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## 互联、灵活且意义非凡：设计智慧城市的正确方式

### Connected, Flexible and Meaningful: This is How You Design the Real Smart City

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**摘要:** 未来城市基金会 (Future City Foundation) 和 26 个合作伙伴致力于研究如何设计智慧城市。该组织网络假定城市设计及其产物正在发生根本性的变化, 就像其他行业一样; 并试图了解智慧城市的运行机理、未来机遇及风险。研究结果如《智慧城市, 我们要这样做——互联、灵活且有意义: 打造真正的未来城市》一书所示, 重点关注智慧城市设计的 4 个设计原则: 追求一个可持续发展和民主的城市; 在其中以智能网络的方式进行设计; 设计具有灵活性; 进行有意义的设计。

**关键词:** 智慧城市; 城市设计; 规划原则; 设计原则; 网络; 灵活性; 意义

**Abstract:** The Future City Foundation and 26 partners have investigated how we should design the smart city. The network assumes that urban design and the products that result from it are radically changing. Just like it happened with other industries. They want to understand how it happens, what are the opportunities and what are the risks. They present the results of the research in the book: *A Smart City, This is How You Do It — Connected, Flexible and Meaningful: Make the Real Future City*. It focuses on four design principles for smart urban design: we want a sustainable and democratic city; in it we design everything as a democratic smart network; we design flexibility; we design meaningfully.

**Keywords:** smart city; urban design; planning principles; design principles; network; flexibility; meaningfulness

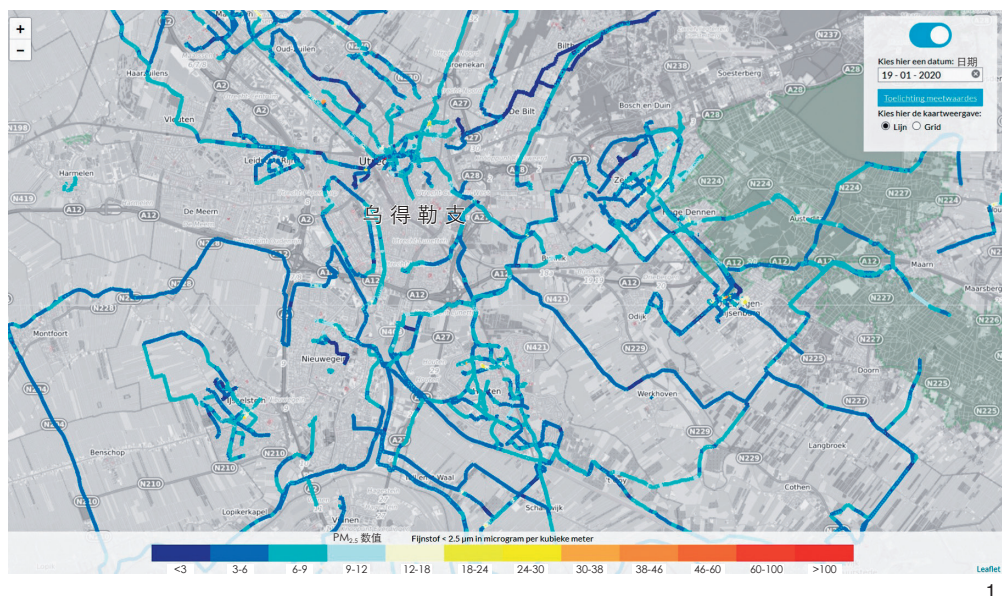
关于智慧城市的辩论不应仅限于技术本身, 而应该是关于该技术对城市的影响。因为互联网技术的兴起和数字化已经使整个世界发生变化, 那么城市规划和空间规划将如何变化? 城市规划新的起点是什么? 新的规划原则是什么? 政府、设计师、项目组织者和管理者应如何开展工作? 带着这些问题, 未来城市基金会<sup>①</sup>将与 26 个合作伙伴一起探讨解决方案。可以在本文中找到答案。

如果全世界因数字化和技术而改变, 那我们的世界将作何改变? 人类的日常工作、生活, 设计区域、城市和乡村的方式, 以及我们设计、管理、控制和使用空间的方式将作何变化? 从建立未来城市基金会的伊始, 这些问题就是我们所关注的。并且这些问题是《智慧城市, 我们要这样做》(*A Smart City, This is How You Do It*)<sup>②</sup>这本书的核心, 也是本篇文章的精华所在。

当然, 我们发现技术非常令人着迷。专业技术人员正在构思的可能性给我们留下了深刻的印象。但是这种变化对我们意味着什么? 如何提升社区、城市和乡村的宜居性? 如何借助技术使得城市具有包容性、安全性、韧性、可持续性和开放性?

我们定义了新的设计原则, 适用于不同地区决策者、规划师和设计师: 将城市设计为智能网络; 保持设计灵活性; 让设计有意义。但是对于 (智慧城市) 设计者而言, 我们最先需要思考的问题是: 我们想要哪种城市?

如果关于未来的事情有一件是确定的, 那就是预测永远不会成真。人类所面临的挑战依然存在: 由互联网带来的当前这场工业革命改变了人类的世界观。我们总习惯用技术视角来看待世界。随着新技术的发明, 以不同的眼光看待世界, 并且以不同的方式对待世界, 这当



1 嗅探器自行车（荷兰 Civity 和 Sodaq 公司会同乌得勒支省和荷兰公共健康和环境研究院开发的一个项目）是一种安装在自行车上的传感器。这使地方当局可以了解空气质量、道路情况和自行车路线。数据通过开放数据实现平台共享。该传感器可实时测量温度、湿度、颗粒物（PM<sub>1</sub>、PM<sub>2.5</sub> 和 PM<sub>10</sub>），挥发性有机化合物和路面震动情况。此图显示了 2020 年 1 月 19 日在荷兰乌得勒支周围道路上 PM<sub>2.5</sub> 的数值。在乌得勒支地区，有 500 辆自行车安装了传感器

The sniffer bike (a project by the Dutch firms Civity and Sodaq, together with the Province of Utrecht and the Dutch National Institute for Public Health and the Environment), is a sensor that is installed voluntarily on bicycles. This gives local authorities insight into air quality, road quality and cycle routes. The data is shared via an open data platform. The sensor measures temperature, humidity, particulate matter (PM<sub>1</sub>, PM<sub>2.5</sub> and PM<sub>10</sub>), volatile organic compounds and vibrations. This image shows the amount of particulate matter less than 2.5 micrometers on a road around the Dutch city of Utrecht on January 19, 2020. In the Utrecht region, 500 bicycles are cycling with a sensor

然无可厚非。但是这种改变使得我们很难准确预测子孙后代对居住的社区、村庄和城市的期望。

### 1 城市规划原则 1：我们想要一个能够可持续发展且充满民主的城市

当人类居住空间处于发展的过渡阶段时，最好确定边界在哪里。我们把“边界”分为 2 个层次：首先，我们想要一个满足联合国可持续发展目标 11 的城市（包容、安全、韧性和可持续）；其次，我们想要在城市空间中享受高自由度。

空间规划、城市设计和风景园林的核心是做出空间选择。所有这些选择共同决定了我们赖以生存的村庄、城镇、省市和国家的面貌。从罗马帝国开始，欧洲（尤其是荷兰）就急切地将居住的空间打造为当前的形态。比如 19 世纪时，欧洲设计了许多特殊城市布局，并且首次进行河流和水资源的现代化管理。同时，许多国家开始修建铁路。实业家在城市空间发展中居领先地位。

目前我们又再次处在历史发展的相同轨道中。正如 19 世纪的欧洲（以及世界其他地方）被重塑一样，席卷全球的数字化、数据驱动和互联网浪潮也在深刻影响着当前所有经济形态，社会乃至个体的私人生活。作为智慧城

市规划项目的合作伙伴，我们不希望随着当前的社会发展浪潮而被动引领，人云亦云。我们期待智慧城市相关的顶层设计及政策制定者、规划师和设计师，有意识地引导空间规划朝着正确的方向发展，引领未来数字化世界的发展浪潮。在发展过程中，我们同样需要找好着力点。互联网随着时间的推移已经日趋成熟，并且已经产生了巨大的影响，我们不得不问自己这样一个问题：如何应对数字时代所带给空间和社会的积极和消极影响？未来城市设计者需要共同确定自己想要怎样的村庄、城市、区域，或者怎样的荷兰和欧洲，以及怎样的世界？城市和乡村在未来居住空间中扮演着什么角色，人类想要什么，不想要什么？在未来城市规划原则中，我们需要明确其意义所在。

#### 1.1 我们想要宜居的区域、城市、村庄和社区

通过有意识地使用数字化技术来改善人类的生活质量。我们希望未来人们居住的区域、城市、村庄和社区总体保持宜居的状态。人们可以在健康、整洁和良好的环境中自由自在地共同发展。同时，涉及人类发展的重要事情（例如安全和隐私等）也应受到监视和保护，并且保持良好的发展势头。科技和数字化正在改变人们现有的生活方式。我们希望新技术引领进步，希望科技以最现代化的方式

解决人类当前所面临的主要挑战。未来城市发展指南即联合国可持续发展目标（Sustainable Development Goals, SDGs）<sup>[1]</sup>。其中目标 11 总结了以下几个目标和任务：“建设包容、安全、韧性和可持续的城市和人类住区。”

科技进步和数字化转型能够解决转型中的挑战。通过应用新技术，人类可以找到更好更快的解决方案。例如，“天网”（城市监控网络）使得城市管理者可以随时查看所在城市亟待解决和改善的地方，这就是科技带给城市管理者的益处。但科技需要场景的实践，人们必须将其集成到城市和城市生活场景之中，并且作用于未来城市设计中，才会产生质变。但这又会产生公共问题：谁将拥有这一城市关键设施的所有权呢？

我们最好考虑到人们对宜居性的理解也会发生变化，因为实现城市宜居的过程会发生新的变化。毕竟，当数字化和技术化改变一切时，城市规划师、规划师的职业甚至空间规划本身也会发生变化。在这个项目中，我们对其进行了广泛的定义。通过全新的控制和管理空间的方式来创新。这种新的思维和行动方式，也为个人的想法和建议提供了更多空间。这些变化在荷兰得到了《环境法》（Environment Act）<sup>[2]</sup> 的支持，该法制定了发展框架而非仅仅规定结果。项目建立在





2 足球赛事是一种体验。这对于荷兰职业足球俱乐部“前进之鹰”的阿德莱尔霍斯特体育场的翻新非常重要。建筑师马丁·克莱恩·沙尔斯（德芬特尔 I'M 建筑事务所）设计了 2 个新的看台，这些看台参考了传统的英国足球俱乐部，并与当地百年体育场所在地的工人阶级社区无缝衔接

Football is about experience. This was very important in the renovation of the Adelaarshorst stadium of the Dutch professional football club Go Ahead Eagles. Architect Martin Kleine Schaars (I'M Architecten, Deventer) designed two new stands that refer to traditional English football clubs and seamlessly connect with the working-class neighborhood in which the stadium has been located for a century

合作的基础之上，因此完全符合技术和数字化发展所带来的变化。

## 1.2 我们不会失去对自己生活的控制

科技和数字化也会带来风险和威胁。人类所期待的是一个这样的城市：城市依旧充满着自由的空气，一如几个世纪以来的状态。我们最终的反乌托邦不仅是因为被跟踪和监视，还因为我们不能完全掌控自己的生活。人们不能再做自己真正想做的事情，相反，人们被迫尽可能高效地完成所有事情。人们将这种“担忧”转换为现代词汇中的“效率”。人们开始担心自己居住的城市会变成一台机器，在其中我们无法匿名，更有甚者，我们无法保持自身的独特性。尤其是当每个个体被贴上标签，分为一类之时。我们最大的恐惧不仅是隐私权受到侵犯，还有自主权的削弱。当人们不再了解或关心自己的行为受到怎样的影响时，或者当人们确实了解自己的行为无法被掌控时，就会出现自主性低下的现象。

科技塑造着我们的社会。就像一个半世纪以前一样，我们需要对城市的外观做出重要的选择。这不仅关系到我们当前发展的实质性目标，还关系到我们要建设什么样的社会，以及科技和数字化在其中发挥的作用。技术没有中立价值。但问题是：欧洲的价值观是什么？中美两国都利用互联网来增强其文化特性，但我们如何在欧洲做到这一点？未生效的 2004 年《欧盟宪法条约》草案<sup>[9]</sup>，描述了欧盟一直以来所赖以生存的文化和政治价

值观：“联盟建立在尊重人类尊严、自由、民主、平等、法治，以及尊重人权（包括少数群体的权利）的价值观基础上。在一个奉行多元化、非歧视、宽容、公正、团结和男女平等的社会中，这些价值观为成员国所共有。”所以问题不是我们是否使用技术，而是如何使用技术、数字化和互联网来增强上述价值，以及我们使用时设定的限制。发展智能民主、自由民主的城市，对我们的历史和文化而言是合乎逻辑的，也是十分适当的。

## 2 城市规划原则 2：在城市中，我们用智能网络的方式进行设计

人类当前社会通过互联网彼此相连，与万物相连。如今，这句话听起来很正常，但对于规划师、空间规划师和城市规划师而言却大相径庭。人类有史以来第一次以大群体规模生活在网络中。互联网赋予了时间、地点和距离等概念以新的含义。这是这场新工业革命带来的真正变化。对于我们所在的不同区域、城市、村庄和社区，需要采用不同的设计方法。

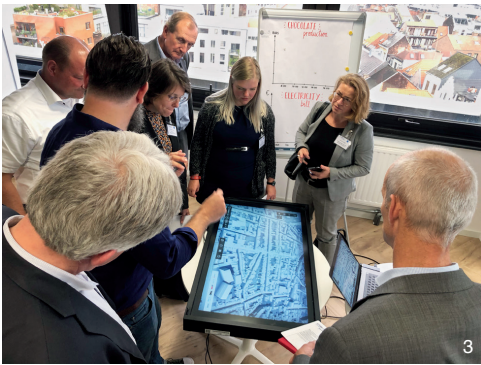
导致当前工业革命技术发展的核心是通信网络——一种我们在过去一个半世纪中建立的人与物、人与人和物与物之间联系的网络。通信网络始于 1855 年的第一条电话线，现如今已成为我们赖以生存的移动互联网。第一通电话和 5G 网络之间的相似之处在于：这种新的基础架构消除了距离的概念，并且将彼此之间没有物理接触的人与物连接起来。

5G 甚至持续地改变着物理空间概念。与其他实体网络的第一个区别在于，我们不需要像公路（铁路）网那样通过车辆来进行联系。第二个区别是发送方和接收方之间的时间等效性。每个接收器也可以是一个发送器，每个发送器都是一个接收器，每个节点可以联系另一个点并与该点共享知识。

没有网络的端点和节点，网络则不存在。如果没有这些端点和节点，网络就毫无价值，因此他们比网络（电缆和管道的集束）本身更重要。互联网在很大程度上适用这个规律，因为互联网也依赖发送和接收的节点组成网络。而它的特殊之处在于，如果从网络中删除一个节点，该网络将继续存在。这与传统的电网相反，在传统电网中，拆除电站会导致重大问题。

通信网络发展的下一步是 5G。真正的创新在于 5G 是集群技术。因为一旦 5G 出现，计算机（移动或飞行机器人的形式）就可以像集群一样运作。集群技术的一个例子是自动驾驶汽车，汽车必须不断与周围环境进行交流，以了解其他物体的位置。从空间规划的角度来看，与可靠性较差的网络（例如 4G）相比，这是最大的变化。借助 5G 技术，我们可以为城市规划注入新的灵魂。但其含义仍然很难理解，就像评价优缺点一样复杂。空间规划师、规划师、城市规划师和风景园林师将决定如何使用此功能。

越来越多的电子设备正在连入互联网，



3 越来越多的西欧城市，如比利时安特卫普市使用数字孪生技术将政策可视化，但真正的问题是可视化的行政和政治影响是什么。政治决策和实体规划是如何因数字孪生而改变的？未来城市基金会将在未来几年对此进行深入研究

More and more Western European municipalities, such as the city of Antwerp, use digital twins to visualize their policies. The real question is what the administrative and political effects of this are. How is political decision-making and physical planning changing as a result of digital twinning? The Future City Foundation will conduct research into this in the coming years

并成为一种常态：除非有合理的理由，否则一切都会连入互联网，一切都会成为网络或集群的一部分。这意味着在城市或乡村中，不仅每个建筑物和许多其他物体都已连接到网络（现在已经在发生），而且在设计空间和建筑物时也应参考网络概念。

因此，社区成为基于物体的智能网络。这与现如今人类生存的城市大为不同，这些差异必须包含在设计中。如同基于互联网技术设计的平板电脑，无论在文档储存和程序运行的方式上都和第一代台式电脑完全不同。网络促进了数据、能源和商品、人员和服务的交流。互联网同时也可以成为3个网络的集成或一个网络的3个变体。同时，设计必须考虑到具体对象与其他对象之间的关系。这种方法也适用于城市设计。例如在设计一个街区的部分时，必须考虑到这些部分是整体城市网络的一部分：不同区域之间互相有邻居，可以与邻居交换数据、能源和商品、人员和服务。就像平板电脑一样，各种应用都必须是可更新的。但是如果社区的一个住户突然更新了一套更好的能源系统，那效果会是显著的。

我们认为，网络的设计方式应该是让节点用户自己决定共享的内容。在此过程中，我们遵循共同原则——数据仅保存一次并通过网络共享。

这种网络构成意味着距离将具有不同的含义。通过移动互联网，无论身在何处，都可以访问（几乎）所有内容。这意味着可以在任何地方工作、购物，与其他地方的人们取得联系。但这导致了一种高度依赖网络的新生活方式。通过互联网，传感器可以在一个地方收集数据，并直接影响到另一个地方的物体。天气预报程序以这种方式工作，两个地方都是同一（天气）系统的一部分。也有可能在一个地方（世界上某个地方）获得数据，而这个地方与地球上其他地方的类似地方直接相关。如今，事物之间的响应极为迅捷。

但这是否也意味着城市不再重要？这是一个在20世纪90年代流行的理论：通过互联网，我们所有人都会生活在农村地区。毕竟，我们没有理由再住在这个城市了，那为什么人们还要加速城市化发展呢？因为从那时起，城市的知名度只增不减。这种现象有多种原因：首先，大多数人喜欢和其他人在一起。人是群体动物，人的幸福在很大程度上是通过与他人的互动而获得的。这就是为什么人们喜欢群居的原因，也是为什么仍然有“真正的”约会的原因，因为人们喜欢见面。

其次，还有其他经济原因。如前所述，网络社会不是关于连接，而是关于节点。价值的创造来源于组件、节点和通过组件添加到网络的数值，总价值也由此确定。网络的价值与其组成部分的总和一样重要。情况一直如此，且适用于线上。

再者，网络总有一个空间属性。即使基于脸书（Facebook）的商业，收入模式的很大一部分仍依赖于其空间属性。地理位置在有针对性的广告和影响力中发挥着重要作用，但对于在线服务如亚马逊（Amazon）和优步（Uber）而言，地理空间要扮演更为重要的角色。这些系统需要高质量数据和人口密度。而且该数据质量受到空间限制。例如，对于优步而言，乡村地区并不具有吸引力，因为那里的人们对出租车的需求很少。高人口密

度使这些系统在利用网络方面更加灵活，因而变得更加高效。

### 3 城市规划原则3：让我们的设计具有灵活性

如果房间中的物体都已连接到网络，并且我们可以访问所有地方的任何信息，人类将变得非常灵活。所有这些都需要一个非常灵活的空间组织（无论规模如何）。此外，继续促进城市发展是我们这个时代的主要挑战。城市需要有高效的基础设施、绿化和精心设计的公共空间。因此，设计的灵活性也涉及持续性的问题。

建筑层面已经应用了新的灵活性。在过去的20年中，弹性工作已成为一种新常态，这种模式催生了布局灵活的房间和新家具。但是，最大的变化是，如今居家办公成为一种新的选择。过去，家庭办公室配有信箱和电话线，以便从政府、银行等接收重要信息或接收（纸质）报纸和看电视。如今，智能手机已足够满足所有需求。一个固定的家庭地址也可以比作一种“漫游”模式，只要连接到网络就可以被找到，并且可以购买虚拟和实体服务，不再需要一个城市的居住地址。而通过这种方式，也可以成为多个城市的用户。

灵活使用空间也可能是规划制度不同的原因。为什么所有地方总是应用同样的规则？这种灵活性已经在高速公路上实现。一旦设定车道行驶的最高峰值，（通过计算）就会出现矩阵符号，指示驾驶员哪条车道可使用并显示其对应限速。这种情况几乎是立即根据环境情况作出反应。这也可以应用于其他城市功能，其背后的驱动力不是技术，而是效率和金钱。未来的维护负责人将编写算法来管理项目经理。但是最重要的是防止黑客入侵我们的安全防护系统。

#### 3.1 相互融合的功能性

互联网创造了越来越多的时间和地点的组合。在过去的一个世纪中，我们习以为常的在生活各方面的职责分工以及在哪居住、在哪里买东西、在哪里工作等地点上的分别，在未来社会中都将逐渐消失。职责之间互相渗透、互相影响，甚至有时会同时发生。比



如将星巴克作为工作和会议场所，将办公室当成第二居所。

我们也看到了团体使用公共空间的灵活性。在智能手机发明之前，会议是本地化的活动，但现在人们却可以使用会议应用程序召集会议。因此，物理实体的集合不再是彼此聚会的必要条件。网络线路的集成和社交关系（例如年轻人之间的游戏）构成了数字会议场所。

### 3.2 灵活性挑战尺度

互联网的迷人之处在于它对尺度的概念提出质疑。在互联网时代之前，一个停车位就是一个停车位，一个灯就是一个灯。这是最小的尺度，如果再上升一级，那么单个灯就没什么意思了。而现在那个灯或停车位中有一个传感器。通过数字孪生（digital twin），不仅每个对象都变得十分独特，而且还可以看到它们之间的联系和关系。这样，每个传感器都会影响整体。

如今，我们甚至可以在每个给定环境中制作数字孪生体，在3D地图环境中以数字表示数据。数字孪生体可以：1）提供对现有环境的分析（所需数据必须是即时的）；2）合并不同的数据层，系统基于此建立相关性，然后用户可以自己查看连接；3）计算计划干预的效果。

在进行关联、建立联系并进行计划的干预时，将使用已转换为算法的假设。根据系统获得的经验，可以在系统的整个生命周期中完善这些假设，然后算法会变得更准确。也可以借鉴其他城市的经验。原则上，这与任何计算机程序都没有什么不同：来自世界各地的用户体验会影响某个程序的更新。

数字孪生是迈向实时环境政策的第一步，通过该政策可以即时应对各种情况。现在环保区（environmental zone）仅是拒绝老旧车辆运行，就可以影响当前的环境质量。未来则会更进一步：该系统也可以向其他城市的系统学习并立即做出响应。当然现在还没发展到那一步，目前尚有许多技术问题亟待解决。例如，构建系统并且让系统之间能够相互通信。此外，市政官员必须要考虑不同系统的契合。

这些进步仅对大城市有吸引力吗？当然不是。这些进步对城市中心、村庄和乡村都

有益。灵活性是不断联系的结果，这种联系也存在于农村地区，但方式有所不同。

### 3.3 可持续城市结构作为平衡点

灵活性也有另一面。正如混乱唤起秩序一样，空间的可变和灵活利用需要固定的设施来支撑。我们对实现各种功能和用途的设施设置了要求，例如可访问性、安全性和可用性（空间和基本设施）。为了能够灵活地运行，需要一个基础系统，即格网。

当今时代的主要挑战包括城市的不断增长，需要一个具有可持续城市结构的城市规划。最重要的是满足交通需求的主要基础设施，保证商品、垃圾、能源的供应和运输，以及一个功能良好的蓝绿基础设施，以改善气候、娱乐活动（包括慢行交通）和生物多样性。智慧城市需要能够测量和监视这些设施的功能、用途和质量的设施和基础设施。

这些城市的基础设施网络决定了城市的空间价值。拥有高质量的气候适应性、公共健康和社会空间设施的绿色城市将会更适合人类居住。公众参与度管理将为城市设计带来更多改变，并且数字系统将在其中发挥越来越重要的作用。

## 4 城市规划原则4：让我们的设计意义非凡

在智慧城市中，具有辨识度和意义的场所变得越来越重要。通过技术和数字化，人类可以实现无处不在。因此有意义的地方，即满足真实性需求和体验偏好的场所则变得炙手可热。

因为互联网，凡事皆有可能，人则变得尤为灵活。但是人的身体却不能同时置身于多个地方，只能在一个地方：即自己最喜欢的地方。因为如果我可以无处不在，那么我只会委身于对我有吸引力的地方、让我体验快乐生活或拥有别致体验的地方，符合我那一刻的品位和偏爱。我可以去我想去的地方，甚至规划多个城市之间的路线，并自由选择城市所能提供的服务，无论是下榻的酒店，还是街边的小馆，都依照我的兴趣而定。互联网可以带来无限乐趣。通过声田（Spotify，一个正版流媒体音乐服务平台），我可以听自己



4 餐廊是西欧各国兴起的一种新趋势，餐廊通常位于正式的工厂大厅中，供应世界各地的各种食物，搭配当地特产啤酒。这些窗口式的餐厅品牌则定期更换

Food halls are a trend in Western Europe. They are often located in a formal factory hall and offer a wide range of food from different parts of the world, often combined with local beer. The pop-up restaurants change regularly

喜欢的音乐，或者其算法根据我的喜好而推荐给我；谷歌（Google）和缤客（Booking.com）的算法也做得越来越好了。

决定建筑物、位置或路线的空间偏好的一个重要方面是，欣赏和体验部分取决于其他人，依赖于城市居民或游客的选择。不仅是地点的质量和预期的体验决定了我的预期行为（旅行体验和住宿），还有浏览互联网得到的来自实时空间状况的反馈。这样一来，便可以随时根据预计的拥挤程度、可达性或天气预报来调整自己的目的地和路线偏好。有时候这很困难，但如果我能够按时出发，以便在旅途中随时调整自己的偏好，还是可以成功的。由于存在互联网以及我们与该位置的虚拟连接，我们始终能迅速定格（zoom in）自己喜欢的地方。如果需要，还可以迅速从一个目的地切换到另一个，改变我们出行想法的主要依据是基于前人旅行所积累的经验。互联网给我们带来更多符合激励的需求，此外，由于互联网的效率，我们有越来越多的时间来满足对体验的需求。我们通过互联网订购产品，使我们有时间逛当地的商店。而且因为我们可以 anywhere 查询智能手机或打开笔记本电脑，我们则可以在一些特别的地方进行操作，无论是置身大自然，还是享受节日的狂欢。

#### 4.1 重复推送

我们所偏好地方的吸引力包含着双重信息。那些获得高分评定的地方和地区，一方面因其真实性、历史意义、功能或体验价值而出彩；另一方面因其出现在越来越多的旅行和度假胜地的首选清单上而更容易被检索到。大众旅游爆炸性的增长对于荷兰羊角村或阿姆斯特丹运河等特殊地区，尤其是对于政策制定者和城市规划师来说，已经成为一个严重的问题。

缺乏真实性和新奇感的地方和地区是城市规划中的一个挑战。这对设计师来说是一大利好信息：在（智慧）城市中，人居环境的空间更新任务被赋予最高优先级。这使得好的设计比以往任何时候都更加重要。意义和功能通过居民与包括设计师在内的专业人士沟通交流而形成。由设计师来选择兼顾设计要点和美感，同时实现利益相关者（居民、企业家、用户）的要求和愿望的方案。几个世纪以来，设计师一直在做这些事。但是，由于全球发展绿色、健康和包容的城市的需求，对此的需求量只会更大。如上所述，这是一个非常积极的消息。

#### 4.2 与网为邻的体验

公共空间与互联网之间的互动更为创新。Pokémon Go（现实增强宠物养成对战类手游）这款游戏带来了一种新的城市体验形式，只有游戏参与者才能捕捉到这种乐趣。通过Strava（一款跑步和骑行应用程序）<sup>[4]</sup>，可以随时随地与自己和其他人进行骑行比赛。这样一来，孤独的自行车手突然变成了团体运动员。为了促进城市内外的交互式使用，空间变量（例如位置、大小、交通和可达性）尤为重要。计划和设计活动的重点是通过设计新场所来促进使用，以使交互可以不受阻碍和安全地进行，且应考虑到尽可能避免易受伤害的场所。

#### 4.3 风险

过分追求体验有可能带来新的隐患。公共场所必须保障居民居住的权益，但公共空间设施一定不能过度“游乐场”化，这是一项重要的公共任务。作为公共利益的捍卫者，政府必须确保城市为居民提供自由与安宁的体验空间。但是，我们如何通过设计平衡城

市的“过度刺激”呢？这是通过一个公园或海滩等的设计，抑或是一个涉及区划和时间管控的规划框架就能解决的问题吗？在这里，我们的自主和自由也是讨论内容的一部分。但是有时为了保全城市的更大利益，一些限制性措施是必要的。智慧城市需要其他的政策保证：我们应该有一个（类似于欧盟的）法律框架来保证我们的自由并将其纳入设计中。毕竟，我们有权自娱自乐，尤其是自由的权利。因此，在智慧城市工作的任何人还必须问自己，自己设计的项目劣势是什么，以及我们如何在实体设计领域中预防或解决这些问题。

#### 5 下一步：工具

荷兰内政部（Dutch Ministry of Interior）要求建立一个由企业、政府、学术界、公民运动和其他组织组成的组织网络，构成完整的四螺旋结构。基于此我们将签署所谓的城市协议（与欧盟城市议程相关的项目）<sup>[5]</sup>。这个组织网络将开发、测试和实现一个工具箱，其中的工具可以解决《智慧城市，我们要这样做》<sup>[6]</sup>一书中提出的实际问题。这些工具必须可行、可扩展且可共享。在接下来的3年，该组织网络的工作重点将是这些工具。借助此工具箱，城市设计师可以获得设计真正智慧城市的工具。

#### 注释：

① 未来城市基金会：未来城市（Future City）是第一个专注于城市需求的智慧城市网络，也是一项为企业、市政当局和其他政府机构开发解决方案并进行试验的社区运动。未来城市是一个由企业和政府发起的倡议，旨在促进专业技术人员、管理人员和城市开发人员之间的知识、想法和解决方案的交流。详见www.future-city.nl。未来城市也是一个互联网中心（FIWARE iHub）。FIWARE是一个开源平台组件的复合框架，可加速孵化智能解决方案的开发。他们的使命是：“围绕公共和实施驱动的软件平台标准，构建一个开放、可持续的生态系统，以促进多个领域新智能应用程序的开发。”详见www.fiware.org。

② 《智慧城市，我们要这样做》一书与荷兰地产开发公司AM、阿姆斯特丹智慧城市（Amsterdam Smart City）、城市规划与设计职业组织（BNSP）、城市轨道交通设计公司Civity、美国设计公司DHM Infra、乌得勒支经济委员会（Economic Board Utrecht）、美国公关传播公司ELBA\REC、易智瑞荷兰（Esri Netherlands）、项目开发管理公司FIWARE（专注于云计算、大数据等）、FME（空间ETL解决方案，空间数据转换处理系统）、阿尔芬·登·里

恩（Alphen aan den Rijn）市政府、阿默斯福特（Amersfoort）市政府、阿佩尔多恩（Apeldoorn）市政府、恩舍德（Enschede）市政府、克里姆彭·阿登·艾瑟尔（Krimpen aan den IJssel）市政府、斯塔德·盖伦（Stard-Geleen）市政府、Cadestre地籍图咨询服务平台、Kennedy Van der Laan律师事務所、内政和王国关系部（Ministry of the Interior and Kingdom Relations）、风景园林协会（NVTL）、美国金融科技平台Platform31（专注于风投领域）、乌得勒支省（Utrecht）、南荷兰省（Zuid-Holland）、数字无障碍基金会（Stichting Digitale Bereikbaarheid）、荷兰不动产和金融公司（Syntrus Achmea）和沃达丰（VodafoneZiggo）合作完成。本书可于<https://future-city.nl/smart-city-book-eng/>免费下载。

#### 参考文献 (References):

[1] United Nations Development Programme. What are the Sustainable Development Goals?[EB/OL]. (2016-09-11)[2020-03-18]. <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>.  
 [2] Government of the Netherlands. Revision of Environment and Planning Laws[EB/OL]. (2017-03-07)[2020-03-18]. <https://www.government.nl/topics/spatial-planning-and-infrastructure/documents/reports/2017/02/28/environment-and-planning-act-%E2%80%93-explanatory-memorandum>.  
 [3] EU. Draft of the Treaty Establishing a Constitution for Europe[R]. Rome: EU, 2004.  
 [4] Strava GPS 骑行和跑步应用程序 [EB/OL]. <https://www.strava.com/mobile>.  
 [5] The EU Urban Agenda[EB/OL]. (2015-02-16)[2020-03-18]. <https://agendastad.nl/wp-content/uploads/2015/02/EU-Urban-Agenda-factsheet.pdf>.  
 [6] WESSELINK J-W. A Smart City, This is How You Do It: Connected, Flexible and Meaningful: Make The Real Future City[M]. Amsterdam: Future City Foundation, 2019.

#### 图片来源：

图 1 引自 [https://dashboard.dataplatform.nl/sodaq/v2/groene\\_fietsroutes.html](https://dashboard.dataplatform.nl/sodaq/v2/groene_fietsroutes.html)；图 2-4 由作者提供。

(编辑 / 王一兰)

# Connected, Flexible and Meaningful: This is How You Design the Real Smart City

The debate on smart cities should not be about technology, but about the impact of that technology on our cities. Because if the whole world changes as a result of the rise of internet technology and through digitization, how will urban planning and spatial planning change? What are the new starting points? The new Planning Principles? How should politicians, designers, organizers and managers get to work on this? With the help of these questions, the Future City Foundation<sup>①</sup>, together with 26 partners, set to work. You can read the result in this article.

If through digitization and technology the whole world changes, how does our world change? Our work, our life, the way we design our regions, cities and villages, how do we design, manage, control and use them? This question fascinated us from the moment that we established the Future City Foundation. And this question is central to the book *A Smart City, This is How You Do It*<sup>②</sup>, which this article is a summary of.

Of course, we find the technology very fascinating. Of course, we are impressed by the possibilities that are being conceived by technology professionals. But what does this change mean for us? How can we achieve more livability in regions, cities and villages? How can we use technology to make the city inclusive, safe, resilient and sustainable and open?

We have defined new design principles that you can use as a policy maker, planner and designer: design the city as a smart network; design flexibility; design meaning. But the first question we had to ask ourselves is: which city do we want?

If one thing is certain about the future, it would be that predictions never come true. And what is also difficult: the current industrial revolution, as a result of the invention of the internet, changes our

world view. That's because we humans always use technology to look at the world. Due to the invention of new technology, we look at the world differently and value the world differently, that is normal, but it makes it difficult to properly predict what future generations expect from the regions, cities and villages in which we live.

## 1 Urban Planning Principle 1: We Want a Sustainable and Democratic City

When we are in a transition that it is good to determine where the boundaries lie. We put it on two levels. Firstly, we want a city that meets the requirements of sustainable development goal 11: inclusive, safe, resilient and sustainable. But we also want to be able to live there in freedom.

The core of spatial planning, urban design and landscape architecture is making spatial choices. All those choices together determine what our villages, towns, provinces and our country look like. In Europe and especially in The Netherlands, starting from the Roman Empire, we have been drastically shaping our country into its current form. Or look for example at nineteenth century Europe, when a lot of changes to the special layout were being made. River and water management were modernized and tackled and many countries started to build railways. Industrialists took the lead in the latter.

We are currently at such a point in history again. Just like during the nineteenth century, Europe (and the rest of the world) is being reinvented. The rapidly emerging digitization, data-driven work and the internet, have had a major influence on almost all facets of economic, social and private life. We, the partners of the project Smart Urban Planning, do not want to be dragged along by that development. We are pleading for a stance in which politicians and policymakers, planners and designers consciously work on steering the rapidly digitizing world in the right direction. While doing this, determining where to put the speck on the horizon. Considering how the internet has matured over time and already made such an impact that we have to ask ourselves how we

deal with the positive and negative consequences of the digital age for space and society. To determine together which village, which city, which region, which Netherlands, which Europe and which world we want. What role cities and villages play in it and what we want and don't want. In this first planning principle, we determine what that means are.

### 1.1 We Want Livable Regions, Cities, Villages and Communities

We want digitization and technology to be consciously used to improve our quality of life. We want our regions, cities, villages and communities to be and remain liveable. We want us to be able to develop together in freedom in a healthy, clean and attractive environment. But also, the matters that we consider important, such as our safety and privacy, are monitored and preserved. We have always wanted that. But technology and digitization are changing the way that happens. We want new technology to lead to progress. That it is used to solve the major challenges that we face in the most modern way. The guidelines are the United Nations Sustainable Development Goals (SDGs)<sup>[1]</sup>. Sustainable development goal 11 summarizes several goals and tasks: "Make cities and settlements inclusive, safe, resilient and sustainable".

We want to use technology and digitization to tackle this challenge. We believe that by applying new technology, we can come to better solutions to solve these problems faster. Interactive monitoring, for example, offers an additional tool to see where your city is and therefore where the points for improvement are located. That is technological progress. But that does not happen automatically. Technology must be designed and integrated into the city and urban life. These influences both the design and the street scene. And this will result in public administrative questions. Who will take ownership of this crucial infrastructure and under what conditions?

It's good to take into account that the interpretation of livability changes, since the process for getting there changes. After all, when digitization and technologization change everything, the profession of urban planner, planner and spatial



planning itself will change. In this project, we define that in a broad way. For us it is all about renewing the way we control, design, furnish and manage the space. A new way of thinking and acting, that also offers more room for private ideas and initiatives. This change is already underway and is supported in The Netherlands by the *Environment Act*<sup>[2]</sup>, a law that sets frameworks instead of prescribing outcomes. That is based on cooperation and so well in line with the described changes through technology and digitization.

### 1.2 Without Losing Control of Our Own Lives

Technologization and digitization also entail risks and threats. We want a city where city air still liberates, like it did for centuries. Our ultimate dystopia is not only that we are always followed and monitored, but that we no longer have a grip on our own lives. That we can no longer do what we really want, that we are forced to do everything as efficiently as possible. This great fear is called over efficiency. It is the fear that the city turns into a machine in which we can never be anonymous again, but especially in which we are never special again. The great fear is not only a violation of privacy but also a declining autonomy. Low autonomy arises when people no longer know and understand how their behavior is influenced, or when they do understand it, feel that they have no control over it.

Technology forms our society. Just like a century and a half ago, we are about to make important choices about what our cities look like. This not only concerns the substantive goals that we want to achieve, but also the society that we want to be and the role that technology and digitization play in this. Technology is not value neutral. But the question is: what are the European Values? Both China and America utilized the internet to strengthen their cultural values. But how do we do that in Europe? The draft text of the 2004 *European Constitution*<sup>[3]</sup>, which was never been adopted, describes the cultural and political values on which the European Union is founded: “The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human

rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.” So the question is not whether, but above all, how we use technology, digitization and the internet to strengthen those values. And what limits we will set to use. It is only logical and appropriate to the European history and culture that we develop smart cities that are and remain democratic and free.

## 2 Urban Planning Principle 2: In It We Design Everything as a Democratic Smart Network

Through the internet we are always connected to each other and to everything. Nowadays, that sounds normal, but it is very exceptional, especially to planners, spatial planners and urban planners. For the first time in history, humanity lives as a network, like a swarm. The Internet gives concepts such as time, place and distance a new meaning. That is the real change of this new industrial revolution. And it also requires a different design approach for our regions, cities, villages and communities involved.

The core of technological development that led to the current industrial revolution is due to the communication network that we have built over the past century and a half between people and things, between people themselves and things themselves. It started with the first telephone line in 1855 and has become the mobile internet that we have now. The similarity between that first telephone call and a 5G network, is that this new infrastructure removes the concept of distance and that it connects people and things that are not physically in contact with each other. 5G even does that continuously. The difference with other networks is that we do not need a vehicle for that contact, as is the case with the (rail) road network. A second difference is the equivalence between the sender and receiver. Every receiver can also be a transmitter, and every transmitter a receiver. Each node can contact another point and share

knowledge with that point.

No network exists without the endpoints and nodes of the network. A network is worthless without those endpoints and nodes and for that reason alone they are much more important than the network (the collection of cables and pipes) itself. With the internet this applies to an extreme extent because it only knows nodes that send and receive. The nodes make the network. What is special about this is that if you remove a node from the network, the network will continue to exist. In contrast to, for example, the traditional electricity network, where the removal of a power station leads to major problems.

The next step is 5G. The real innovation is that it is swarm technology. Because as soon as 5G exists, computers (in the form of, for example, moving or flying robots) can operate like swarms. An example of swarm technology is self-driving cars, which must constantly communicate with their surroundings to know where they are and where the others are. From the perspective of spatial planning, that is the biggest change compared to a less reliable network such as 4G. Thanks to 5G technology, the city can be arranged as a flexible object. However, it is still difficult to understand what that entails. Just like as it is complicated to oversee the advantages and disadvantages. It is up to spatial planners, planners, urban planners and landscape architects to design using this

More and more electronic devices are being connected to the internet. It is becoming the standard: everything is connected to the internet unless there is a logical reason not to do it. And everything becomes part of a network or swarm, unless there is a logical reason not to. And that means that in a city or village not only every building and many other objects are connected to the internet (already happening now), but spaces and buildings are also designed with the network idea in mind.

The neighbourhood thus becomes a smart network with objects. The difference with the current city is quite fundamental and must be included in the design. Compare it with your tablet computer. It is



designed due to the affinity of the internet. This led to a different (technical) design, for instance, to store documents or to use programs from the first desktop computers. The network facilitates the exchange of data, energy and goods, people and services. It can therefore also be three networks or three variants of one network. The design must take into account that one object has a relationship with other objects to function. This also applies in the city. When designing parts of a neighbourhood it must be taken into account that those parts are part of a network: that they have neighbours, with which exchange of data, energy and goods, people and services can take place. The various objects must be updatable, just like a tablet. The effects of updating may differ, but if a home suddenly has a better functioning energy system after an update, then that effect is real.

We believe that the networks should be designed in a way that the users of the nodes decide for themselves what they share. In doing so, we follow the ideas behind the common ground principle that states that data is only saved once and shared from there.

This network formation means that distance has gotten a different meaning. This is already the case. Via mobile internet you can access (almost) everything, wherever you may be. That means you can work anywhere, shop everywhere and have contact with other people everywhere. This leads to a new way of life that is highly dependent on that network. Via the internet, a sensor may measure something in one place that directly influences another. Weather apps work that way, where both places are part of the same (weather) system. The latter is not necessarily necessary. It is also possible that insight is gained in one place (somewhere in the world) that is directly relevant to a comparable place elsewhere on earth. Nowadays, responses can be extremely fast.

But does that also mean that cities no longer matter? It is a theory that was popular in the 1990s: through the internet, we would all live in rural areas. After all, there was no reason to live in the city anymore, so why would you do that? Since then, the popularity of cities has only increased. There are

various reasons for this. First, most people like to stay with other people. Man is a group animal and derives his happiness for a large extent from the interaction with other people. And that is why people like to be together. That is why there still are “real” meetings; we like to see each other.

However, there are also other economic reasons. As mentioned, the network society is not about the connection, but about the points. The value is created using the components, the points and the value that the components add to the network, thus determining the total value. A network is as valuable as the sum of its parts. That has always been the case, but certainly applies online.

There is always a spatial component. Even with Facebook, a good portion of the revenue model has a spatial component. Geography plays an important role in targeted advertising and influence, but it is much stronger for online services such as Amazon and Uber. These systems need mass and density. And that mass is limited spatially. For example, the countryside isn't interesting for Uber as there is little demand for taxi rides. A high density makes these systems more flexible in utilizing the network and therefore they become more efficient.

### 3 Urban Planning Principle 3: We Design Flexibility

If everything in the room is connected to the internet and we have access to all information everywhere, then we become very flexible in our behavior. This requires an organization of space (on whatever scale) that is also very flexible. On the other hand, there is a need to continue to facilitate the city for the major challenges of our time. It requires efficient infrastructure, greenery and well-designed public spaces in the city. Flexibility therefore also raises the question how to design sustainable structures.

Flexibility has already taken place at the building level. Flex work has become the norm in the last twenty years, especially in offices. It has led to new, flexible layouts of rooms and new furniture. The

big change, however, is that having a home becomes a choice. Home use is also having a letterbox and a telephone connection, which you needed to receive important messages from the government, the bank, etc. or to receive the (paper) newspaper and watch TV. Nowadays a smartphone is sufficient. Concerning those aspects, having a fixed home address can be compared to a “roaming” existence. As long as you are connected to the internet, you can be found and you can purchase virtual and physical services. You no longer need an address to live in the city. This way you can be a user of multiple cities.

Flexible use of space can also be a reason for differences in planning regimes. Why do the same rules always apply everywhere? This flexibility has already been implemented on the motorway. Where once one maximum speed applied, there are now matrix signs indicating which lanes can be used and at what speed. The situation almost immediately reacts to the circumstances. This can also be applied to other functions. The drive behind that is not technology, but efficiency and therefore money. The head of maintenance of the future writes algorithms, which manages the manager. But the most important thing is the security guard that prevents hackers from flooding our sewers.

#### 3.1 Functions Merge with Each Other

The internet creates an increasing mix of usage in time and place. The segregation of duties that have been implemented in all aspects of our lives over the past century and where you live at home, buy your things in stores, working at work, is increasingly disappearing. Jobs run through each other much stronger and take place next to each other and sometimes even simultaneously. With Starbucks as a work and meeting place and the office as a second home.

We also see flexibility in how groups use public space. Until the invention of the smartphone, a meeting was a local activity. Now you can use your message apps to meet. The physical meeting point thus disappears as a necessary condition for meeting each other. The meeting point and social contact

(eg. gaming between youth) have become a digital meeting place.

### 3.2 Flexibility Challenges Scale

The fascinating thing about the internet, is that it questions the concept of scale. Before the internet, a parking space was a parking space and a lamp a lamp. It was the lowest level of scale and that individual lamp was hardly interesting if you went one level higher. Now there is a sensor in that lamp or parking space. Through a digital twin not only does every object become unique, but connections and relationships can also be seen. This way every sensor influences the whole.

Nowadays we can even make a digital twin of every given environment, a digital representation of data in a 3D map environment. A digital twin can: 1) provide insight into the existing situation (with the limitation that the requested data must be present). 2) combine different data layers. The system can establish correlations based on this. The user can then see connections himself. 3) calculate the effects of planned interventions.

When making correlations, making connections and passing on planned interventions, assumptions are used that have been translated into algorithms. These assumptions can be refined over the lifetime of the system, based on experience gained by the system. The algorithms then get better. Experiences of other cities can also be used. In principle, this is no different than with any computer program: user experiences from all over the world influence the updates a certain program gets.

These digital twins are the first step towards a real-time environmental policy, whereby circumstances can be responded to in an instant. An environmental zone, which now only repels old dirty cars, could respond to the current environmental quality. To go one step further: that system too can learn from systems in other cities and respond immediately. We're not there yet. There are many technical issues to solve. For example, systems must be built and they must also be able to communicate with each other. Moreover, municipal administrators must want this.

Is this only interesting for large cities? On the contrary. In particular smaller centres, villages and the countryside can benefit from this development. Flexibility is the result of constant connectedness, which also exists in rural areas, but in a different way.

### 3.3 Sustainable City Structures as a Counterweight

Flexibility also has another side. Just as chaos evokes the necessity of order, a variable and flexible use of space requires fixed facilities. Requirements are set for these establishments that can facilitate various functions and uses, such as accessibility, safety and usability (space and basic facilities). To be able to function flexibly, an underlying system is required, a grid.

The major challenges of this time and the ever-increasing growth of cities, require a city plan with sustainable urban structures. The most important are the main infrastructures for mobility needs, supply and removal of goods, waste, energy supplies and the need for a well-functioning green-blue structure to facilitate climate change, recreational use including slow traffic and as a supply for biodiversity. The smart city requires facilities and infrastructure that measure and monitor the functions and the use and qualities of these facilities.

These city structures determine the spatial values that a city is assigned. Green cities with high-quality facilities for climate adaptation, health and social use will position themselves stronger than cities that do not have any, or have less. Use and management by and with the help of citizens, is an additional guarantee of protection and conservation. Digital systems will play an increasingly important role in this.

## 4 Urban Planning Principle 4: We Design Meaningfully

Places and areas with identity and meaning are becoming more important in the smart city. Through technology and digitization, we can be everywhere and therefore meaningful places determine where we want to be. Places that respond to the need for authenticity and our preferences for the experience.

Thanks to the internet, everything is always possible everywhere and that makes us flexible. But we are not in multiple places at the same time. We are only in one place: the place where we are most fond of. Because if I can be everywhere, then I am in a place that appeals to me, where I find life the most pleasant or where I can gain a special experience. That fits with my taste and preference of that moment. I want to be where I like to be. I have my routes through cities and I choose from the city what she has to offer. The hotels where I sleep, the restaurants where I eat, they suit my preferences. I follow what the internet has to offer. Spotify: all music in the world, so I listen to what I like or the algorithm knows that I like. The algorithms of Google and Booking.com know this better and better.

An important aspect of spatial preferences for buildings, locations or routes is that the appreciation and experience are partly determined by the choices of others, fellow city dwellers or tourists. Not only the quality of the place and the intended experience determine my intended behavior (journey and stay), but the scan that the internet can make in real-time spatial situations. That's how I can adjust the location and route of my preference every moment, for example, based on the expected crowds, accessibility differences, or the weather prediction. Sometimes it is difficult, but even then, I succeed because I leave on time so that I can adjust my preference during my journey. Due to the presence of the internet and our virtual connection with the location, we are always able to zoom in on places of our preference and, if desired, to switch quickly from one to the other preferred location. The dominant criterion for that changing perspective is the experience. What is there to do and does that match incentive needs? Moreover, we have more and more time to satisfy that need for experience, due to the efficiency of the internet. We order products on the internet, leaving us time for the local shops. And because we can consult our smartphone everywhere or open our laptop, we can do that in unique places. Whether you are in nature or on a festival.



#### 4.1 Duplicate Assignment

The attraction of the place of our preference contains a double message. Places and areas that score highly because of their authenticity, historical significance, use and/or experience value and are easily found, are rapidly increasing on preferred lists of travel and holiday destinations. The explosive increase of mass tourism to special places such as Giethoorn or the Amsterdam canals, is already a serious problem for policymakers and city planners.

Places and areas that lack authenticity and special opportunities for behavior and experience are a challenge in urban planning. This is a happy message for designers: the tasks in the (smart) city and the spatial renewal in the living environment are given top priority. That makes good design more important than ever. How the various meanings and functions are shaped is the subject of dialogue between residents and professionals, including designers. It is up to designers to make choices, to safeguard the main points of the program and beauty, and to materialize the requirements and wishes of stakeholders (residents, entrepreneurs, users). Designers have been doing this for centuries. However, because of the global need to develop green, healthy and inclusive cities, there is only a greater need for it. As said, it's a happy message.

#### 4.2 Experience with the Internet

New is the interaction between public space and the internet. Pokémon Go brought a new form of experience to the city that was only recognizable to the participants of the game. And through the Strava App<sup>[4]</sup>, you can cycle against yourself and others. The lonely cyclist has suddenly become a team athlete. To facilitate this interactive use in and around the city, spatial variables such as location, size, access and accessibility are especially important. Planning and design actions focus on facilitating that use by designing — new — places in such a way that that interaction can take place unhindered and safely. Taking into account that vulnerable places are avoided as much as possible.

#### 4.3 Risks

Experience can also go too far. Public space must offer incentives, but it must not become a funfair that overwhelms you. This is an important public task. As the guardian of the public interest, the government must ensure that the city offers space for the experience of freedom and tranquillity. But how do we design the counterbalance to the “over-stimulation” in the city? And is it about the design, such as a park or the beach, or is it (also) a planning framework, with principles such as zoning and time slots for areas? Here our autonomy and freedom are partly under discussion. But limiting this is sometimes necessary to preserve the greater good in the city. The smart city requires an accompanying policy. There should be a (European) legal framework that guarantees our freedom and includes it in the design. After all, we have the right to entertain ourselves, but especially the right to be free. Anyone working on the smart city must therefore also ask themselves what the disadvantages are, and how we can prevent or resolve them in the physical domain.

### 5 What's Next: Tools

The Dutch Ministry of Interior has asked to set up a network of companies, governments, academia, citizen movements and other organizations, so that the entire quadruple helix is represented. They will sign a so called City Deal (a program connected to the EU Urban Agenda)<sup>[5]</sup>. This network will develop, test and implement provide a toolbox with tools that respond to the practical questions arising from the book *A Smart City, This is How You Do It*<sup>[6]</sup>. The tools must be feasible, scalable and shareable. The next three years the network will be working on those tools. With this toolbox urban designers get the tools to design real smart cities.

#### Notes:

① Future City Foundation: Future City is the first smart city network that focuses on the demand of the city. A movement of communities in which companies, municipalities and other governments can develop solutions and to do experiments. Future City is an initiative of companies

and governments that want to stimulate the exchange of knowledge, ideas and solutions between technology professionals, administrators and urban developers. [www.future-city.nl](http://www.future-city.nl). Future City is a FIWARE iHub. FIWARE is a composite framework of open source platform components to accelerate the development of smart solutions. Their mission is: “to build an open and sustainable ecosystem around public and implementation-driven software platform standards that facilitate the development of new smart applications in multiple sectors.” [www.fiware.org](http://www.fiware.org).

② The book *A Smart City, This is How You Do It* is made in collaboration with AM, Amsterdam Smart City, BNSP, Civity, DHM Infra, Economic Board Utrecht, ELBA/REC, Esri Netherlands, FIWARE, FME, Municipality of Alphen aan den Rijn, Municipality of Amersfoort, Municipality of Apeldoorn, Municipality of Enschede, Municipality of Krimpen aan den IJssel, Municipality of Sittard-Geleen, Cadastre, Kennedy Van der Laan, Ministry of the Interior and Kingdom Relations, NVTL, Platform31, Province of Utrecht, Province of Zuid-Holland, Stichting Digitale Bereikbaarheid, Syntus Achmea and VodafoneZiggo. The book can (for free) be downloaded at: <https://future-city.nl/smart-city-book-eng/>.

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(Editor / WANG Yilan)