行的居民区可以促进居民的身体健康，增进邻里之间的社会互动。（请参看图11）

先前已指出，Daybreak社区的可步行居民区（公共设施距离每家每户仅0.25英里/0.4千米的行程）已具有显著的环境优势，而其带来的社区的社会福利也同样不容忽视。Daybreak的可步行设计鼓励面对面的互动，让居民相互联系；此外，大量的

散步径系统连接了居民区、学校、教堂、社区中心和奥克尔湖周边区域。据报告，2010年，Daybreak有88%的学生都是步行去上学，而周围不大适宜步行的居民区这个数据只为17%。虽然目前无数据证明健康情况的改善都归功于Daybreak的可步行居民区，但是，人们普遍认为，如果整个公共廊道系统（而不仅仅是某些专用的路径）都是可步行的（对于Daybreak社区，这当然是确切无疑的），则可步行为健康所带来的益处就可得到最佳的保证。由于这种开发在未来的几年内才成熟，因此，Design Workshop希望拥有更多的实质性记录资料和可计量证据，以支持Daybreak的可步行设计所带来的相对应的健康效应。

开放空间｜ 城市开放空间提供的价值是实质性的。从生态学的角度看，开放空间可为环境中那些因城市开发而无法生存下去的自然物种提供家园。从美学的角度看，益处是显而易见的——开放空间为本应是灰色的城市景观提供美和舒缓。从娱乐的角度看，开放空间可以为各种好动和宜静的活动提供场所，并促进邻里之间的交流互动。（请参看图12、图13）

公共景观构成了Daybreak的社会和文化体系的支柱。在所有开发的4100英亩（1659公顷）土地上，被规划为公园和开放空间的面积达到1000英亩（404.7公顷）。该系统的每一个元素，包括22英里（35.4千米）以上的被动步道、娱乐喷泉水景、各活跃的体育活动、表演空间和原生态示范园林，都是为了在社区生活中起到特定的作用而经过精心设计和策划的，其规模和位置都恰当地服务于Daybreak各个村庄的特定的人口统计数据。如前所述，开放空间系统是为了让各个地方相互连接，旨在促进步行，并改善雨水输送路径。这种设计理念充分体现了Design Workshop一体化方法的有效性。

社区花园｜ 把社区花园和城市农场整合到社区规划中，在美国正在逐渐流行。这样的

图4 (fig. 4)
CREDIT: D.A. Horchner/Design Workshop
A canal lined with poplar windrows recalls the cultural landscape of Mormon pioneers and creates a popular wading area. The canal carries storm and lake-outfall water and leads to a series of constructed wetlands that aerate and remove toxins from the water.
两旁排列着白杨树的人工水渠使人想起摩门教拓荒者的文化景观，并创造了一个受欢迎的浅水区。水渠将洪水和湖泊排出水引向一系列的可以净化水质的人工湿地。

规划可以吸引居民、扶持当地农场、促进经济发展、创造邻里/大社区交往互动的机会，并为各个年龄层的人提供受教育机会。（请参看图14）

Daybreak现有的开放空间系统总共有六个社区花园，包含250多块园地，可为目前3%左右的人口提供社区花园。这些花园承载着山谷或美国西部自给自足的传统，教导居民在Great Basin生态区内如何负责地建造景观，事实证明，这些花园是如此的成功以至于开发商都被此激励而计划增加一些花园到那些原本没有规划社区花园的开放空间中去。未来的目标是提供足够的社区花园以实现为社区10%的人口的自给。

艺术

最后一个Legacy范畴——艺术，可能是最难以衡量和量化的一个，因此，也是最难建立有效指标的一个。当艺术融入到景观建筑设计中时，它的成功与否甚至变得更加复杂并且更加难以衡量。毕竟，一个人该如何去解释一些东西是精巧的还是粗线条的，是公共的还是私人的，是因其声明被所排斥的还是因其吸引力而被崇拜的，是被批判的还是被颂扬的，是冗余的还是精炼的，是短暂的还是永恒的？还有，到底该如何去衡量一个对主观性和个人看法如此开放的事物呢？

任何关于如何"衡量"艺术或美学影响的讨论都要从揭示定义开始。在这里的讨论中，艺术被定义为空间吸引力——也就是那些可以为环境增加艺术价值的事物，它可以是公共场所、街道角落或是建筑立面。美学定义了一个事物的模样。它是一种描述美和感受的方法。这两者都包含了一定程度的主观性；不过，评价艺术或美感的行为对项目是至关重要的，因为这种行为可以确立一系列观点的范围，构建出可解决基本问题（如：意义、持久性、创新性和可靠性）的框架。DW Legacy Design®认为，有两种方法论可运用于艺术衡量：定量法和定性法。定量指标是可计数的：项目包含的艺术作品的数量、包含的艺术博物馆、表演艺术中心或策划在项目里的公共艺术；是否有视觉艺术家参与合作过程，或者在设计中公开表演所用的场地是怎样的。公众对这些问题的反应对衡量结果是至关重要的。公众是否参与公共艺术过程，或是否应邀对现有景观的视觉质量进行评价，或是否应邀对拟定设计的质量作出评论？是否有一种合适的条件评估方法论，看看公众是否乐意为公共艺术埋单并接受因景观增加社区福利而带来的责任？公共艺术是否为社区提供机会去讨论艺术途径和并决定表达对艺术价值看法的集体观点？定性指标更模糊一些，认为"好"的艺术（被主观定义为美丽、具有魅力或满足公共需求）就可以吸引类似的元素。这些指标虽然无法确保最终结果的一致性，但确实更有可能使成功的美学因素或审美特征成为最终结果的一部分。（请参看图15）

当用于实现某个特定效果时，由于依附在一些具有特性和特征的东西上，艺术，无论以何种形式出现，便成为了可以衡量的元素。而空间创造固有的智慧和情感内涵（包括创作理念、空间布局和运用的材料）便成为了展示窗口。测量方法可以适用于创作

理念汇聚的方式上，包括应用美学和艺术本身固有的叙事性以及与艺术互动的社区健康和人类安全感。如果艺术是通过提升社区文化和周围环境的稳定性而成功地成为焦点，那么，艺术很有可能已在目的上获得成功。存在于街道景观的艺术作品的数量或者新社区内是否有表演艺术中心无疑是非常重要的，但是，比这一点更加重要的是艺术的质量可靠性。无论艺术采取何种形式，只要具备其重要性和独特性，那么，艺术就已经达到了特定的效果，而且是可衡量的。

Daybreak社区的艺术指的是社区结构及其天然的美感。要获得定量的证据证明这些元素的价值是极具挑战性的；不过，从之前提到的Daybreak在经济、环境和社区方面取得的成功可以感知到这些美学价值存在的证据。需要重申的是，这四个Legacy范畴之间存在显而易见的关联性，在其中任何一个范畴中达成的目标会对其他一个甚至所有范畴中的元素产生影响。

地域特异性| Design Workshop认为，在规划和设计时把场地的地域特征考虑在内，将有助于把项目及其周围的环境联系起来。把区域特异性作为设计策略，要求对工作中所涉及的文化、环境和经济体系有着透彻的理解。此外，这一设计策略也有助于把项目与其它地域的项目和经验区分出来，使居民和访客能够深刻感受到他们与项目所在的场地和地域，以及当地居民的联系。这种场所感和认同感能够渗透到大到社区的区域或定义一个小到村庄或花园的区域。

对于Daybreak社区来说，设计意图是使其景观扎根于地域特征，并创建新的、可靠的、前瞻性的落基山脉景观，在承认过去的同时也可以应对当今的环境挑战并拥抱全新的美学形式。这些景观以是对其自然和文化环境的一种有意识的艺术化表达。创新的几何地形和磨旧的石笼墙是利用宾汉铜矿的回收废石建成的，这一创新性设计 表达了场地与区域遗产的联系。这样的地形让人联想到铜矿中废石料形成几何形斜坡，这一景观成为了社区的背景帘幕，不过经过了乡土观赏草和植物群落的柔化得以舒缓。既然社区属于人工建筑物，则无需试图让开放空间看起来"自然"或看起来像未损坏的自然。恰恰相反，项目的人工特性是有意识的透过种有节水植物的几何形式而呈现的——自然与文化、环境与社区相融合，产生了一种新的美感，扎根于社区的环境背景和文化背景。与简单的废弃相反，整个景观重新利用的回收废石超过4.35万吨（3950万千克），在社区背后的山坡上可以清楚的看到，这一设计策略加强了社区景观和铜矿在颜色、肌理和地形上的联系。乡土植物（包括北美三齿苦樟、接骨木和Rabitbrush）把社区及其自然历史联系在一起，创造了一直延伸到山脉的生态廊道，重现了地域的原生植被模式。（请参看图16）

Hillside Park展示了自然山麓和当地河流的雕刻景观抽象概念。作为新建的奥克尔湖的排水口和曝气渠，水运河可把水输送到下游的人工湿地中。沿着运河的白杨让人回想起早期摩门教拓荒者沿灌溉水渠种植的标志性树种，而西方的作家华莱士•斯特格纳则称其为"摩门教景观"。河岸的廊道为野生动植物提供栖息地，成为了一条繁茂的杨木长廊。水道也作为雨水输送系统而通向渗滤池，可以将百年一遇的雨洪100%渗透到地下。

面向综合发展

如前所述，Design Workshop相信，最引人入胜的的场所是那些把环境、经济、社区与艺术融合在一起的地方。与之相关的是，公司的最高追求之一是证实这种信念的价值，并旨在通过绩效型研究方法论来实现。这种方法论使得公司能够对照项目的预期目标而衡量其工作的进度、执行力和质量。指标的透明度和相关性与预期结果有关，同时也致力于与其它选定目标一起综合发展。

全面研究Design Workshop如何将其绩效型方法论应用于犹他州South Jordan的Daybreak社区的公园和开放空间系统，可以充分体现这种方法对该区域以及对公司自身的影响。这个项目的叙述可以为以下概念提供范例：景观建筑实践中的质量、严谨和责任性带来的业绩能够满足当今世界的需求和目标，同时也可为未来保留发展的机会。

无论是否如Design Workshop一样以度量指标为核心，循证方法都是分析景观规划和建设工作的成败以及从中吸取经验的关键。采用这种方法的个人和公司都会发现，这种方法对其自身、项目甚至 整个行业都极具价值并大有裨益。

作者简介：

纳塔利•格里洛在写作、编辑和公共关系方面拥有超过10年的经验。毕业于泰莱大学，在非营利性传讯与公共关系领域开始其职业生涯，致力于制定、提炼和简化各种营销与通信计划的附属计划。2005年进入Design Workshop工作，并在2013年前同时兼任许多项目的策划与推广。现在，纳塔利是一名自由作家，擅长与顾客或针对某个项目进行清晰、直接和恰当的沟通。

图6 (fig. 6)
CREDIT: D.A. Horchner/Design Workshop
Demonstration gardens at the Information Center in Hillside Park display the beauty of native, drought-tolerant plants. The gardens teach residents about responsible and sustainable ways of living and landscaping in the climate and ecology of the Great Basin.
在山坡公园信息中心的示范花园展示了本地的、耐旱植物的美。这些花园使居民学会了关于责任和可持续的生活方式，以及大盆地气候和生态的景观营造。

"The trap is always to enslave one set of skills and values to the other. DW Legacy Design® embraces broad and measurable goals across differing skill sets and value systems, and it takes on the challenge of a rational approach to design."

Those words, from Design Workshop Chief Design Officer Todd Johnson, speak to the enormity of the task those at Design Workshop have set out for themselves – to provide innovative, ever-evolving, all-inclusive design thinking and solutions that emerge from principles which have developed from years of practice.

A key to fulfilling this self-imposed mandate is to create designs that are evidence-based – design built around measurable targets and built upon acquired data that inform the firm's continually increasing knowledge base.

Following the maxim "what gets measured gets done," Design Workshop's chosen research methodology is centered on metrics, enabling the firm to measure the efficiency, performance, progress, or quality of its work against a project's intended goals. While fully cognizant that no list of measurement topics could wholly encompass the wide breadth and scope of all that is landscape architecture or even of the complexities and variances of just one specific project, Design Workshop employs its metrics-based process on every project as both a checklist and an opportunity for discovery to help teams determine project goals and envision the benefits those accomplished goals will bring.[i] These performance measures provide a baseline from which to start, but the outcome of each project is tailored to its unique circumstances and objectives. On a given project, the real power of evidence and DW Legacy Design® relies on the transparency and the relevance of the metrics. They must be related to desired outcomes while also working in concert with the other chosen metrics.

The firm's decision to focus on this research-based methodology is most concisely explained by Chairman Kurt Culbertson's words in an early 2002 firm memo as this process was being established, "These metrics can become a common vocabulary against which to evaluate our progress."[ii] The firm believes that an evidence-based approach – whether centered around metrics like Design Workshop's or not – is the profession's key both to monitoring success and shortfalls in planning and built work and to learning from them. (see fig. 1)

The Quadruple Bottom Line Approach

DW Legacy Design® is Design Workshop's comprehensive, evidence-based research and practice methodology based on four categories – the traditional elements of landscape architecture (art and environment) combined with what it believes are components of equal value: community and economics. The firm's philosophy of design in the context of these categories is:

Environment: Human existence depends on recognizing the value of natural systems and organizing its own activities to protect them. Design should fit purpose to the conditions of the land in ways that support future generations and drive value for the long term.

Economics: The flow of capital that is required to develop a project and the capital generated over its life defines economic viability. Design should seek to create long-term economic mechanisms that promote and protect the integrity of a place.

Community: Physical connections between people create the cultures of families, groups, towns, cities, and nations and are the foundation upon which they prosper. Design should organize these communities in order to nurture relationships and promote mutual tolerance.

Art: Aesthetics help define the real, distinct places that bring meaning to life and act as a restorative influence on the human spirit. Design should incorporate art to inspire and

图7 (fig. 7)
CREDIT: D.A. Horchner/Design Workshop
When the native landscape is framed with a more traditional, manicured landscape, residents accept and understand the intent of the native meadows and plantings much more readily. A simple two-foot (0.6-meter) lawn swath next to a path that transitions into large tracts of native planting is embraced by a wide audience.
当原生景观被冠以一个更传统的、修饰的景观时，居民更乐意接受并理解本地草地和植物的含义。一个简单的两英尺（0.6米）路边小草坪过渡到大片的本地植物被广泛接受。

rejuvenate, boost economic value, support viability, and attract capital, thereby helping to ensure a project's longevity.

Design Workshop has always believed that the most compelling places are those where environment, economics, community, and art intersect. (The firm refers to this as the quadruple-bottom-line.iii) Long before the firm officially defined its DW Legacy Design® process in the late 1990s, team members were infusing these principles into project work. In the pages that follow, deeper explanations of the firm's perspective on each category will emerge, as will examples and the narrative about its process from one of its signature projects, Daybreak, a 4,126-acre (1,670-hectare) new community in South Jordan, Utah.

The story of Daybreak, highlighted here, speaks to the value and power of incorporating a research-based methodology into design work. This narrative describes efforts such as exceptional methods employed for protecting and restoring the environment and the use of design and aesthetics to reinvigorate a community's economy. These are good examples to advance the notion that excellence and rigor in the practice of landscape architecture and related disciplines can produce results that meet the needs and goals of today while preserving opportunities for tomorrow. Design Workshop notes that measurement in any of these categories contributes little to the success of our communities, our cultural life, and the financial and long-term stability and sustainability of our world if the metrics employed are completed in a vacuum. Design Workshop believes the power of its methodology is due to its holistic fusion of all four categories. (see fig. 2 and fig. 3)

Environment

Regarding the environment as part of the design and planning process should be second nature to those in the design professions who shape the built environment. From Patrick Geddes and Ian McHarg to Anne Whiston Spirn and Charles Waldheim, leading thinkers in academic and professional landscape architecture practice have emphasized the need for design to take its cue from the surrounding natural environment and either create – or re-create – functional natural systems.

However it is more than just designers who are aware of the environment and humanity's impact and dependence on it. Global warming and atmospheric changes have caused many people – political leaders, planners, architects, economists, environmentalists, and the general public – to think about the environment as more than just measures of sustainability, energy efficiency, and emissions. Collectively, we now widely believe that we cannot use the earth's natural resources without, at the same time, creating impacts on the ability of future generations to enjoy a quality of life equal to ours. This is true not only for non-renewable resources such as fossil fuels but also for renewable resources like air and water. In today's world, environment is the primary concern upon which our collective future depends.

Design Workshop's consideration of environmental impacts and goals in its design process is grounded in the idea that design solutions, to be truly measurable and meaningful, must be based, in part, on empirical, replicable scientific research and data. This means establishing metrics to monitor and model such things as energy use, building and landscape performance, and client use patterns over time. It means continually comparing and refining these factors so that landscapes, buildings, communities, cities, and even countries can lessen their impact on the environment and improve performance.

The term "environmental metrics" implies that measuring and comparing issues of air quality, stormwater quality and re-use, energy, wildlife habitat, noise pollution reduction, open space preservation or creation and many other quantitative elements are essential to the ultimate success of a project. Simply stated, however, a baseline establishes

图8 (fig. 8)
CREDIT: D.A. Horchner/Design Workshop
An iconic element in the Daybreak landscape, more than 43,500 tons (39.5 million kilograms) of waste rock from the adjacent Bingham Copper Mine has been utilized in walls and gabion baskets within the parks and open space system. Used throughout the community for many different purposes, they help tie the aesthetic to the site and its connection to the Bingham Copper Mine.
Daybreak景观的一个标志性元素，取自相邻宾汉铜矿43 500多吨（39 500 000公斤）的废石用于公园和开放空间系统的墙壁和石笼。这些石笼墙为许多不同的目的用于整个社区，不仅将美学的价值牢牢地系在场地上还与宾汉铜矿形成了文化关联。

the existing condition of what is being measured and substantial data helps to identify a target performance for improvement. And while the metrics are typically quantitative rather than qualitative, they point to the inherent need in landscape architecture and community design for measurable results that indicate an awareness of the cause and effect of our actions on our surrounding natural environment.

The Daybreak Community, located just 25 miles (40 kilometers) from Utah's capital, Salt Lake City, was carefully planned with both recognition of the cause-effect nature of our actions as well as with the intent to enrich present and future generations with a beautiful community, plentiful water, and clean air. The community's developer, Kennecott Land, charged Design Workshop to create a framework of parks and open space for its new community, which is situated in a fragile, high-desert environment where conventional, water-intensive development and manicured terrains are neither sustainable nor desired. To meet local stormwater regulations and fit into the environmental context, the team designed Daybreak's public parks and open space to be visually engaging yet environmentally sustainable.

Water | In any design discussion that incorporates environmental considerations, water use must be paramount. Water is a constant in our everyday lives. It is the single-most important human need we have: we need it to drink, cook and clean; we need it for sanitation and fire protection. We need it to live. And, as such, issues including stormwater management, regional water use, water use reduction, water conservation and/or wastewater technologies surround nearly every project.

Specifically with the Daybreak Community, the public landscapes were designed to shift the prevailing paradigm of greening the desert with extensive water use by demonstrating effective and efficient ways to create beautiful and rich environments with responsible water use. (see fig. 4)

Since South Jordan's average annual precipitation is just 18.18 inches (46.2 centimeters), water is a precious commodity at Daybreak.[iv] Designers created a system that captures, cleans and infiltrates 100 percent of stormwater that falls on the site into the ground through a series of connected bio-swales, basins, and constructed wetlands including Oquirrh Lake (a 65-acre/26.3-hectare lake that is the community's central organizing feature) during large storm events. The system reduces runoff-related pollution, prevents downstream flooding, and helps to recharge the local aquifer. The design eliminates the need for any connections to the city's municipal stormwater system. This is remarkable considering that most residential communities in Utah require the stormwater capture and infiltration of a 10-year/24-hour storm. This means that in a 100-year storm event, the Daybreak Community is capturing and infiltrating 44 percent more runoff than most other Utah communities. A secondary water system, connected to the regional canal network, supplies the entire open-space system and Oquirrh Lake with raw water for irrigation needs rather than using the municipality's potable water. (see fig. 5)

It is worth noting that the benefits of Daybreak's stormwater infrastructure alone are more than merely environmental. Engineers estimate over $70 million ($432 million Renminbi [RMB]) in stormwater infrastructure savings over the life of the Daybreak project due to the elimination of municipal impact fees and the dramatic reduction in conventional conveyance infrastructure. This estimate includes $30 million ($185.1 RMB) in residential impact fees, residential entitlements by owner, and reduced in-ground infrastructure. Additionally, this infrastructure offers community benefit because it creates parks and gathering spaces as well as an aesthetic benefit because it creates a beautiful network of open spaces. These statistics illustrate the power of the integrated nature of Design Workshop's design philosophy.

图9 (fig. 9)
CREDIT: D.A. Horchner/Design Workshop
Daybreak is the top-selling new home community in Utah. One-third of all homes face open space and thereby command premium prices and resale values of greater than 10 percent over other locations.
Daybreak是犹他州最畅销的新家园。所有住家的三分之一面向开放空间，因而价格一直居高不下，转售价值比其它地点高出10%。

In addition to efficient stormwater management, Daybreak boasts of high water conservation rates. By using low-flow fixtures in each home, high-tech irrigation systems, and the installation of native drought-tolerant plants, Daybreak homes save an average of 5,206 gallons of water each month when measured against comparable homes in older neighborhoods.[v] As of August 2009, the community's 2,106 homes had saved over 41,000 gallons (155,202 liters) of water per home for a total of 79,759,877 gallons (301.9 million liters) saved.[vi]

Native and Water-wise Planting | The benefits of re-introducing native or water-wise plants to a given landscape are many. These plants can help meet the needs of native wildlife (such as habitat and food) without causing long-term damage to local plant communities. They help prevent the introduction of invasive, exotic plants into a region. And, native plants generally grow well, require fewer pesticides, and – as mentioned above – need less water.[vii] (see fig. 6)

Design Workshop chose native plants including bitterbrush (Purshia tridentate), elderberry (Sambucus), and rabbitbrush (Ericameria nauseosa) to connect Daybreak to its natural history, including wildlife corridors that run to the mountains and vegetative patterns of the area. With Founders Village, the first village completed within the community, 72 percent of the parks and open space system is native or water-wise plant material. (Irrigated turf was limited to required active play fields.)

Overall the incorporation of native and water-wise plants into the landscape has been beneficial in that it has conserved large volumes of water, as explained above, and has provided habitat for fish, small mammals, and waterfowl that annually traverse the Great Salt Lake migratory bird flyaway. The Audubon Society of Utah has been watching bird species since the construction of the lake and its wetlands. To date, they have documented and identified over 100 species of birds at the lake.

Along with the benefits of using native and water-wise plants, Design Workshop learned a few important lessons at Daybreak that it has since incorporated into the design of future Daybreak villages as well as into more recent projects (Lowry Development, a 1,848-acre [747.9-hectare] former U.S. Air Force Base in Denver, Colorado and Blue Hole Regional Park, a 126-acre [51-hectare] nature preserve in Wimberley, Texas). The Design Workshop team found cultural acceptance of native grasses by homeowners and prospective buyers to be challenging because the grasses can appear to be weedy and unkempt until the meadows begin to mature and re-seed themselves, a process which typically takes several seasons. In addition, the design team learned that residents accept and understand the intent of the native meadows and plantings much more readily when the native landscape is framed with a more traditional, manicured landscape. A simple two-foot (0.6-meter) lawn swath next to a path that transitioned into large tracts of native planting frames the meadow and signifies the intentional nature of the meadow creation and is understood by a much wider audience. In addition, the design team learned that if a more native landscape was installed prior to the selling of lots or building of homes, the future homeowners were more able to accept it than if planting were installed after a resident bought a home. (see fig. 7)

Carbon Footprint | Much has been made of late regarding reducing development's carbon footprint. It has been proven that large carbon footprints have harmful effects on the environment – including climate change, the depletion of resources, and increased greenhouse gas emissions. The best methods of reducing carbon footprints include reducing consumption, recycling waste, and reusing materials.[viii]

图10 (fig. 10)
CREDIT: D.A. Horchner/Design Workshop
Daybreak's central organizing feature, Oquirrh Lake, is one of the many gathering areas that helps play a significant role in elevating the position of community and the ways in which people interact with one another.
Daybreak的中央组织特征，奥克尔湖，是一个聚集区，有助于提高社区的地位，并在人与人之间的交往方面发挥重要作用。

图11 (fig. 11)
CREDIT: D.A. Horchner/Design Workshop
Daybreak's walkable design encourages face-to-face interaction and connects residents with each other; in addition, the extensive trail system links neighborhoods to schools, churches, community centers, and nearby Oquirrh Lake.
Daybreak的可步行设计鼓励面对面的互动，让居民相互联系；此外，大量的散步径系统连接了居民区、学校、教堂、社区中心和奥克尔湖周边区域。

Design Workshop helped the Daybreak Community reduce its carbon footprint by decreasing the need for motorized transportation. The open space system was designed to be located within a five-minute (or 0.25-mile/0.4-kilometer) walk from every home. The system then contains trails, pathways, and links to all major community destinations such as schools, churches, village centers, and light-rail stations. These walkable neighborhoods have caused 88 percent of Daybreak students to walk to school, compared to 17 percent in surrounding, less-walkable neighborhoods.[ix] There are 22 miles (35.4 kilometers) of trails throughout the community, and the developers have plans to create many more in future villages. These efforts have so far kept a total of 8,505.6 tons (7.7 million kilograms) of carbon from entering the atmosphere (which is akin to saving what would have been the impact of 177 standard U.S. households).[x] (see fig. 8)

Another way Design Workshop helped Daybreak reduce its carbon footprint is through recycling and reuse of existing materials. Builders and contractors recycled more than three fourths of their construction waste. And 43,500 tons (39.5 million kilograms) of waste rock from the adjacent Bingham Copper Mine has been utilized in walls and gabion baskets within the parks and open space system. The gabion walls have become an iconic element in the Daybreak landscape. They are used throughout the community for many different purposes and help tie the aesthetic to the site and its connection to the Bingham Copper Mine.

Economics

Evidence of economic success in the marketplace is typically obvious if balance sheets and basic economic principles are the sole points of measurement. For example, if the expected outcome of an endeavor is positive (meaning that the numbers add up to favor even the most pragmatic of investors), then the bottom line should equal a net profit. Economic measurement is our most familiar and well-tested system of metrics. In

real estate development projects, Return on investment (ROI) is a popular performance measure because of its versatility and simplicity. It is used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. If an investment does not have a positive ROI, or if there are other opportunities with a higher ROI, then intuitively, the investment should not be undertaken.

The precision needed to establish economic feasibility and impact starts at the beginning of a project with the determination of an intended result. Once this is in place, the critical questions are developed and the metrics – clear and accepted standards and guidelines for what constitutes "credible evidence" – are established so that successes and failures may be documented, shared, and either built upon or, conversely, not repeated. However, for many companies, true success is no longer measured by focusing on the bottom line of financial performance alone. It now also includes measuring social and cultural ramifications, environmental impacts, and quality of life indicators. In landscape architecture, design, and planning, this quadruple-bottom-line approach is the key to establishing evidence and points for measurement. Without guidelines in place for each of these categories, developers and landscape architects are hard-pressed to measure outcomes and establish proof of success or failure.

The guidelines established and the outcomes measured at the Daybreak Community illustrate the effectiveness of this approach. The financial returns to the developer and the region have been profound and, as with all Design Workshop projects, these positive financial results were strengthened by the fusion of economic viability with environmental acuity, community collaboration, and aesthetic identity. Once again, the real power of evidence relies on the transparency of the metrics and their ability to coincide with one another.

Environmental Conservation | Increasingly, sustainability efforts are proving to benefit more than just the planet, but people and profits as well. And, for a development project,

图12、图13 (fig. 12 and fig. 13)
CREDIT: D.A. Horchner/Design Workshop
Trails and recreational activities such as fishing and boating are integrated within the native grasses and wildflowers. Naturalized spaces contrast with inserted turf areas designated for intense recreational activities.
步道和休闲活动如钓鱼和划船集成在原生草和野花中。归化的空间与指定为进行激烈娱乐活动的人工草坪区域形成鲜明的对比。

when the value of resources conserved or restored exceeds the value of the resources expended, the project is a financial success.

Such is the case for Daybreak. Many established sustainability initiatives have contributed to the enormous financial success of the community. As previously mentioned, the use of on-surface stormwater management systems eliminated stormwater impact fees and greatly reduced underground piping, infrastructure and maintenance, saving an estimated $70 million ($432 million RMB). Also, over $1.6 million ($9.9 million RMB) in concrete and transportation costs have been saved by recycling construction waste and reusing materials onsite.

In addition, as all homes built at Daybreak are required to be Energy Star®-rated, homeowners are already saving an average of up to $400 ($2,466 RMB) on utility costs annually.[xi]

Return on Investment (ROI) | The target ROI for each project takes into consideration the nature of the local market, other investment opportunities, the risk in the project, and the attitude of the investor(s). The goal is for the developers/investors to make more money than they invested.

Daybreak's parks and open-space system has created value in the community for the land owner, homeowners, and future tenants and has provided enormous ROI to the developer. With $67.3 million ($414.9 million RMB) spent to date for design, consultation, and construction costs, Daybreak has been the top-selling new home community in Utah since 2009; one in five new homes sold in Salt Lake County is located in Daybreak. Also in 2009, Daybreak was ranked as the sixth best-selling master-planned community in the entire United States. The developer's commitment to have all homes close to parks or open space has paid off: one-third of all homes face open space and thereby command premium prices and resale values of greater than 10 percent over other locations.[xii] (see fig. 9)

Employment | Part of the success of any new community development is how many jobs and how much revenue the development brings to a region.

Daybreak has been planned to create 20,000 new jobs by full build-out. The regional light rail system has just been extended into Daybreak's planned town center and development of the first commercial buildings (such as the new South Jordan Medical Center complete with 24-hour emergency room, primary care facilities and medical offices, Rio Tinto Regional Center [Headquarters to Kennecott Utah Copper – Utah's largest private economic driver], and many small retailers at SoDa Row) are just being completed. The Town Center will eventually be home to corporate office headquarters, a regional full-service hospital, regional retail destinations, urban townhomes, condominiums and apartments, and perhaps, a university campus. Daybreak's design and layout has drawn these entities into the community and will bring numerous jobs to the region.

Community

The modern and decentralized American city – where housing is geographically separated from the workplace by great distances – created an entire nation reliant upon the automobile. Communities were fractured, social interaction was curtailed, physical health declined, and lack of public investment in central parts of cities resulted in a complete abandonment and cessation of the traditional city center.

To overcome this relational and physical breakdown, planners, designers, and developers are now creating places that encourage a different quality of life through physical activity; sustainable design; and the creation of public spaces and communities connected by trails, open space, and gathering areas. Designing these elements into new community plans can play a significant role in elevating the positions of community and the ways in which people interact with one another – thus reversing declines in public health, urban sprawl, auto-centric and auto-dependent neighborhoods, and environmental degradation.

Urban streetscapes – designed here to be pedestrian friendly and to create connections between residential neighborhoods and parklands – have proven to generate positive health impacts on residents. An increase in daily activity levels brings about decreases in obesity and the onset of diseases related to inactivity. In addition, neighborhood green space reduces crime and increases the sense of safety in a community. It also creates the potential for a more socially sustainable, cohesive community that can improve social capital and civic engagement. On a global level, urban green spaces help conserve natural ecosystem functions by improving air quality, protecting watersheds, and connecting wildlife habitats. The increases in tree cover, green roofs, and native vegetation can help reduce urban heat island effect, thereby reducing energy demands and fuels consumption which, in turn, creates greenhouse gasses. Added vegetation also acts as a carbon sink, reducing carbon dioxide levels. Green streets get people out of their cars and out on their feet and bicycles. (see fig. 10)

Performance-based measurements that relate directly to the improvement of the community, both physically and spiritually, are interchangeable with environmental, economic, and aesthetic standards. And, as evidenced by the examples that follow from the Daybreak Community, measurement lies at the heart of a desire to provide locations and opportunities for people to interact. This is accomplished by observing the ways in which a community integrates its multiple human networks, the methods in which design elevates these networks and intersections at places in the community, and the means by which people interact with one another and their environment in these spaces.

Walkability | To combat a community's reliance on the automobile, developers and designers now strive to create locations that embrace and celebrate pedestrian mobility. Walkable neighborhoods provide so much more than the environmental benefit of reducing vehicle emissions. They have been proven to advance the physical health of residents and to increase social interaction among neighbors. (see fig. 11)

While it has already been noted that the Daybreak Community's walkable neighborhoods (where amenities are within a 0.25-mile/0.4-kilometer walk from every home) have provided enormous environmental advantage, the community benefits are notable as well. Daybreak's walkable design encourages face-to-face interaction and connects residents with each other; in addition, the extensive trail system links

图14 (fig. 14)

CREDIT: D.A. Horchner/Design Workshop

Community gardens in Founder's Park continue a local tradition of pioneer self-reliance. The gardens have been so popular that additional plots have been inserted into the existing open-space system and new ones are planned for each future village.

在创立者公园内的社区花园传承了拓荒者自给自足的传统。花园一直都很流行，以至于额外的地块已收纳到现有的开放空间系统中，而且每个未来的村子都规划新的社区花园。

neighborhoods to schools, churches, community centers, and nearby Oquirrh Lake. In 2010, a report noted that 88 percent of Daybreak students walk to school, compared to 17 percent in surrounding, less-walkable neighborhoods. While no data currently exists to prove the health benefit specific to Daybreak's walkable neighborhoods, it is accepted that the benefits of walkability are best guaranteed if the entire system (and not just certain specialized routes) of public corridors is walkable, which is something certainly true of the Daybreak Community.[xiii] As this development matures in years to come, Design Workshop hopes to have more substantial documentation and quantifiable evidence to support the specific health impacts of Daybreak's walkable design.

Open Space | The value provided by urban open space is substantial. Ecologically, open space offers a home for natural species in environments that are otherwise uninhabitable due to city development. Aesthetically, the benefit is obvious – open space supplies beauty and respite to an otherwise gray landscape. And, recreationally, open space provides opportunities for active and passive pursuits and for interaction among neighbors. (see fig. 12 and fig. 13)

Public landscapes form the backbone of the social and cultural systems at Daybreak. Of the 4,100 acres (1,659 hectares) in the entire development, up to 1,000 acres (404.7 hectares) are planned for parks and open space. Each component of the system, including the more than 22 miles (35.4 kilometers) of passive trails, recreational water features, active sporting activities, performance space, and native demonstration gardens, is carefully designed and programmed to play a specific role in community life and sized and located to appropriately serve the demographics of each specific Daybreak village. As mentioned previously, the open space network was planned to be interconnected, intentionally promoting walkability and stormwater conveyance routes. This design concept illustrates the effectiveness of Design Workshop's integrated approach.

Community Gardens | Community gardens and urban farms integrated into community plans are gaining ground in the United States. Such plans attract

residents, support local farms, provide economic development, create opportunities for neighbor/broad community interaction, and provide educational opportunities for people of all ages. (see fig. 14)

Within Daybreak's current open space network, there are six community gardens with over 250 individual garden plots that provide community gardens for approximately 3 percent of the current population. The gardens, carrying on a tradition of self-sufficiency in the mountain valleys or the Western United States and teaching residents about responsible landscape methods within the Great Basin ecology, have proved to be so successful that the developer was prompted to insert additional gardens into open space areas where they had not been originally planned. Future goals are to provide enough community gardens to support up to 10 percent of the community's population.

Art

The final Legacy category, Art, may be the most difficult one to measure and quantify and therefore, the most difficult category for which to create effective metrics. When art is applied within landscape architecture, its success becomes even more complex and difficult to measure. After all, how does one explain something which is subtle or bold, public or private, ostracized for its statement or adored for its appeal, criticized or celebrated, excessive or refined, transitory or timeless? In addition, how does one measure the value of something so open to subjectivity and opinion?

Any discussion about "measuring" the impacts of art or aesthetics must begin with a disclosure of definitions. For this discussion, art is defined as a dimensional attraction – something that adds artistic value to an environment, whether a public space, a street corner, or a building façade. Aesthetics define how things look. It is a method for characterizing beauty and feeling. Both include some level of subjectivity; however, the very act of evaluating art or aesthetics is vital to a project because it establishes a range of opinions that launch a framework for addressing basic questions such as meaning, permanence, innovation, and authenticity. DW Legacy Design® suggests that two methodologies can be applied to measuring art: quantitative and qualitative. Quantitative
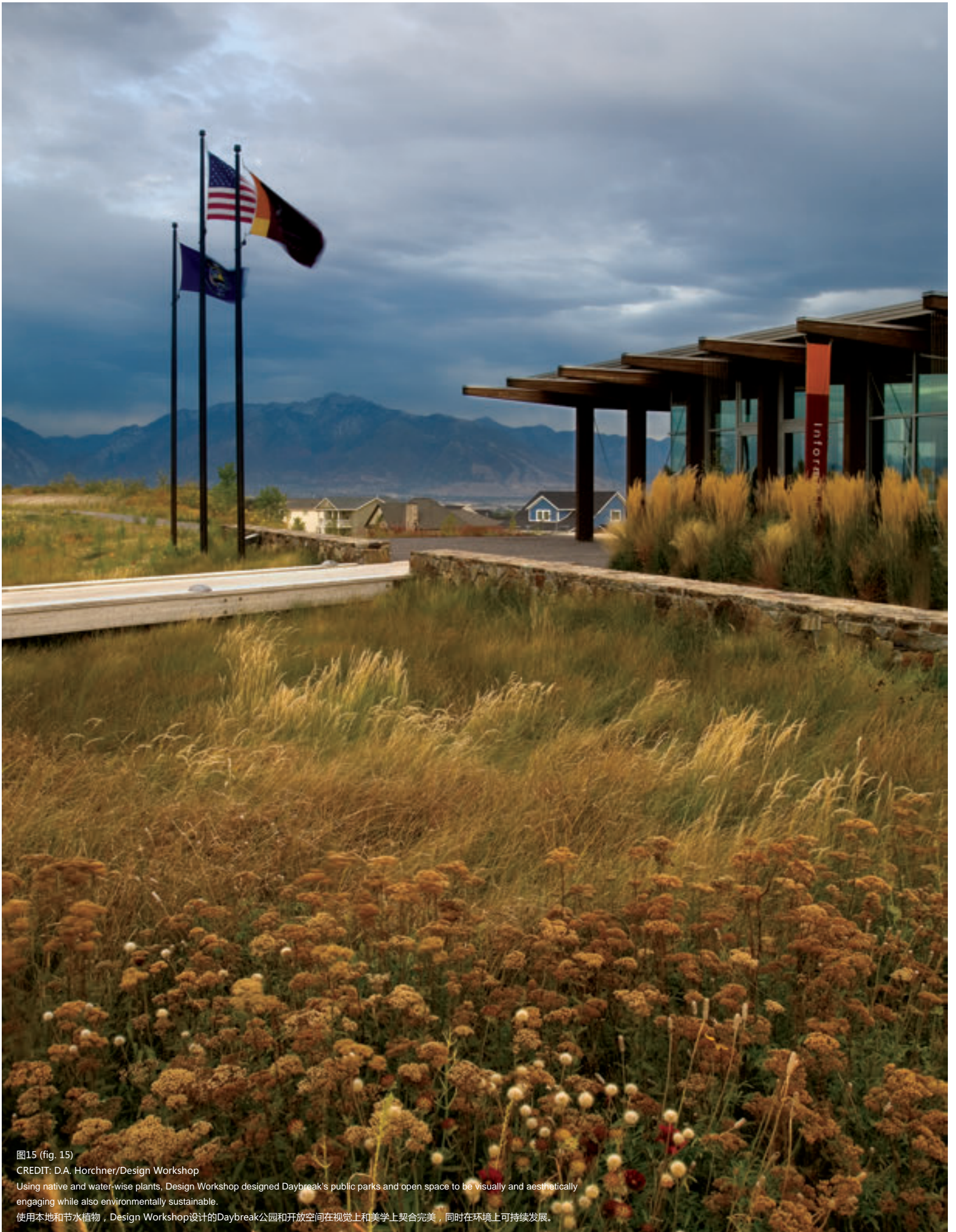
图15 (fig. 15)
CREDIT: D.A. Horchner/Design Workshop
Using native and water-wise plants, Design Workshop designed Daybreak's public parks and open space to be visually and aesthetically engaging while also environmentally sustainable.
使用本地和节水植物，Design Workshop设计的Daybreak公园和开放空间在视觉上和美学上契合完美，同时在环境上可持续发展。

metrics are those which can be counted: the numbers of art pieces included in a project, the inclusion of an art museum, performing arts center, or public arts programming in a project; whether a visual artist was engaged in a collaborative process; or what venues for public performance are included in the design. Public reaction to these issues is vital to measuring outcomes. Was the public engaged in the public art process, or asked to assess the visual quality of an existing landscape or to comment on the quality of a proposed design? Is there a contingent valuation methodology in place that addresses the public's willingness to pay for public art and accept the responsibility that comes with adding community benefit to a landscape? Does public art foster opportunity for a community to discuss and determine its approach to art or its collective idea of art's value? Qualitative metrics are a bit more nebulous, suggesting that "good" art (subjectively defined as beautiful, charismatic, or fulfilling a communal need) attracts similar components. While such measures don't ensure a consistent end result, they do increase the chances that a successful aesthetic component or identity will be a part of the end result. (see fig. 15)

When used to achieve a specific outcome, art, in any form, becomes measurable because it is attached to something with identity and character. The intellectual and emotional content inherent in the creation of a space – from the compositional idea to the spatial layout to the materials used – becomes a showcase. Measurement can be applied to the manner in which these ideas converge, including the applied aesthetics and narrative qualities inherent in the art itself, and the health and human safety of the community that interacts with the art. If art becomes a successful focal point by elevating the community culture and stability of the surrounding environment, then it has probably succeeded in intent. The number of art pieces present in a streetscape or the existence of a performing arts center in a new community is no doubt important, but far more essential to this discussion is the qualitative authenticity of the art. If art – in whatever form it takes – adds significance and distinction, then it has achieved a specific outcome and it can be measured.

The Daybreak Community's art is the community structure and its native aesthetic. Quantitative evidence of the value of these elements is challenging to obtain; however, proof of their aesthetic value can be perceived from the community's economic, environmental, and community successes, as have been discussed earlier. The obvious correlation is that, once again, achieved targets in any of the four Legacy categories will produce impacts and affect elements in some or all of the remaining categories.

Site Specificity | Design Workshop feels that taking the site's location into account while planning and designing helps link a project to its surroundings. Using site specificity as a design strategy requires a thorough understanding of the cultural, environmental, and economic systems at work. In addition, it helps differentiate the project from other locations and experiences, allowing residents and visitors to feel deeply connected to the site and also to the region in which it sits and the people who live there. This sense of place and identity can imbue an area as large as a region or define an area as small as a village or garden.

For the Daybreak Community, the design intent was to root the landscape within its region and create a new authentic, forward-thinking, Rocky Mountain landscape that acknowledges the past while it meets the environmental challenges of today and embraces fresh aesthetic forms. The landscapes are intentional, artistic expressions of their natural and cultural context. Innovative, geometric landforms and battered gabion walls constructed of reclaimed waste rock from the Bingham Mine express connections to the region's heritage. The forms recall the geometrical waste rock slopes of the mine that is the backdrop to the community but are softened by native grasses and plant communities. Since the community is a man-made construction, no attempt was made to make the open space look "natural" or like unspoiled nature. Rather the manmade nature of the project was celebrated through intention, geometric forms that were planted with water-wise plants – nature AND culture, environment AND community were fused to create a new aesthetic rooted in the environmental and cultural context of the community. Instead of going to waste, over 43,500 tons (39.5 million kilograms) of recycled mine rock were re-used throughout the landscape. This reinforces connections to the mine through the color, texture and forms that can be seen on the hillsides behind the community. Native plants including bitterbrush, elderberry, and rabbitbrush connect the community to its natural history and create wildlife corridors that run to the mountains and replicate native the region's vegetative patterns. (see fig. 16)

Hillside Park offers a sculpted landscape abstraction of natural foothill forms and vernacular water courses. The water canal serves as an outfall and aeration channel for newly constructed Oquirrh Lake and carries water to the constructed wetlands below. Poplar windrows along the canal recall the iconic early Mormon pioneer tree plantings along irrigation ditches that Western writer Wallace Stegner dubbed "The Mormon Landscape." The riparian corridor fosters wildlife habitat and supports a growing cottonwood gallery. Water courses also serve as a storm water conveyance system leading to infiltration basins where 100 percent of a 100-year storm is infiltrated into the ground.

Toward Synthesis

As previously mentioned, Design Workshop believes that the most compelling places are those where environment, economics, community, and art intersect. And, relatedly, one of the firm's highest pursuits has been to prove the value of this belief, which it has aimed to do through a performance-based research methodology. This methodology allows the firm to gauge the progress, execution, and quality of its work against a project's intended goals. The transparency and relevance of the metrics relate to desired outcomes while they also work toward synthesis with the other chosen objectives.

A comprehensive look into how Design Workshop employed its performance-based methodology into the parks and open space network of South Jordan, Utah's Daybreak Community, illustrates the impact of this process on the region as well as on the firm itself. The project's narrative provides examples to advance the notion that quality, rigor, and accountability in the practice of landscape architecture will generate results that meet today's needs and goals while preserving opportunities for tomorrow.

Whether centered around metrics like Design Workshop's or not, an evidence-based approach is landscape architecture's key to analyzing and to learning from accomplishments and failures in planning and built work. Individuals and firms who undertake this approach will discover value and great benefit to themselves, their projects and the profession overall.

Notes

i As Atul Gawande explains in his 2009 book The Checklist Manifesto: How to Get Things Right, published by Picador, "[Checklists] not only offer the possibility of verification but also instill a kind of discipline of higher performance" (p 36) and "Checklists…established a higher standard of baseline performance" (pg 39). Atul Gawande, The Checklist Manifesto: How to Get Things Right. New York, New York: Picador, 2009.

ii Kurt Culbertson. Memo to Design Workshop Staff. "Metrics for Sustainability," January 6, 2002.

iii This quadruple-bottom-line approach is an expansion of triple-bottom-line (TBL) accounting, a phrase first coined by Freer Spreckley in the 1981 publication 'Social Audit – A Management Took for Co-operative Working' which expands traditional reporting to include environmental and social performance in addition to financial performance. http://en.wikipedia.org/wiki/Triple_bottom_line. [accessed May 15, 2013].

iv http://www.usa.com/south-jordan-ut-weather.htm [accessed June 15, 2013].

v "The results of a sustained effort." http://www.daybreakutah.com/why/sustainability/learn-more [accessed May 12, 2013].

vi "Daybreak Environmentally Friendly Real Estate, But How?" http://inside-real-estate.com/leeyoungblood/2009/08/19/daybreak-environmentally-friendly-real-estate-but-how/ [accessed May 12, 2013].

vii "Benefits of Going Native." http://www.ncsu.edu/goingnative/whygo/benefits.html [accessed May 12, 2013].

viii "Carbon Footprint." http://en.wikipedia.org/wiki/Carbon_footprint [accessed May 12, 2013].

ix If you build it, will they walk to school? http://daybreak-beta.location3.com/if-you-build-it-will-they-walk-to-school [accessed June 16, 2012].

x The average U.S. household's carbon footprint is 48 tons of carbon dioxide per year. http://en.wikipedia.org/wiki/Carbon_footprint [accessed May 12, 2013].

xi Geoffrey J. Booth. "The Sustainability Dividend: Environmental Science delivers Kennecott Land a competitive advantage." Developer Magazine, 26-32.

xii Ibid.

xiii "Walkability." http://en.wikipedia.org/wiki/Walkability [accessed May 10, 2013].

About the author:

Natalie Grillo has over 10 years' experience in writing, editing and public relations. A graduate of Taylor University, she began her career in non-profit communications and public relations, working specifically to create, refine and streamline all marketing and communications program collateral. In 2005, she accepted a position with Design Workshop where she served, in part, as both writer and editor on a variety of projects until 2013. Now a freelance writer, Natalie excels in clear, direct and appropriate communication for a given audience or project.
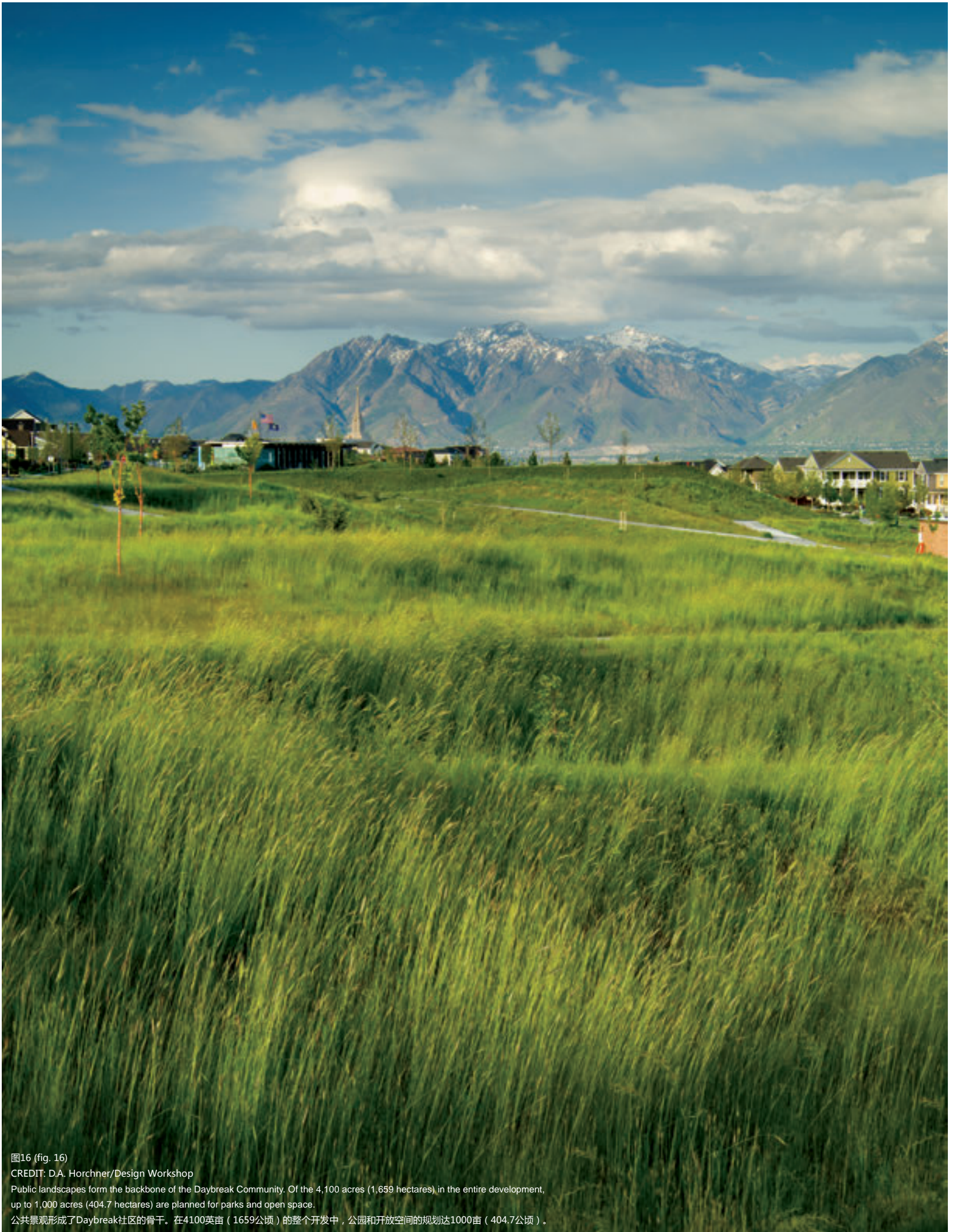
图16 (fig. 16)

CREDIT: D.A. Horchner/Design Workshop

Public landscapes form the backbone of the Daybreak Community. Of the 4,100 acres (1,659 hectares) in the entire development,
up to 1,000 acres (404.7 hectares) are planned for parks and open space.

公共景观形成了Daybreak社区的骨干。在4100英亩（1659公顷）的整个开发中，公园和开放空间的规划达1000亩（404.7公顷）。

DW Legacy Design®工程
DW Legacy Design® Work

作者：丽贝卡•伦纳德
Author: Rebecca Leonard

DW Legacy Design®工程

DW Legacy Design®是Design Workshop开发的一种循证设计方法，旨在为项目团队提供决策制定的透明化依据。它可以使团队保持统一，并相互协作。尽管全公司的同仁们一致同意只有在实际世界的项目应用中才能真实检验这种设计的指标，但是很多项目团队都有一种共同感受，那就是除了形式创造外还必须做研究。要创建一个可衡量的流程，必须熟悉研究方法、分析并记录 广阔而深入的主题——这是在当今如此快节奏的从业者世界里难以实现的。这也许是许多从业设计师很少冒险开展研究的原因，而只有专业学者才会进行这样的研究。

DW Legacy Design®拥有一条嵌入式的反馈式循环——创造、评估、创造、评估，——它缩短了研究的学习曲线，并保证有时间来评估随着方法学的演变而日益增多的复杂内容。从项目初始一直到竣工后的监控，都在实行这种严谨的方法。在过去数年来，Design Workshop的设计师已找到将这种方法整合到项目工作的机遇和挑战。

寻找可进行DW Legacy Design®的工程

应用DW Legacy Design®的过程的第一步是赢得这项工作。客户必须愿意接受其项目在四大范畴（环境、社区、经济和艺术）内是综合性的并且可衡量的。由于鲜有实践者会尝试达到这种严谨的研究水平，因此，客户可能对这种方法的价值并不了解。设定综合目标、开发基线和寻找基准点所需的努力程度可能会遇到阻力——这些活动经费很可能已经占项目预算的三分之一了。如有必要，设计师必须"推销"这种循证设计。有一点是至关重要的，那就是设计师必须通过展示先前工作并与之分享初始水平及持续的分析其是如何使以后的项目节约成本并获益的经验，从而设定合适的期望。

自始至终都运用DW Legacy Design®方法

项目有担保之后，设计团队必须制定一项工作计划，该项计划包括对每个设计过程阶段的严谨衡量，并在完成后符合循证设计标准。团队必须快速熟悉关键问题、创新机会、批判性问题疑问、客户愿景以及客户关键成功因素（CSF）。客户愿景是客户预期的项目成果的清晰表达。这仅可通过聆听客户的表述才可形成。客户的CSF是必须实现的特征或结果，只有如此才能让客户认为这个项目是成功的，而且，在整个项目过程中，必须对客户的CSF进行评估。随着项目的进展，可能也有必要对这份清单进行修改。客户的CSF在工作范围内也许并没有被描述，所以帮助客户界定是十分重要的 。

Design Workshop团队在这个过程开始时，会与客户、团队成员及在场的关键利益相关者召开战略性项目启动（SKO）会议。与整个团队和合作者的广泛对话会使备选方案更周全，也大致议定了确定问题的方法。透明化的决策制定使各方均能够了解拟定的过程，因而对项目有统一期望。这个过程充分体现在以下范例中。

在奥斯汀公园与娱乐活动管理局的领导下，通过与利益相关者的会话，Design Workshop顾问团队针对德克萨斯州奥斯汀共和广场项目找出并确认了客户的CSF。在这个过程的构建阶段尽可能以可衡量的方式来表达每个关键的成功因素。例如，方案声明，"该项目应保存和保护现有的'拍卖橡树'，因为 奥斯汀市的原始地皮就是在'拍卖橡树'下出售的。"这一关于树木保护的表述当然是一个重要的普遍性问题，特别关注的是"拍卖橡树"的保存，与一般的林木保存截然相反，可以说，这也是一个批判性问题。在这个阶段，不可能让每个CSF都可衡量，因为目前的状况还

是未知数，且尚未开展研究去了解什么才是合理的目标。相应的还有数种表述，如："该项目应为多世代的使用者提供机会"，"该项目应创建一个'标志性'公园，体现出邻里的同一性。"虽然不可衡量，但这些观点也被记录在案，构成项目团队的研究议程的基础。（参看图1）

一旦团队的基础工作确立，就必须应对关键项目的挑战，并制定相应的方法。"项目困境"是一项叙事性策略，描述的是项目的窘况。这项策略在把DW Legacy Design®运用到项目中的同时，总结了必须应对的主要挑战。在讨论项目语境的初始阶段，首先遇到的困境就是："什么会妨碍项目取得成功？"这个问题生动地体现了项目的复杂性以及对综合解决方案的需求。这样一来，困境声明就完全不同于工作范围，也不同于客户的愿景和目标。通过团队的设计与规划调查进行检验和确定项目成果，而"项目主题"则是关于项目成果的声明。它是对核心问题或困境声明中存在的疑问的拟定解决方案。共同清晰地表明项目的伟大计划，可以使团队为了共同目标或经历团结起来。

在项目早期，团队会制定项目的困境和主题声明。由于附近的公共开放空间有限，共和国广场项目的困境在于，与其它同等规模的城市公园相比，它的使用强度更大，而且，由于对随后的运营和维护缺乏合理的规划，该公园有可能被过度使用。此外，公园的再设计包括很多利益相关者，它们是联邦政府、州政府和市政府、在活动期间经常出入该公园的社区成员、在市中心工作的人以及住在该公园附近的居民，由于再设计对他们有着多重意义，因此，获得对再设计的广泛支持变得更具挑战性。

项目的主题是要承认地域的历史以及会影响该过程的其它计划；加强文化、物质、历史、艺术、情感、生态和经济方面的联系；把该公园与其它著名的城市目的地公园相比较；最后，确保实施及持续运营和维护的成本可由设计产生的附加收益所负担（如：附加销售额或财产税）。（参看图2）

叙事原则是关于项目固有的主观陈述，也是项目相关人士都了解和信服的陈述。对于DW Legacy Design®的四大范畴（环境、社区、经济和艺术），每个范畴叙事原则的清晰度对严谨、全面、以探索为导向的设计过程是至关重要的。这一做法为项目团队奠定了共同的基础，并针对主题检验作出各种设想。叙事原则可使团队在与客户的讨论以及在公开会议上更具说服力，以获得较好的效果。

从一开始就针对四大范畴——环境、社区、经济和艺术——进行综合思考，使结果能融合进最全面的可能性与绩效指标 。项目目标对循证设计过程是必不可少的，因此，必须尽早制定，以便为分析提供信息、为备选方案创作提供指导、为持续监控提供基础。对于目标的要求 必须是明确、可衡量、可执行、实事求是、有时限，但是，这一点很难在首次团队集体讨论会上实现。在调查项目机遇，同时制定方案或者召开SKO会议的时候，Design Workshop团队会组织进行一场关于目标和指标发展的简便 对话。专门设计的"指标选择明细表"用于指导以探索为导向的讨论，并鼓励实现DW Legacy Design®四大范畴的目标。初次集体讨论后，小组会选择并优先考虑相关的研究与衡量主题、制定初始目标并强化对冗余区域的探索。这一做法有助于从一开始就形成工作范围、确定额外团队成员并确保综合性、优先化方法的制定。在设计过程的前期设定的目标的责任性是交付具有真正价值的可持续性解决方案的必要条件。

对于共和广场项目，目标是通过采用键盘轮询设备的公开会议与在线投票的方式，与利益相关者公开讨论后制定的。共设定了25个项目目标，这个数字被认为可以体现项目的复杂程度；不过，不时地追踪如此多目标是难以处理的，项目团队也发现，要以同等的严谨性达成所有目标是很难的。共和广场项目的目标例子包括"增加鸟类、松鼠和蝴蝶的栖息地"和"减少热岛效应"。显然团队早期认为每个目标都有可行的措施。对团队而言，要了解如何衡量其它目标就更难了，比如："把场地独特性真实纳入设计和规划中"。团队选择把它们视为目标，但也承认，定性衡量多于定量衡量。（参看图3）

设定目标后，Design Workshop团队在现场或区域内对每个目标的现状进行研究，以便建立测量进度的基线。为了提供这些数字实际意义的参考点，要把基线与行业标准、最佳实践和同等设施相比较。没有这条基线，随后的衡量就没有参考意义。公司的门户网站是一个设有共享知识和信息的内部站点，其它项目所收集的以往项目经验以及完整记录的案例研究为当前项目提供了各项基准。对于共和广场项目，热岛效应是通过测定不透水表面的数量而衡量的（目前，该公园有25%的不透水表面）。栖息地是通过树冠覆盖面和下层花卉植被的百分比进行衡量的（目前，该区域有40%是被树冠覆盖的）。每个目标都可找到数据来源，否则就会以场地调查、利益相关者投票或已知事实的推论的形式进行基本研究（如：衡量光线是通过在栅格上的光照取样，并测绘出数值而得到的）。（参看图4）

接下来的工作阶段——制定和检验备选方案、安排项目进行长期监控——往往是最具挑战性的。研究是开发设计和建立备选方法证据的基本要素；不过，对于研究费用次于开拓思路和制定备选方案所需费用的项目来说，这也是一要点。为了确保决策人充分了解信息，必须利用设计过程早期在测量基线过程中所用的相同方法对每个设计备选方案进行分析。这个步骤面临的挑战在于，制定备选方案通常占用了大部分分配时间，几乎没有或很少留时间在达成目标时对成功进行衡量。此外，若设计方案尚未完成，某些指标是很难预测的。例如，在开幕日、在种植两年后或者在植物完全成熟时，设计师如何预测备选方案的树冠覆盖面？再次以共和广场项目的非渗透表面指标为例，现状查明的不透水表面的现有数量为25%，而可同等公园的不透水表面比例为50%~60%。若这三种备选方案测得的树冠覆盖面为40%~50%（现存条件与可比拟基准之间的范围），团队则认为这些备选方案是可以实现的。（参看图5）

尽管强烈希望对项目施工后的绩效进行评估，但是，接受长期监控的项目的范例极少。施工图和施工监理完成后，设计师的契约通常就结束了，客户也已转移到其它事务上，未来的利益相关者（如：居民、使用者）并不清楚如何利用基线与未来测量结果进行比较。即使客户有远见去实行项目监控计划，团队人事变动、缺乏系统知识以及数据可用性的改变也使其难以继续将指标与基线、基准进行比较，因而难以长期了解项目是否获得成功。共和广场项目有望在2013年年底动工，预计在2014年年底竣工。同样地，该项目一直以来也没有监控。不过，有一些目标需要持续监控，才能确保其已达成。例如，有几个目标仅可通过对建成后公园的使用者调查才能进行衡量，如："提高对该公园的历史意义的认识"和"通过公园设计彰显本土特征"。根据社区会议上的键盘投票及在线投票结果确定了这些目标的基线条件，那就是有50%的现有公园使用者对该公园的历史有清晰了解，并且有12%认为该公园捕捉到了"奥斯汀的精髓"。设计团队现在就提前思考这些问题，从而对这些目标的变化进行长期监控。（参看图6）

让一个接一个的项目都建立在成功的基础之上

由于在大多数设计实践中DW Legacy Design®方法并不常见，还需要一段曲折的经验，因此，将这个过程确立的初始成本很高。为了在市场竞争中立于不败之地，设计实践必须更加高效。从一个项目到另一个项目，团队成员必须继续运用其在先前工作中获得的经验。对于某些项目类型，有些指标一直都非常有用。例如，几乎对所有的街道景观和公园项目来说树冠覆盖面都是至关重要的，它的作用包括：减少径流、减少热岛效应和提高人类的舒适度。对几乎所有政策计划而言，重要的是提供优质的、人们买得起的住房。项目团队能够从一个接一个的项目获得宝贵的专业知识，因此不必花太多的时间和精力进行研究和评价结果。

分享经验教训和系统知识的正规机会具有双重益处，其一是让那些不愿尝试严谨指标追求的团队成员有机会向更富经验的成员聆听和学习，其二它提供了一种认知方式给较早接受的成员，他们是一批早于别人勇敢尝试高质量研究的人。此外，如果已经看到其他项目带来的积极成果，团队更有可能采用方法学或开展研究，因此，要熟悉以往取得的成功也十分关键。

项目团队最初面临的一些挑战是，他们企图追踪过多的指标，而根据经验，如何区分指标的优先次序才是成功的关键。与内部人员分享范例非常重要，这样团队才不会从

零开始——Design Workshop一直在内部推广这种做法。Design Workshop已开发出一种"可持续性矩阵"，这份文件至关重要，可以追踪各种目标及策略、任务、基线、基准和研究原始资料，尤其是在多学科团队工作时。该工具在公司的门户网站也有直接链接，因此，团队能够即刻查到潜在指标的相关信息。若每个潜在的指标主题都有充分的且易于得到的研究和基准，则可以减少花在研究和"发明"相关数据库的时间，从而使团队成员能够把分配的研究时间花在寻找更佳的信息或者更具相关性的新比较基准上面。项目计划书模板使团队能够从某些既定的DW Legacy Design®内容开始制定项目文件。由于整个公司的团队都是采用相同的模板，因此可以把一个项目的相关研究结果快速转移到下一个项目中。在项目进行中，访问Design Workshop的门户网站已成一个较为常见的步骤——在设计和施工过程中，员工既取出也存入知识。

最后，宣传各项指标，这是至关重要的！Design Workshop已开发出各种方法庆祝成功，并通过DW Legacy Design®奖励计划，对员工提交主题会议论文进行鼓励，以及出版关于公司实践和项目的文章和书籍，将来将这些信息传播到公司内。如果与哲学信仰相一致，积极的强化能够有助于产生有策略、有远见的行动。

应对挑战

Design Workshop将DW Legacy Design®方法运用于各个项目中，经历过众多的挑战，力求克服数十年来对在景观建筑与规划领域中的研究自满情绪。这些挑战可分成几大类，包括：缺乏积极性，缺乏基于研究设计的过程机制，对未知事物存在恐惧心理。缺乏积极性通常是因为缺乏对指标益处的认识。设计师必须要有一个强有力的理由，说明基于指标的设计方法诸如：DW Legacy Design®如何让设计精益求精，同时也能为客户省钱。偶尔会出现这样的情况：团队在整个设计过程中缺乏自律性，而没有在过程中追踪各项指标。阿图•葛文德在《清单革命》（2009年）里捕捉到了这一现象，他指出，"不过，我们需要的不仅仅是在一起工作的人要相互友好，还需要自律。自律是困难的——比信任和技能还难，甚至可能比无私更难。我们天生就是有缺陷的，是变化无常的生物。我们甚至无法克制自己在两餐之间不吃零食。我们生来就不是自律的。我们生来就追求新颖和刺激，而不是仔细关注细节。自律是我们必须处理的工作。"作为项目的领导者，主管和项目经理都必须提倡这种严谨性和可衡量性。从签订合同到项目的最终实施，如果团队领导人并没有表明其对可衡量价值的信任，那么，这种可衡量性就是无谓的了。

第二类挑战与研究机制有关。如前所述，对新接触诸如DW Legacy Design®过程的团队往往会考虑太多的指标，因为实际上还有一种学习曲线，可以针对给定的项目类型对指标进行编辑并区分指标的优先次序。事实上，在项目启动时建立一致意见时所

图1 (fig. 1)
CREDIT: Design Workshop
There were 1,508 dwelling units within a 1/4 mile of Republic Square in 2010 – up from 372 dwelling units in 2000.
在2010年，共和广场的1／4英里内有1508个住宅单位– 而在2000年，只有372住宅单位。

图2 (fig. 2)
CREDIT: Design Workshop
Due to the park's role in the neighborhood as both a neighborhood park and a citywide destination, it was at risk of being "loved to death."
鉴于街区内公园扮演着邻里公园和市级公园的双重角色，使它处于"爱到死"的危险边缘。

付出的努力是对日后追踪指标的顺畅过程的投资。区分优先次序时，除了考虑数据的规模和发布频率，还要考虑数据的可用性。

没有一个项目经理可以单独实施这一设计过程。如果团队成员对统计学和统计分析有基本的认识，且了解看待项目及衡量项目绩效的不同方法，那么，团队的效率就会有所提升。这种学术含意在于，可以表明把基础统计学纳入景观建筑课程所带来的价值。

包括分包顾问和利益相关者的团队应努力做到节约时间和资源，并抓住创新机会。公司和项目领导层的支持有助于团队了解这些节约和机会。办公室的其他人必须支持团队的愿景，并帮助填补知识空缺和应对挑战。经常为项目团队提供机会进行工作汇报，并从外部资源获取新的见解，可以确保团队更严谨地运用这种方法。强化DW Legacy Design®的其它方式还包括：拥有可使团队通过研究调查和指标应用来加快设计周期的工具，例如ArcView和BIM；投资于既适合于外行读者又具有学术严谨性的写作方式培训；提供关于如何用图表表达指标的实例和培训。

团队开发的指标往往是设计行业或学术界的其他人尚未研究过的，这使基准的建立具有挑战性。这说明实践者有机会与各机构合作来支持研究。有些人可能会问，私营公司是否应该或能够以正规的学术方式来开展研究？这包括以下问题：需要从学术界获得什么才能开展实践？怎样的学术研究对实践有意义？实践者开展的研究能否也符合学术研究的标准？课程开发的意思是什么（有无必要要开发创造力和批判性思维能力）？研究方法和统计学是否应该成为景观建筑课程的一部分？这对那些旨在把学生教育培训成从业者的计划来说有什么意义？实践者是否应该参与学术出版物的同行评议文章，将其来作为一种反馈形式？

这种学术界/实践者合作类型的成功范例是：Casey Trees and Davey Tree专业公司构思和开发的、美国林务局支持的"国家树木价值计算器"。Design Workshop持续提供具有学术质量的研究（例：同行评议），比如即将在爱丁堡大学建筑系学报主办的《爱丁堡建筑学研究》杂志发表的一篇文章，文章的主题是Design Workshop的路易斯安那州新奥尔良拉斐特绿道规划。尽管面临着相关的挑战，关于如何付出努力还是有很多要说的。

最后一类挑战打着"害怕"的旗号。谚语"知识就是力量"可用于激发对赋权和威胁的感受，这主要取决于掌握知识的人。无论出于什么原因，一些决策人和利益相关者

图3 (fig. 3)
CREDIT: Design Workshop
A community meeting and on-line poll were used to validate goals and determine priorities for the project.
社区会议和在线调查被用来验证目标和确定项目的优先权。
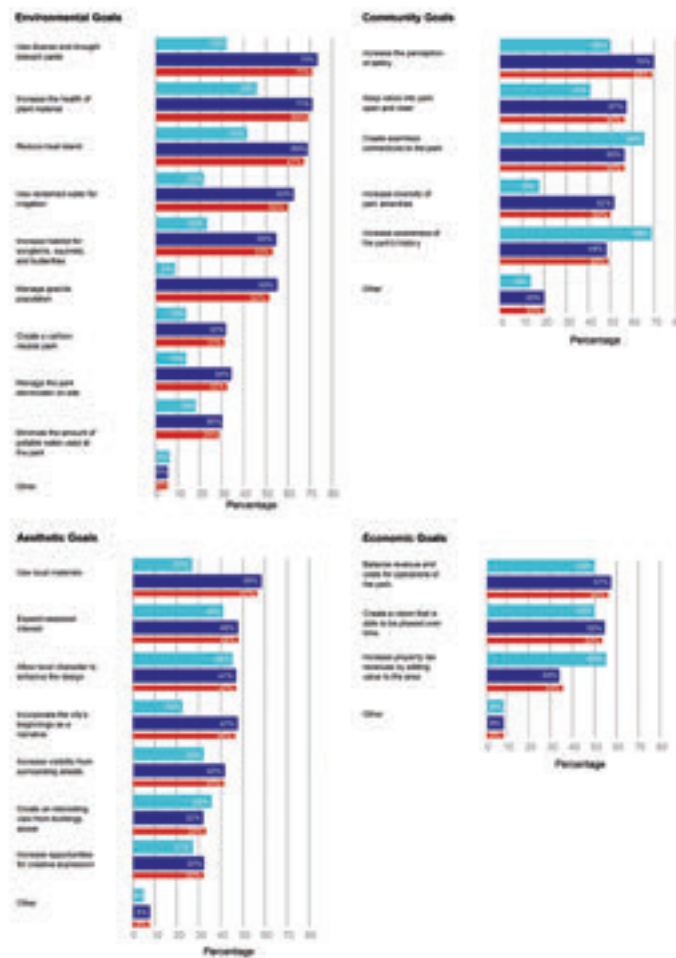
都可能对数据表示怀疑，或者可能会主动尝试用他们不熟悉的知识去阻挠设计过程取得的进展。合理的研究可用于追究掌权人的责任，这可能会有点可怕。不过，决策过程越透明，决策过程及其结果就可获得更多的支持。重要的是，设计师应非常明确地指出收集数据的目的，而这往往是需要注意措辞的。有时候，要在目标上达成一致意见是不可能的——例如，"使温室气体比基线情况减少XX%"。指标——"使温室气体比基线情况有所减少"——可能更顺耳一些。要在项目工作中运用DW Legacy Design®会面临许多挑战，但通过发展知识体系和支持更严谨的研究标准，每个挑战都是可克服的。

证明我们的价值

随着行业日益把循证设计作为准则，实践者在基于研究的设计过程（如：DW Legacy Design®）中扮演的角色正在演化是实践者可能在设计过程的"创造"阶段处于最佳状态；不过，他们会发现自己对创造结果进行"评估"的阶段会越来越认真负责。靠直觉或纯粹靠坊间证据判断某个构思的价值渐渐地不被大家认可了。设计师

必须寻找那些同样努力寻求严谨性和自律性的客户、学者和专业同行（同伴）来促进设计行业更好的发展并提升项目的可持续性。Design Workshop已找到把这个理论运用于项目工作所面临的机遇和挑战——这种努力的参照基准极少。但是，这种努力的回报不仅仅是获得各个第三方组织的肯定（如：美国景观建筑协会、美国规划协会、美国新城市主义协会和城市用地学会），而且还因知道我们的努力目的是推动景观建筑与规划行业的永久发展，所以也令人颇具成就感。用医药诺贝尔奖得主亚历克西斯•卡雷尔的话说，"对于那些愿意克服惰性的人而言，生活如泉涌般绽放。"

作者简介：

丽贝卡•伦纳德是Design Workshop的总裁，在社区规划、城市设计、重建、旅游规划、区域规划和场地设计方面拥有丰富的经验。丽贝卡毕业于印第安纳州曼西波尔州立大学建筑与规划学院，并获得城市与区域规划硕士学位。她在公私营规划行业的经验使其在设计行业中往往有独特的见解。丽贝卡认为，一个出色的设计需要将各个方面的背景都考虑在内——包括环境、社区、艺术与经济。

图4 (fig. 4)
CREDIT: Design Workshop
Measures for each goal were determined; then, baselines were compared to other desirable urban parks.
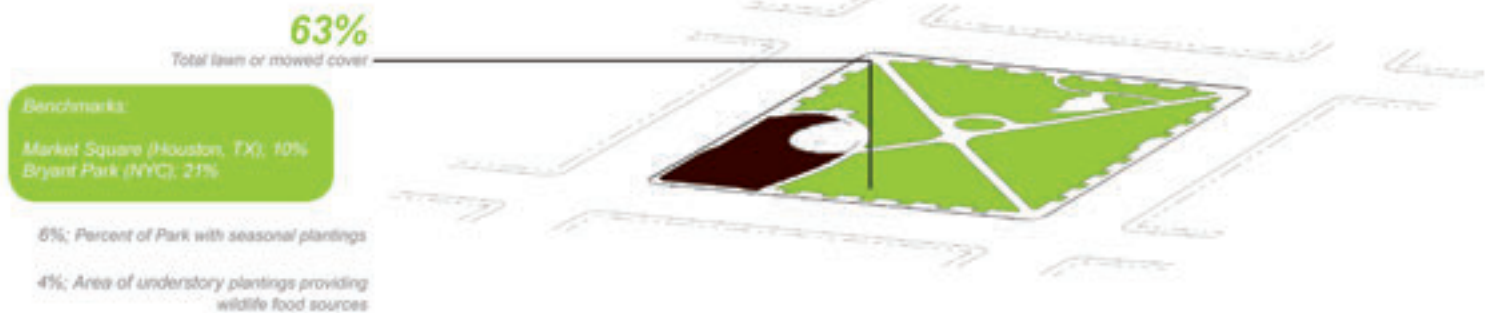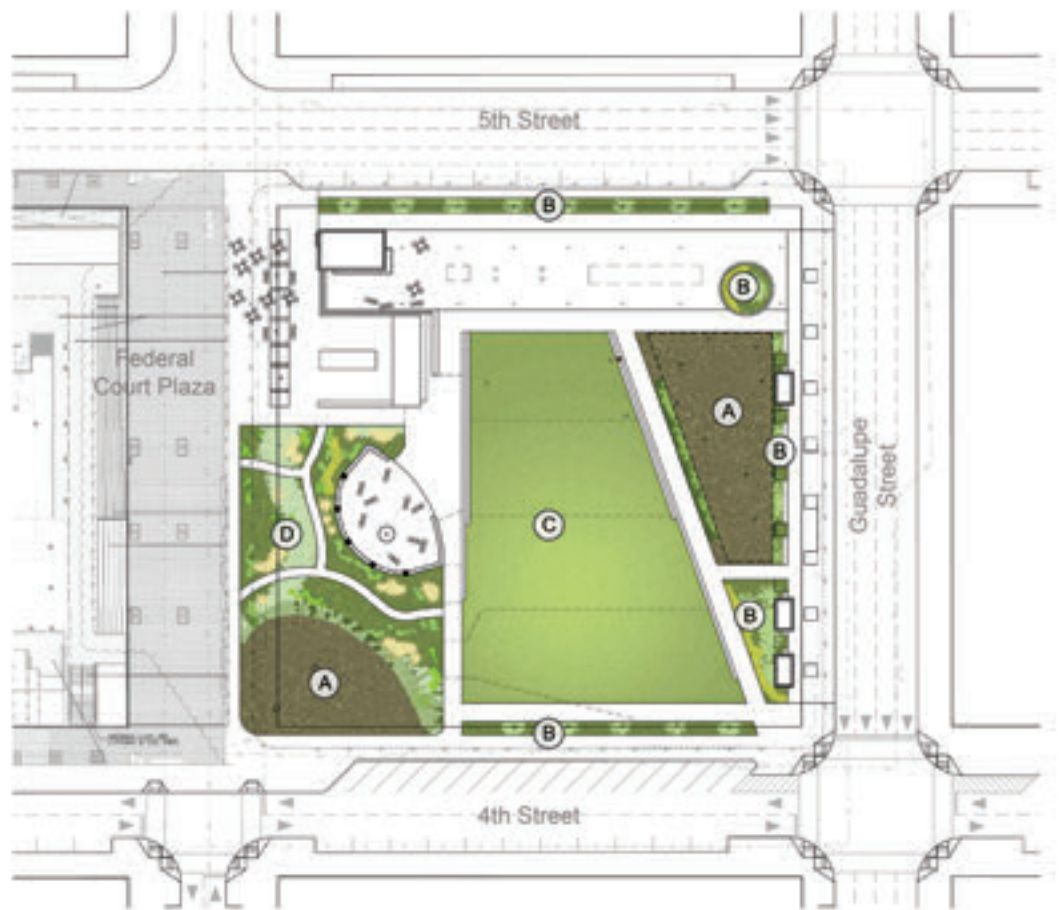确定每个目标的措施；然后，将基线与其他理想的城市公园进行比较。

图5 (fig. 5)
CREDIT: Design Workshop
Each alternative was assessed according to how well it measured up to stated project goals.
每个选择方案根据符合规定项目目标的优劣进行评估。

DW Legacy Design® Work

DW Legacy Design® is a method of evidence-based design developed by Design Workshop in order to provide project teams with a transparent foundation for decision-making. Legacy Design keeps teams unified and aligned. During the early days of Legacy Design, associates throughout the firm agreed that the true test of this design method's merit lay in its application to real world projects, yet a feeling permeated many project teams that the necessary research was something completed outside the process of form-giving. The act of creating a process that is measurable requires skill in research methods, analysis, and documentation of both broad and deep subject matter – a practice that is often difficult to deliver in the fast-paced practitioner's world. This is perhaps why many practicing designers rarely venture into research, and those that do are often involved with academics.

DW Legacy Design® has a built-in feedback loop – create, evaluate, create, evaluate – that shortens the learning curve for research and provides time to evaluate increasingly more sophisticated material as the methodology evolves. This rigorous approach is ingrained in a project from its inception through post-completion monitoring. Over the last several years, Design Workshop's designers have found opportunities and challenges to integrating it into project work.

Finding Work that Allows for DW Legacy Design®

The first step in the process of applying DW Legacy Design® is winning the work. The client must be open to the project being comprehensive and measurable in four broad categories – environment, community, economics and art. Because few practitioners attempt this level of research rigor, clients may not understand the value of the approach. There may be resistance on the level of effort required to set comprehensive goals, develop baselines, and find benchmarks – activities that may potentially represent a third of the project's budget. When necessary, the designer must be capable of "selling" evidence-based design. It is essential that the designer set proper expectations by showing examples of previous efforts and sharing stories of how this level of early and continued analysis can lead to cost savings and benefit later in projects.

Employing the DW Legacy Design® Approach from Start to Finish

Once a project is secured, the design team must develop a work plan that includes rigorous measurement at each phase of the design process and meets the standard of evidence-based design at its conclusion. The team must quickly become acquainted with key issues, opportunities to innovate, critical questions, Client Vision and Client Critical Success Factors (CSFs).[i] A Client Vision captures the client's articulation of what the outcome of the project will be. This vision can be developed only by listening to the client. The client's CSF are the features or results that must be accomplished in order for the client to consider the project a success, and these should be evaluated through the course of the project. It may become necessary to revise the list as the project evolves. Client CSFs may or may not be described in the scope of work so it is important to help the client define them.

The Design Workshop team begins this process with a Strategic Kick-Off (SKO) meeting with the client with team members and key stakeholders present. Inclusive conversations with the entire team and collaborators result in more thorough

alternatives and broadly agreed upon approaches to identified issues. Transparent decision-making allows all parties to understand thought processes, resulting in a unified project vision. This process is illustrated in the following example.

The Design Workshop consultant team identified and confirmed the following Client CSFs for the Republic Square project in Austin, Texas, with leadership from the Austin Parks and Recreation Department and through conversations with stakeholders.(see fig. 1) To the extent possible at this formative stage of the process, each critical success factor was expressed in a manner that would suggest measurability. For example, the plan states, "The project shall preserve and protect the existing 'Auction Oaks' under which the original plats of the city of Austin were sold." This statement about tree preservation, certainly an important general issue, concerns the preservation of the 'Auction Oaks' in specific, as opposed to being a statement about tree preservation in general, arguably a critical issue as well. It was not possible to make each CSFs measurable at this stage because the current conditions were unknown and the research had not been conducted to know what a reasonable target was. Accordingly, there were several statements such as "The project shall provide opportunities for multi-generational users" and "The project shall create a 'signature' park, reflecting the identity of the neighborhood." Although immeasurable, these sentiments were logged and formed the basis of the project team's research agenda.

Once the groundwork with the team is laid, the key project challenge and approach must be developed. The Project Dilemma is a narrative device that describes a project's predicament. It sums up the major challenges that must be addressed while applying DW Legacy Design® to a project. Beginning with a discussion of the project's context, a dilemma answers the question: "What is standing in the way of a project's potential for success?" It renders vivid the complexities of the project and the need for a comprehensive solution. In this way, a dilemma statement is entirely different from the scope of work or the client's vision and goals. The Project Thesis is an assertion about the project outcome that will be tested and resolved through the team's design and planning investigations. It is a proposed solution to the central problem or question stated in the dilemma statement. Collectively articulating the big idea of the project aligns the team to a common goal or story.

Early in the project, the team develops the project's Dilemma and Thesis statements. With limited public open space nearby, Republic Square's Dilemma is that it is subject to more intense use than other comparably sized urban parks, and without adequate planning for subsequent operations and maintenance, the park faces the possibility of being overused. Furthermore, the challenge of achieving broad support for the park's re-design is complicated by its significance at many levels to stakeholders, including federal, state and city governments, members of the community who frequent the park during events, people who work downtown, and residents living near the park.

The Thesis for the project is to acknowledge the history of the site and other plans that will influence this process; to enhance connections – cultural, physical, historical, artistic, emotional, ecological, and economic; to compare the park to other outstanding urban destination parks; and finally to ensure that the costs of implementation and on-going operations and maintenance can be borne by the added revenue created by the design (e.g. additional sales or property taxes). (see fig. 2)

Narrative Principles are inherently subjective statements about a project, but ones that are commonly understood and believed by a project's constituents. The articulation of narrative principles in each of the four DW Legacy Design® categories (environment, community, economics and art) is central to a rigorous, comprehensive, discovery-oriented design process. The exercise lays a common foundation for the project team with assumptions against which the Thesis can be tested. Narrative Principles help the team argue persuasively for a good outcome with clients and in public meetings.

Comprehensive thinking from the beginning in four categories – Environment, Community, Economics and Art – yields outcomes that integrate the fullest range of possibilities and metrics for performance. Essential to the evidence-based design process, project goals must be developed early in order to inform the analysis, guide the creation of alternatives, and provide the foundation for on-going monitoring. The desire is that goals be SMART (Specific, Measurable, Actionable, Realistic and Time-Specific)[ii], but this is rarely achieved at the first team brainstorming sessions. A Design Workshop team will lead a facilitated dialogue about goals and metrics at the point of investigating a project opportunity, when developing the proposal, or when convening the SKO. Specially designed Metrics Selection Sheets are used to guide a discovery-oriented discussion and encourage goals in all four DW Legacy Design® categories. Once the initial brainstorm occurs, the group will select and prioritize pertinent research and measurement topics, develop initial goals, and consolidate redundant areas of exploration. The benefits of this effort can help develop a full scope of work, identify additional team members, and ensure a comprehensive and prioritized approach from the beginning. Accountability to goals set early in the design process is required to deliver real value and truly sustainable solutions.

For Republic Square, the goals were developed in an open forum with the stakeholders, through both a public meeting where keypad polling devices were used and an on-line poll. There were 25 project goals, a number considered to be necessary given the project's complexity; however, tracking this many goals at times seemed unwieldy, and the project team found it difficult to approach all goals with equal rigor. Examples of goals from Republic Square include "increase habitat for birds, squirrels and butterflies" and "reduce heat island effect." It was apparent to the team early that there were feasible measures for each of these goals. Other goals were more difficult for the team to understand how to measure, such as "incorporate truly site specific cues into design and planning." The team chose to keep them as goals but to acknowledge that the measure would be more qualitative than quantitative. (see fig. 3)

After setting goals, the Design Workshop team researches existing conditions of each goal on the site or within the community in order to create a baseline from which progress will be measured. To provide a point of reference for what these numbers actually mean, baselines are compared to industry standards, best practices, and comparable facilities. Without this baseline, there is no point of reference for the meaning of subsequent measurements. Previous project experience and well-documented case studies housed on the firm's portal, an internal website for sharing knowledge and information, provide benchmarks. For Republic Square, heat island effect was measured by the amount of impervious cover (25 percent of the park is impervious surface today). Habitat was measured by percent of tree canopy and

flowering understory (40 percent of the site has tree canopy today). A source for data was found for each goal or primary research was conducted in the form of site surveys, stakeholder polls or inferences from known facts (e.g. light was measured by sampling the light on a grid and then mapping the values). (see fig. 4)

The next phases of work – developing and testing alternatives and setting up the project for long-term monitoring – are often the most challenging. Research is the essential ingredient of developing designs and building evidence for alternate approaches; however, this is also a point in the project where the expense of the research becomes secondary to that of developing ideas and producing alternatives. To ensure decision-makers are adequately informed, each design alternative must be analyzed with the same methodology used earlier in the process to measure baselines. The challenges with this step are that the creation of alternatives typically takes most of the time allotted, leaving little time, if any, for measuring success at reaching goals. Also, some metrics are difficult to predict for un-built design proposals. For example, how does a designer forecast tree canopy for the alternatives – on opening day, two years from planting, or at full maturity? Using the impervious surface metric again for Republic Square, it was determined that the existing amount of impervious cover was 25 percent and the comparable parks were between 50 and 60 percent impervious cover. When the three alternatives were measured between 40 and 50 percent (a range between existing conditions and the comparable benchmarks), the team believed that the alternatives were within the realm of possibilities. (see fig. 5)

Despite strong desires to evaluate a project's post-construction performance, there are few examples of setting up a project for long-term monitoring. The designers' contracts are typically complete after construction documentation and observation, the clients have moved onto other matters, and the future stakeholders (e.g. residents, users) are not aware of the baselines with which to compare future measurements. Even if the client has the foresight to set up a monitoring program, team turnover, loss of institutional knowledge, and changing availability of data makes it difficult to continue to compare metrics to baseline and benchmark conditions for a long-term understanding of a project's success. Republic Square is expected to begin construction in late 2015 with completion scheduled for late 2016. As such, there has been no monitoring. However, a few goals will require on-going monitoring to ensure that they have been reached. For example, several goals such as "increase awareness of the Park's historical significance" and "allow local character to shine through in the design of the Park" can only be measured by surveying the park users post-construction. The baseline conditions for these goals, determined from keypad polling at community meetings and an on-line poll, is that 50 percent of current park users have a clear understanding of park history and 12 percent think the park captures the "essence of Austin." By having the forethought to ask these questions now, the team is set up to monitor changes in these goals over time. (see fig. 6)

Building on Success from One Project to the Next

Because the DW Legacy Design® approach is atypical for most design practices and requires a steep learning curve, the initial cost of navigating this process can be high. To stay competitive in the marketplace, a design practice must become more efficient over time. From project to project, the team members must continue to apply the knowledge gained from their previous work. Based on project type, some

图6 (fig. 6)
CREDIT: Design Workshop
Only a post-occupancy survey will be able to validate the plan's progress towards several of the goals – e.g. user satisfaction and appreciation for historical significance of the park.
只有使用后的调查才能够验证该计划对几个目标的进展情况 – 例如用户对公园历史意义的满意和赞赏。

metrics are consistently useful. For instance, tree canopy is important to almost all streetscape and park projects and achieves a variety of goals, including reduction in runoff and heat island effect, and improving human comfort. Accessibility to quality affordable housing is important to nearly all policy plans. A project team can gain valuable expertise from one project to another reducing the time and effort necessary to conduct research and evaluate outcomes.

Formalized opportunities to share lessons learned and institutional knowledge will have the dual benefits of allowing team members who have been reluctant to attempt a more rigorous pursuit of metrics the opportunity to hear and learn from more experienced team members whilst also providing a form of recognition and acknowledgement for the early adopters, those brave enough to attempt quality researches earlier than others. In addition, teams will be more likely to use a methodology or conduct research if they have seen positive outcomes on other projects, so familiarity with past successes becomes critical.

Some initial challenges for project teams were that they attempted to track too many metrics, and experience has taught that how to prioritize metrics is critical to success. It is important to share examples within the office so that no team is starting from scratch – a practice Design Workshop continues to promote internally. Design Workshop has developed a Sustainability Matrix, a crucial document to track all goals and strategies, assignments, baselines, benchmarks and research sources, especially when working in a multidisciplinary team. This tool links directly to the firm's portal so the team can have instant access to the relevant information about a potential metric. Having adequate research and benchmarks on each potential metric topic easily accessible reduces time spent researching and 'inventing' relevant data bases, thereby allowing team members to spend allocated research time finding better information or more relevant new benchmarks for comparison. A project book template allows teams to begin a document with certain DW Legacy Design® content already in place. With teams across the firm using the same template, relevant research can be quickly transferred from one project to the next. The Design Workshop portal has become a more regular step in project development – with staff making both withdrawals and deposits of knowledge throughout the course of the design and implementation effort.

Finally, it is essential to proselytize about metrics! Design Workshop has developed methods to celebrate successes and spread the word firm wide through its DW Legacy Design® Awards program, through encouragement of staff to submit session papers on the topic, and through publishing articles and books about firm practices and projects. Positive reinforcement, if aligned with philosophical beliefs, can lead to action that is strategic and forward-thinking.

Solving Challenges

In an attempt to overcome decades of research complacency in the fields of landscape architecture and planning, Design Workshop has experienced numerous challenges applying the DW Legacy Design® approach to projects. These challenges fall into several categories including lack of motivation, the mechanics of a research-based design process, and a fear of the unknown. The lack of motivation typically stems from a lack of awareness of the benefits of metrics. A strong case must be made by the designer illustrating how a metric-based design approach, such as DW Legacy Design®, has produced design excellence while simultaneously saving money for clients. Occasionally, there is a situation where the team is not disciplined enough to track metrics throughout the process. Atul Gawande captures this phenomenon in The Checklist Manifesto (2009) when he says, "What is needed, however, isn't just that people working together be nice to each other. It is discipline. Discipline is hard–harder than trustworthiness and skill and perhaps even than selflessness. We are by nature flawed and inconstant creatures. We can't even keep from snacking between meals. We are not built for discipline. We are built for novelty and excitement, not for careful attention to detail. Discipline is something we have to work at."[iii] As project leaders, the principal and project manager must advocate for this level of rigor and measurability. From developing the contract to the final implementation of the project, measurability will be futile if these team leaders do not demonstrate their belief in its value.

The second group of challenges relates to the mechanics of research. As discussed earlier, teams new to a process such as DW Legacy Design® will often consider too many metrics because there is even a learning curve for editing and prioritizing metrics for any given project type. In fact, any efforts used building consensus at the initiation of the project will be investments in a streamlined process of tracking metrics later on. The prioritization effort should consider the availability as well as the scale of the data and how frequently it is released.

No project manager can implement this design process alone. Team effectiveness increases if there are team members who have a basic knowledge of statistics, statistical analysis, and understand the different ways of looking at projects and measuring their performance. This has academic implications in that it suggests the value of including basic statistics in the landscape architecture curriculum.

Teams, including subconsultants and relevant stakeholders, will respond to time and resource savings and opportunities to innovate. Reinforcement by both firm and project leadership will help a team understand these savings and opportunities. The rest of the office must support the team's vision and help fill in gaps in knowledge and address challenges. Offering frequent opportunities for a project team to present its work and gain new insights from outside sources will ensure a more rigorous application of this process. Other ways of reinforcing DW Legacy Design® include having tools available that allow a team to rapidly cycle through research inquiries and metrics undertakings such as ArcView and BIM[iv], investing in training on how to write in a way that is both appropriate for a lay audience but also academically rigorous, and supplying examples and training on how to graphically illustrate metrics.

Often, a team will develop a metric that simply has not yet been researched by others in our industry or the academy, making establishing benchmarks challenging. This presents an opportunity for practitioners to work with institutions to support research. Some ask whether private firms should be, or are even capable of, conducting research in an academically valid way, with questions such as the following: What does practice need from academia? What academic research is important to practice? Can practitioners conduct research that also meets the standards of academic research? What does this mean in terms of curriculum development (the need to develop both creative and critical thinking skills)? Should research methods and statistics be part of the landscape architecture curriculum? What does this mean to those programs that are focused on educating students and preparing them to be practitioners? Should practitioners participate in peer-reviewed articles in academic publications as a form of feedback?

A successful example of this type of academy/practitioner collaboration is the National Tree Benefit Calculator, conceived and developed by Casey Trees and

Davey Tree Expert Company with support from the United States Forest Service. Design Workshop continues to provide academic quality research (i.e. peer reviewed) such as a 2013 article in the Edinburgh Architectural Research, a journal of the Department of Architecture at Edinburgh University, on Design Workshop's Lafitte Greenway and Corridor Plan in New Orleans, Louisiana. There is much to be said about putting in the effort despite the associated challenges.

The final group of challenges falls under the banner of "fear." The phrase "knowledge is power" can be used to conjure up feelings of both empowerment and threat depending on who has the knowledge. Some policy-makers and stakeholders may, for whatever reason, distrust data or actively try to thwart progress derived from a process with which they are not acquainted. Sound research can be used to hold those in power accountable, which can be scary. However, the more transparent the decision-making process, the more support there is for the process and its outcomes. It is important that the designer make very clear the purpose for collecting the data, and often this is a matter of choosing the right words. At times, consensus on targets is impossible – "reduce greenhouse gas from baseline conditions by XX percent," for example. Indicators – "reduce greenhouse gas from baseline conditions" – may be more palatable. There are many challenges to implementing DW Legacy Design® in project work, but each can be overcome by growing a body of knowledge and supporting more rigorous research standards.

Proving Our Worth

The role of the practitioner in a research-based design process such as DW Legacy Design® is evolving as the industry increasingly accepts evidence-based design as the norm. Practitioners may be best at the "create" stages in a design process; however, they are finding themselves more and more responsible for the steps that require that they "evaluate" the results of their creations. Judging the worth of an idea on intuition or on purely anecdotal evidence is growing less acceptable. Designers must find clients, academics, and professional peers (teammates) that strive for the same rigor and discipline to help advance the design industry toward better, more sustainable projects. Design Workshop has found opportunities and challenges to applying the theory to project work – an effort that has few benchmarks. But the effort has been rewarded with not only third-party validation from organizations such as the American Society of Landscape Architects, American Planning Association, Congress for the New Urbanism, and the Urban Land Institute, but also immense satisfaction for knowing our efforts are advancing the professions of landscape architecture and planning forever. In the words of Alexis Carrel, the Nobel Laureate in Medicine, "Life leaps like a geyser for those willing to drill through the rock of inertia."[v]

Notes:

i PSMJ Resources, Inc., Project Managers Bootcamp Manual, 2003.

ii G. T. Doran. "There is a S.M.A.R.T. way to write management's goals and objectives." Management Review, Volume 70, Issue 11(AMA FORUM), (1981), 35–36.

iii Atul Gawande, The Checklist Manifesto: How to Get Things Right. New York, New York: Picador, 2009, 183.

iv Computer software used as spatial databases by professionals in the industry.

v Alexis Carrel. BrainyQuote.com, Xplore, Inc., 2013. http://www.brainyquote.com/quotes/quotes/a/alexiscarr158387.html [accessed May 30, 2013]. Read more at http://www.brainyquote.com/citation/quotes/quotes/a/alexiscarr158387.html#bRgZmV38JTjoEpUv.99.

About the author:

Rebecca Leonard, President of Design Workshop, has outstanding experience in the areas of community planning, urban design, redevelopment, tourism planning, regional planning and site design. Rebecca is a graduate of the Ball State University College of Architecture and Planning in Muncie, Indiana, where she received her Master's Degree in Urban and Regional Planning. Rebecca's experience in both the public and private sector of planning has given her insight not often found in the design profession. Rebecca believes that an excellent design is one that considers its context in all facets — environment, community, art and economy.

"Design Workshop 的学术底蕴会继续让公司站在以研究为基础的实践最前沿。我相信，许多中国设计公司和机构都会因Design Workshop对该使命的持久坚持以及致力于终生学习的精神而深受鼓舞。"

– 景观建筑教育者理事会研究副会长李明翰

合作的意向文化
An Intentional Culture of Collaboration

作者：艾莉森•门登霍尔
Author: Allyson Mendenhall

图1 (fig. 1)
CREDIT: Design Workshop
The Design Workshop name on the door reminds staff and visitors of the collaborative culture the firm fosters to solve complex design problems.
门上的设计工作室的名字提醒工作人员和游客的合作文化公司培养解决复杂的设计问题。

设计工坊

无论是初次参观Design Workshop的访客还是Design Workshop的长期员工，走进六个公司办公室中的任何一个，就会立即感受到工作室的创新性以及交谈的活力。合作气氛和目标意识在这里是十分明显的。

一个工作日的典型场景是，项目团队聚集在开放的工作室，对固定在墙上的设计图进行考量，设计师们则专心地沉浸于铺展在大号设计桌上的图纸。在会议室里，设计团队正在向客户汇报，并与其他顾问一同主持战略会议。他们探讨的焦点有可能是度假区规划、社区规划、街道景观或公园设计。当设计团队聚集在一起评论并改进他们作品的时候，激烈的讨论贯穿于整个工作室。团队的每一个人，从负责人到实习生，都被期待对讨论有所贡献。这就是Design Workshop的文化实景。

合作文化

刻在门上的名称Design Workshop对于员工解决复杂的设计问题以及在实体空间中完成工作都具有重要意义。（参看图1）热烈的并且有意向的文化即将来临。所有Design Workshop分公司的共同特点是拥有高层高、大公共桌以及充足的展示设计及草案的围墙空间，在这样的公司环境中，一件件的设计作品被反复创造。所有项目组都需要对自己的设计进行审查，而且要展示给组外的同事。大家在时而亲切时而热烈的气氛中分享建设性批判意见，但共同的目标是完善设计。设计讨论发生在办公室的"公共空间"，这样迫使员工离开自己的办公桌，摒除设计"盲点"，否则，这些设计"盲点"可能会使员工无法看到所有可能的解决方案。当然，员工也在自己的办公桌工作，在绘图桌上画图或者在电脑上建模。但是，Design Workshop的文化以及强调合作的价值观要求各项工作都是可视化的——无论是固定在墙上、大图打印、还是投影，以便团队的每一个人都能看到——从而鼓励大家进行批判性的对话，这对推动项目设计进入项目决议是必须的。（参看图2）

城市观察员简•雅各布斯在《美国大城市的死与生》（1993年）探讨了"混合"产生

的活力，而"混合"发生在多元化使用与城市居民在一天中不同时段于街道和公共空间活动相聚集的时候。雅各布斯把热闹城市人行道的复杂秩序比作"精巧复杂的芭蕾舞剧，每个舞者和乐团都特色鲜明，奇迹般地相互为用，构成了一个有序的整体。"Design Workshop强调以开放式的工作室作为创造和发明的空间，让团队成员聚在一起共同交流，以开发出新的设计，这样的做法正是借鉴了上述的想法。团队成员及其技能和经验都聚集在工作室内，相得益彰。

史蒂文•约翰逊在《涌现：蚂蚁、人脑、城市与软件的生命连结》（2001）中探讨了"集体智能"的现象，从一个蚁群的例子开始，蚁群通常被误认为是由发行指令的一只蚁后统治的。而事实上，蚁群是集体做决定的，共同使群居生活协调发展。通过随机相聚，每只蚂蚁都敏锐地关注彼此的动作与行为。从相互交流中所产生的是一种自我组织系统，它能解决蚁群内更大的问题。约翰逊还把城市视为自然发生系统。与雅各布斯一样，他也着迷于人行道，它"把随机排列的大量个体混合在一起"，并且促进当地互动和信息交流，而这些信息在城市尺度上会汇集成"复杂秩序"。Design Workshop实践的关注点是场所营造——公司外所实现的迷人公共空间设计——已被应用于产生设计的工作室。这就是公司的公共空间，它让设计团队集中在一起相互交流和解决问题。这是Design Workshop自身概念的核心，它能促进团队合作，有助于处理复杂项目。

目前有许多公司都在探索如何创造可以鼓励互动和创新的工作环境。国际设计公司IDEO的共同工作空间是经常被提及的例子，同样被提到的还有硅谷的企业园区中的皮克斯动画工作室和Facebook。试图阐明通力协作的价值以及促使其成功的背景和条件的文章和商业书籍也正泛滥成灾。乔恩•R•卡岑巴赫和道格拉斯•K•史密斯在《团队智慧：建立高绩效组织》（2006年）一书中对组织研究团队、生产和构思的公司进行了描述，并探讨其他许多组织忽视群组努力的潜能或致使其效率低下的原因。同样，《塞氏企业传奇——最不同寻常的成功企业的故事》（1993年）讲述了巴西公司塞氏企业的故事，塞氏企业是里卡多•塞姆勒的家族企业，它通过非正式的实践对

机构进行变革，在提高创新力和生产力的同时，也改变了现有的公司文化。

成立四十多年以来，早在最近许多探索如何优化企业工作场所的书籍和机构出现之前，Design Workshop就已经拥有最佳合作环境的强烈观念。在中心开放式工作室以外的区域是个人的工作空间，而角落办公室是不存在的。相反，不同资历的员工分散在不分等级的各个办公桌。在这一场景中，交谈可以被听到，信息也可以在所有的员工中高效传播。与设计负责人的近距离接触（和亲近）对于经验较少的员工来说是有启迪意义的，员工与不同角色、知识和专业技术相融合可以强化办公室工作氛围的合作性。

合作在Design Workshop意味着许多事情。既可以意味着与坐在数张办公桌远的人并排工作，也可以意味着与其它州或国家的同事共享文件和工作成果。某些项目团队是由来自于Design Workshop六个办事处的员工组成的，视特定专业技术需求或者在最后期限内人员是否有空而定。通过音频、网络和视频会议系统，就有可能实现办事处之间以及与客户之间的合作。技术可以使设计对话超越各个办事处之间的以及与全球客户之间的距离，使不同办事处成员组成的团队能够完成工作。它能确保办事处之间能够很容易地联系到彼此，避免相互隔离，而这种隔离正是许多有多个办公地点的公司的弊端。

Design Workshop的管理结构是对企业普遍存在的等级制度的公然挑战。员工持股计划使员工享有公司的所有权权益，并且使人人有功于公司成功的心态得以强化。公司的每月结算与收入预测对每一个人都是共享的，这些人包括从电话接线员到高级职员。办公室记分卡描绘了每个办公室的健康情况，不仅显示了营业收入、积压代办的事务和资源运用等财政状况，而且显示设计审查以及最近获奖的数量，这些是设计迭代、卓越和办公室可视化的指标。这种理念和不寻常的透明度是以《伟大的商业游戏：释放能量与账目共享管理的盈利性》（1994年）所论及的观点为基础，这本书推广账目共享的管理方法，员工获得信息授权，有归属感和经营业绩的责任感。Design Workshop的员工都具有创业的态度，公司多年来扩展到不同的区域，可以明显感受到灌输这种精神所创造的价值观。例如，为客户提供市场分析和战略发展规划的高尔夫球场设计与开发服务都是Design Workshop的员工推出的，他们都是出自对专业咨询领域的酷爱和兴趣，并且证明了把公司的服务扩展到这些领域的财务可行性。

产生于学术界

Design Workshop的名称以及该公司的经营方式来源于其创办人在创办设计公司之前作为专业学者所获得的经验。20世纪60年代末在北卡罗来纳州立大学教学期间，乔•波特和丹•恩赛因认为有必要在学术与专业学科合作遭到破坏和扼杀的领域展开工作。1969年，他们与来自于不同学科部门的其他两名教授一起开放其实践，目的是创办一个"研讨会"，让整个大学的教育工作者、业内人士及学生之间能够合作无间。该公司被命名为"Design Workshop"，意在描述一种合作文化。

虽然现在乔•波特从公司退休了，但是，与公司成立之初一样，他仍然拥有与创建Design Workshop之初相同的美好意愿。最近在回顾公司的起源时，波特指出，"我们的粮仓建立于商业、法律、设计、建筑、景观建筑、工程、财务和其它学科以及创造建成环境和维持生态系统的特殊兴趣中。这些简仓生于长于学术界，而在学术界，受到奖赏的学者往往以牺牲合作和学科联系为代价专攻某一学科并越走越深。基于研讨会的概念组建公司，是为了尝试让不同行业的人为了共同的目标而在一起工作。处理复杂的规划与设计问题需要来自于不同学科的思考者。使其合作的方法是把设计工作建立在共享的价值观和原则的基础之上。"（参看图3）

基于原则的实践

Design Workshop的实践是由四项原则界定的——综合性、包容性、透明化和知识——这对合作和严谨设计方案都是必要的。第一项原则综合性最好用图形来表示：（参看图4）

通过可持续发展四个必不可少的领域——环境、社区、经济和艺术，可实现产生设计方案的原则。这些关键领域构成了该公司的DW Legacy Design®方法的连环锁。每一个项目都代表着平衡这四领域目标的机会，以完成为对环境敏锐的、支持社区的、经济可持续发展的以及可产生艺术效果的项目。由于Design Workshop承接的项目具有一定的复杂性，因此需要一种四重盈余法才能真正实现可持续发展。第二个原则包容性明确了Design Workshop产生设计理念的方法。场所营造的业务包括广泛征求设计团队、咨询专家以及客户与社区的意见。

第三个原则决策过程透明化体现在工作室的环境以及与群体互动以推进工作所展现的公开性。展示项目目标和决策依据有益于所有的参与者，使团队更具凝聚力。

第四项原则是知识。Design Workshop非常重视基于项目的研究，从而带来知识发展和设计创新。评估项目的绩效，使团队能够检验设计策略、扩展专业知识并确定是否有可能进一步创新。

正规的设计方法

自成立以来，Design Workshop的指导思想一直是与综合性、包容性、决策过程透明化和知识有关的以过程为导向的理念。但是20世纪90年代，公司的领导层决定在股东内部使这种基于原则的设计方法正规化。为了以真正合作的方式进行经营，作为研讨会的参与者，设计团队必须遵循一种共享的方法论。DW Legacy Design®的方法是对综合性、透明化、严谨和迭代过程的概括。公司由此制定出方法图表，作为员工的设计路径图。（参看图5）

该图表描述的是如何利用战略性会议启动每一个项目，从而为团队开展工作以及吸引客户和股东奠定基础。在会议过程中，团队着手调查了解项目面临的机遇和挑战，并进行综合调查为项目相关研究提供信息和确立绩效目标。按照学术实践，团队为每一个新项目制定了一份项目挑战声明（称之为"项目困境"）和假设声明（称之为"项目主题"）。在团队的集体努力下，"项目困境"使团队产生凝聚力，绕开障碍，从而成功获得设计方案。"项目主题"设定了最终设计的愿景，也时刻提醒团队所要追求的结果。

每个项目启动时举行的气氛热烈的会议确定了项目目标，而这个目标平衡了经济问题、社区价值、环保问题和设计艺术，使其成为凝聚的愿景。有了目标，就有了研究任务，团队成员被安排钻研与项目有关的议题。做进一步探究，可以使团队能够预测完成项目的量化绩效利益。对设计发现、合作和责任性这一初始过程做出概括，可为团队提供路径，对项目的成功是至关重要。

快速循环

DW Legacy Design®的核心元素是快速循环的概念，用方法图表左侧上的环线表示。快速循环属于迭代过程，是公司的设计实践的核心。设计不是线性的运动项目；而是会演化的。Design Workshop的项目是复杂的并且位于特定场地的。设计产生于可控的周期内，而可控周期是由控制、巩固和向客户提交工作并反馈意见时产生的一系列情感宣泄的探索的集合。DW的董事会主席库尔特•卡伯特森补充指出，"快速循环也能够被视为两种思维模式之间的碰撞过程——创造性思维和批判性思维。图表里的环形描述的是我们作为设计师经历的过程——先尝试做一些事情，从中学习一些东西，再尝试做其它的事情，以便从中学习一些新的东西。"这种在专业实践过程中试验性的模式被M.I.T.社会科学家唐纳德•A•斯肯称为"在行动中反思"，这位科学家在设计过程中识别出三种对于严格迭代的独特方法：探索、移动检验和假设检验。在Design Workshop，项目经历的周期数取决于其空间大小、进度和费用以及团队对设计质量和完成程度的评估。以这种方式处理设计，只要在图表上标注，就逐渐向员工灌输了迭代的重要性。设计团队被希翼可以在一定时期内专心工作，同时也可以定期停下来接受外界的观点。设计如何演化和进步是公司合作文化的关键。

进行设计审查是团队征求客观反馈意见以便为设计提供信息的一种方式，这是工作室的重要基础，也是公司环境是否健康的最终检验。设计审查有许多不同的形式。有些设计审查是在项目例会上进行的，会议上的对话仅限于想要对设计进展进行更新的团队成员之间。其它设计审查发生在个人办公桌旁，这时也许一名正出访的负责人想要对项目进度进行检验。但是，研讨会的核心是在办公室或公司范围内召集进行的设计审查，目的是广泛征求客观性批判意见。在此情况下，整个办公室会在午餐时间聚在一起听取团队的简短报告。披萨饼是参会的酬劳。举行设计审查有多个目的：寻求设计反馈意见、分享客户对最近汇报的反应并指明下一步的方向、准备新项目的访谈，以及/或者对奖项提交的草案进行分享。这样的设计审查是带有批判性思维的深思熟虑过程的一部分，旨在为进一步的创新研究做好准备。（参看图6）

知识的形成

Design Workshop的员工通常会讨论参与批判性实践的意义。在这一点上，他们认为应该关注那些影响到即使不是地球和全人类也至少是建成环境的全球性议题。公司用幻灯片按季度进行情况介绍，欢迎新员工加入，其中就包括2007年的《新闻周刊》封面，该封面突出的是一个地球仪，并把描述政治、古生物学、金融、艺术、通俗文化、科学等内容的图像网格映射在地球仪的格网上。标题为"你需要立刻知道的181件事"。与新员工分享这一图像的目的是向他们灌输超越某个特定项目的范围和实际界限看问题的重要性，并且使他们关注总体建成环境和具体项目场地的广泛影响因素。综合型DW Legacy Design®方法的核心是强调高额的调查研究与多意信息的综合处理。

Design Workshop项目团队时常寻求了解各种主题，并将其融入设计，而这或许在上一代被认为已超出传统景观建筑实践的范围或能力。公司项目的复杂性迫使其团队拥有大量的信息和工具，以便进行设计和对成功进行评估。除了关注实体空间设计和形式创造之外，一个典型的团队可能会计算总体规划社区的职住比，以求减少发展产生的车行次数或路程。他们可能会关注社会公正的问题，或者利用有针对性的调查确保项目的社区参与策略考虑到了受影响的部分人口。抑或，他们可能会研究某个区域的零售空缺或交通事故率，以便了解和衡量在实施街景改造前后的影响。批判性实践需要智慧性运营，并且需要对影响建成环境的广泛议题保持高度注意。

由于承认项目的复杂性，Design Workshop不仅着手努力收集有助于设计决策的信息用来指导公司的最佳实践，而且还开展正规的研究，以创造行业的新知识。作为这项工作的一部分，项目团队在设计中以及实施后越来越多地使用循证设计来衡量项目的绩效。紧接着新项目合同的签订，任务团队会聚集在一起，寻找出会影响设计和实施结果的各种相关因素和机遇。研究清单和指标议题会被进行审查和优先考虑。在这次初始会话中围绕着小组的关键问题是，"我们和我们的客户对于这个项目想要讲述什么故事？" 在设计工作开始之前问一下这个问题并想象一下最后的结果，有助于构建该项目的议程。该会话会产生一个综合性大纲，各种因素和机遇则变成与环境、社区、经济或艺术有关的研究主题和目标，它们会分配给团队的不同成员。（参看图7）

在整个设计过程中，项目团队会针对已设定的目标对设计进行评估。在起初设定的可衡量目标是评估项目过程中备选设计方案的一种工具。在这个阶段，设计尚未实现，因此仅可显示出成功的迹象。直到在设计实施后进行绩效评估，才能产生成功的证据。很少设计公司有能力自己承接这一工作，这就是Design Workshop积极参与景观建筑基金会（LAF）的"景观绩效系列案例研究倡议（CSI）"的原因。这一计划使实践者与学术团队相合作，而学术团队开展的严谨研究可对建成项目交付的可持续景观绩效利益做出衡量。正如Design Workshop在过去三年里与犹他州立大学合作，这种合作可确保对项目进行客观研究，并且可以使用科学方法对各种主张进行验证。这些研究已发布在LAF网站上（见侧栏），作为行业提高其可持续发展实践水平的资源。此外，学术团队也在同行评议的出版物发表研究，并在各项会议上展示，如：景观建筑教育者理事会（CELA）。

景观建筑基金会(LAF)景观性能系列案例研究倡议计划将从业者和学术团队搭档起来，进行严格的研究来衡量建成工程交付的可持续景观建造项目交付收益。在过去的三年里，Design Workshop与犹他州立大学和肯萨斯州立大学合作完成了以下案例研究，结果公布在LAF网站，可作为行业的信息资源。

景观建筑基金会（LAF）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies

Blue Hole区域公园（奥斯汀，德克萨斯州）：

http://lafoundation.org/research/landscape-performance-series/case-studies/case-study/541/

公园大道/50号公路（南塔霍湖，内华达州）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/503/

樱桃溪北/菲尔莫广场（丹佛市，科罗拉多州）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/502/

高原沙漠（阿尔伯克基，新墨西哥州）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/403/

Daybreak（南乔丹，犹他州）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/360/

国会大厦谷牧场（阿斯彭，科罗拉多州）：

http://lafoundation.org/research/landscape-performance-series/case-studies/case-study/627/

喀斯喀特花园（皮特县，科罗拉多州）：

http://lafoundation.org/research/landscape-performance-series/case-studies/case-study/628/

知识必须在项目背景下形成并在项目团队中进行交流，对这种期望必不可少的是Design Workshop门户，这是分享整个公司的知识和信息的内部网站。每个人都可以看到在该门户公布的一系列信息，从员工结婚通告到办公室联谊会，从公众会议召开的最佳实践到不透水表面减少的新方法。其中大部分信息都在内部网站的主题页面上，每个页面都有一个DW Legacy Design®的指标议题。从城市热岛效应到植物技术再到生态排水沟，这些在线网页收集了公司内外部的信息，包括基准目标的范例、设计策略、在线计算器以及与各组织机构的链接，其中这些组织机构在主题、文章、白皮书和示范项目多方面各有所长。该门户还为全公司的社区实践提供了一个家园，它把拥有共同设计兴趣的员工聚集在一起，也把在某一特殊领域主管提升公司能力的职员聚集起来，这些特殊领域诸如：数字化表现或绿色屋顶设计。要在Design

Workshop工作，必须成为网络化社区的成员，这个社区重视知识，每一个人都有望为知识的扩展作出贡献。

持续学习

Design Workshop极力强调持续学习，这既是为了员工的专业发展，也是为了把新思路和专业知识注入到每一个项目中。希望员工提升专业知识并与同事分享以促进实践，这是公司基于学术的构成方式。这种注重学习的方式不仅体现在全公司的正规计划上，也体现在各个项目内容中。

Design Workshop的员工"五年计划"描绘了员工在公司前五年被赋予的期望，这些期望包括增长知识以及确立成功的、令人满意的职业生涯凭证。该计划明确了建立基本技能、展示思想领导力、攻读研究生课程及获得专业许可和认证的目标和时间线。必须有研究生学历才能晋升到领导地位。公司深信，攻读研究生学位是一种转型经历，可以增强自信心、提升智能和个人成熟度、提高专业能力。员工出席会议并发表文章也是受到鼓励的。"五年计划"的目标旨在描绘一种使青年才俊有计划的尽快发展而不是任凭随机努力的过程。Design Workshop强调知识的发展和共享，也强调通过认证和学位巩固知识，力求促使员工尽快从新手发展成大师。一年两次的绩效评估是使每个员工能够针对专业发展目标衡量其进步的里程碑。

公司每年都会计划举行一系列内部员工和特邀专家的午餐时间报告会。一个月举行数次的"午餐学习会"针对与设计、特定项目类型或一般技能培训相关的主题进行简短的报告。各个办公室的员工都会连接到网络会议听取报告，并在每个讲座总结时参与讨论。最近的主题包括雨洪管理、城市行道树、植物修复、公共艺术、数字建模、会议简易化、项目管理和GIS。

自2006年以来，Design Workshop已针对各个主题或项目类型召开了10多次全公司座谈会，其中有许多是公司重点关注的领域，包括城市廊道设计、种植设计、新社区开发、公园设计和社区综合规划。当几个Design Workshop办公室在做同一类型的项目时，就会召开会议，使团队能够分享最佳实践。外部的嘉宾也会被邀请作为主题演讲者，并确立讨论框架。处理相似问题的数个项目团队会应邀参与简短的报告会分享最佳实践和接收反馈意见。虽然参与座谈会会损失员工赶工期的紧迫感，也会消耗员工一天中的部分带薪时间，但是公司领导层认为，这些会议可扩展行业最佳实践的意识、提升项目设计并加强所有办公室之间的联系。这些会议强化了"研讨会"的概念。

公司确信，使员工与知识相联系，并教会他们如何进行项目相关的研究将有利于实践进步，这种信念已经使旅程和探索超越了DW六个办事处的局限。从2005年至2007年，整个公司都会到美国的不同城市进行年度休假会议。2005年内华达拉斯维加斯集会的重点是设计方法。2006年，员工到访俄勒冈州波特兰，其重点是关于环境和艺术，这两者构成了DW Legacy Design®的主要范畴。社区和经济是2007年伊利诺伊州芝加哥会议的重点。这些类似会议的聚集举办讲座、分组座谈会，也可以参观示范城市项目，会议由内部专家和发言嘉宾担任主持，对到访城市的建成环境所取得的综合性可持续发展实践提出特别的见解。（参看图8）

"在Design Workshop工作就像是回到学校一样，"乔什•布鲁克斯说道。他毕业于巴吞鲁日路易斯安那州立大学的罗伯特•赖特景观建筑学院，取得学士学位后新近加入公司。"我真的很欣赏贯穿整个年度的所有学习活动。频繁举行的设计审查为工作室注入了探索意识和批判意识，为设计探索奠定了基调。"

与学术界的联系

作为一家学术界出身的公司，Design Workshop与美国各大高校的设计计划以及全国范围内的教授都维持着密切的联系。犹他州立大学的景观建筑计划已被指定为公司档案室的接收者。数年来，公司创建了一项"驻院老师"计划，邀请教授在休假日或暑假在公司的一个或所有办事处里工作。这些安排产生了巨大的相互利益。对于学者而言，他们可以利用这个机会参与专业实践，并利用这些时间把研究运用于即将实施的项目。而与教员的互动，使员工有机会直接向在某一特定领域有着丰富知识的专家学习。由于Design Workshop拥有以过程为导向的设计实践以及为了追求设计方案而共享的方法论，学术到访者在工作室往往有一种宾至如归的感觉。乔治亚州立大学环境设计学院景观建筑系的富兰克林教授兼美国雨洪设计和技术专家布鲁斯•弗格森已在Design Workshop工作了两个夏天，波尔州立大学景观建筑教授莱斯•史密斯也在其休假期间花了数个月的时间在Design Workshop，对艺术创作与设计之间的交叉点进行强化。（参看图9）

Design Workshop赞助两项缩小学术界与专业实践的距离的计划。第一项计划是"设计周"，期间，负责人及数名员工会与一系列高校名单中的景观建筑或规划本科课程的老

图2 (fig. 2)
CREDIT: D.A. Horchner/Design Workshop
CAPTION: Conversations take place in the "public space" of the design studio.
在设计工作室的"公共空间"进行交谈。

师合作，举行一场为期一周的专家研讨会，重点是讨论特定场所的设计问题。给学生讲授如何开展综合性设计过程之后，会创建跨学科团队重点解决复杂的设计问题。在志愿者活动时间，与学生互动并教会他们如何开展严谨的专业实践对公司的员工而言是很鼓舞人心的，这也使我们与教职工和学术机构建立了新的联系。学者和学生都会接触到公司公布的研讨会方法以及由于跨学科的努力带来的累累硕果。迄今为止，公司已在数个享有声望的设计学院举行了"设计周"，包括克莱姆森大学、肯塔基州立大学、路易斯安那州立大学、德州农工大学和宾夕法尼亚州立大学。（参看图10）

此外，Design Workshop还赞助一项年度暑期实习计划。公司在六个办事处内总共征集约12个实习申请。每一年，在暑期的第一个星期，其中一个办事处被指定主持由所有实习生参加的高强度的多天设计研讨会。学生沉浸在公司的合作文化中，并学习DW Legacy Design®方法的过程。然后，每一名学生会被分配到Design Workshop的其中一个办事处，把暑期剩余的时间花在客户委托的公司项目上。（参看图11）

合作的意向文化

Design Workshop的名称、实体空间、综合性设计理念、合作设计原则以及共享的方法论不断强化着"研讨会"的概念。公司的每一个人都有责任秉承合作文化。

每一名员工都是研讨会的主体。在很大程度上，设计团队会自我组织并发起会话，从而在以发现为导向的环境中提升理念。不过，必须培养合作文化。为了提升研讨会的理念并反复灌输这种实践方法，由每个办事处派出的Legacy Design代表组成的团队

每个月会集会一次，分享新的研究或者通过绩效指标评估设计和建成效果的方法。他们还会讨论每个办公室的研讨会文化情况，并根据需要采取培育措施。如果某个办公室的设计审查流程和团队合作已衰退，这些管理人员将鼓励小组改变行为方式，并且在工作室共用区域征求项目团队外人员的意见。在其它情况下，可能安排办公室之间的设计审查，以激发全公司的交流和思路分享。

简•雅各布斯写道，"没有强大、包容的生命核心，一个城市往往会变成彼此孤立的利益的收集站。它在社会、文化和经济上的产出很难大于各独立部分的总和。"丰富的系统、用途和人的重叠参与才形成了极其重要的城市空间。把这一思路运用于设计工作室，设计师的关注领域以及不同观点的传播对工作室的生存是至关重要的，因为工作室是一个知识形成和复杂设计问题解决方案生成的地方。最高设计质量的实现是依靠研讨会团队的贡献，而不是单单依靠个人的行为。在Design Workshop，我们每天都在有意地创造这种条件以秉承公司的文化，这是公司创办的核心，也是公司持续运营到今天的方法。

作者简介：

艾莉森•门登霍尔 是 Design Workshop 的综合型可持续设计实践DW Legacy Design®的总监。她开发了Design Workshop的景观设计、城市设计和土地规划实践的研究工具和模型，并讲授强调公司建成工程的绩效衡量的方法论知识。阿利森因其在大型、复杂的多学科设计和规划工作的项目领导能力而著称。艾莉森是哈佛大学和哈佛设计研究院（GSD）的研究生，是GSD校友理事会和景观建筑基金董事会的一员。

A Design Workshop

Whether one is a first-time visitor to Design Workshop or a long-time Design Workshop employee, when walking into any of the firm's six offices, there is an immediate sense of the creative energy of the design studio and the liveliness of the conversations. The collaborative atmosphere and sense of purpose are palpable.

On a typical day, project teams are gathered in the open studio space, considering designs that are pinned up on the wall and designers are leaning intently over drawings spread on large layout tables. Conference rooms are filled with design teams presenting to clients and leading strategy sessions with other consultants. Perhaps a resort or a master-planned community or a streetscape or a park is the focus. Boisterous discussions about proposed designs are heard throughout the studio as teams huddle together to critique and advance their work. Everyone on teams, from the principals-in-charge to the student interns, is expected to contribute to the conversation. This is Design Workshop's culture in action.

Culture of Collaboration

The name on the door, Design Workshop, speaks volumes about the way staff members conduct themselves to solve complex design problems and about the physical space in which the work is accomplished.(see fig. 1) It heralds a culture of collaboration that is intense and intentional. Designs are created and iterated in the common areas which, in all Design Workshop's offices, are defined by high ceilings, large community tables, and ample wall space where plans and sketches are gathered. All project teams are expected to conduct design reviews where the work is presented to colleagues beyond the design team. Constructive critique is shared in an atmosphere – sometimes genial, sometimes heated – with the common goal

of improving a design. Design discussions take place in the "public space" of the office to force staff to leave their desks and discard any design "blinders" that may inhibit seeing all the possible solutions. Certainly, employees work at their own desks, drawing on drafting tables or modeling on the computer. However, the culture of Design Workshop and the value placed on collaboration require that all work be visible – pinned up on the walls, printed large or projected so everyone on the team can see it – to spur the critical conversations that are necessary to propel project designs into project resolutions. (see fig. 2)

In The Death and Life of Great American Cities (1993), urban observer Jane Jacobs discusses the vibrancy created by the "mingling" that takes place when there is a convergence of diverse uses and urban dwellers moving through a city's streets and public spaces at different times of day. Jacobs likens the complex order of a lively city sidewalk to "an intricate ballet in which the individual dancers and ensembles all have distinctive parts which miraculously reinforce each other and compose an orderly whole." Design Workshop's emphasis on the open studio as a space of creation and invention where team members encounter and engage with each other to develop new designs borrows from this idea. Members of the team and their varied skills and experiences concentrate in the studio and complement each other.[i]

Steven Johnson discusses the phenomenon of "collective intelligence" in Emergence: The Connected Lives of Ants, Brains, Cities, and Software (2001), leading off with an example of an ant colony which is often misunderstood to be governed by the queen, a single individual who issues directives. In fact the decision-making and social coordination of an ant colony are made collectively. Through random encounters, individual ants are keenly aware of each other's movements and actions. What emerges from their interactions is a self-organizing

图3 (fig. 3)
CREDIT: Design Workshop
Joe Porter, one of the founders of Design Workshop, teaching at the Texas A&M University Design Week sponsored by the firm in 2013.
乔·波特，Design Workshop的创始人之一，在德州农工大学设计周教学，该活动由公司在2013年赞助。

system for solving larger problems within the colony. Johnson also focuses on cities as emergent systems. Like Jacobs, he shares a fascination with sidewalks, which "mix large numbers of individuals in random configurations" and foster the local interactions and exchanges of information that in agglomerate into "complex order" at the city scale. The place-making focus of Design Workshop's practice – the engaging public spaces the firm implements outside its walls – has been applied to the studios in which designs are developed. They are the public spaces of the company where design teams interact and solve problems collectively. They are central to Design Workshop's conception of itself and to fostering the teamwork that is necessary to tackle complex projects.[ii]

Many companies today are exploring how to create work environments that spur interaction and innovation. The common work spaces of international design firm IDEO are a frequently mentioned example as are the corporate campuses of Silicon Valley such as Pixar Animation Studios and Facebook. And there is a proliferation of articles and business books that attempts to address the value of collaborative efforts and the context and conditions for making them successful. In The Wisdom of Teams: Creating the High-Performance Organization (2006), Jon R. Katzenbach and Douglas K. Smith profile companies that form teams for research, productivity, and idea generation and also explore why many other organizations overlook the potential of group efforts or implement them ineffectively.[iii] Similarly, Maverick: The Success Story Behind the World's Most Unusual Workplace (1993) captures the story of the Brazilian company Semco, the family business of Ricardo Semler, who transformed the organization through unorthodox practices that increased innovation and productivity while simultaneously changing existing company culture.[iv]

Since its founding over forty years ago, and in advance of many recent books and offices exploring the optimization of the work place, Design Workshop has had strong notions about optimal settings for collaboration. Beyond the open studio areas that are central to each office are individual work spaces, and corner offices are nowhere to be found. Instead, staff members of varying seniority are dispersed in non-hierarchical arrangements of desks. In this scenario, conversations are overheard and information is efficiently disseminated across all staff levels. Such close access (and proximity) to design principals is edifying for less experienced staff, and the intermingling of staff with diverse roles, knowledge, and expertise reinforces the collaborative nature of the office's workshop atmosphere.

Collaboration means many things at Design Workshop. It can mean working side by side with someone who sits a few desks away, or it can mean sharing files and work efforts with a colleague in another state or country. Some project teams are composed of staff members from several of Design Workshop's six offices based on the need for a particular expertise or someone's availability to help on a deadline. Inter-office and client collaboration is made possible through audio, web, and video conferencing systems. Technology enables design conversations to span the distances between offices throughout the United States and with clients across the globe, bridging the distances so that inter-office teams can be deployed to get the work done. It ensures that one office can easily reach out to another, and it avoids the isolation that characterizes many other firms with multiple locations.

Design Workshop's management structure defies the hierarchy typically found in a corporate setting. An employee stock ownership plan provides staff with an ownership interest in the firm and reinforces a mentality that everyone contributes to its success. Monthly billing and revenue projections are shared with everyone at the firm, from the person who answers the phone to senior staff. Office scorecards paint a picture of each office's health and show not only financial performance such as revenues, backlog and utilization but also the number of design reviews and recent awards won which are indicators of design iteration, excellence, and office visibility. This philosophy and unusual level of transparency are grounded in the ideas covered in The Great Game of Business: Unlocking the Power and Profitability of Open-Book Management (1994), which promotes an open-book management approach where employees are empowered by information and feel a sense of ownership and accountability to the performance of the operation.[v] There is an entrepreneurial attitude among staff at Design Workshop, and the proof of the value created by instilling this spirit can be seen in the different areas into which the firm

图4 (fig. 4)
CREDIT: Design Workshop
Design Workshop's comprehensive DW Legacy Design® approach ensures that projects are environmentally sensitive, community supported, economically sustainable and artfully executed.
Design Workshop的DW Legacy Design®方法确保项目是对环境敏锐的、支持社区的、经济的可持续发展的以及可产生艺术效果的。
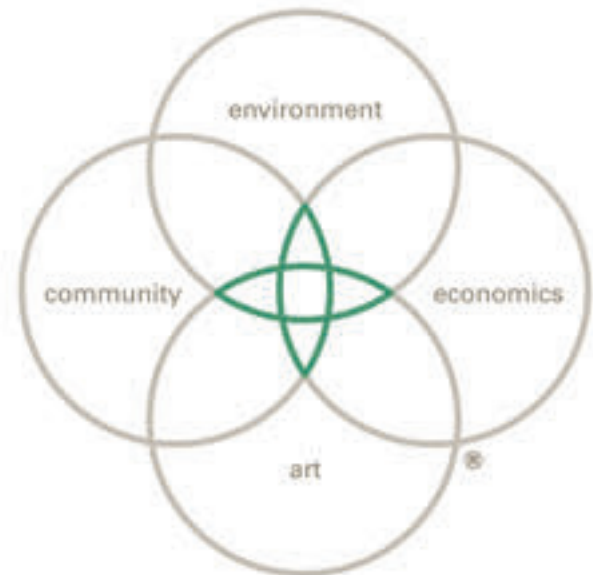

图5 (fig. 5)
CREDIT: Design Workshop
Design Workshop's method diagram provides an outline for a comprehensive approach to the project, as well as how the design will be iterated and evaluated.
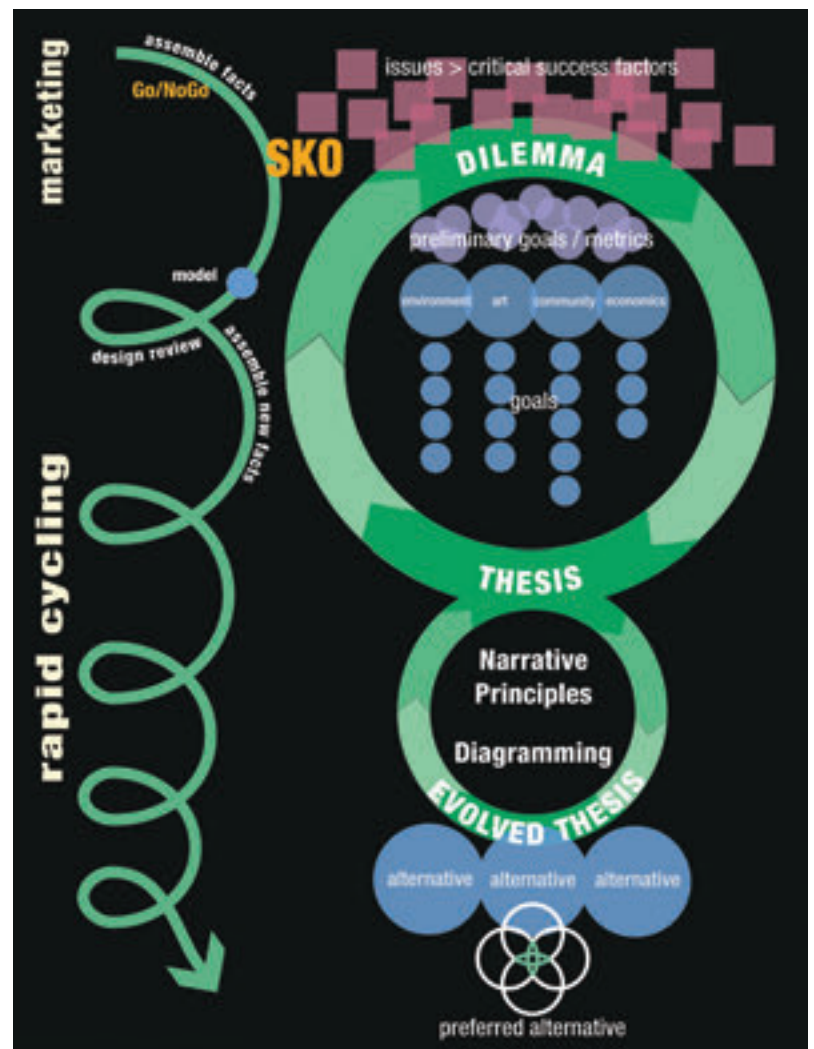Design Workshop的方法图给项目提供了一个综合性方法的轮廓，以及如何迭代和评估设计。

图6 (fig. 6)
CREDIT: D.A. Horchner/Design Workshop
At the center of the workshop concept are design reviews that solicit a broad spectrum of feedback from staff beyond the design team to improve draft designs.
工作室概念的核心是设计审查，广泛征求员工的反馈意见，改善设计草案。

has expanded over the years. For instance, golf course design and Development Services, the group that provides market analysis and strategic development planning for clients, were both launched by individual employees who were driven by a passion and interest in these areas of professional consultation and were able to prove the financial viability of expanding the firm's services into these areas.

Borne of Academia

The Workshop name and the way the firm operates stem from experiences its founders had as academics prior to starting a design firm. During a teaching stint at University of North Carolina in the late 1960s, Joe Porter and Don Ensign saw a need to work around areas of specialization that separate and stifle collaboration between academic and professional disciplines. In 1969 they opened their practice with two other professors from different academic departments for the purpose of creating a "workshop" where educators from across the university, people from industry and students could collaborate without barriers. The firm was named "Design Workshop" to describe a culture of people working in collaboration.

Although Joe Porter is now retired from the firm, his intentions in creating Design Workshop are as fresh now as they were at the firm's inception. Recalling recently the genesis of the firm, Porter noted that "Silos exist in business, law, design, architecture, landscape architecture, engineering, finance, and other disciplines and special interests responsible for creating built environments and maintaining ecosystems. These silos are born and nurtured in academia where scholars are rewarded for becoming expert in a single subject and digging deeper and deeper into that subject at the expense of collaboration and connecting disciplines. Forming a company based on the concept of a workshop was an attempt to get people from different sectors to

work together toward common goals. Tackling complex planning and design problems requires thinkers from different disciplines. The way to get them to collaborate is to base the design exercise on shared values and principles." (see fig. 3)

A Principle-based Practice

Design Workshop's practice is defined by four principles - comprehensiveness; inclusiveness; transparency; and knowledge - that are necessary for collaboration and rigorous design solutions. The first principle, *comprehensiveness*, is best expressed by the overlapping Legacy Design rings. (see fig. 4)

This principle of developing design solutions is achieved through four essential aspects of sustainability – environment, community, economics and art. These focus areas form the interlocking rings of the firm's DW Legacy Design® method. Every project represents an opportunity to balance goals in all four areas to achieve projects that are environmentally sensitive, community supported, economically sustainable and artfully executed. The complexity of the projects undertaken by Design Workshop requires a quadruple-bottom line approach to be truly sustainable.[vi]

The second principle, *inclusiveness*, defines Design Workshop's approach to generating ideas developing designs. The business of place-making involves soliciting a broad spectrum of input from the design team, consultant experts, clients and communities.

The third principle, *transparency in decision-making*, is exhibited by the studio environment and the openness with which groups interact to advance the work. Exposing the goals of a project and the basis of decisions is edifying to all participants and aligns the team.

The fourth principle is *knowledge*. Design Workshop places great importance on project-based research that leads to knowledge development and design innovation. Evaluating the performance of projects enables a team to test design strategies, expand expertise and determine whether further innovation is possible.

A Formalized Design Approach

Design Workshop has been guided by the process-oriented ideals related to comprehensiveness, inclusiveness, transparent decision-making and knowledge since its founding. However the leadership of the firm decided to formalize this principle-based design approach at a shareholders retreat in the late 1990s. To operate in a truly collaborative manner, to be participants in a workshop, design teams need to follow a shared methodology. DW Legacy Design® outlines a comprehensive, transparent, rigorous and iterative process to the work. A method diagram was developed to serve as a design roadmap for the staff. (see fig. 5)

The diagram depicts how every project is launched with a strategic kick-off meeting to lay the foundation for how the team will perform the work and engage the client and stakeholders. During this session, the team embarks on an exercise to discover the opportunities and challenges faced by the project and to set comprehensive inquiries that inform project-based research and the establishment of performance goals. Following academic practices, teams develop a project challenge statement (called the Project Dilemma) and a hypothesis statement (called the Project Thesis) for each new project. Developed collectively by the team, the Project Dilemma aligns the group around impediments to a successful design solution. The Project Thesis posits a vision for the final design and serves as a constant reminder of the outcome the team is aiming for.

A spirited session at the beginning of each project defines goals that balance economic concerns, community values, environmental issues and the art of design into a cohesive vision for the project. The goals beget research assignments, and team members are deployed to delve into the topics that are relevant to the project. Further inquiry enables the team to anticipate measureable performance benefits the implemented project will deliver. Outlining this initial process of design discovery, collaboration and accountability provides a pathway for the team and is essential to the success of the project.

Rapid Cycling

A central element of DW Legacy Design® is the concept of Rapid Cycling, represented by the looping line on the left side of the method diagram. Rapid cycling is the process of iteration that is central to the firm's design practice. Designs are not linear exercises; they evolve. Design Workshop's projects are complex and site-specific. Designs are developed in controlled cycles which combine periods of exploration with cathartic moments when the work must be reined in, consolidated, and presented to the client for feedback. DW's Chairman of the Board, Kurt Culbertson, adds "Rapid cycling can also be thought of as a process of moving back and forth between two modes of thought – creative and critical. The loops in the diagram depict the process that we go through as designers – we try something, we learn, try something else, and learn something new." This mode of experimenting in professional practice is termed "Reflection-in-Action" by M.I.T. social scientist Donald A. Schön, who identifies in the design process three distinct approaches to rigorous iteration: exploration; move testing; and hypothesis testing.[vii] At Design Workshop, the number of cycles the project undergoes is dependent on its scope, schedule and fee – and the team's assessment of the design's quality and level of completion. Tackling the design in this way, and going so far as to represent it on a diagram, instills in staff the importance of iteration. Design teams are expected to work intently for periods but also to pause periodically to accept outside points of view. How the design evolves and advances is a crucial piece of the collaborative culture of the firm.

One way that teams can solicit objective feedback to inform a design is through design reviews, a mainstay of the studio and ultimately the test of a healthy workshop environment. Design reviews come in many different forms. Some occur in regular project meetings where the conversation is limited to the team members

wanting to update each other on the evolution of a design. Others take place at individual desks when perhaps a principal who has been traveling wants to check on a project's progress. But the center of the workshop is an office- or firm-wide design review that is convened to solicit a broad spectrum of objective critique. In these instances, the full office gathers over lunch to hear a short presentation by the team. Pizza is provided in exchange for input. Design reviews are held for many purposes: to seek feedback on designs, to share client reactions to a recent presentation and get direction on next steps, to prepare for an interview for a new project, and/or to share a draft of an awards submittal. Such design reviews are part of a deliberate process of critical thinking that is intended to set the stage for further creative inquiry. (see fig. 6)

Knowledge Generation

Staff members at Design Workshop often talk about what it means to be engaged in a critical practice. By this, they mean being aware of global issues that affect the built environment, if not the earth and entire human race. The slide show presented at quarterly orientations to welcome new employees to the firm includes a 2007 cover of *Newsweek* which features a globe on to which is mapped a grid of images depicting politics, paleontology, finance, art, popular culture, science and others. The headline states, "The 181 Things You Need to Know Now." The purpose of sharing this image with new staff members is to instill in them the importance of looking beyond the scope and physical boundary of a particular project and to open

图7 (fig. 7)
CREDIT: D.A. Horchner/Design Workshop
Every project is launched with a strategic kick-off meeting during which the design team collectively identifies topics that are relevant to the project and identifies environment-, economic-, community- and art-related goals for the design to achieve.
每一个项目都推出一个战略启动会议，期间，设计小组集体确定与项目相关的主题，并确定环境、经济、社区和艺术相关的设计目标，并实现这些目标。

图8 (fig. 8)
CREDIT: D.A. Horchner/Design Workshop
Design Workshop staff members from all offices periodically convene to share research and knowledge with each other at firm-wide conferences.
Design Workshop的所有工作人员定期召集在一起，分享彼此的研究成果和知识。

their eyes to a broad set of influences that affect the built environment in general and the project site in particular. The emphasis on expansive lines of inquiry and synthesis of multivalent information is at the core of a comprehensive DW Legacy Design® approach.[viii]

Design Workshop project teams often seek to learn about topics and incorporate them into designs that a generation ago might have seemed beyond the scope or capacity of a typical landscape architecture practice. There is a complexity to the firm's projects that forces its teams to acquire a broad set of information and tools to design and evaluate success. In addition to focusing on the physical design of space and form giving, a typical team might be calculating the ratio of jobs to housing of a master-planned community in an attempt to reduce the number or length of car trips generated by the development. They might be looking into issues of social justice, or making sure that a project's community engagement strategy acknowledges subsets of the affected population with tailored surveys. Or they might be studying the retail vacancy or vehicle accident rates in a district to understand and measure impacts before and after a streetscape re-design has been implemented. Being a critical practice is about operating intelligently and with a high level of awareness of the broad issues that influence the built environment.

Embracing the complexity of its typical projects, Design Workshop has embarked on an effort not only to gather information to aid design decisions and inform the best practices of the firm but also to conduct formal research that generates new knowledge for the profession.[ix] As part of this undertaking, project teams increasingly use evidence-based design to measure the performance of the projects during design and after implementation. Shortly after a contract is signed for a new project,

the assigned team gathers to identify all the relevant issues and opportunities that will affect the design and its implemented outcome. Menu sheets of research and metrics topics are reviewed and prioritized. The key question that hovers over the group in this initial conversation is, "What story do we and our clients want to tell about this project?" Asking the question at the beginning of the design effort and imagining the outcome helps to shape the agenda of the project. This conversation generates a comprehensive outline and the issues and opportunities become environment-, community-, economic- or art-related research topics and goals that are assigned to different members of the team. (see fig. 7)

Throughout the design process, the project team evaluates the design against set goals. The measurable goals set at the beginning are a tool for evaluating design alternatives over the course of the project. At this stage, a design is not yet realized so it can only exhibit evidence of success. Proof of success is not possible until after implementation when performance assessments can be conducted. Few design firms have the ability to take on this effort themselves which is why Design Workshop has enthusiastically participated in the Landscape Architecture Foundation (LAF) Landscape Performance Series Case Study Initiative (CSI). This program pairs practitioners with academic teams who produce rigorous studies that measure the sustainable landscape performance benefits delivered by the built project. Partnering with academic teams, as Design Workshop has done with Utah State University for the last three years, ensures that projects are studied objectively and claims are validated with scientific methods. The studies are published on the LAF website as a resource for the profession to advance its sustainable practices. Additionally, the academic teams publish the research in peer-reviewed publications and present them at conferences, such as the Council of Educators in Landscape Architecture (CELA).

The Landscape Architecture Foundation (LAF) Landscape Performance Series Case Study Initiative program pairs practitioners with academic teams to produce rigorous studies that measure the sustainable landscape performance benefits delivered by built projects. Design Workshop has partnered with Utah State University and Kansas State University over the last three years resulting in the following case studies published on the LAF website that serve as a resource for the profession.

Landscape Architecture Foundation (LAF):

http://www.lafoundation.org/research/landscape-performance-series/case-studies

Blue Hole Regional Park (Austin, Texas):

http://lafoundation.org/research/landscape-performance-series/case-studies/case-study/541/

Park Avenue/Highway 50 (South Lake Tahoe, Nevada):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/503/

Cherry Creek North/Fillmore Plaza (Denver, Colorado):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/502/

High Desert (Albuquerque, New Mexico):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/403/

Daybreak (South Jordan, Utah):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/360/

Capitol Valley Ranch (Aspen, Colorado):

http://lafoundation.org/research/landscape-performance-series/case-studies/case-study/627/

Cascade Garden (Pitkin County, Colorado):

http://lafoundation.org/research/landscape-performance-series/case-studies/case-study/628/

Essential to the expectation that knowledge must be generated in the context of projects and exchanged among project teams is the Design Workshop portal, an internal website for sharing knowledge and information across the firm. The portal is the place where a range of items is posted for all to see, from employee marriage announcements and office social gatherings, from best practices for conducting public meetings to new methods for reducing impervious surfaces. Much of the information is contained in internal topic-based web pages, one of which exists for every DW Legacy Design® metric topic. From Urban Heat Island Effect to phytotechnologies to bioswales, these on-line web pages collect information from within and beyond the firm, including examples of benchmark goals, design strategies, on-line calculators, links to organizations with expertise on the topic, articles, white papers, and exemplary projects. The portal also provides a home for firm-wide communities of practice which gather staff who share a common design interest or who are charged with advancing the firm's capabilities in a particular area, such as digital representation or green roof design. To work at Design Workshop is to be a member of a networked community that values knowledge, and everyone is expected to contribute to the expansion of this knowledge.

On-going Learning

Design Workshop places tremendous emphasis on continuous learning - both for the professional development of staff and for the infusion of new ideas and expertise into projects. Expecting staff to augment their expertise and to share it with colleagues to advance the practice is part of the firm's academic-based composition. This focus on learning happens through formal firm-wide programs and also in the context of projects.

Design Workshop's Five-Year Plan for staff outlines the expectations of staff during

图9 (fig. 9)
CREDIT: Design Workshop
Stormwater expert, Bruce Ferguson (right), Franklin Professor of Landscape Architecture at University of Georgia School of Environmental Design, spent two summers at Design Workshop as part of the firm's Faculty-in-Residence program.
雨水专家布鲁斯·弗格森(右)，乔治亚大学环境设计学院景观建筑教授富兰克林，花了两个夏天协助Design Workshop进行公司的员工住宅项目。

their first five-years at the firm to expand their knowledge and credentials to build successful and satisfying careers. The Plan defines goals and timelines for building essential skills, demonstrating thought leadership, pursuing graduate studies and accomplishing professional licensure and certification. A graduate degree is required to advance to a leadership position. The firm strongly believes that the pursuit of a graduate degree is a transforming experience that results in increased confidence, intellectual and personal maturity, and professional capacity. Staff are encouraged to present at conferences and to publish articles. The goal of the Five Year Plan is to outline a process that develops young talent as quickly as possible in an organized rather than random pursuit. Design Workshop's emphasis on the development and sharing of knowledge, and on solidification of knowledge through certifications and degrees, is an attempt to hasten an employee's passage from novice to master. Semiannual performance reviews are milestones that enable each employee to measure progress against professional development goals.

A series of lunchtime presentations by internal staff and guest experts is planned for each year. Held several times a month, the "Lunch and Learn" series offer short presentations about topics that are relevant to design, specific types of projects, or general skill-building. Staff members from all offices connect to a web conference

to hear the presentations and to participate in the discussions at the conclusion of each lecture. Recent topics have included stormwater management, urban street trees, phytoremediation, public art, digital modeling, meeting facilitation, project management and GIS.

Since 2006, Design Workshop has convened over ten firm-wide symposia on topics or project types that are areas of focus for many at the firm, including urban corridor design, planting design, new community development, park design and community comprehensive plans. When several Design Workshop offices are working on the same types of projects, a session is convened so that teams can share best practices. An outside guest is invited to serve as the keynote speaker and to frame the discussion. Several project teams grappling with similar issues are invited to participate in short presentations to share best practices and to receive feedback. While participating in symposia removes staff from pressing deadlines and billable capacity for a portion of a day, firm leaders believe these sessions expand awareness of best practices in the industry, improve project designs, and strengthen the bonds across offices. They reinforce the notion of "workshop."

The firm's conviction that connecting staff to knowledge and teaching them how

图10 (fig. 10)
CREDIT: Design Workshop
CAPTION: Texas A&M University students participated in the 2013 Design Week sponsored by Design Workshop. 德州农工大学的学生参加由Design Workshop资助的设计周。

图11 (fig. 11)
CREDIT: D.A. Horchner/Design Workshop
CAPTION: The Design Workshop summer student internship program launches each year with an intense multi-day team project to immerse them in the collaborative culture of the firm.
Design   Workshop赞助年度暑期实习生计划，由所有实习生参加高强度的多天小组计划，使学生沉浸在公司的合作文化中。

to conduct project-based research will advance the practice has led to travel and exploration beyond the confines of DW's six offices. From 2005 to 2007, the entire firm traveled to annual retreats in different cities in the United States. The focus of the 2005 gathering in Las Vegas, Nevada, was Design Methods. In 2006, staff visited Portland, Oregon, where the focus was on Environment and Art, which form two of the DW Legacy Design® categories. Community and Economics were the focus of the 2007 meeting in Chicago, Illinois. These conference-like gatherings offered lectures, break-out sessions, and tours of exemplary urban projects and were led by internal experts and guest presenters with particular insights about comprehensive sustainable practices achieved in the built environments of the cities visited. (see fig. 8)

"Working at Design Workshop is like being back in school," says Josh Brooks, who recently joined the firm after graduating with an undergraduate degree from Louisiana State University's Robert Reich School of Landscape Architecture in Baton Rouge. "I really appreciate all the learning events that are offered throughout the year. The frequent design reviews infuse the studio with a sense of inquiry and critique that sets the tone for design exploration."

Connecting to Academia

As a firm borne of academia, Design Workshop has maintained close ties to design programs in numerous American universities and with individual professors throughout the country. Utah State University's landscape architecture program has been designated as the recipient of the firm's office archives. For several years, the firm has hosted a Faculty-in-Residence program in which a professor is invited to spend time at one or all of the firm's offices while on a sabbatical or summer break. The mutual benefits of these arrangements are tremendous. For the academic, the opportunity brings exposure to professional practice and time to apply research to projects that will be implemented. Interacting with a faculty member affords staff the chance to learn directly from an expert with deep knowledge in a particular subject. Academic visitors tend to feel at home in the studio due to Design Workshop's process-oriented design practice and shared methodologies for pursuing design solutions. Bruce Ferguson, the Franklin Professor of Landscape Architecture at University of Georgia School of Environmental Design and an expert on stormwater design and technologies in the United States, experienced two summers at Design Workshop and Les Smith, professor of landscape architecture at Ball State University, spent several months at Design Workshop during a sabbatical to reinforce the intersection of art making and design. (see fig. 9)

Design Workshop sponsors two programs that bridge the gap between academia and professional practice. The first is Design Week, during which a principal and several staff members partner with the faculty of an undergraduate landscape architecture or planning program at a rotating list of universities to host a week-long charrette focused on a site-specific design problem. After teaching the students about comprehensive design processes, interdisciplinary teams are formed to focus on a complex design problem. Volunteering time to interact with students and teach them about rigorous professional practice is invigorating for the firm's staff and forges new relationships with faculty members and academic institutions. Academics and students are exposed to the workshop approach promulgated by the firm and the fruitful outcomes that stem from cross-disciplinary endeavors. To date, Design Weeks have occurred at prestigious design schools including Clemson University, University of Kentucky, Louisiana State University, Texas A&M University and Penn State University. (see fig. 10)

In addition, Design Workshop sponsors an annual summer internship program. The firm solicits applications for approximately one dozen internship spots spread across the firm's six offices. Each year, one office is designated as the host of an intense multi-day design workshop attended by all of the interns for the first week of the summer. The students are immersed in the collaborative culture of the firm and learn the DW Legacy Design® process. After this stint, each is assigned to a Design Workshop office and spends the remainder of the summer working on the firm's projects for clients. (see fig. 11)

An Intentional Culture of Collaboration

Design Workshop's name, physical spaces, comprehensive design philosophy, collaborative design principles and shared methodology continually reinforce the concept of "workshop." Upholding the culture of collaboration is the responsibility of everyone at the firm.

Every staff member is a proprietor of the workshop. For the most part, design teams self-organize and initiate conversations to advance concepts in a discovery-oriented environment. However the culture of collaboration must be fostered. To promote the idea of workshop and to inculcate this way of practicing, a team of Legacy Design representatives from each office meets monthly to share new research or ways of evaluating design and built outcomes through performance metrics. They also discuss the condition of the workshop culture in each office and take steps to nurture it as needed. If the flow of design reviews and team work has ebbed in an office, these caretakers will encourage the group to change behavior and seek the input of those outside the project team in the common area of the studio. In other cases an inter-office design review may be scheduled to stimulate communication and sharing ideas across the firm.

Jane Jacobs wrote that "Without a strong and inclusive central heart, a city tends to become a collection of interests isolated from one another. It falters at producing something greater, socially, culturally and economically, than the sum of its separated parts."x Vital urban spaces are created when diverse systems, uses and people overlap and engage. Applying this thinking to a design studio, the concentrations of designers and circulation of diverse viewpoints are crucial to the life of the studio as a place where knowledge is generated and solutions to complex design problems are produced. The highest quality of design can be achieved by the contributions of a team in a workshop rather than by individuals acting alone. At Design Workshop, this condition is cultivated daily and intentionally to uphold the culture that was central to the firm's founding and to the way it continues to operate today.

Notes:

i Jane Jacobs, _The Death and Life of Great American Cities_. New York, NY: Random House, 1993, 227; 65.

ii Steven Johnson, _Emergence: The Connected Lives of Ants, Brains, Cities, and Software_. New York, NY: Scribner, 2001, 74; 31-33; 94; 96.

iii Jon R. Katzenbach and Douglas K. Smith, _The Wisdom of Teams: Creating the High-Performance Organization_. New York, NY: First Collins Business Essentials, 2006.

iv Ricardo Semler, _Maverick: The Success Story Behind the World's Most Unusual Workplace_. New York, NY: Business Plus, 1993.

v Jack Stack with Bo Burlingham, _The Great Game of Business: Unlocking the Power and Profitability of Open-Book Management_. New York, NY: Currency/Doubleday, 1994.

vi This expands on the concept of triple-bottom line accounting that integrates ecological, social and economic criteria into measures of organizational success. Design Workshop adds a fourth key area – Art – into the formula.

vii Donald A. Schön, _The Reflective Practitioner: How Professionals Think in Action_. New York, New York: Basic Books, 1983, 146-147.

viii "181 Things You Need to Know Now," Newsweek (July 2, 2007): Cover Image. This double issue of Newsweek collected essays on global topics about which readers need to be knowledgeable to navigate the increasing complex world and to achieve, what editor Jon Meacham termed, "Global Literacy."

ix See M. Elen Deming and Simon Swaffield, _Landscape Architecture Research: Inquiry, Strategy, Design_. Hoboken, NJ: John Wiley & Sons, Inc., 2011, 239-242. Deming and Swaffield discuss the diversity of knowledge development and research in the context of landscape architecture practice and introduce three realms of knowledge development – 1) Integrating research strategies into practice; 2) Integrating research into practice – polemical transformation; and 3) Integrating Knowledge into Practice – Grassroots Movements.

x Jane Jacobs, _The Death and Life of Great American Cities_. New York, NY: Random House, 1993, 215.

About the author:

Allyson Mendenhall is the Director of the DW Legacy Design®, Design Workshop's comprehensive and sustainable design practice. She develops tools and models for research in Design Workshop's practice of landscape architecture, urban design and land planning, and teaches the methodology which emphasizes performance measurement of the firm's built work. Allyson is distinguished for her project leadership of large-scale, complex, multidisciplinary design and planning efforts. A graduate of Harvard College and Harvard Graduate School of Design (GSD), Allyson serves on the GSD Alumni Council and also on the Board of Directors of the Landscape Architecture Foundation.

全球化经济下的知识型竞争
Knowledge-based Competition in a Global Economy

作者：库尔特•卡伯特森
Author: Kurt Culbertson

职业设计师日益发现自己面临着全球市场竞争。对于一个大型设计公司来说，其30%的业务来自于国际项目已然司空见惯。全球领域内的竞争分为多个层面，其中之一在于确保拥有一批有天赋并且训练有素的专业人才，同时在全球范围内寻找并吸纳最具天赋、受过最好教育的专业人才。（参看图1）

服务交付（与客户关系的质量以及所提供的咨询服务对客户需求的专注度）是竞争的另一种主要形式。人际关系与反应能力是其中的关键因素。情商和社交网络能力是服务交付的重要先决条件，也是选择新员工成为潜在团队成员的另一个因素。（参看图2）

成本是竞争的第三种形式。提高管理效率和减少日常开支可以降低成本。劳动力成本和公司福利占一个设计公司总营业成本的80%。因此，压缩劳动力成本从短期来看是降低专业服务价格的有效手段。然而，这种手段与聘用并留住最有天赋、受过良好教育的专业人士的目标存在直接矛盾，因为最优秀的往往是最受欢迎的。因此，成本竞争通常会赋予那些处于低劳动力成本的发展中国家的公司以巨大优势。而那些位于劳动力成本较高的发达国家的公司，如果单凭价格竞争则难以在全球市场上取得优势。（参看图3）

设计公司的竞争定位可以使不同的公司更好地适应特定的项目任务和客户。例如，

当成本是首要因素时，人才与培养可能并非客户选择咨询公司的决定因素。因此，在Design Workshop，我们的主要目标并非价格竞争。在咨询公司之间流传着一句古话："好/快/便宜——你只可以选择两样。" 这表明服务产品可以是物美价廉的，但客户要有耐心；或者，服务产品也可以是又快又便宜，但质量会受到影响。

在以快节奏著称的私营房地产领域，时间就是金钱。快速回应客户需求以及高效地把设计想法转化为图纸产品通常是硬性要求。在咄咄逼人的房地产开发领域拼搏的设计公司如果能够把开发周期缩短，也算是传奇。在数字时代，速度往往是前提条件。因此，在Design Workshop，我们选择的价值定位是"好且快"，或者更确切地说，是"卓越且快速"。

在Design Workshop，我们致力于创建恒久品质的景观，可以为子孙后代留下一笔遗产。正如吉姆•柯林斯写的《从优秀到卓越：为什么一些公司实现了飞跃，而其它公司却没有》（2001年）一书中所详细描述的，持续进步的过程需要致力于核心价值，确保公司始终遵循柯林斯所称的"找对人才能做对事"的原则，并经常关注细节和执行力。服务交付是非常重要的，但是我们的首要兴趣是解决非常复杂的设计问题，因而需要最高水平的人才和培养。

聘用具备天赋且受到过良好教育的人才是追求品质的第一步。要想在全球市场竞争中

图1 (fig. 1)
CREDIT: Design Workshop
CAPTION: Design Workshop Principal, Jeffrey Zimmerman, visits the site of the Tianqin Bay project in Shenzen, China.
Design Workshop的项目负责人杰弗里•齐默尔曼访问深圳天琴湾项目场地。

占有一席之地，公司必须不断努力吸引和留住最优秀的员工。创造力、赋形力和沟通技能（图形、书面和口头）当然是至关重要的。所有公司都认为他们在工作中运用了大量的天赋和创造，但是，在最高水平的角逐中，这一点并不足以使公司胜出。公司的所有员工必须不断努力改进专业技能，并运用他们的知识和经验解决各项任务中出现的各种问题。假设一个应届毕业生二十几岁入职，然后一直工作到六十几岁，那么，他们的职业生涯就大约为四十年。他致力于接受继续教育的成功与否决定了在职业生涯结束时，他是否真的拥有四十年的经验，或者，如Design Workshop的校友戴夫•贝尔曾经告诉我的，只不过是"一年的经验重复了四十次"。

为此，在Design Workshop，我们常说，专业人才的教育是从学士学位完成之后开始的。有鉴于此，Design Workshop逐步形成了为员工制订长期学习计划的理念。研究生教育也是极其重要的，在我们看来，设计师最好是在专业实践5~7年后再接受研究生教育。在此阶段，他已具有坚实的专业技能基础，并准备好通过进一步的学术培训加深其对兴趣领域的追求。最佳的设计公司会采取两个步骤——首先是雇佣合适的员工，然后致力于员工的长期培养。

一个公司如何凭借最高质量的作品使其在竞争中脱颖而出？在这个日益信息化的社会，我们Design Workshop人认为，在竞争中脱颖而出的关键点是知识，而且，我们认为，专业人才必须努力对知识达到精通的水平。研究表明，在大部分领域，要达到精通的水平，至少须有1万小时的经验和有效实践。因此，在工作上花时间是至关重要的，但是，并不足以应对最高水品的全球经济竞争。虽然许多最佳的设计公司都拥有经验丰富的员工，但是，要达到精通的水平仍然需要严格的规章制度。为此，Design Workshop采用了"不升职就离职"的理念。一个人可能在入职时拥有很高的天赋和很好的教育背景，但只有不断追求精通，才能保证拥有"一席之地"。要想在全球市场立足，单靠过往的荣誉是不行的。正如大卫•W•格兰森在《年长的大师与年轻的天才：艺术创造力的两种生命周期》（2006年）中指出的一样，通常社会称赞的是带着新思路和创新能量准备登场的年轻天才，但是那些通过终生的实验和学习最终获得艺术成功而非通过出众途径获得成功的人同样重要。那么，设计公司如何有意识地着手创造一个既有年轻天才又有年长大师的团队？

知识有两种形式。第一种是隐性知识，是通过经验获得和消化的，往往是不成文的或不可言传的。这种知识通常是通过"在职培训"获得的。在公司内部，把员工安排在各种具有不同挑战的职位，使他们接触各种项目和生活经历，为他们提供出差旅行机会，让他们与其他有才能的专业人士合作，这些措施都可以有意识地培养员工的隐性知识。

对设计专业人士而言，另一种日益重要的知识形式是显性知识，其可以被表述、编纂、存储和传达给其他人。这种信息正逐渐成为在竞争中脱颖而出的关键点。显性知识的发展需要智力、批判性思维能力、研究技能和书面沟通技巧，可通过研究调查和文档编制系统性地获得。写作、公开演讲和出版都是使显性知识可视化以及把设计公司的员工定位为思想领袖的方式。景观建筑行业最需要的往往是创造力，这种能力通常与人类右脑有关。而批判性思维能力则通常与人类左脑有关，却往往被漠视。随着行业内对研究的重视程度与日俱增，等式的两侧正在发生变化。我们相信，那些能够利用两侧大脑的专业人才同时具备创造力和批判性思维能力，终将会在这个信息时代获得成功。因此，综合思维能力和广泛的工作视野变得越来越重要。通过生活和工作经历以及继续教育有意识地发展隐性知识和显性知识，可更有效、更快速地达到精通水平。

对项目绩效进行测量，是使知识可视化以及生成显性知识的一种方式。美国绿色建筑委员会的能源与环境设计先导（LEED®）认证计划或者美国景观建筑协会的可持续场地倡议™（SITES™）都可为现有客户、潜在客户及一般公众提供证据，来证明某个项目可提供与可持续发展相关的最先进的思路。证据既可用于现行项目也可对设计备选方案进行评估。这并非是祈祷和希望结果奏效，而是在成功实施结果的路上有了可衡量的标识。

绿色认证系统正在快速扩展中，同时也正走向中国。2009年，住房和城乡建设部（MOHURD）正式推出中国绿色建筑标签，这种标签通常被称为三星级系统，因为其等级范畴为三星级。该系统需要对节约用地和室外环境、节约能源和能源利用、节约用水和水资源利用、节约材料和材料资源利用、室内空气质量以及运作和维护这些方面对新型住宅建筑物和办公大楼进行严格考核。该系统在某种程度上优于LEED®，原因在于，后者只有在移交业主一年后才可以进行评估。此外，该系统的先决条件多于LEED®。不过，与LEED®邻里发展计划一样，该计划尚未被应用到全部邻里或市区内。尽管如此，和美国、欧洲及其它地方一样，MOHURD计划正在力求使绿色建筑知识成为显性知识。

MOHURD要求实施的评估过程实际上会带动高水平的研究。强调以度量和绩效为基础的设计，早已成为一些中国景观建筑公司（如：Turenscape）的实施方法。

一项策略是否有效，只有在竣工以及项目投入使用一段时间后方可证实。一个设计对场地的干预随着时间流逝是成功或失败，可以用加利福尼亚大学的退休教授克莱尔•库伯•马库斯及其同事提出的的"使用后评估"策略来进行评估。不过，这种评估对于专业公司来说不仅实施起来有难度而且也比较昂贵。更重要的是，项目竣工和投入使用后，设计公司往往会开始下一项工作，这样就没有时间对竣工工程进行关键评估。这也是景观建筑基金会的"景观绩效系列案例研究倡议"为何如此重要的原因。学术研究团队与专业公司相互合作，就可以完成严格的建设后评估。这个过程也可在接受过研究方法培训的、且致力于将研究纳入其日常实践的在职专业人士的协助下完成。这样，行业可获得所需的证据，既可对分析方法进行证实或提出质疑，也可构建基于景观绩效证据的显性知识体系。

一家专业公司如何为公司及其每个成员开发集体知识埋单？首先，公司必须相信，投资于继续教育和培训以及通过研究发展显性知识终究会带来良好的收益。这些收益可通过多种形式表现出来。

第一，市场占有率以及公司提供的知识多于其竞争对手这一事实产生的收益应该有所增加。建立在出色工作和卓越知识的基础之上的声誉具有重大的商业开发价值。第二，必须有相应的报酬来抵得上这种卓越的知识。我们认为，若公司运用较多的知识服务于客户，客户将愿意向公司支付相应的报酬。受过良好教育的专业人才能够胜任高度专业化或复杂的项目，这样的工作才抵得上较高的报酬。第三，具备降低风险的可能，因为准备越充分的专业人才越不容易出现错误，那么由于错误导致公司承担法律责任且使设计产品高价返工的可能性就越低。第四，能够表现出具备高水平创造力和知识的公司更容易承接到有趣的、具有挑战性的任务，从而使公司获得精神上和金钱上的双重回报。最优秀的年轻从业者将会被吸引并最终属于那些能够提供专业进步和终生学习机会的公司。他们希望接受具有挑战性、有趣的项目。更重要的是，无论我们处在哪一个行业，我们都在寻找工作生活的意义，而挑战复杂的任务并对行业知识体系有所贡献是非常有意义的工作。在Design Workshop，我们认为，为如此有意义的工作提供生长土壤，既可以确保公司的长期发展，也可为未来提供可持续的资金来源。

我们这些能够在景观建筑这一行业获得成功的人其实很幸运，我们获益于生活中许多人的指导和支持，也得益于专业前辈的出色工作奠定的基础。Design Wokshop认为，指导和支持都是一个公司经久不衰的印记，而且，更重要的是通过出色的工作和成为实践型思想领袖来为这个行业创造持久遗产。通过研究，我们可以增加该行业的集体知识体系，从而"回报这份恩情"，同时，也可为子孙后代创造遗产。

作者简介：

库尔特•卡伯特森是Design Workshop的董事长，该公司为一所城市设计、土地规划和景观建筑公司，在科罗拉多州阿斯彭及其它五个城市都设有办事处。他获得了路易斯安那州立大学的景观建筑学士学位和德克萨斯州达拉斯南卫理公会大学的工商管理硕士学位。他目前正在攻读爱丁堡艺术学院的博士学位。卡伯特森先生是一名前富布莱特学者，也是哥伦比亚区华盛顿敦巴顿橡树园城市设计院美国景观建筑学会的资深会员。库尔特特别关注综合方法在旨在寻求可测量的经济、环境、社区和美学效果的可持续发展中的应用。

Design professionals increasingly find themselves competing in the global marketplace. It is not unusual for a large design firm to have thirty percent of its work coming from international commissions. Competition in the global arena occurs at many levels, one of which is in securing gifted and well-trained professionals, with design firms searching the world for the most talented, best educated professionals. (see fig. 1)

Service delivery (the quality of the relationship and the attentiveness of the consultant to the needs of the client) is another major form of competition. Here personal relationships and responsiveness are key factors. Emotional intelligence and networking ability are important prerequisites to service delivery and provide another factor in the selection of new staff as potential team members. (see fig. 2)

Cost is a third form of competition. Lower costs can come through management efficiency and reducing overhead. Labor and benefits comprise up to eighty percent of a design firm's total operating costs. Suppressing labor costs, therefore, becomes an effective short-term means of lowering fees for professional services. This approach, however, is in direct contradiction to the goals of hiring and retaining talented well-educated professionals, because the best and the brightest will always be in demand. Cost competition, therefore, often favors companies based in the developing world where labor costs are lower – a considerable advantage. For companies in the developed world with higher labor costs, it is difficult to compete in the global marketplace on price alone. (see fig. 3)

The competitive positioning of a design firm makes different firms better suited for particular types of project assignments and clients. Design talent and training, for example, may not be the determining factor in consultant selection where cost is the primary concern. At Design Workshop, our primary objective, therefore, is not to compete on price. An old saying among consultants is "A firm can be good, cheap, or fast – pick two." This suggests that the work can be of high quality and inexpensive, but the client will need to be patient, or the work can simply be cheap and fast, but the work's quality will suffer.

In the fast-paced world of private real estate development, time is money. The ability to respond quickly to a client's needs and to move efficiently from design to production drawings is always a requirement. For design firms that have worked in the hard-charging world of real estate development, short time frames are also legendary. In the digital age, speed is usually a given. At Design Workshop, therefore, the value proposition we have chosen to offer is to be "good and fast," or more specifically, "great and fast."

At Design Workshop, we are committed to creating landscapes of enduring quality and leaving a legacy for future generations. As described so well in Jim Collins' From Good to Great: Why Some Companies Make the Leap… and Others Don't (2001), the process of continual improvement requires a commitment to core values,

ensuring a firm always has what Collins called "the right people on the bus," and constant attention to detail and execution.[i] Service delivery is very important, but our primary interest is addressing very complex design problems, thereby requiring the highest levels of talent and training.

Hiring well-educated individuals with a great degree of innate talent is the first step in the pursuit of quality. To compete in a global marketplace a firm must continually strive to attract and retain the best and the brightest employees. Creativity, form-giving ability and communication skills (graphic, written and verbal) are certainly important. All firms believe that they bring a great deal of innate talent and creativity to their work, but at the highest level of competition this is not a sufficient point of differentiation. All staff in the firm must continually seek to improve their professional skills and to bring their knowledge and experience in problem solving to all assignments. Assuming that new university graduates enter the profession in their mid-twenties and work until they are in their mid-sixties, they will have a professional career of approximately forty years. Their commitment to continuing education will determine if, at the end of their careers, they truly have forty years of experience or, as Design Workshop alumnus Dave Bell once told me, "One year of experience forty times."

For this reason, at Design Workshop we often say that a professional's education only begins with completion of an undergraduate degree. With this in mind, Design Workshop has evolved a philosophy that charts a long-term path for staff to advance their learning. Graduate education is also extremely important and, in our view, best pursued after five to seven years of professional practice. At this stage, an individual has a firm foundation of professional skills and is well positioned for deeper pursuits of areas of interest through further academic training. The best design firms follow a two-step process – they hire well and then are committed to staff continuing education.

How does a firm committed to producing work of the highest quality differentiate itself from the competition? In an increasingly information-based society, we at Design Workshop believe the key point of differentiation is knowledge, and we believe that a professional should strive for mastery. Research suggests that a minimum of 10,000 hours of experience and focused practice is needed in most fields to achieve mastery.[ii] Time on the job, therefore, is critical but it is not sufficient to compete at the highest levels of the global economy. While many of the best design firms have experienced staff, the pursuit of mastery requires considerable discipline. It is for this reason, we have adopted an "up or out" philosophy at Design Workshop. An individual may enter the firm with a high level of talent and education, but that individual's "place on the bus" is only ensured through a continuous pursuit of mastery. In the global marketplace, one cannot rest on laurels. As suggested by David W. Galenson in Old Masters and Young Geniuses: The Two Life Cycles of Artistic Creativity (2006), society tends to celebrate the young genius who bursts

图2 (fig. 2)
CREDIT: D.A. Horchner/Design Workshop
Design Workshop staff members form strong working relationships with clients and are skilled at engaging community stakeholders to accomplish the vision of a project.
Design Workshop员工与客户形成密切的工作关系，擅长与社区利益相关者建立关系以完成项目的愿景。

图3 (fig. 3)
CREDIT: Sharon Karr, FEMA
In contrast to the rows of cubicles that define many work spaces, Design Workshop configures its design studios and work spaces to foster collaboration. 与界定很多工作空间的一排排小隔间形成鲜明对比的是，Design Workshop配置其设计工作室和工作空间以促进合作。

upon the scene with new ideas and creative energy, but an equal if not superior pathway to artistic success comes from a lifetime of experimentation and learning.[iii] How then might a design firm consciously go about creating a team of both young geniuses and old masters?

Knowledge can come in two ways. The first is tacit knowledge, gained and internalized through experience, and often unwritten or unspoken. This is the kind of knowledge that is often acquired by "on-the-job training." Tacit knowledge can be consciously developed within an organization by placing staff in a variety of challenging positions, by exposing them to wide ranges of project and life experiences, by providing travel opportunities, and by collaborating with other talented professionals.

Another increasingly important form of knowledge for design professionals is explicit knowledge that can be articulated, codified, stored, and communicated to others. This information is increasingly becoming a point of differentiation. The development of explicit knowledge requires intellectual rigor, critical thinking ability, research skills, and written communication skills and may be systematically gained through research and documentation. Writing, public speaking, and publishing are ways of making explicit knowledge visible and positioning a design firm's staff as thought leaders. The profession of landscape architecture has tended to celebrate creativity, abilities typically associated with the right side of the human brain. Critical thinking abilities typically associated with the left side of the brain have been less valued. A growing emphasis on research within the profession is beginning to change that equation. It is our belief that the professionals who can utilize both sides of their brain – both creative and critical thinking skills – will find success in the information age. Comprehensive thinking skills and an expansive work view, therefore, become increasingly important. By consciously developing tacit and explicit knowledge through life and work experiences and continuing education, mastery can be achieved much more efficiently and quickly.

The measurement of project performance becomes a way of making knowledge visible and generating explicit knowledge. The Leadership in Energy and Environmental Design (LEED®) certification program of the United States Green Building Council or the Sustainable Sites Initiative™ (SITES™) of the American Society of Landscape Architects offers evidence to existing and prospective clients and the general public that a project offers state-of-the-art thinking regarding sustainability. Evidence is used for in-progress work and evaluating design alternatives. This is not about crossing fingers and hoping the outcome will work, but having instead the measureable signs along the way that implemented outcomes will be successful.

The rapid proliferation of green certification systems is also making its way to China. In 2009, the Ministry of Housing, Urban and Rural Development (MOHURD) launched a Chinese Green Building Label, often referred to as the Three Star System because of its rating categories of up to three stars. This system requires rigorous evaluation of new residential and office building in the categories of land savings and outdoor environment, energy savings and energy utilization, water savings and water resource utilization, material savings and materials resource utilization, indoor air quality, and operations and maintenance. This system is superior to LEED® in some ways in that evaluation is not conducted until one year after turnover to the property owner. In addition, this system has more prerequisites than LEED®. The program, however, has yet to be applied to entire neighborhoods or urban districts as with the LEED® Neighborhood Development program. Nonetheless, as in the United States, Europe, and elsewhere, the MOHURD program is seeking to make knowledge of green building explicit.

The evaluation processes required by MOHURD will drive a high level of research in practice. An emphasis on metrics and performance-based design is already finding its way into the practices of Chinese landscape architectural firms such as Turenscape.

The effectiveness of a strategy is only demonstrated once construction is complete and a project has been operated for a period of time. This idea of determining the success or failure of design interventions over time is represented by the "post-occupancy evaluation" strategy of Clare Cooper Marcus, Professor Emeritus of the

University of California, Berkeley, and others. Such evaluation, however, is difficult and expensive for the professional firm to accomplish. More importantly, with the project complete and occupied, the design firm is often on to the next assignment, and time for critical evaluation of completed projects is hard to find. This is why the Landscape Performance Series Case Study Initiative of the Landscape Architecture Foundation is important. By pairing academic research teams with professional firms, rigorous post-construction evaluation can be completed. The process is also aided by practicing professionals who are trained in research methods and committed to incorporating research into their daily practice. Through such efforts, the profession gains the proof needed to confirm or challenge analytical methods and to build bodies of explicit knowledge based on performance evidence.

How does a professional firm pay for the cost of developing the collective knowledge for the firm and its individual members? Initially, one must believe that the investment in continuing education and training and the development of explicit knowledge through research will have positive returns. These returns will come in several ways.

First, there should be an increase in fee volume generated by the market's perception and the reality that the firm offers greater knowledge than its competitors. A reputation built upon superior work and knowledge can have significant business development value. Second, there must be a fee premium justified by this superior knowledge. We believe clients will pay a premium for a firm that brings greater knowledge to bear on their work. Well-educated professionals are generally capable of undertaking highly specialized or complex projects, and this is the kind of work that justifies higher fees. Third, there may also be a reduction of risks, as better prepared professionals are less likely to make mistakes that create legal liabilities for the firm that require costly re-work of design products. Fourth, a psychic and financial return can also be found in the fact that interesting and challenging assignments come to firms that can demonstrate a high level of creativity and knowledge. The best young professionals are attracted to – and remain with – firms that offer opportunities for professional advancement and life-long learning. They want to work on challenging and interesting projects. More importantly, we all are searching for meaning in our work lives, regardless of where we are professionally, and tackling complex assignments and contributing to the profession's body of knowledge is very meaningful work. At Design Workshop, we believe that providing a context for meaningful work ensures the longevity of the firm and offers a sustainable financial future.

Those of us who have been fortunate enough to find success in the profession of landscape architecture have benefited from the mentorship and support of many individuals throughout our lives and from the foundation of wonderful work of the professionals who came before us. Design Workshop believes that both mentorship and support are the hallmarks of an enduring firm and, more importantly, of building an enduring legacy through both great work and serving as practice-based thought leaders for the profession. Through research, we can "pay this debt" forward by adding to the collective body of knowledge of the profession and, in turn, create a legacy for future generations.

Notes:

i Jim Collins, *From Good to Great: Why Some Companies Make the Leap… and Others Don't*. New York, NY: HarperCollins, 2001.

ii Robert Greene, *Mastery*. New York, New York: Viking Penguin, 2012.

iii David W. Galenson, *Old Masters and Young Geniuses: The Two Life Cycles of Artistic Creativity*. Princeton, New Jersey: Princeton University Press, 2006.

About the author:

Kurt Culbertson is Chairman of Design Workshop, an urban design, land planning and landscape architecture firm with offices in Aspen, Colorado, and five other cities. He received his Bachelor of Landscape Architecture degree from Louisiana State University and a Masters of Business Administration from Southern Methodist University in Dallas, Texas. He is currently pursuing a Ph.D. from the Edinburgh College of Art. Kurt is a former Fulbright scholar, and a fellow of the American Society of Landscape Architects, the Institute of Urban Design, and Dumbarton Oaks in Washington, DC. Kurt has a particular focus on the application of a comprehensive approach to sustainable development which seeks measurable economic, environmental, community and aesthetic outcomes.

"若没有考虑到景观解决方案，则无法通过任何措施实现可持续发展——零碳、零废物、净零水、生物多样性和适居性。通过公司的实践型研究和创新设计过程，Design Workshop已成为景观绩效领域的先驱。针对特定绩效目标设定成功目标以及测定方法，DW使我们增长知识，并生成关于景观解决方案在实现可持续发展过程中所起关键作用的证据。"

– 景观建筑基金会执行董事芭芭拉•多依奇

实践研究：未来框架
Research in Practice: A Framework for the Future

作者：M•艾伦•戴明
Author: M. Elen Deming

景观建筑业是一个相对年轻的领域。景观建筑学的第一个专业研究课程建立于1990年（哈佛大学），但建立以来，大部分时间里景观建筑是否与学术相悖，这点一直有争议。数十年来，我们听到从业者抱怨说专业学者开展的研究并不能够满足设计行业的需求。在本论文中，我希望可以推翻这种抱怨：在像景观建筑业这样的知识型行业，从业者为什么不自己开展研究呢？毕竟看上去景观建筑师不是不知道该如何开展研究。那么是什么在阻止我们前进的步伐呢？

自20世纪90年代初，景观建筑师就已得知专业学者或混合从业者创作的文献作品不断增多，其中大部分都有助于设计行业知识性问题的分析，但对实践性问题帮助不大。从公平的角度来说，这些作者与其实践者同行服务的优先级不同。与营利性设计与开发行业相同，受更高教育的行业也制定了自己的规则并创造了自己的迫切需求。因此，我们发现，在某些机构中，理论与研究并非达到目的的手段，而是他们自身就是目的；在某些私营实践中，竞争等同于生存，导致他们不情愿分享学习经验，也不情愿腾出时间发展智力。

在过去10年左右的时间里，全球各大院校的新兴专业课程飞速发展，尤其是在中国，更是出现了新的、令人兴奋的、自由的、有时具有竞争性的议题与前景。学科研究的范围越来越广泛。虽然与任何学科的正常演变相兼容，但是，对于想要解决特定场所有关问题和方法的人而言，这种不确定性是令人困惑甚至沮丧的。

幸运的是，在Design Workshop实践的内容和结构下（见《世界建筑导报》的专题），我们可以看到,景观建筑业的专业学者与其它专业人士之间的可见"意见分歧"开始出现弥合的迹象。面对复杂的挑战，许多景观从业者开始认识到，必须有更集中、更具识别性的研究议程，才能在工作中立于不败之地，有效提升该领域的价值，并对环境产生积极的影响。我的观点是，实践者与专业学者应该相互合作，结成强有力的联盟以增长共享的知识，而不是在我们自己的圈子里相互竞争。简言之，为了设计行业的成功，为了从"好变成极好"，景观实践者和景观专业学者都不能无视对方的努力——当然，我们必须找到学习方法，更重要的是，相互学习。

开创性实践研究：记录成功与失败

在努力收集和组织各个实践领域共享的"显性"知识的过程中，有一段富有成效合作的悠久历史。1982年，景观建筑教育者理事会（CELA）创建了第一份景观建筑同行评议杂志《景观期刊》，并在这份杂志上宣传"与景观设计、规划和管理有关的研究和学者调查结果"。30年后，有六份英文版同行评议研究杂志专门为景观建筑业服务，还有其它数百份杂志广泛地丰富了该领域。与CELA和《景观期刊》一起，美国景观建筑师协会（ASLA）及其州立分会长期以来维持着各项专业和学生研究的奖励认证，这些都能"促进该领域的知识体系"。其它国家目前采用的也是类似的方法。

就在过去的10年里，景观建筑基金会（LAF）建立了一种综合、系统的方法来记录该领域的成功、创新性案例研究，从而又向前迈进了一步。马克•弗朗西斯的"景观建筑案例研究方法"（2001年）出版在《景观期刊》上，在此基础上就建立了LAF案例研究倡议。随后，LAF还举办了"土地与社区设计案例研究系列"活动，弗朗西斯的《村庄家园：设计社区》（2003年）在该系列竞争中取得第一名。随着时间的流

逝，出版一系列印刷专题论文的巨大经济费用让人咋舌，但是，出现了一种更机敏的创新理念——在线获取案例研究摘要，使学生、设计师、业主和开发商等均可很容易地获取一些数据。为了使这些案例研究得到更清晰的关注，景观绩效系列方法（LPS）明确识别出可持续性特征的项目。自开展景观绩效初步研究以来，已收集到70多个项目的数据，这使得数据库的容量急速增长。

Design Workshop积极参与其实践成功与失败的记录，至今已有10个项目被纳入LAF LPS计划（有七个已出版）。正如本期的《世界建筑导报》所展示的，Design Workshop创新地运用新知识在许多方面都有好处，其中也使其潜在的竞争对手获益。项目的经验教训有助于其他设计师提升视觉质量，对社区产生积极的社会影响，提供有弹性的生态服务，甚至有助于传授关于成功商业模式的经验。这也提出了一个实践研究的关键问题：对令人日益担忧的由新知识产生的知识产权、版权和竞争优势，如何应对？

景观建筑基金会(LAF)景观性能系列案例研究倡议计划将从业者和学术团队搭档联合起来，进行严格的研究来衡量建成工程交付的可持续景观建造项目交付收益。以下为LAF位于中国的项目案例研究：

景观建筑基金会（LAF）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies

北京奥林匹克森林公园（北京）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/493/

上海后滩公园（上海）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/424/

唐山南湖生态城市中央公园（唐山，河北）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/494/

天津桥原公园（天津）：

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/425/

许多从业者认为，从项目设计、原材料、决策过程或者建造与安装的成败获得的知识属于私人所有，是他们向客户提供的服务所附带的。如果此类知识有助于从业者精通专业知识，则通常属于"隐性"或个人知识。同样地，对于研究型大学和分析型行业所产生的知识产权的分配问题，其管理规则已成为免费信息优化分享的关键。许多机构和政府补助政策限制了新知识的传播，即使是学术带头人也不例外。

不过，通过公平使用条款、开放来源软件和"免费软件"等方式，信息科学和数字创新的另类思维开创了分享公共领域理念的新方法。还有一项日益兴起的运动，认为"新知识"必然有利于实践，所以应该成为专业能力建设的重要和必需形式。像Design Workshop这样先进的机构和公司，与研发行业的工程师或开展临床试验的医生相比，似乎是"实践研究"最积极的拥护者。Design Workshop的领导层把这种实践视为一项专业挑战，也把其积极地视为企业发展的机遇。如果其他受尊敬的专业机构也有研发的惯例，并且想尽办法把研究活动和其它知识构建形式纳入其商业计划和成本结构，那么，为什么设计行业不这样做呢？为什么景观建筑师不能倡导这样的努力呢？

图1 (fig. 1)
CREDIT: D.A. Horchner/Design Workshop
An overlook at an Aspen, Colorado, residential mountain retreat provides a quiet spot for contemplation or for group gatherings around the fire pit.
在科罗拉多州阿斯彭一处可眺望四周的高地，山区静居处提供了一个沉思或篝火集会的安静场所。

可持续发展与价值观

正如大家熟知的，通常根据"3个E"，经济（Economic）效益、环境（Environmental）效益和公平（Equitable）社会效益来衡量该项目是否遵循可持续发展理论，这三项也被视为可持续规划设计的基石。目前，有些实践者和学者主张拓宽可持续性的定义，把其它不容易衡量的效益也包括在内。例如，2010年11月，景观建筑师注册管理局（CLARB）进行了一项内容分析，来探索景观建筑的法规授权，以保障并促进公众健康、安全和福祉。在检验"福祉"一词更深层含义的研究中，通过许可检验和专业实践，CLARB意欲对一种衡量能力的替代方式进行评估，这种能力就是理解和保护无形的"优秀设计"。他们发现，福祉的概念与幸福安康的概念（表现为欢乐、健康、自豪、场所关联和繁荣兴旺）的关系非常密切，几乎是不可分割的，因此它是景观和其它设计时表达情感可持续性的重要部分，许多人都将其视为可持续发展的第四个基石。但是，在景观设计中应该如何开展衡量其欢乐、美丽抑或是场所关联性的份额呢？（参看图1和图2）

城市土地学会出版的《城市设计与盈余》（2008年）首次开创了这种思路，它开发了一种宽泛矩阵，作者称之为"四重盈余"。在检验包括"感性回归"在内的城市价值观的过程中，作者认为，对场所营造的审美和情感回应是以"有影响力的支持者"为导向的，可通过其它非数字的社会和财政投资回报的红利进行衡量，包括优秀设

计："新设计支持者关注的是城市生活的质量、环境与文化的敏感性、可持续发展和观赏价值。"此范例表明，通过合作和分享其在每个项目学得的经验，景观建筑师不仅可以帮助社区实现环境的可持续发展；还可以使其通过竞争保有社会资本和智力资本，使社区繁荣昌盛。

高质量的研究才能建立有说服力、有依据的并支持设计带来多重价值的证据。如果我们的价值指引着一切我们所做的和所创造的，那么我们所学到的和所了解的--例如，我们景观建筑的专业知识--将会在根本上与其他行业有所不同。西蒙•史沃斐曾针对这一主题做过决定性的论述："设计创造了'可能性的空间'（德•兰达和埃里森，2008年）......通过设计和管理可以塑造合意的、可行的未来，并通过科学评估予以检验。"因此，把开放式的设计价值观与封闭式的研究和评估过程相结合，景观建筑师必须能够自如地协调好这两者的关系。可量化的数据仍然是呈现在开发商、投资商和决策者面前的最具说服力的证据形式，这些人中的大部分仍然控制着全球的设计与开发议程。不过，任何想要建立全面健全的新知识与理解体系的成功行为，应该也能够接受由景观实践（包括设计研究）产生的各项研究的多种价值、形式和定义。

设计与可归纳的知识

越来越多来自该领域的证据（ASLA、LAF、英特网等）证明，景观建筑行业实践整合了许多形式的研究。我们认为，在设计企业以及专业建设领域早已出现了各种研究

策略，从仅为了解决某个特殊问题而组建的各个团队到在设计企业任命研究总监，他负责评估和组织建成项目的可衡量效益。这种新的弹性恰恰是景观建筑领域实现其跨案比较的潜在能力所需的。（参看图3）

为了更好地理解现有实践研究的形式和范围，我和同事们已开展一项探索性调研，深入了解专业人士对开展研究调查的态度。我们还力求检验和阐述《景观建筑研究：调查、策略、设计》（2011年）首次引入的综合性框架，这本书阐述了在景观建筑中出现的实践研究的多项策略（表1）。特别值得注意的是，我们的调研要求实践者将其典型的专业服务和调查与普遍接受的"研究"的定义相联系起来（"研究"的普遍公认定义以联邦法规为基础，被合作机构培训学会所采纳），每一个部分都是标准的、有弹性的："系统研究包括研发、检验和评估，旨在发展或促成可归纳的知识。"虽然具有高度的通用性，但是我们仍然认为，该定义对描述领域和专业机构可能开展的实践范围非常实用。该定义包含了每项实践采用的各种策略和方法，从实验到研究型设计、从参与性设计过程到历史性阐述、从直截了当的描述性案例研究到动态建模，等等。

我们的调研收到的一些早期回应表明，有些实践者抵触可归纳性的概念，仿佛在追求敏感设计的过程中，获得更多专业知识是不可能的或站不住脚的。但是，为什么优秀的设计师不从特定场所的或基于项目的与其它场所和环境有关的调查中获取支配性的见解？是的，按服务收费的、仅为一次性的为解决问题而建立的研究与为获取知识价值而发起的原始的、可归纳的研究之间的智力价值存在着明显的区别。但研究实践无须受这种非黑即白的观点的局限。在解决以客户为导向的问题的过程中，如果项目信息被系统地收集、组织成数据集，并按照理论上已知的问题进行严谨的分析，那么，实践与研究之间固定的传统界限很快就会模糊。因此，我们针对实践研究开展的调研寻求的是以专业实践的典范来指引前进的道路——不仅使研究变成一种承诺，而且使研究变成一个"品牌"；不仅是一种商业模式，而且是一种倡导类型。

表1：景观建筑的研究策略：实践框架
（改编自戴明和史沃斐的作品，2011年）

	归纳 （理论构建）	反射 （实事求是）	推论 （理论检验）
客观主义者的策略	描述	建模与关联性	实验
构建主义者的策略	分类方案	阐释学解释	评估与识别
主观主义者的策略	教育与改革行动	创成式设计与&投射式设计	逻辑（以规则为导向的）结构

作为在我们即将开展的研究中提及的专业模范之一，Design Workshop在其追求更广大的专业研究议程中并不孤单；然而在专业实践如何从学术界中获取知识并使研究论述焕然一新方面，该公司的项目已跻身行业最佳典范。Design Workshop的作品如何适应我们庞大的框架？在表1明确的九大基础研究策略中，Design Workshop至少参与了两项可归纳实践知识的策略：

描述性策略包括对可比较的和纵向的案例研究进行的准备工作。对新场地和/或实践的客观汇报和描述正好属于案例研究。例如，通过参与本期的《世界建筑导报》以及LAF案例研究之景观绩效系列，Design Workshop所收集、组织和提交的案例研究数据有助于成败模式的共同理解，而成败模式是较大型的问题构建与调查的根本。通过真诚、客观地检验工作的成败，在更长的时间内新知识可能更有充分的理由和概念性，而且，仅仅通过定义就可以将新的社会和环境变量纳入其中。

投射式设计策略包括有时被称为设计型研究的策略。通过设计以重新提出现有问题或通过创新以提出新的学科问题，投射出理论原则或主张，使设计过程被激活而成为一项研究策略。是的，跟医学一样，将提供服务所得利益与生成新知识所得利益划分清楚，这有着令人信服的道理理由。不过，在一些实例中，设计研究可以达成多种目的，尤其是在客户分享项目目标的情况下。（参看图4、图5）

若在理论议程中使用投射式设计（例如：当以可持续发展和/或社会公平理论来对开发"完整的街道"做出建议时），很可能会发生以下几种情况：（1）出现一种新的生成式过程理论（设计理论）；（2）应用/检验衍生式理论以改善新的场所、图像、现象、关系和影响的生成（设计中的应用研究/通过设计的应用研究）；（3）在观察生成的作品过程中出现的实证理论（循证设计）。因此，作为研究的设计的变化对新的学科知识大有帮助。一些常见的排列，如：形式和类型学/比较分析，更确切地说，属于分类和解释策略。但是，在所有的情况都需要服从一个重要的警告：只有严谨地汇报项目成败的目的、程序和结果并予以公正的评估（即，无任何偏见，也无固有的"利益"），这个设计才可称之为研究。

当然，微观研究过程提出了几乎所有的设计问题：必须按特定模型建造和评估场地系统；必须计算成本和计划面积等等。不过，如果获得的知识不能归纳和共享，则不能称其为研究。这可能会引起混淆。设计师在讲述场地或有关场地的信息时，可以采用阐释学解释的非研究型推论；了解人工因素和索引痕迹可以丰富和指导特定场所设计，其中包括材料和空间次序的选择。评估与识别的非研究型推论可用于每一种场地的分析中，例如：判断施工土壤的质量和深度，或者判断场内或场外某些视线是否满意。每当设计团队针对校区或公园的方案设计或规划举办公开听证会或得出反馈意见时，就会激活参与行动的非研究型推论。不过，无论它多么宝贵，大部分特定场地推论活动都不能也无法满足广泛研究议程的要求。

新知识与把关文化

在当今的景观建筑行业，大多数正在开展的杰出的实践型研究都来自于私营企业与公共机构之间的新型伙伴关系以及与之相互合作的学术界。即使是资金不足的情况也应支持此类成果卓著的联合研究。强调重新产生的对研究兴趣的重要性存在于以下两个方面：第一，知识分子会更容易与企业合作，分享研究方面的问题，既符合专利所有权的切入点，也符合学术研究/同行评议的切入点；第二，更多关于健康、安全和福祉的问题，包括气候变化、资源管理、社会公平与公共卫生以及该领域的法规合法性等，很快就会推动专业活动的发展，甚至占据主导地位。

我们还有一些观念冲突需要克服——尤其是关于同行评议和资格认证的观念，这两者都是上个世纪的遗留实践，对学术界产生了重大的影响。原则上，两者都是必要的实践，它是在专业和学术环境中，通过自我管理的共同过程来保护知识的完备性。但是，无可否认，实践者投身的这些程序有时反复无常、浪费时间而且经常使人筋疲力尽，很难想象要是将其强加在研究者身上的会是怎样？因此，学术研究同行评议模式的古老传统涉及到一种风险等级，尤其是对年轻的从业者和学者而言，他们往往无法承受得起这样的风险，也无法避免。在当代传媒界和学术资金循环快速发展的情况下，旧的同行评议模式正在瓦解，因为它仅仅是花很长的时间去查看已出版的甚至是在线的高质量作品。如果研究者的目标是对实践产生影响，而与学术信誉或学术声望截然相反，那么，这些同行评议方式可能会被视为令人沮丧的障碍。

新一代的学者，尤其是有雄心使设计与研究议程相结合的学者，通过其批判性和评论性的不同议程，选择将他们的工作面向另类的领域和读者。由于研究和创造性调查都可以采用许多不同的方式进行，因此，同行评议也可以。一些主要的研究型大学现在开始接受，同行读者采用的许多评论、评估和赞誉方式足以说明研究与创新素质的基本原理，其中包括内外部的有效性、公正性、适用性、可靠性、独创性和经济性。

考虑到这些新兴的实践，那么实践型研究的同行评议过程或与之等同的过程可以采用什么方式呢？这无疑取决于工作的格式与内容。一些期刊（包括已出版的和在线期刊）大幅度地缩短或改变传统的同行评议过程，或者完全绕过这个过程来支持编辑部、委员会或者更加非正式的维基类型的、连续自发型的、共识型评议过程（如：维基百科）。设计竞争与获奖计划往往是由某个特定事件评判委员会进行评议的，该评判委员会是根据其经验和批判性洞察力挑选出来的，审议往往是在集中的期限内进行。资金和奖学金申请以及作品展示的挑选方式往往也与之类似。

合作，尤其是与老客户和/或可信的项目专员合作，是观察同行接待的其它方式。建成工程、本文提及的工作室或者已出版的和/或颇受公认的文化分析家好评的设计规划也可被视为同行评议的方式。鉴于所有这一切，尽管该领域的专业人士仍然在研究定义、逻辑、目的和效益方面达成强烈的共识，专业的"把关"文化仍可能会继续慢慢从内到外地改变学术领域。

研究：全球事业

专业研究的作者目前包括每一个人——私营设计企业的景观从业者、跨学科公司或企业咨询公司、非营利性公司、国营企业机构以及混合学术研究的实践者。生产和消费研究的速度正在加快；有些人甚至已预言，实践型研究将挑战传统的同行评议

发表过程，刊物的更新速度太慢且关联性弱。大多数有修养的实践者都是有技能的跨学科合作者，他们对学术知识的"简仓"缺乏耐心。学生们希望看到他们正在学习的研究技巧和方法如何转化为专业应用，而最理想地是转化为专业的聘用，这对景观建筑学校的专业课程的框架/重点产生重大的影响。所有这一切均表明，对比传统期刊目前能够应对的速度，新知识的共享和应用必须要快得多；同时，确保严谨地审核新的理念与实践，并谨慎对待未加思索的方法产生的意外后果符合该行业的利益要求。

由于实践者对实践研究担负有更大的责任，人们就很容易会猜想，该领域的研究议程开始发生改变，也许是接受授权以达到更佳的效应，同时也更多地关注于知识的形成，以便实现预期的社会和环境效益。虽然这可能会导致使用更多理性的手段，但是，也会将焦点转向认知我们共享的价值观——有些人称之为价值理性。毕竟，大部分景观建筑师还是会分享某些共同的目标的，如：创建或维护优美和健康的场所，构建知识，掌握技术知识、预测性知识、概念性知识和伦理知识，确保持续的集体进步，服务社会。这一套核心价值观给我们带来了希望，希望早期采用实践研究方法的人将带来更佳的设计、产生更大的专业影响，从而对景观设计师与规划师们能够和应该了解的东西产生更高的期望。

原则上，我们构建的理念影响范围应该仅仅是巩固全球的景观建筑事业。这一项全球事业的传播是通过倡导、专业组织的兴起、最佳实践的标准和规范、会议、专业课程、指导以及跨学科和跨国合作等来实现的。中国景观建筑师协会（CSLA）正在这个极其重要的国家快速推动该行业的发展，并正在致力于开发一个系统来认证其颇具影响力的学校网。国际景观建筑师联合会（IFLA）在提升非洲、南美洲和其它区域的景观建筑专业地位方面取得了重大的进展。景观建筑教育者理事会（CELA）正在倡导和指导墨西哥、中美洲、南美洲和泛太平洋/南亚的专业学者巩固景观建筑专业教育计划的标准。不过实际上，当行业内的成员未能如我们行业提倡的那样，

以相同的远见和尺度范围生成和分享其知识时，全球的景观建筑事业实际上是被弱化了。（参看图6）

意识到景观建筑业是全球市场一股较小的专业力量，这也许可能会说服我们重新思考知识生成在开发该行业的总体"竞争优势"方面所起的作用。在这个创新的时代，若对扩展学科的知识库无所贡献，任何企业都无法维持其竞争优势。正如库尔特·卡伯特森在本期前面部分所提及的那样，人才和培训都有助于保持此类竞争优势，各企业可以通过公司范围内的示范性项目工程以及更为广泛的学科专业知识证明这一点。目前的关注点是综合开发一个证据库，"证明"景观建筑的价值、效益和影响，以表明知识形成对维持整个行业的竞争性是何等的重要。

当单个公司竞标某项工程时，他们会对客户隐瞒其专业服务和实践专业知识，直至签约成功。然而，其它可能更大型的应用设计和工程行业则乐于声称其拥有类似的专业知识。这是真实的竞技场，充满了新知识和新影响的跨学科竞争。通过分享一般和特殊的学科知识，所有景观建筑师都可以帮助彼此（也包括他们自己）提升行业能力来尽可能地在最大的尺度上竞争以获得最高的利益，保障重大的公共投资，并产生广泛的环境政策和影响。如果我们能够在新知识的竞技场上立于不败之地，我们也许可以最终看到景观建筑业在知识方面的不断成熟，并在全球的重要学科中找到其应有的位置。如果我们无法做到这一点，那么，我们该如何保护景观建筑业不被淘汰呢？

作者简介：

M·艾伦·戴明博士是伊利诺伊大学香槟分校的景观建筑学教授，讲授设计工作室、历史和理论以及研究设计课程。获得哈佛设计研究院设计博士学位以及艺术史、景观建筑和环境研究等学位。自2002年起，与詹姆斯·F·帕尔默一起担任《景观杂志》的主编，2006年至2009年，独自担任主编。她是景观建筑教育者理事会（CELA）的前任会长。与西蒙·史沃斐合著了《景观建筑研究：探究/策略/设计》（威利出版社，2011年），概况描述了当今景观建筑使用的数大研究策略。这是一本探讨从实践、公司和代理机构中涌现的调查研究的新作，并即将问世。

Landscape architecture is a relatively young field. With its first professional course of study established in 1900 (Harvard University), landscape architecture has been arguably anti-academic for much of its existence, and for decades, we have heard practitioners complain that research produced by academics does not serve the needs of the profession. In this essay, I'd like to turn the complaint on its head: in a knowledge-based profession like landscape architecture, why don't practitioners also produce research? After all, it's not as if landscape architects don't know how. What is holding us back?

Since the early 1990s landscape architects have been able to point to a growing body of literature produced by academics or hybrid practitioners, most of it devoted to the analysis of intellectual problems in our discipline rather than practical problems in our profession. It is fair to point out that these authors typically serve a different set of priorities from those of their practitioner cousins. The industry of higher education writes its own rules and creates its own exigencies, just as the commercial industry of design and development does. Thus we find that in some institutions theory and research are not means to an end – they have become ends in themselves; in some private practices competition equates to survival, leading to a reluctance to share learning experiences or make time for intellectual growth.

In the past decade or so, the rapid development of new professional programs in universities around the world, especially in China, has led to the emergence of new, exciting, liberating, and sometimes competing agendas and perspectives. Disciplinary research has become increasingly diffuse. Although compatible with the normal evolution of any discipline, such indeterminacy may seem confusing, even frustrating, to those seeking definite answers and solutions to site-specific problems.

Fortunately, in the content and structure of Design Workshop's practice (featured in this special issue of *Architectural Worlds*), we see signs that the perceived "divide" between academics and other professionals in landscape architecture is starting to close. In the face of complex challenges, many landscape practitioners have begun to recognize that a more focused and identifiable research agenda is needed to compete

图3 (fig. 3)
CREDIT: D.A. Horchner/Design Workshop
A project team iterates a design solution. 一个项目小组再三强调一种设计解决方案。

successfully for work, effectively advance the values of the field, and to make positive impacts in the environment. My argument is that, rather than competing amongst ourselves, practitioners and academics should be working together as powerful allies in the advancement of shared knowledge. In short, for our profession to succeed, to move from "good to great," neither landscape practitioners nor landscape academics can afford to dismiss each other's efforts – rather, we must find ways to learn from, and more importantly, learn with each other.

Pioneering Practical Research: Documenting Success and Failure

In the effort of collecting and organizing "explicit" knowledge shared in our various domains of practice, there is a long history of productive collaboration. In 1982 the Council of Educators in Landscape Architecture (CELA) established *Landscape Journal*, the premiere peer-reviewed journal in landscape architecture, and charged it with disseminating the "results of research and scholarly investigation relating to landscape design, planning and management." Three decades later, a half-dozen (English-language) peer-reviewed research journals serve landscape architecture specifically, with hundreds of others enriching the field in general. Working together with CELA and *Landscape Journal*, the American Society of Landscape Architects (ASLA) and its state-chapter affiliates have long maintained awards programs recognizing professional as well as student research that "advances the body of knowledge" for the field. Similar approaches are now being adopted in other countries.

In just the past decade, the Landscape Architecture Foundation (LAF) has taken another step forward by establishing a comprehensive and systematic process for documenting successful and innovative case studies in our field. The LAF Case Study Initiative was established with the publication of Mark Francis's "A Case Study Method for Landscape Architecture" (2001) in *Landscape Journal*.[1] Subsequently, LAF undertook the Land and Community Design Case Study Series, with Francis's Village Homes: A Community by Design (2003) among the first titles in the series.[2] Over time the financial burden of publishing a series of print monographs faltered, but a more agile new idea emerged – case study digests available on-line, providing highly accessible data for everyone from students and designers to owners and developers. Bringing these case studies into clearer focus the Landscape Performance Series (LPS) specifically identifies projects characterized by sustainability. Since the launch of the Landscape Performance pilot study, a swiftly growing dataset of 70+ projects has already been assembled.

With ten projects accepted into the LAF LPS program (seven published), Design Workshop has actively participated in the documentation of its practical successes and failures. And as this issue of *Architectural Worlds* demonstrates, Design Workshop's innovative applications of new knowledge pays dividends in many ways, including benefits to potential competitors. Project lessons may help other designers improve visual quality, make positive social impacts on community, provide resilient ecological services, and even impart lessons about successful business models. And that raises a pivotal issue for research in practice: how to manage growing concerns over intellectual property, copyright and the competitive edge provided by new knowledge.

The Landscape Architecture Foundation (LAF) Landscape Performance Series Case Study Initiative program pairs practitioners with academic teams to produce rigorous studies that measure the sustainable landscape performance benefits delivered by built projects. Following are LAF case studies of projects located in China:

Landscape Architecture Foundation (LAF):

http://www.lafoundation.org/research/landscape-performance-series/case-studies

Beijing Olympic Forest Park (Beijing):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/493/

Shanghai Houtan Park (Shanghai):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/424/

Tangshan Nanhu Eco-City Central Park (Tangshan, Hebei):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/494/

Tianjin Qiaoyuan Park (Tianjin):

http://www.lafoundation.org/research/landscape-performance-series/case-studies/case-study/425/

Many practitioners believe that knowledge gained from the successes or failure of project design, materials, decision-making processes or fabrication and installation,

图4 (fig. 4)

CREDIT: D.A. Horchner/Design Workshop

Daybreak is a 4,127-acre sustainable mixed-use community located near Salt Lake City, Utah. Its extensive parks and open space network integrates stormwater management, and 100% of stormwater that falls on the site is retained for up to a 100-year storm with no impacts on or connections to the municipal storm sewer system.

Daybreak是一个4127英亩的可持续发展的、综合用途社区，位于犹他州盐湖城。其广泛的公园和开放空间网络集成的雨洪管理，即使百年一遇的全部雨水落在现场，也可以收集并保留而不影响或连接到市政雨水下水道系统。

图5 (fig. 5)
CREDIT: D.A. Horchner/Design Workshop
The full range of sustainable features at Daybreak includes walkable streets, an extensive trail system, native and drought-tolerant plants, habitat conservation, recycled materials, and a vibrant mix of amenities and services.
Daybreak社区的全方位可持续性特征包括适于步行的街道，众多的徒步系统，本土和耐旱植物，栖息地保护，回收的材料，以及充满活力的综合设施和服务。

is proprietary and incidental to the services they render to a client. If such knowledge contributes to professional mastery it is usually in a "tacit" or personal way. Similarly, the rules governing distribution of intellectual property generated within research universities and analytical industries has been a major sticking point for the optimal free sharing of information. Many institutional and government grants restrict the ways in which new knowledge may be disseminated even by principal investigators.

However, alternative thinking in information science and digital innovation is pioneering new ways of sharing ideas in the public domain through fair-use clauses, open-source software and "freeware," just to mention a few. There is also a growing movement to acknowledge "new knowledge" as a corollary benefit to practice and therefore an important and necessary form of professional capacity-building. Progressive agencies and firms such as Design Workshop seem to be the most aggressive proponents of the discourse of "practical research," comparing their work to engineers in research and development industries or to medical doctors conducting clinical trials. The leadership of Design Workshop recognizes this practice as a professional challenge and embraces it as an opportunity for corporate growth. If other respected professionals have institutionalized research and development, finding ways to build investigative activities and other forms of knowledge-building into their business plans and cost structures, then why not the design professions in general – and why shouldn't landscape architects pioneer these efforts?

Sustainability and Values

Projects adhering to theories of sustainability, as commonly understood, typically have been measured according to the "Three 'E's," representing the range of economic, environmental and equitable social benefits considered the cornerstones of sustainable design and planning. Some practitioners and scholars now advocate for broader definitions of sustainability that include additional, less-easily measured benefits. For instance, in 2010-11 the Council of Landscape Architecture Registration Boards (CLARB)[3] undertook a content analysis exploring statutory mandates in landscape architecture to safeguard and promote health, safety and welfare. In research examining the deeper conceptual dimensions of the term "welfare," CLARB intended to assess alternative ways of measuring competency in understanding and protecting the intangibles of 'good design' both during the licensing examination and in professional practice. They found that the concept of welfare was so closely linked as to be almost inseparable from notions of well-being (as in joy, health, pride, attachment to place and prosperity) and therefore was an important part of the affective sustainability of designed landscapes and other places, what many consider to be the fourth cornerstone of sustainability. But how does one begin to measure the quotient of joy, of beauty or perhaps place attachment, created in the designed landscape? (see fig. 1 and fig. 2)

A seminal work in this line of thinking, the Urban Land Institute's publication Urban Design and the Bottom Line (2008) develops a broad matrix for what the authors call the 'quadruple bottom line.' In examining urban values that include "return on perception," the authors argue that aesthetic and emotional responses to placemaking are guided by "influential constituencies," and may be measured by other, non-numerical dividends returned on social and financial investment, including good design: "New design constituencies focus on quality of urban life, environmental and cultural sensitivity, sustainability and visual value."[4] This example suggests that,

by working together and by sharing what they are learning on a project by project basis, landscape architects can help communities achieve more than environmental sustainability; they also help communities compete for retention of the social and intellectual capital that makes them flourish.

High-quality research is needed to build persuasive, grounded arguments supporting the multiple values added by design. If what we value guides everything we do and make, then what we learn and know – i.e. our expertise in landscape architecture – will be fundamentally different from other professions. Simon Swaffield has written decisively on this subject: "design creates 'possibility spaces' (De Landa and Ellingsen 2008) … desirable and feasible futures [that] can be shaped through design and management, and tested through scientific evaluation."[5] Thus combining the open-ended values of design with the close-ended processes of research and evaluation, landscape architects must be poised to negotiate both realms. Measureable data still present the most persuasive forms of evidence to developers, investors and policy-makers who, for the most part, still control global design and development agendas. However, any successful movement to establish comprehensive and robust systems of new knowledge and understanding should also be able to accept multiple values, forms and definitions of research produced by and through landscape practices – including research by design.

Design and Generalizable Knowledge

Growing evidence from the field (ASLA, LAF, Internet, etc.) suggests that many forms of research are integrated within professional practices of landscape architecture. We believe a variety of investigative strategies already take place in the design offices and construction fields of the profession, from teams assembled for the sole purpose of solving a special problem to a director of research in a design office whose job it is to assess and organize the measurable benefits of built projects. This new elasticity is precisely what needs to take place in order for the field of landscape architecture to realize its latent capacity for cross-case comparison. (see fig. 3)

In order to gain a better understanding of the current shape and scope of practical research, my colleagues and I have launched an exploratory survey to probe attitudes toward research investigations being conducted by professionals. We also seek to test and illustrate a comprehensive framework, first introduced in Landscape Architecture Research: Inquiry, Strategy, Design (2011), that accounts for multiple strategies of practical research taking place in landscape architecture (Table 1).[6] In particular, our survey asks practitioners to relate their typical professional services and investigations to a generally accepted definition of "research" (based on federal regulations and as adopted by the Collaborative Institutional Training Institute) that is equal parts standard and elastic: "a systematic investigation including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge."[7] Although highly generic, we think this definition has great utility for describing the range of practices potentially undertaken by field and office professionals. It encompasses a variety of strategies and the methods employed for each that accommodates everything from experiment to design-as-research; from participatory design process to historic interpretation; and from straight-up descriptive case study to dynamic modelling.

Early responses to our survey indicate some resistance from practitioners on the notion of generalizability, as if broader expertise is unreasonable or untenable in the pursuit of sensitive design. But what good designer does not develop overarching insights from site-specific or project-based investigations which are relevant to other sites and settings? Yes, there are clear differences in intellectual value between one-off solution-based investigations undertaken as a fee-for-service and original, generalizable research efforts undertaken solely for its knowledge value. But research practices need not be limited to such black-or-white propositions. If, in the solution of client-based problems, project information is systematically reclaimed, organized as a dataset, and rigorously analyzed according to theoretically-informed questions, then the fixed traditional boundaries between practice and research quickly become blurred. Our survey of practical research thus seeks exemplary models of professional practice that show a way forward – those not only making research a commitment but also a "brand"; not just a business model but a type of advocacy.

Table 1. Research Strategies in Landscape Architecture: A Framework for Practice (adapted from Deming & Swaffield, 2011)

	Inductive (theory building)	Reflexive (pragmatic)	Deductive (theory testing)
Objectivist Strategies	Description	Modeling & Correlation	Experimentation
Constructivist Strategies	Classification Schemes	Hermeneutic Interpretation	Evaluation & Diagnosis
Subjectivist Strategies	Pedagogy & Transformative Action	Generative & Projective Design	Logical (Rules-based) Structures

As one of the professional exemplars to be featured in our forthcoming study, Design Workshop is not alone in its pursuit of a larger professional research agenda; however this firm's projects are among the best examples of how professional practice is re-taking the field of knowledge production from academia and invigorating the discourse of research. How does the work of Design Workshop fit into our larger framework? Among the nine basic research strategies that we identify in Table 1, Design Workshop participates in at least two strategies for generalizable practical knowledge:

Descriptive Strategies include the preparation of both comparative and longitudinal case studies. Objective reporting and description of new places and/or practices belong properly to case study research. For instance, by participating in this issue of *Architectural Worlds* as well as in the LAF Landscape Performance Series of case studies, Design Workshop is collecting, organizing and presenting case study data to assist in a collective understanding of the patterns of success and failures fundamental to larger problematizing and investigation. By honestly and objectively examining both the failures and successes of the work, new knowledge may be grounded or conceptual, range over an extended time frame and will always, simply by definition, involve new social and environmental variables.

Projective Design Strategies involve what is sometimes called research-by-design. Design process as a research strategy is activated when theoretical principles or propositions are projected through design in order to re-frame existing questions or through innovation to raise new disciplinary questions.[8] Yes, there are compelling ethical reasons to maintain a clear separation between the interests of providing services and the interests of generating new knowledge, as in medicine. There are, however, instances where design investigations may achieve combined ends, especially where the client shares in the project goals. (see fig. 4 and fig. 5)

When projective design is harnessed to a theoretical agenda (for instance when a theory of sustainability and/or social equity suggests development of 'complete streets'), several things can happen: (1) a new theory of generative process emerges (design theory); (2) derivative theory is applied/tested to improve the generation of new places, images, phenomena, relationships and impacts (applied research in/through design) or (3) grounded theory emerges from observation of the work produced (evidence-based design). Variations of design-as-research can thus contribute powerfully to new disciplinary knowledge. Some popular permutations, such as formal and typological/comparative analyses, more properly belong to classification and interpretive strategies. But all come with an important caveat: only if the purposes, procedures and results of project success and failures are reported rigorously and evaluated in an unbiased way (i.e. without bias or inherent "interest") may we speak of design as research.

Naturally, micro-research processes inform almost all design problems: site systems must be modelled and evaluated; costs and program areas must be calculated; and so on. However, if not generalizable and shared, knowledge thus gained cannot be claimed as research. This can be confusing. Non-research corollaries of *Hermeneutic Interpretation* may be engaged by designers in telling stories on or about sites;

understanding of artifacts and indexical traces may enrich and guide site-specific design choices of materials and spatial sequence. Non-research corollaries of *Evaluation & Diagnosis* are used in every site analysis, for instance in determining the quality and depth of soils for construction or the desirability of certain views on or off-site. Non-research corollaries of *Engaged Action* are activated every time a design team runs a public hearing or elicits feedback on schematic design or programming for a campus or park. No matter how critically valuable, however, most of these site-specific corollary activities do not and can not satisfy the requirements of a broader research agenda.

New Knowledge & the Culture of Gatekeeping

Much outstanding practice-based research being done today in landscape architecture is emerging from new partnerships between private practice and public agencies collaborating with academics and with each other. Even the lean funding climate is supportive for these kinds of productive research alliances. Highlighting this renewed interest in research is significant in two ways: first, it may become easier for academicians to partner with offices on shared research questions, satisfying both proprietary and academic/peer-reviewed dimensions; and, secondly, professional activities may soon be driven, even dominated, by larger questions of health, safety and welfare, including climate change, resource management, social justice, and public health, the statutory legitimation of the field.

There are points of friction to be overcome – notably in peer review and accreditation, both residual practices from a past century that weigh heavily on academics in particular. In principle, both are necessary practices, symbolic of preserving intellectual integrity through a consensual process of self-governance within a professional and/or scholarly community. But it is admittedly hard to imagine practioners subjecting themselves to the sometimes capricious, time-consuming, and often gruelling demands these procedures can place on investigators. The ages-old tradition of academic peer review model thus involves a level of risk especially for young practitioners and academics that they often cannot afford and seek to avoid. In the frenetic pace of both contemporary media and academic funding cycles, old models of peer review are breaking down already because it simply takes too long to see high quality work in print, even on-line. If an investigator's goal is practical impact, as opposed to, say, academic credibility or prestige, these forms of peer review might be seen as frustrating obstacles.

The new generation of academics, especially those with ambitious hybrid design and research agendas, opt to take their work to alternatives venues and audiences, with different critical and editorial agendas. Because both research and creative investigation can take many different forms, so too can peer-review. Some major research universities are now beginning to accept that many forms of critical reception, evaluation and acclaim by peer audiences may suffice to indicate the basic tenets of research and creative quality, including internal and external validity, absence of bias, applicability, reliability, originality, and economy.

Given these emergent practices, what forms might a peer-review process or its equivalent for practice-based research take? It undoubtedly depends on the format and the content of the work. Some journals (both print and on-line) dramatically shorten or alter the traditional peer review process or by-pass it altogether in favor of editorial, board/committee or more informal Wiki-type, continuous voluntary and consensual review processes (such as Wikipedia). Design competitions and awards programs are often reviewed by an event-specific jury chosen for their experience and critical insight whose deliberations are often conducted in an intensive and concentrated time-frame. Funding and fellowship applications and exhibitions of work are often selected in similar ways.

Collaborative work, especially with repeat clients and/or trusted project specialists, are other ways of observing peer reception. Built work, refereed studios or design projections that are published and/or critically acclaimed by recognized cultural analysts may also be accepted as forms of peer review. Given all this, it is likely that the culture of professional "gate-keeping" will continue to change, if slowly, both inside and outside the academy, despite the fact that there is still no strong consensus on the definition, the logic, the purpose and the benefits of research produced by and for professionals in our field.

Research: A Global Enterprise

The authors of professional research now include everyone – landscape practitioners in private sector design; multidisciplinary or corporate consulting firms; not-for-profit firms; public sector agencies, as well as hybrid academic practitioners. Research is being produced and consumed at an accelerating pace; some have even predicted that practice-based research will challenge the traditional process of peer-reviewed

图6 (fig. 6)
CREDIT: Jamie Fogle/Design Workshop
Denver, Colorado's premier outdoor shopping area, the Cherry Creek North retail district, recently benefitted from an $18.5 million bond initiative for streetscape capital improvements. New outdoor lighting reduces annual energy consumption for lighting by 223,000 kilowatts, saving $12,700 in energy and $1,000 in maintenance and material costs each year.
丹佛，科罗拉多州首屈一指的户外购物区，樱桃溪北零售区，最近得益于一个18500000美元的债券，倡议街景设施改善。新的户外照明，减少了每年223000千瓦的能源消耗，节省了12700美元的能源费用以及每年1000美元的维护和材料成本。

publications that simply move too slowly to be relevant. Most accomplished practitioners are skilled multi-disciplinary collaborators, impatient with the "silos" of academic knowledge. Students wish to see how the research skills and methods they are learning may be translated into professional applications and, ideally, into professional employment, with significant bearing on the shape/focus of professional curricula in schools of landscape architecture. All this suggests that new knowledge needs to be shared and implemented far more quickly than traditional journal models can currently handle; at the same time, it is in the interest of the profession to ensure the rigorous vetting of new ideas and practices and to be wary of the unintended consequences of ill-thought-out approaches.

As practitioners take greater responsibility for practical research, one can easily imagine the research agenda of the academy beginning to morph in response, perhaps accepting the mandate for greater impact, with a sharper focus on the production of knowledge leading to desired social and environmental outcomes. Although this may lead to more rational instrumentality, it could also change the discussion towards recognizing our shared values – what some have called value rationality.[9] After all, most landscape architects share certain goals in common: to create or preserve good and healthy places, build knowledge, gain mastery (technical, predictive, conceptual and ethical knowledge), ensure our continual collective improvement, and serve society. This set of core values offers the hope that early adopters of practical research methods will stimulate better design, greater professional impact, and therefore higher aspirations for what landscape designers and planners can and should know.

In principle, the range of scales at which our ideas take shape should only strengthen the global enterprise of landscape architecture. That global enterprise is communicated through advocacy, emerging professional organizations, standards and regulation of best practices, conferences, professional curricula, mentoring and partnerships formed across disciplinary and national borders. The Chinese Society of Landscape Architecture (CHSLA) is rapidly moving the profession forward in this hugely important country and developing a system for accrediting their impressive network of schools. The International Federation of Landscape Architects (IFLA) is making important strides towards enhancing landscape architecture professionalism in Africa, South America and other regions. The Council of Educators in Landscape Architecture (CELA) is advocating and mentoring with academics in Mexico, Central and South America, and the Pacific Rim/South Asia on strengthening standards for professional education program in landscape architecture. In reality however, the global enterprise of landscape architecture is weakened when members fail to generate and share their knowledge at the same visionary level and range of scales as our professional advocates. (see fig.6)

Recognizing that landscape architecture is a relatively small professional force in a global marketplace may persuade us to re-think the role of knowledge production in developing the "competitive edge" of the profession as a whole.[10] In an age of innovation it is insufficient for any individual office to maintain its competitive edge without contributing to the greater knowledge base of the discipline. As Kurt Culbertson points out earlier in this issue, both talent and training contribute to maintaining a competitive edge that may be manifested at the office level in exemplary project-scale work as well as through broader disciplinary expertise. The attention now being paid to comprehensive development of an evidence base "proving" the values, benefits and impact of landscape architecture signals just how important knowledge formation has become in maintaining the competitiveness of the whole profession.

When individual firms compete for work, they withhold professional services and practical expertise from their clients until a contract is signed. Yet other, perhaps larger applied design and engineering professions may like to claim they have similar expertise. This is the real playing field, an interdisciplinary competition for new knowledge and new impacts. By sharing general and specific disciplinary knowledge, all landscape architects help each other (and themselves) improve the capacity of the profession to compete at the largest scales for the highest stakes, securing significant public investment and making broad environmental policies and impacts. If we can compete on the playing field of new knowledge, we may finally see landscape architecture maturing intellectually and finding its rightful place among the world's important disciplines. If we can't or won't compete at this level, then how shall we defend landscape architecture against redundancy?

Notes:

1 Mark Francis. "A Case Study Method for Landscape Architecture." Landscape Journal, vol. 20:1, (2001), 15-29.

2 Mark Francis. Village Homes: A Community by Design. Washington, DC: Landscape Architecture Foundation Land and Community Design Case Study Series, 2003.

3 CLARB (ERIN Research) n.d. "Landscape Architecture and Public Welfare: A Foundation Paper, Executive Summary." Washington, DC: Council of Landscape Architecture Registration Boards. https://www.clarb.org/ Documents/Welfare-execsummary-public-v1.pdf [accessed May 11, 2013]. Founded in the mid-1960s, the Council of Landscape Architecture Registration Boards (CLARB) is mandated with advocacy and protection of professional registration standards such as testing and licensing in landscape architecture. Formed to serve registration efforts in the United States, CLARB also plays an important role in advocacy and mentoring of similar organizations in other countries. "CLARB's mission is to foster the public health, safety and welfare related to the use and protection of the natural and built environment affected by the practice of landscape architecture." https://www.clarb.org/about [accessed May 28, 2013].

4 Dennis Jerke, Douglas Porter, and Terry Lassar. Urban Design and the Bottom Line: Optimizing the Return on Perception. Washington, DC: Urban Land Institute, 2008, 16.

5 Simon R. Swaffield. "Empowering Landscape Ecology – Connecting Science to Governance through Design Values." Landscape Ecology (pub. on-line June 09, 2012). DOI 10.1007/s10980-012-9765-9, n.p. In this passage, Swaffield cites M. De Landa and Eric Ellingsen, "Possibility Spaces" in 306090: Models. 11 (2008), 214-217.

6 M. Elen Deming and Simon Swaffield. Landscape Architectural Research: Inquiry, Strategy, Design. Hoboken, NJ: John Wiley and Sons, 2011. Also see S. R. Swaffield and M. E. Deming. "Research Strategies in Landscape Architecture: Mapping the Terrain." European Journal of Landscape Architecture, (Spring 2011), 34-45.

7 Collaborative Institutional Training Initiative (CITI). n.d. Co-Founders: Paul G. Braunschweiger Ph.D., Miller School of Medicine, University of Miami, and Karen Hansen, Director, Institutional Review Office, Fred Hutchinson Cancer Research Center. https://www.citiprogram.org/aboutus.asp [accessed May 11, 2013].

8 Forms of design research involving synthetic/transformational design and projective design strategies have been very capably described by S. Nijhuis and I. Bobbink in their recent article "Design-Related Research in Landscape Architecture." Journal of Design Research, vol. 10: 4, (2012), 239-257.

9 Simon R. Swaffield. "Empowering Landscape Ecology – Connecting Science to Governance through Design Values." Landscape Ecology (pub. on-line June 09, 2012). DOI 10.1007/s10980-012-9765-9, n.p.

10 Simon Swaffield has also argued this point in recent publications and lectures. For more in this vein, see the transcript of Swaffield's 2012 Olmsted Lecture at Harvard University's Graduate School of Design. http://www.gsd. harvard.edu/#/events/simon-swaffield-frederick-law-olmsted-lecture-knowing-landscape.html.

About the author:

Dr. M. Elen Deming is Professor of Landscape Architecture at the University of Illinois, Urbana-Champaign where she teaches design studio, history and theory, and research design. Her education includes a doctorate in design from the Harvard Graduate School of Design, and degrees in Art History, Landscape Architecture, and Environmental Studies. Co-editor of Landscape Journal from 2002 with James F. Palmer, Deming assumed the role of sole editor from 2006 to 2009. She is a past President of the Council of Educators in Landscape Architecture (CELA). Deming and Simon Swaffield co-authored Landscape Architecture Research: Inquiry/Strategy/Design (Wiley, 2011), a framework describing several research strategies utilized in landscape architecture today. A new book that examines research emerging from professional practices, firms and agencies is forthcoming.

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Additional Biographies for Architectural Worlds (AW)

Lake Douglas
Lake Douglas, PhD, is associate professor at Louisiana State University's Robert Reich School of Landscape Architecture, where he is undergraduate coordinator and holds the Robert S. Reich Teaching Professorship. His extensive writings on design issues have appeared in books, professional publications, academic journals, and the popular press in America and Europe. His most recent book, Public Spaces, Private Gardens A History of Designed Landscapes in New Orleans (2011) has received national recognition through numerous professional and academic awards. Douglas served as a reader and editor of the articles in this issue.

Fenglin Du
Fenglin Du is a Registered Landscape Architect in Texas who has worked on numerous projects with Design Workshop for more than ten years. She received a Master of Landscape Architecture degree from Texas A&M University in 2003 and a Bachelor of Architecture degree from Tsinghua University in 1999, where she also holds a Bachelor degree in Edition from the Department of Chinese Language and Literature. Fenglin assisted in reviewing the Chinese translations of several articles in this issue.

Pengzhi Li
Pengzhi Li graduated from Beijing Forestry University in 2008 with a Master of Landscape Architecture degree, and currently is a third year student at Texas A&M University in the Master of Landscape Architecture program. Pengzhi assisted in reviewing the Chinese translations of several articles in this issue.