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建筑与都市 中文版
Architecture and Urbanism
14:12

058

Feature:
Data-Driven Cities

专辑：
数据驱动的城市

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The title *Data-Driven Cities* is, of course, a provocation. Most of our contributors' reactions point out the dangerous fallacy of blindly mining into the deluge of data generated by our digitally enhanced lives, as though optimal solutions to the complex and acute challenges posed by global urbanization can be quantifiably extracted with the right algorithm. Post-Snowden, there's now understandable skepticism when governments attempt to tap into all-pervasive information technology. As science fiction has forewarned countless times, techno-utopias can all too easily unravel into sinister dystopias.

Most contributors stress that human agency – whether a designers', or users' own – must be the driving force behind technologies conceived to meet urbanites' rapidly evolving needs. As we spoke to leading innovators and commentators, a series of themes emerged around the spatial ramifications of big data:

Mapping – digital cartography is the platform for visualizing urban data and layering new services across cities;

Media Facades – the blurring distinction between light for illumination and light as data may soon revolutionize architectural design;

Mobility – disruptive business models based around mobile devices are altering established modes of transport, which have underpinned most urban development;

Computational Tools – more intelligent tools will streamline, but also increasingly disrupt the architecture profession;

Open-Source Urbanism – in reaction to the Smart City movement, there's a growing debate around whether technology should improve cities top-down, through IT-driven public-private ventures, or from the bottom-up, by cities' end-users themselves.

A city driven by data may be a contentious proposition, but a timely and important idea for discussion all the same.

Alastair Townsend, Guest Editor

将标题取作“数据驱动的城市”，毫无疑问，是赤裸裸的挑衅。我们收到的大部分稿件都指出，盲目挖掘由数字化生活所带来的铺天盖地的数据，实则是一种颇为危险的谬误。其谬误之处，就如同在面对全球都市化带来的复杂而棘手的挑战时，我们往往错以为，凭借正确算法就可以在海量解决方案中选出最优者。后斯诺登时代，政府试图全方位掌控信息技术，因此怀疑论的出现也无可厚非。科幻小说早就无数次地向人们预警，技术乌托邦反而会轻易地将人类生活引入极端恶劣的反乌托邦社会。

大部分投稿人强调，无论是设计师还是使用者自己，正是他们的主观能动性在推动着技术不断发展，以满足城市居民快速增长的需求。在与重要的革新者、评论家的对谈中，与大数据衍生的空间问题相关的一系列主题逐渐浮现：

地图测绘——数字化制图是都市数据可视化与全城各种新型服务诞生的基础。

媒体立面——光线作为照明与作为数据之间的模糊差异，将会引发一场建筑设计革命。

移动性——过去一直以来保证城市稳固发展的现有交通方式，正在基于移动设备的破坏性商业模式中发生转变。

运算设计工具——越来越多的智能工具可以提高建筑行业的工作效率，但同时也会不断瓦解其专业性。

开源城市化——针对智慧城市运动，有种争论日嚣尘上。一部分人认为，应该通过信息技术主导的公共、民间事业，自上而下地达到城市改善之目的；而反对者则主张自下而上，让城市的普通消费者自发改善所在地区。

让数据驱动城市或许是一个有争议的提案，但与此同时，这也是一个适时且值得讨论的重要理念。

阿拉斯泰尔·汤森德，特邀编辑

（盛洋 译）

Essay:

Urban Parasites, Data-Driven Urbanism, and the Case for Architecture

Dan Hill, Executive Director of Futures and Best Practice for the Future Cities Catapult

论文：

都市寄生物、数据城市与建筑案例

丹·希尔，未来城市弹射器工程的“未来与最佳实践”项目执行主任

Much traditional architecture is no longer necessary. The city is built. The western city, at least. For a country like the UK, 80% of 2050's built fabric already exists. Similar conditions exist in much of the so-called western world. Yet the practice of architecture seems out of kilter with this reality. (Consider in particular the absurdity of a country like Italy, with much of its built fabric delivered centuries ago, and with relatively little architecturally- led new-build in comparison, yet which still over-produces architects to the extent that one third of all European architects are Italian.)

If architecture, in the minds of most, is defined by enabling built fabric then *whither architecture*?

Moreover, the city actually continues to change, just without the attention of architecture. If one could transport a citizen from a 1980s London street and drop them into today's equivalent, they'd see little material difference in the built fabric. The basic topography of the street remains largely familiar, its buildings essentially the same; the patterns and conditions of pavements, roads, vehicles and street furniture largely consistent.

Unable to see significant physical changes, our eagle-eyed time-travelling tourist would instead notice that 2014's citizens are constantly focused on their hands, where they repeatedly peck and paw at small glowing panes of glass. These smart phones are essentially the only visible token of an increasingly pervasive network of connected people, buildings, objects and spaces, but this web of services, overlaid onto the city, is not just changing how people organize and communicate. It's transforming the city itself.

By altering the way the city performs, the way it is experienced, the way it is constructed and enacted, our sense of the city changes, without radically altering its physical built fabric. 20th century architecture was largely concerned with the latter, across numerous philosophical and practical movements. So what happens to architecture when meaningful changes to the city don't rely on architecture's traditional vehicle, i.e. the building?

The significant cultural cachet associated with that Roarkian 20th century mode has long lost its luster either way.[1] The architect, limited by an inability to create and drive new business models or a modus operandi beyond eliciting design fees for each building, has ended up in an abusive relationship with the construction industry. It's a long way from being the master builder. Like some other mid-century modern design trades, its cultural cachet is increasingly diminished by the currently-rampant technology sector, whose propulsive drive is characterized by Marc Andreessen's statement: “software is eating the world.” As Kazys Varnelis has said “technology is our modernity”; the substitution of trades associated with prior versions of modernity (e.g. architecture) with those of contemporary modernity (e.g. code) is nearing completion.

Instead, the city is altered through software. In particular, a kind of parasitical software is “retrofitted” – though there's hardly anything retro about it – over the existing urban fabric. These urban “parasites” – often benevolent, though not always – include services like Uber, Lyft and Bridj, which use the dynamics of software and data to re-conceive urban mobility, here exploiting the massively inefficient model of private car ownership, working new services out of the gaps in-between car use and public transit.

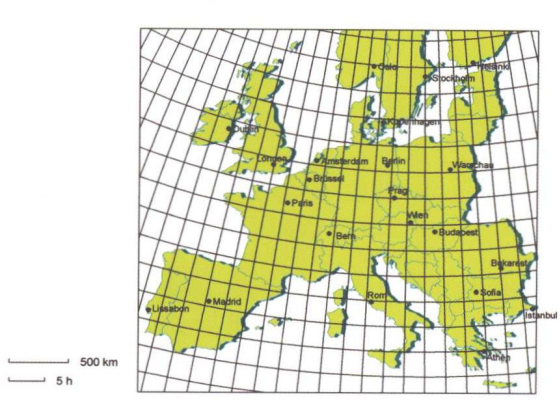
Google's self-driving cars could further radically change the way we move around cities, without building a single road. Recent research by MIT SENSEable Cities Laboratory under Carlo Ratti (See pp. 38-46) suggests that take-up of shared autonomous vehicles could reduce the number of cars required by cities by up to 80%. This would facilitate a radical rethinking of urban fabric, freeing up vast amounts of urban space currently given over to wasteful parking. Yet such resource re-allocation is ultimately driven by software. Many cities are being slowly rewired by software-enabled bike-sharing schemes, which again, require minimal physical infrastructure and zero buildings.

Advances in mobility may even change our perception of the city's physical form. In Joan Busquets' *Barcelona: The Urban Evolution of a Compact City*, there's a diagram of three successive maps of Europe (Opposite, 3 images), in which real distances seem shorter thanks to the high-speed train. The likes of Uber and self-driving cars, and contemporary apps like Citymapper, may enable comparable perceptual transformations.

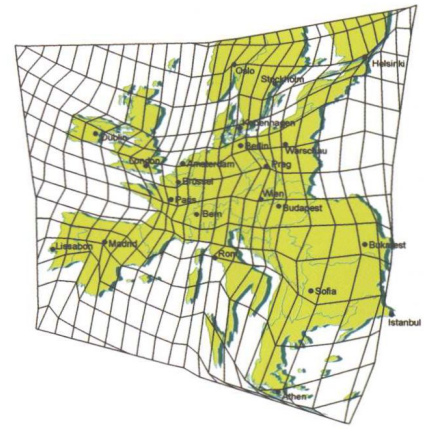
Services like Airbnb use software to enable an entirely new model for accommodating travelers. They now list more rooms than the Hilton hotel chain, all levered out of the existing urban fabric. It took Hilton a century to *build* their empire, hotel by hotel; Airbnb have *enabled* more rooms in roughly six years, without building anything except code.

Crowd funding services like Kickstarter, In Our Backyard, Neighborland, Spacehive and others enable iterations and self-improvements for neighborhoods, through a scalable and distributed funding model and collaborative citizen participation – at least for some citizens. Whilst they rarely consider the true complexities of decision-making about shared urban spaces and amenities, crowd funding services are also changing how cities are produced.

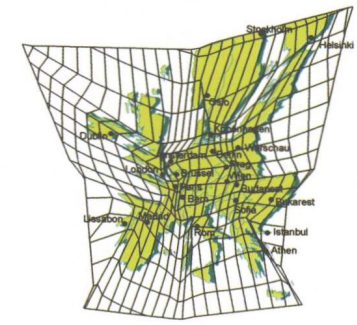
All these “urban parasites” revolve around clear ideas, centered on uncovering and exploiting resource inefficiency via data, allied to an individualistic “user pays” funding principle, hyper-convenience and quality user experiences. Software turns urban inefficiencies (i.e., the “redundancy” of unused parked



Base map (60 km/h)



Railway travel times 1993



Railway travel times 2020

没必要再建造传统风格的建筑了。城市的建设已然告一段落。至少，在西方诸城多是如此。好比英国，计划于 2050 年落成的建筑都已有八成结束了工程。类似的情况还在大部分所谓的西方世界中发生。然而建筑实践仿佛仍与这一现实格格不入（特别是考虑到意大利这样的极端情况，其现有建筑结构继承了数百年的传统，相比之下建筑本身的创新则少了许多；然而这类传统式样被过度复制生产，以至于三分之一的欧洲建筑都呈现为意大利风格）。

如果在普罗大众的观念中，建筑不过是将原有结构加以呈现，那么，建筑的未来在哪里？

事实上，城市的改变从未停歇，只是我们始终无法透过建筑来感知这种变化。假若 20 世纪 80 年代伦敦某街区的居民穿越到今天同一个地点，他们或许很难从建筑上看出什么具体的差异。街道地形保留着历史的轮廓，建筑物未曾发生根本上的变化，连人行道、车道、交通工具、沿街设施的式样与良好状况都在很大程度上与过去保持一致。

对目光敏锐的时间旅行者而言，虽然谈不上有什么重大的实质性变化，但显而易见的是，生活在 2014 年的城市人一刻不停地盯着他们手中那些小而闪亮的玻璃片——智能手机。这也是我们所能见到的唯一表象：手机证明着，人、建筑、对象、空间之间相互连接的网络在不断蔓延。这一覆盖全城的服务网不仅改变着人们聚集与交流的方式，更是在彻底革新着城市本身。

我们通过城市所呈现的外观、所经历的故事、所遵循的法规条令来感知城市变化，这与城市建筑结构形态上的改变并没有直接联系。然而 20 世纪的建筑曾更多地关注后者，并辅以大量思想、实践的运动。那么，当有意义的城市变化不再需要借助传统建筑手段（如建造或改造大楼）来展现时，这对建筑又意味着什么？

20 世纪霍华德·洛克模式所呈现出的重要文化特质早已不再熠熠生辉[1]。一些既无法创造出新的商业模式又不能找到提高个人设计费的有效途径的建筑师，终于在与建造业的委曲求全中止步不前。这样的建筑师，离大师还有着十万八千里之遥。类似的还有一些中世纪的现代设计产业，其文化特质也正随着技术的崛起而逐渐消逝。这些技术的推动力被马克·安德森形容为："软件正在吞噬这个世界。"卡济斯·瓦奈李斯也曾说过："技术是我们的现代性。"早期现代性的相关产业（如建筑）正在逐渐被当今现代性的内容（如代码）完全取代。

另一方面，软件改变着城市。特别是在现有的城市组织内，一种寄生式的程序正在被"翻新"——尽管实际上也不存在什么旧有版本。这些都市"寄生物"——多为善意但总有例外——包括 Uber、Lyft、Bridj 等在内。此类应用服务挖掘大量被浪费的私家车资源，借助软件与数据来重构都市移动性，用新的服务来填补私家车使用与公共交通之间的鸿沟。

谷歌利用自动驾驶技术，无需铺路就已完全颠覆了城市的移动方式。最近，在卡洛·拉蒂的带领下，麻省理工大学可感城市实验室（见 38 ~ 46 页）通过研究发现，共享私人交通工具可让城市的汽车需求下降 80%。这令人们开始彻底反思城市结构：减少不必要的停车位，可以释放出巨大的城市空间。只是这样的资源再分配终究要依赖软件来实现。借助软件，许多城市已经开展了公共自行车计划，并由此逐步推动城市的改变。不过，尽管已经没有了建造新建筑的必要性，这些计划仍然需要最小限度的物理设施。

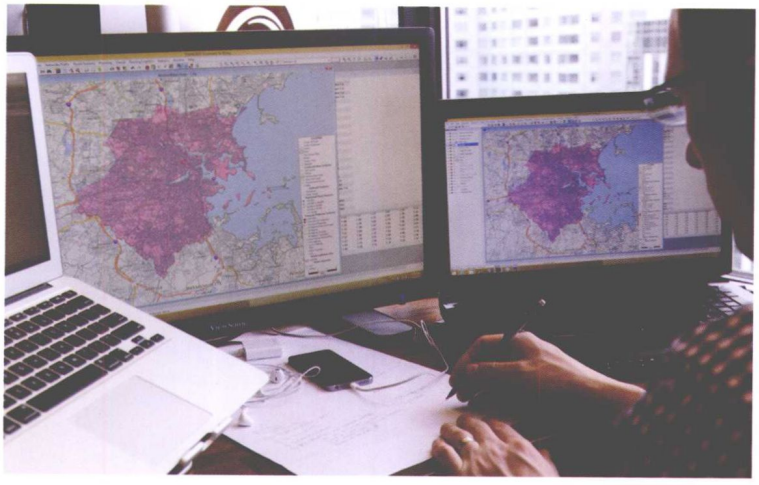
移动性的提高有时甚至能改变我们对城市物质形态的感知。在琼·布斯克茨的《巴塞罗那：密集城市的都市进化》一书中，有一组由三幅欧洲地图组成的图解（本页 3 张图）。从图中可以看到，高速列车的出现缩短了感知上的距离。不难推测，对 Uber、自动驾驶汽车以及 Citymapper 之类的应用程序的依赖，很可能使个体对城市有了完全不同的感受。

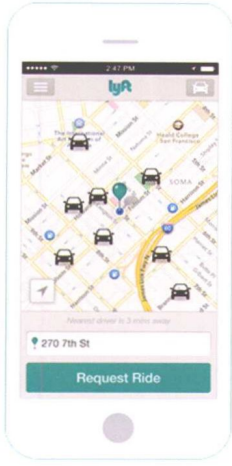
通过软件，Airbnb 为旅行者创造出全新的住宿模式。如今，在 Airbnb 列表中的房间数量甚至超过了希尔顿连锁酒店的房间总数，彻底撼动了当下的城市结构。希尔顿花了一个世纪用一家接着一家的酒店建立他们的王国；而 Airbnb 仅仅用了六年左右的时间，就积累起更多的房间，而所用的材料除了代码之外别无其他。

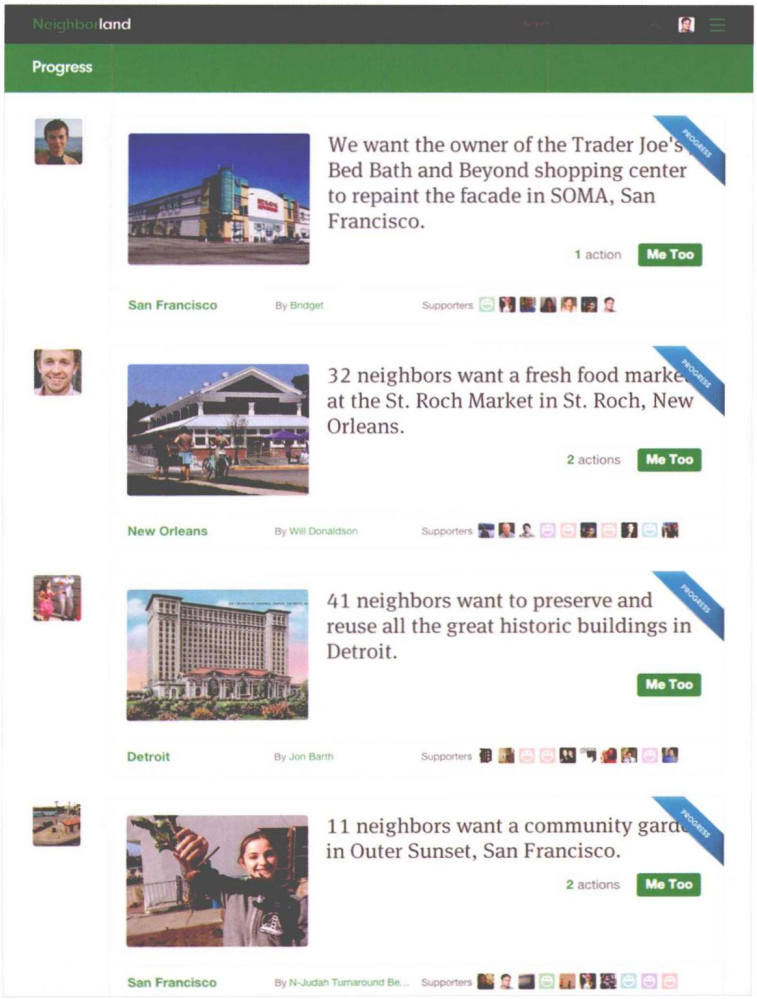
还有一系列众筹网站，如 Kickstarter、In Our Backyard、Neighborland、Spacehive 等，通过可扩张的分散资金与公众（至少有一部分公众）的合作式参与，使街区能够不断地自我完善。当然，在共享城市空间、设施方面，制定相关决策的过程极为复杂，众筹很难面面俱到；但它们确实正在改变建设城市的方式。

所有这些"都市寄生物"都有着清晰而明确的方向，它们用数据挖掘未被有效利用的资源，秉承个人主义"用者自付"的原则，提供超便利、高质量的用户体验，开拓出更广阔的市场。软件将城市中看似无用低效的部分（如长期闲置不用的车、未使用的空间、公交等候队伍）转变为新型服务的基础，而这些新型服务又改变了我们对城市的感知，提高了城市的机动性与灵活性。

尽管这里并不存在独特的城市哲学——这些应用服务选择在城市开展只不过是因为城市的低效无用部分可以带来收益的最大化——但总还是遵循着一些独特的意识形态。它们是典型的理查德·巴布鲁克与







cars, unoccupied rooms, waiting bus queues, etc.) into the basis of new services – ones that change our perception of the city, its responsiveness and malleability.

While there are few distinctly urban philosophies at the heart of these services – they work in cities, because that's where inefficiencies can be most profitably scaled – there are, nonetheless, distinct ideologies. They often exemplify what Richard Barbrook and Andy Cameron called *The Californian Ideology* (1995).[2]

As such, there is rarely a wider civic responsibility at play in these services. The sense that the city is a public good is entirely missing in action. Such services target a niche, and widen from there, through so-called "disruptive innovations", but don't possess the dynamics of a civic service predicated on a sense of inclusive public good. They scale as far as there are convenient customers or regulation on their terms.

This is not market failure, but civic failure.

Uber has encountered serious resistance in almost every city it's expanded to, owing to an apparent strategy of attempting to bypass as many local regulations as possible. Avoiding such regulation – and perhaps local taxation, as per Amazon et al. – will also destabilize the funding base for public services. Yet Uber does not try to scale into a full public transport service, with all the "unpopular" but nonetheless mandated routes that would entail. Uber is concerned with, as George Packer memorably put it, "solving all the problems of being 20 years old, with cash in hand" – yet its success could end up destabilizing public transport for everyone else. Such services are rarely designed to scale to serve citizens as well as customers; its targets are those with a credit card and a Twitter account. Similarly, civic crowd-funding platforms might enable a shift from public funding coordinated by representative democracy to small pools of private funding, only delivering what market dynamics dictate popular; without careful design, crowd funding could undercut local taxation.

Writers like Adam Greenfield have powerfully warned against these often veiled ideologies, as well as the political and ethical shortcomings underpinning the wide variety of services bundled under the "smart city" banner. Alexandra Lange has written convincingly "against civic crowdfunding", noting that "making something big happen at an urban scale is more than a popularity contest." Bryan Boyer notes that "the big innovations of Silicon Valley are not technical but social (and) as Uber and others who are developing social innovations wrapped in technology have discovered, the technical challenges of building an app are either matched or dwarfed by the social, political, and legal issues."

Here is, perhaps, an opening for architects. Architects can possess a strategic form of design sensibility. They can be oriented towards systemic thinking as well as the details of execution, a relatively rich understanding of the idea of the city as public good, of the value of the civic, and of the social, political and legal frameworks that affect that. While many data-driven services are struggling with issues of privacy, identity and anonymity in the city, as well as the cultural specificity that causes problems for Uber, for example, the further it strays from the Valley, architecture has long articulated subtle shades of meaning through the interplay of culture and space.

Technically, legally and philosophically adept, architecture can usefully inform this face-off between "Californian Ideology vs civic space", presenting a richer understanding of urban processes and politics, of making complex decisions with real trade-offs and long-term consequences, of baking the idea of "city as public good" into the DNA of structures and platforms that

安迪·卡梅隆所说的“加州意识形态（1995 年）”[2]。

因此，这些服务很少关注大环境下的公民责任，也完全忘记了，城市原本是一种公共财产。它们盯住有利可图的商机，通过所谓的“破坏性创新”扩大市场；相比之下，基于公共财产观的地区服务却始终未曾出现。只要消费者对这类便利服务有粘性，只要管制还未施予压力，这些服务就能越走越远。

这不是市场的失败，而是市民的失败。

Uber 在每一座城市几乎都遭到了严重的抵制，原因在于它明目张胆地无视当地管理条例。逃避监管——即便像亚马逊这样的公司或许也不会尽到完全纳税的义务——同样会动摇公共服务的资金基础。Uber 着眼于人气不高但总有乘客需求的路线，它并没有打算将服务覆盖到全城所有公共交通。正如乔治·帕克那句令人印象深刻的评论所说，Uber 是“用手中的现金解决积有二十年之久的问题”。只是，对其他人而言，Uber 的成功可能会加速终结原本松散的公共交通系统。这些服务在设计之初就并未将其顾客定为全体市民，它们的目标群体是那些有着信用卡与推特账户的人。相似的，众筹平台很可能只不过是按照市场需求的人气高低，将代议制民主下的公募基金逐渐转变为一个个小型的私人资金库。如此一来，考虑不周的众筹可能会弱化本地税务机制。

反对的声音已然此起彼伏。亚当·格林菲尔德对这种不透明的意识形态进行了强烈批判，同时指责那些服务不过是钻政治、道德的漏洞，打着“智慧城市”的旗号来做生意。亚历山大·兰格有理有据地写下“反对众筹”，她指出：“要在全城范围内做成一件大事，绝不仅仅是人数上的较量。”布莱恩·鲍伊尔则表示：“硅谷最大的创新不在于技术层面，而在于社会层面。技术领域内的社会创新开拓者（如 Uber 等）已经意识到，比起来自社会、政治、法律等诸多方面的问题，研发一款应用程序所面临的技术挑战不过是小巫见大巫而已。”

对建筑师而言，这或许是一个机会。建筑师拥有设计感悟力，他们既能系统地思考，又能顾及实施时的细节。这意味着，他们能整体地看待城市，视其为公共财产，能更深入地思考市民的价值，更好地理解社会、政治、法律框架对城市产生的影响。许多数据主导型的服务不仅要处理好与市民隐私、身份、匿名等相关问题，更要注意到用户的文化特异性——Uber 也同样要将硅谷内外的文化差异纳入考虑。不过，这种因文化与空间的碰撞而产生的细微差异，人们从建筑的历史中也能窥知一二。

常年与技术、法律、哲学打交道的建筑师能够很快看出这一“加州意识形态 VS 公共空间”的对抗局面，他们对都市进程与政治有着更深刻的理解。他们很清楚，在制定复杂的决策时，协调利益各方、预测长远影响都极为必要。他们完全接纳“城市作为一种公共财产”的理念，并将该理念作为组织架构、平台建设的核心要素，使其对城市发展带来积极有效的影响。

此外，建筑师能为我们清晰地指出，除了计算机软件，空间变化与现有建筑是如何持续对城市产生影响的。话说回来，毕竟物质才是根本，物联网所依赖的终究也还是其物质性；在这个层面上，建筑可以给予的更多。

如果能够解决这些问题，不仅能结束前文所说的建筑师在本行业中普遍委曲求全的现状，建筑师本身自怨自艾或自命清高的状态也将得到改变。更为重要的是，建筑师将再次回到城市决策制定的中心，在城市建设的道路上不再被边缘化。

然而要达到这一目的，就必须对建筑进行重新定位。在数据主导的城市计划中，建筑应具有发表建设性意见的权利。而考虑到某些软件的昙花一现，建筑的存在就更有其必要性。在设计 Uber、Airbnb、众筹等新型服务或平台时，借助建筑与城市的视角可以有效地避免出现如上所述的“市民的失败”。

但这样的重新定位能否实现呢？勒·柯布西耶曾经将建筑定义为“光照下的组合体量所进行的一场精妙绝伦而宏大华丽的表演”。如果说这便是当今建筑的全部，那么在一个接近完全建好的世界——甚或一个无需建筑师就能构建的世界中，建筑也就毫无未来可言了。在贝纳德·鲁道夫斯基的论文《没有建筑师的建筑》中，当地风格的建筑被放在了首位；另一方面，同样显而易见的是，即便没有建筑师，城市的形态也在发生改变——尽管这些改变并非本地自发形成的产物。基于这些原因，建筑必须努力维护自己的发言权。只是我们至今还不知道，建筑理论家与建筑师们是否已经意识到这个问题。

若物质与非物质能彼此作用，那么暂且撇开“光照下的组合体量”不谈，建筑还可以被视为空间力——尤其是公共空间动态性的精心设计与呈现。举例来说，利昂·范·斯海克的“空间智能”概念正在建筑之外改变着城市。建筑是一门涉及各类人群的实践性学科，建筑师在应对规模不同、工期不一的工程时有着丰富的经验，可以说建筑能为城市新兴服务的设计增加一份前瞻性。否则，物联网也好，自动驾驶汽车也罢，在这些都市新体验的创造者身上，建筑的价值都将无迹可寻。

换言之，对于建筑师来说，仅仅利用 Uber 来促成陌生用户相遇是远远不够的；建筑师应该为 Uber 等服务的整体架构出谋划策，决定这些服务在城市中的核心价值与证明方式，帮助它们逐渐打造城市特质。通过连接更多善意的都市寄生物并使其发挥作用，建筑师能够弥补城市建设之初硬件方面的不完善。更重要的是，建筑师还能继续塑造更好的城市。

（盛洋 译）

注释：

1．霍华德·洛克是安·兰德的小说《源泉》中的建筑师主角。

2．http://en.wikipedia.org/wiki/The_Californian_Ideology

p. 7: The “shrinking” of space through improvements of the European railway network between 1993 and 2020 compared with the base map with a constant speed of 60 km/h. Image courtesy of Spiekermann & Wegener Urban and Regional Research. Opposite, top: Bridj uses big data and private shuttles to meet its users’ commuting needs. Image courtesy of Bridj. Opposite, middle: Lyft’s application screen shows available cars in the community when tap a pickup botton. Image courtesy of Lyft. Opposite, bottom: Neighborland’s website is a platform for residents’ proposals to improve their own neighborhoods. Residents can discuss and vote on which ideas deserve enacting. Image courtesy of Neighborland.

7 页：以 60 km/h 的空间感知图为基准，对比 1993 年与 2020 年，可以看到随着欧洲铁路网的发展，感知空间在不断“收缩”。

左页，上：Bridj 利用大数据与私人班车来满足用户通勤的需要；中：使用 Lyft 时，轻点下方的需求按钮，屏幕上会立刻显示出附近可用的汽车；下：Neighborland 网站给居民提供了一个平台，使其可以主动改善自己的街区，居民可以在此讨论并投票选出值得化为行动的好点子。

affect the city.

Further, architects articulate the way that spatial dynamics and built fabric continue to affect urban conditions, despite software's power. Matter matters, after all, and a great deal of the Internet of Things' great promise is in its very *thingness*. There, architecture has much to offer.

Not only would engaging with these issues be a way out of the aforementioned abusive relationship with the construction industry, and the concomitant self-pitying navel-gazing, but it would position the architect at the heart of contemporary decision-making about the city once again, rather than being shunted to the margins of building.

Yet this involves repositioning architecture, locating a productive new voice within a data-driven urbanism, a useful and necessary counterpoint to the crystalline yet ephemeral architectures of software. Those software architectures, when applied to decisions about new urban services like Uber and Airbnb, or when enabling new platforms for decision-making such as crowd funding services, could use the perspective of architecture and urbanism to prevent that "civic failure".

But is architecture up to that repositioning? Le Corbusier once defined architecture as "the masterly, correct and magnificent play of masses brought together in light." If that is all architecture is now, it has little future in a world largely already built – and elsewhere built largely without architects. Bernard Rudofsky's thesis "architecture without architects" championed vernacular architecture; now, cities are also being shaped without architects, yet hardly via vernacular processes. So architecture has to fight for its right to remain at the table; it's not clear yet, judging by both academia and practice, that this is understood.

Beyond "masses in light" to a different interplay between material and immaterial, perhaps architecture could be re-conceived as a choreography of meaningful forces in space, particularly the dynamics of shared space; Leon van Schaik's notion of "spatial intelligence", applied to the way that cities are now changing without building. Architecture, a discipline well-practiced to working in multidisciplinary teams and across different scales, timeframes and experiences, could engage more proactively with these newer makers of cities; otherwise, the platforms that increasingly shape how cities are experienced, from Internet of Things platforms to autonomous vehicles, are being created oblivious to the value architecture could bring.

In other words, it is not enough for architects to simply use Uber to get to client meetings; they should be helping frame the decisions about what services like Uber are and how they manifest themselves in cities, and shape urban conditions over time. By engaging with, and enabling, more benevolent urban parasites, perhaps architects can fill the void left by building within city-making, and more importantly, continue to shape better cities.

Notes

1.Howard Roark is the architect-protagonist of Ayn Rand's *The Fountainhead*.

2.http://en.wikipedia.org/wiki/The_Californian_Ideology

This page, above: The +POOL is an initiative to build a water-filtering floating swimming pool in New York City's East River financed for public use through the crowd funding platform Kickstarter. Image courtesy of FAMILY, PlayLab, Inc. This page, below: Leon van Schaik's indeogram entitled Mental Space, February, 5, 2006. *Image courtesy of Leon van Schaik.*

本页，上：+POOL 创新项目试图通过 Kickstarter 众筹平台，在纽约的东河上建设一个有净化水质功能的漂浮游泳池，向所有人开放使用；下：利昂·范·斯海克所作的一幅名为“心理空间，2006 年 2 月 5 日”的表意图像。

Mapping

地图测绘

The recent explosion of data provides designers with unprecedented dimensions of behavioral insight as they work to improve cities. Sensing, mapping, analyzing, diagnosing, and changing spatial data is an already established field of urban planning consultancy, now reaching its maturity in the current technological age.

The sheer quantity of data can be overwhelming. How to digest and utilize it in design? Digital maps now form the common platforms over which new applications are layered. The growing field of digital cartography visualizes the patterns of data we trail in our wakes, as we go about our daily lives.

Alastair Townsend

近年来，数据爆炸、信息激增，城市规划设计师们如虎添翼，能够进一步洞察人们的生活行为，进而改善设计，提高城市空间品质。在城市规划领域，空间数据的检测、绘制、分析、判断和转换体系已经完备建立起来，并随着科技发展日臻成熟。

单看总量，数据如排山倒海而来。如何在设计中进行消化和利用呢？今天，数字化地图逐步形成了一座通用平台，许多新型应用程序得以架构其上、发挥功能。数字化地图异军突起，稳步成长，致力于形象化呈现数据分布及其隐含规律，有助于设计师深入了解人们的日常生活行为。

阿拉斯泰尔 · 汤森德

（陈霜 译）

Essay:

Space Syntax: A SMART Approach to Urban Planning, Design and Governance

Tim Stonor, Architect & Urban Planner / Managing Director, Space Syntax

论文：

空间句法：城市规划、城市设计及城市管理的智能手段

蒂姆·斯托纳，建筑师、城市规划师及空间句法公司总裁

The future of cities will be decided by answers to key urban policy questions. Where, and in what numbers, are people going to live, work and take leisure? What forms of movement will exist to connect people together? What flows of resources will need to occur – for example with energy, water and waste – to support human behavior patterns and what impacts will these have on the natural environment? How will future places be funded and, ultimately, how will decisions be made to address each of these questions?

Rapid global urbanization provides the opportunity to create striking, new forms of city living, supported by the proliferation of new "smart" technologies. Nevertheless, the delirious enthusiasm of architects and planners should be set against the sobering reality of recent urban history. From pedestrian precincts to cul-de-sacs and upper level walkways, many innovations in town planning and design have been launched with great optimism over the years, only to create blight in the form of massive social and economic cost. Past results matter greatly for the future planning of cities because professional failure creates public concern and this affects political confidence.

So, before beginning to create visions for novel urban futures, those responsible – the architects, planners and engineers as well as the policy makers and politicians – should first ask why past plans didn't deliver what was intended. Why, in seeking social harmony, wealth and resilience have cities become divided, unequal and car-dependent?

There seem to be two key reasons for urbanism's inability to accurately forecast the effects of its actions: first, the scarcity of real knowledge about how people behave in cities and what the impacts of these behavior are on, for example: land use resilience, land value and safety. Second, the shortage of accurate and reliable forecasting tools to test plans in advance. Until recently it has been expensive and time-consuming to overcome these issues: teams of observers with clipboards have been costly; transcribing video has been a slow and intensive process; computational power has been inadequate and expertise limited.

However, the rise of the "smart" era has witnessed an explosion of data capture and analysis techniques, as well as the technology-literate operators trained to use them. The opportunity now exists for organizations, both public, private and community-based, to behave differently: to build databases of urban performance, analyze the patterns within these, then create future plans in a more robust manner. The prospect of a new science for cities is real: a new, evidence-informed and analytic approach to urban planning and design that might obviate, or at least reduce, uncertainty in future urban decision-making.

Such an opportunity raises fundamental questions about what datasets should be collected and how these should then be analyzed. Fundamentally, the ways in which built environment data is used must change. To put it simply, architects need to think at a broader scale than before, planners at a finer grain and both profession need tools that fit these purposes. Currently, architects use Building Information Modelling (BIM) systems that handle data at the building level. While BIM can stretch to small clusters of buildings, it does not usually allow buildings to be set in their wider urban contexts. As a result, the important influence of context on place is lost and too many buildings are designed in isolation, with obviously negative results once built: turning their backs to each other, or surrounding themselves with moats of landscaping.

Planners on the other hand tend to work from regional and city-wide scales down to local neighborhood levels, where their engagement with urbanism stops. But this approach can prove too crude to provide an accurate picture of what is going on at the important human scale. Planners should be able to analyze data to inform decisions – such as transport plans or changing land values – at least down to the level of the individual street segment and ideally to the different buildings that make up the street level.

An integrated modelling system should allow all of the buildings to talk to each other, then all the blocks in a neighborhood to talk with each other, then all the neighborhoods within a district to talk to each other and so on. This would be an "Urban BIM": an Urban Building Information Management System that links different professional working across multiple spatial scales.

But what does "talking to each other" actually mean? It certainly involves visualization of data on a common platform. But it also means going beyond visualization into data analysis, correlation and modelling. Too many conference presentations and media articles about so-called smart cities focus on – sometimes obsess about – the visualization of data, creating dazzling maps and video clips, but often going no further. Captivating an audience is an important first step in raising awareness of the potentials of a data-driven approach; demonstrating that the data contains the intelligence to inform real urban changes is the next key step.

Urban modelling systems should deliver the full potential of recent technological change by not only visualizing data but, more importantly, identifying patterns within those data and establishing correlational relationships between