

# 建设一体化交通网络，推动城市群协同发展

香港铁路有限公司

## [摘要]

世界范围内的城市化进程呈现出逐步加速的态势，城市群的形成将是全球城市化发展过程中的必然趋势，未来由国家或地区主导的竞争合作将逐渐转变为以城市为主导的竞争合作。城市群的发展已经成为我国国家重点发展战略，也是未来我国经济高质量发展的重要驱动力。

城市群有利于形成规模经济，对区域和全球经济起到了巨大的促进作用。全球发达的城市群是由少数特大型的中心城市、多数的中小城市以及众多小市镇相互串联而成的城市群体，形成一体化的城市空间等级结构，内部联系紧密，对外形成一致的高度对外开放。发达的城市群通常也具备完善的公共交通网络体系，促进并强化了城市群的内部和外部联系。

完善发达的公共交通运输设施是城市群发展的重要基础，城市群的公共交通规划建设既需要多种交通方式融合发展，也需要便捷高效的交通枢纽集散，既需要建立城市之间的高效连通，也需要建立城际交通和城市内交通的无缝链接。

港铁公司作为全球领先的轨道交通运营企业之一，在其四十年发展过程中，积极配合香港政府实施新市镇的规划建设，践行的轨道交通加土地综

合开发模式有力地促进了香港新市镇的发展。港铁公司拥有高速铁路、城际铁路、地铁、轻轨、巴士等多种交通运输方式的运营管理经验，也具备了综合性客运交通枢纽的规划建设和管理经验，为香港的公共交通网络一体化和城市发展做出了重要贡献。

港铁公司将继续加大力度参与中国内地的城市发展，有信心有意愿也有能力为中国城市群的发展做出更多的贡献。

## [正文]

随着全球经济的发展与社会生产力的提高，世界范围内的城市化进程已经呈现出加速发展的态势，城市与城市之间的联系也越来越频繁越来越紧密，城市组团协同发展逐渐成为全球化形势下现代城市发展的新形式，城市群的形成将是全球城市化发展过程中的必然趋势。20 世纪 50 年代，全球仅有纽约和东京两座人口超过 1000 万特大型城市，现在全球特大型城市已经有几十座，这些城市集中了全球近 5%的人口并且创造了全球近 20%的经济体量，未来由国家或地区主导的竞争合作将逐渐转变为以城市为主导的竞争合作。

### 一. 城市群是我国经济发展重要战略

城市群是随着科技进步、规模经济效益促使产业与人口在空间上集聚与扩散效应而产生的，是一个国家城市化发展的必然趋势，是城市化发展到成熟阶段的城市地域空间组织形式，也是城市化进入高级阶段的标志。城市群

作为区域发展的主要载体是我国未来经济发展的框架支撑，城市群在近年来已经成为国家重点发展战略，未来也将是支撑中国经济高质量发展的主要平台。

2006年发布的《中华人民共和国国民经济和社会发展第十一个五年规划纲要》提出“把城市群作为推进城镇化的主体形态”“具备城市群发展条件的区域，要加强统筹规划，以特大城市和大城市为龙头，发挥中心城市作用，形成若干用地少、就业多、要素集聚能力强，人口分布合理的新城市群”，这是“城市群”概念第一次出现在中央文件中，自此，城市群成为我国城镇化规划发展的新战略新方向。2007年党的十七大报告指出“以大城市为依托，形成辐射作用大的城市群，培育新的经济增长极”。2011年发布的《中华人民共和国国民经济和社会发展第十三个五年规划纲要》提出“在东部地区逐步打造更具国际竞争力的城市群，在中西部有条件的地区培育壮大若干城市群”，并且提出“适应城市群发展需要，以轨道交通和高速公路为骨干，以国省干线公路为补充，推进城市群内多层次城际快速交通网络建设”，为城市群内的交通发展指明了方向。2012年党的十八大报告指出“继续实施区域发展总体战略，科学规划城市群规模和布局”。2013年中央城镇化工作会议提出“要在中西部和东北有条件的地区，依靠市场力量和国家规划引导，逐步发展形成若干城市群”。2014年出台的《国家新型城镇化规划（2014-2020年）》

提出“要通过不断提升东部地区城市群质量和培植中西部地区城市群发展来优化中国城市群发展形态,以此促进城市群一体化发展”,并要求建设长三角、珠三角、京津冀、山东半岛、海峡西岸、哈长、辽中南、中原、长江中游、成渝、关中平原、北部湾、山西中部、呼包鄂榆、黔中、滇中、兰州-西宁、宁夏沿黄、天山北坡等 19 个城市群,城市群一体化发展越来越成为国家制定区域与空间发展政策和规划的重要目标指向。2016 年发布的《中华人民共和国国民经济和社会发展第十三个五年规划纲要》提出“加快城市群建设发展,打造京津冀、长三角、珠三角世界级城市群,并将在全国范围内打造 19 个城市群”。2017 年党的十九大报告指出“以城市为主体构建大中小城市和小城镇协调发展的城镇格局”。2018 年出台的《关于建立更加有效的区域协调发展新机制的意见》中指出“以京津冀城市群、长三角城市群、粤港澳大湾区、成渝城市群、长江中游城市群、中原城市群、关中平原城市群等城市群推动国家重大区域战略融合发展,建立以中心城市引领城市群发展、城市群带动区域发展新模式,推动区域板块之间融合发展”。2019 年国家发改委公开印发的《2019 年新型城镇化建设重点任务》指出“要按照统筹规划、合理布局、分工协作、以大带小的原则,立足资源环境承载能力,推动城市群和都市圈健康发展,构建大中小城市和小城镇协调发展的城镇化空间格局”,并根据国家总体规划战略的发展将长三角一体化上升为国家战略,将珠三角城市群扩

展成为粤港澳大湾区整体规划开发。自 2015 年至今，国家提出的 19 个城市群规划已经基本编制完成，国务院也已经批复了 11 个城市群具体规划，对城市群涉及的具体范围、战略定位、发展目标做了进一步的明确。在国家相关政策指引下，我国的城市群战略规划已经彰显出经济活力，并逐步进入加速期，未来也将成为我国经济增长的重要驱动力。

## 二、 全球发达城市群发展的成功经验

城市群是一个国家经济增长的重要引擎，经济集聚通过规模效应、技术外溢和市场竞争引导着经济活动的集中，城市空间集聚则促进了生产要素的自由流动，使得市场边界不断扩大，有利于形成规模经济，从而更进一步推动了区域内的社会经济发展。

未来全球城市化的方向必将是大城市群形态，目前全球公认的五大城市群主要是美国波士顿-纽约-华盛顿城市群、北美五大湖城市群、日本东海道城市群、英国中南部城市群、欧洲西北部城市群。西方城市群的发展初期是各国政府为改善原有单一的中心大城市人口过于集中、交通拥挤、生态环境恶化、失业人口增加而将产业和人口向大城市周围的地区扩散，采用城市群布局方式。在地域上组成一个相关互联、相互依赖的城市群体。这种城市群体随着经济的发展而逐步演化成巨大的城市化地带，并以其独有的集聚优势，对区域以及国家的经济发展起到了巨大的促进作用。纵贯全球主要的大型城

市群，其成功经验主要有：

### （一）一体化的城市空间等级结构

城市群的发展不仅具有明显的空间等级结构，同时也具备一体化的空间形态。

发达的城市群具备完善的城市等级体系，至少有一个或多个空间规模巨大、经济实力强劲、辐射功能强大的大型中心城市，这些大型的中心城市是城市群的中心，在其周边则分布着规模不等的中小城市，以及诸多发展特色各异的小城镇。由少数特大型的中心城市、多数的中小城市以及众多小市镇相互串联而成的城市群体，层次分明，各规模等级城市之间呈现金字塔型的结构比例关系，城市的职能作用通过城市网络依次有序地逐级扩散到整个城市群体系，产生较高的城市群体能级效应。同时，城市群中的城市定位各不相同，具有较强的互补性，使得城市群中的城市以及小城镇之间存在着紧密的联系，人流、物流、资金流、信息流等生产发展要素能够实现自由顺畅的流动，使得城市群中的中心城市、中小城市、小城镇能够协调一致、共同发展。

以美国纽约-波士顿-华盛顿城市群为例，其分布于美国东北部大西洋沿岸平原，北起波士顿、南至华盛顿，以波士顿、纽约、费城、巴尔的摩、华盛顿等一系列特大城市为中心地带，其间分布的萨默尔维尔、伍斯特、新贝

德福德、纽黑文、帕特森、特伦顿、威明尔顿等 40 多个中小城市将上述特大城市连成一体。在沿海岸 600 多公里长的地带上形成一个超大型城市群，城市化水平高达 90%，制造业产值超过美国全国的 30%。城市群内的各个城市都有特殊的定位功能，都有占优势的产业部门，城市之间形成紧密的分工协作关系，成为了美国经济的核心地带。而与美国日本等国家追求核心城市的“超大”不同，英国中南部城市群作为全球发育最早的城市群，追求的则是小城镇的“小而精”。以伦敦为核心，伦敦-利物浦作为轴线，包括伦敦、伯明翰、曼彻斯特、利物浦、谢菲尔德等数个大中小城市，以及众多的中小城镇，区域面积仅为 4.5 万平方公里，是英国产业密集带和经济核心区。其中伦敦是欧洲最大、也是全球三大金融中心之一；曼彻斯特是印刷机械、汽车生产制造中心；利兹、伯明翰、谢菲尔德是纺织机械重镇。从 20 世纪 60 年代开始，英国人口开始大量向小城镇迁移，大中城市周边的卫星城镇迅速兴起，英国政府也开始将政府部门及其下属机构向小城镇转移。英国高校等公共事业单位也影响政府行动逐步迁移至小城镇。英国大企业部门落户小城镇也已成为了趋势。从世界上发达的城市群可以看出，城市群在一个特定区域内集聚了相当数量的不同性质、类型和规模的城市。城市群内部城市之间的内在联系紧密，对外则能够形成高度开放的一体化城市群体。

## （二）完善的公共交通网络体系

在发达国家的城市群形成与发展的过程中，交通体系是最基本、最活跃的因素。城市群形成初期一般会沿着综合交通走廊展开，并随着交通网络等基础设施的改善而不断扩大。发达的大型城市群必然拥有由公路、铁路、航空、水运、城市内部交通等多种现代运输方式所叠加组成的区域性交通网络。多种运输方式之间相互贯通、速度快、密度高，将中心城市、中小城市以及小城镇串联成一体，使得区域性公共交通建设与城市空间结构相互协调，有机结合。除此之外城市群内部之间通常会拥有大型交通网络枢纽，如规模相当的海港、空港或者内陆交通集合换乘枢纽。

以日本东海道城市群为例，城市群以东京、大阪、名古屋为中心，由千叶向西，经东京、横滨、静冈、名古屋，至京都、大阪、神户，大中小城市超过 300 个，是日本政治、经济、文化、交通的中枢，也是全球汽车、家电、自动办公设备、造船中心之一。日本东海道城市群由东京、名古屋、大阪三大都市圈组成，其形成与发展是由铁路网络引导的城市扩散而逐渐演变的。其中，东京都市圈是日本的交通核心区，有完善的海陆空三大交通系统通往世界各地，也有世界上最密集的轨道交通线路网络。最初东京的铁路系统由两条分叉线路扩散成中期的环状线路，另外延伸出 JR 线，后又向周围地区辐射出多条交叉线路随着交通网络的渐进式发展，日本私营铁路的建设则促使城市不断的向外扩展，进一步发展形成了东海道城市群。目前，东海道城市

群区域内的城际轨道交通网络线路总里程超过 2500 公里。城市群内的居民出行通勤非常依赖新干线、轨道交通、轻轨以及城市电轨等快速轨道交通工具。而且，城市群内的轨道交通方式及其他交通方式之间合理衔接，互相配合，线网密度和通达深度首屈一指。成熟的公共交通网络不仅有效的解决了城市群内部客运交通的问题，也极大的促进了东海道城市群的经济增长。西方发达城市群的成功经验显示，完善的公共交通网络体系能够促进整个区域发展，尤其是轨道交通的建设具备技术和经济的双重优势得到更多的重视，能够保证人力、资金、信息、技术等交换与汇流，强化城市群之间的联系与分工，增加城市间的配套能力，促进整个城市群区域的产业升级和转型，起到了不可替代的重要作用。

### 三、完善的交通网络推动城市群发展

在国外城市群发展的过程中，完善发达的交通运输网络是主要的驱动因素和先决条件之一。交通运输网络作为人力与各种生产生活要素流动的媒介，一方面对城市群内部的各个城市起着融合的作用，能够促进城市群的整体发展，另一方面又决定着城市群内部各个城市间的网络联系强弱，构建完善、高效的交通运输系统，对城市群的形成与发展起着非常重要的作用。完善发达的公共交通基础设施是城市群发展的必要基础，其中中心城市的公共交通基础设施越发达，城市间的城际公共交通网络越完善，其辐射的经济圈范围

就会越大，城市群区域内的要素流动就会越活跃，城市群的经济活力和发展潜力就会越大。

### （一）多种交通方式融合发展

城市群的一体化发展离不开完善的交通运输网络。在城市群内部，各种交通运输方式所起的功能并不相同，应当协调发展形成综合交通通道。城市群区域的铁路、公路、水运以及航空网络，能够为城际间客流运输提供多种选择。各种运输方式之间虽然存在着一定的竞争关系，但更重要的是各种交通运输方式相互衔接、相互补充，才能充分发挥出城市群综合交通运输系统的综合效益，才能使得人才、资金、信息、技术等生产要素产生快速流动，从而提升城市群的综合竞争力和一体化发展。

在城市群的主要交通轴线上往往会形成巨大的交通流量，因此城市群交通的发展方向应是以满足快速和大运能的快速交通为骨干交通手段。高速铁路、高速公路、城际轨道交通等方式都是理想的交通运输手段，其中城际轨道交通具有大运量、快速、低耗能、高环保的特点，对城市群快速客运交通系统的主要轴线和骨干交通线来说，是最理想的交通运输方式。合理的城市群轨道交通系统需要在城市群的主要交通轴线上采用大运量的城际轨道交通作为骨干线，辅以轻轨等作为支线和联络线联系各城镇、住宅区、居民点以及工业区和商业区等，从而满足城市群内居民不同的出行需求。

## （二）交通枢纽提升运输效率

近年来，随着各种交通方式的不断完善和发展城市群内部社会经济发展和居民出行通勤对交通系统的需求也逐渐提升城市群客运交通系统越来越趋于综合化和一体化，交通客运综合性枢纽的建设和发展已经成为城市群客运交通体系中不可或缺的一个重要组成部分。交通客运综合性枢纽是在大城市、中小城市，由两种及以上运输方式的运网、多条运输线路汇集相连吸引和辐射范围广阔，承担巨大客流量的换乘枢纽，是提高客流运输速度的关键环节，对所在区域的综合交通运输网络的高效运转具有重要作用。由多种交通方式组成的综合公共交通客运系统，必须高度重视综合换乘枢纽站的规划和建设。乘客从起点到终点完成一次出行，通常会需要多种交通方式。通过枢纽站的衔接，把多种交通方式有机地组合起来，给乘客出行带来极大的便利，这是交通规划中非常重要的一个环节。

由于我国大城市客运交通枢纽规划建设起步较晚，对其重要性的认识不够充分，在建设和发展过程中仍存在问题。长期以来我国城市群客运交通管理体制采用的是一种条与块相结合的管理模式，高速铁路、城际铁路、公路、水运、民航、城市交通中的地铁、轻轨、公交等分别由不同的主管部门管理。条块分割、部门分管、自成系统的管理体制，导致了城市群客运组织管理协调的严重缺位。在客运交通综合性枢纽的多种交通方式的衔接中，管理体制

的弊端表现更为明显。规划部门、决策部门、管理部门各自为政，按各自的组织管理要求进行基础设施配备，只重视运输线路的规划建设，很少从综合交通体系的角度考虑，对城市群综合交通网络的结合统筹规划建设的重视不够，致使客运交通枢纽内各交通方式相对独立和分散，并没有实现有效的链接，交通枢纽未能充分发挥其对交通设施的整合作用。而且枢纽管理体制的部门分割也导致城市客运交通枢纽的规划建设没有与城市总体规划、城市土地利用规划等有机结合起来，也造成了目前国内大城市群综合性客运交通枢纽布局不合理、规模不适当、交通枢纽与城市交通衔接不畅、运通不匹配等问题的出现。由于管理体制的障碍，在城市群交通枢纽规划和建设中，很难实现枢纽的统筹规划。各种交通方式枢纽都是按照各自的生产要求各自规划、独立建设、自成体系，在规划设计中难以充分考虑其他交通方式的需求。尤其在城市群中铁路、公路、机场等城际交通与地铁、轻轨和公交等城市交通的合理衔接方面，缺乏协调与衔接。各种运输方式的客运站独立建设，衔接不畅，非常容易造成乘客集散与中转不方便不流畅，乘客换乘效率低下，换乘时间过高，各种交通方式之间无法组织起高效率、高质量的“无缝衔接”和“零距离换乘”。这严重影响到交通客运的运输质量，而且造成不必要的交通效率降低和资源浪费，最终影响到城市群一体化发展的要求。

在我国，由于各种不同的交通方式由不同的部门管理。要实现多种交通

方式综合的枢纽站点，在城市群中能够最大限度地提高客运效率，达到最便捷的换乘效果，在客运交通枢纽的规划和建设时必须统一筹划和协调在促进城市群内各种交通方式网络化方式发展的前提下，要充分考虑铁路、公路、民航、水运等城际之间的交通运输方式与地铁、轻轨、公交、出租等城市内交通的紧密衔接，使旅客能够方便换乘。综合交通客运枢纽站的建设应尽量实现各种交通方式的集散衔接，尽量采用站内立体或平面“零距离换乘”，最大程度的提高客运交通的总体效率。

#### **四. 香港经验助推城市群交通一体化**

城市群交通运输一体化主要体现在设施网络的协同化，运营组织的高效化、运输衔接的便捷化以及管理体制的一致化四个方面。港铁公司在香港共运营 10 条市区地铁线路，1 条往来香港国际机场的机场快线，在新界西北运营 2 条有轨电车线路，并且在市区提供多条接驳巴士服务。除此之外，港铁公司亦运营着广东、北京及上海等地的城际铁路以及跨境巴士，并且于 2018 年开始提供广深港高铁香港段的运营服务。港铁公司与香港政府合作，在香港统一规划并提供多种制式的公共交通，在轨道交通的管理体制上达到了一致，实现了香港轨道交通设施网络的协同效应以及运营组织的高效化；在多种制式的接驳方面，港铁公司以人性化服务为原则，力求实现多种运输方式衔接的便捷化。以香港九龙站为例，九龙站位于新填海区，整个项目于 90 年

代初由港铁公司策划兴建，有全港最高 118 层办公楼、6 星级酒店及服务式住宅、8 万平方米购物中心、4000 多个豪华住宅单位，并且集合了机场快线、广深港高铁、地铁、过境巴士、旅游巴士、小巴、出租车、私家车等各种交通方式的换乘和集散，是香港非常重要的道路和铁路网枢纽，能够非常便利的直达香港各区，而且可以方便的利用城际轨道交通通往国内主要城市。港铁公司在九龙枢纽站的规划设计时，既考虑到了香港国际机场、广深港高铁、跨境巴士等城市之间的交通运输需求，采取车站平台、住宅、商业、公交换乘点、其它公共设施多层结构布局的方式，将各种交通工具融合到了一起，有效实现了无缝换乘。同时也综合考虑各方利益和居民便利性，在地铁周边建设的项目均以风雨连廊相互连接，周边居民可以通过各居住小区的连廊直接到达地铁。各小区居民在晚上地铁停驶后，也可以通过圆方商场内的 24 小时开放通道，通过连桥回到各自小区，确保乘客和居民能够享受到轨道交通和综合交通客运枢纽所带来的便利。

港铁公司在香港亦积极参与城市新市镇的建设，通过东涌线、将军澳线等多条轨道线的规划建设，并通过轨道交通与土地综合利用的协同效应，集约用地，以轨道交通站点为中心形成交通枢纽和商业中心，从而带动了香港多个新市镇的建设、发展及兴起。港铁公司践行的轨道交通与土地综合利用的模式促使城市空间由单中心结构向多中心结构转变。合理布局的快速轨道

交通系统以及适当的配套措施，消除了香港地少人多的结构缺陷。连接原有城市中心区与边缘区的快速轨道交通线，对居住和工作在市中心区的居民将居住和工作地点转移到香港城市的边缘区，降低中心区的人口密度和交通需求密度，改善城市空间格局起到了非常重要的作用。边缘地带居住区之间的快速轨道交通，更是有助于城市向边缘的扩展和辐射，促进边缘区与中心区的均衡发展，从而使得资源得以更为合理平均的分配，创造出新的市镇区。

自 1973 年开始，香港政府和港铁公司以轨道交通带动新市镇开发的模式，在旧工业区、村落、薄田、荒坡、滩涂上建设了世界上最庞大的新市镇组群之一。经过前后四代形成的 9 个新市镇居住人数超过 300 万，其中沿九广东铁线兴建的沙田镇居住人口达 60 万。在新界西部，通过西铁和轻铁有效服务屯门、元朗、天水围等新市镇逾百万人。配合将军澳开发建设的将军澳支线，则使得将军澳镇的人口从不足万人发展到数十万。港铁公司为提升公共交通运输的效率和服务质量，对地铁-住宅-商业-公共道路之间的出入及换乘均根据实际情况进行合理规划布置。在每个交通综合枢纽站外均布置出租车站或其他交通工具换乘点，在商业区或住宅区内则设有多个通过地铁的出入口，方便市民无缝接驳。通过轨道站点及周边土地的高密度、多功能开发，配合地铁出入口与住宅、商场、办公楼、公共设施以及周边社区的无缝链接，极大地方便了市民出行、购物、通勤等活动需求，促进了香港的繁荣发展。

城市群建设作为我国国家发展的重大战略，是引领国家经济发展的新动能，公共交通是城市群发展的重要推动力，城市群的内部链接需要多种形式的交通运输方式，而且多种交通运输方式的有效衔接和换乘对提升城市群居民的出行和通勤效率非常重要。港铁公司在香港新市镇的建设过程中积累了非常丰富的经验，既具备多种形式交通运输方式的规划、建设和运营管理经验，也具备综合性交通客运枢纽的规划建设经验，有意愿和能力为国家的城市群发展做出更多的贡献。

# **Build Integrated Transport Network to Boost the Development of City Clusters**

MTR Corporation Limited

## **Executive Summary**

Urbanization is showing an accelerated momentum across the world and city clustering will be an irresistible trend in this process. Competition and cooperation once dominated by countries or regions will gradually turn out to be dominated by cities. Development of city clusters is already highlighted as a key national strategy in China, which will serve as a significant driving force for high-quality economic growth.

City clustering contributes to achieving the economy of scale and stimulating economic growth at regional and global levels. Major city clusters across the world are composed of a small number of mega, hub cities, a few small and medium-sized cities and many smaller cities and towns. These cities and towns are integrated by

tiered structure, and closely connected to each other internally and highly opened externally. Advanced city clusters normally have full-fledged public transport network which enables and reinforces the connectivity inside and outside the clusters.

A full-fledged public transport network is the foundation for city clustering. It requires the converged, multiple transport modes and transport terminals that offer convenient traffic distribution. It involves efficient connectivity between cities as well as seamless connection between inter-city and intra-city transport.

As a world leading rail transit operator, the MTR has supported the new urbanization masterplan of the Hong Kong SAR in the past forty years, and its combined development model of rail transit plus comprehensive land development has strongly promoted the development of new towns in Hong Kong region. The MTR is equipped with experiences of operating and managing multiple modes of transport such as high-speed train, inter-city train, subway, light rail, bus, among others. It has also been a veteran in terms of planning, constructing and managing comprehensive passenger traffic terminals. MTR has contributed significantly to

the integration of public transport networks and urban development in Hong Kong.

MTR will continue to engage in the urban development drive on the mainland with stronger confidence and willingness to contribute more in the development of city clusters on the mainland.

## **Full Article**

As global economy grows and social productivity increases, the world has been witnessing a momentum of accelerated urbanization. Cities communicate with each other in a closer and more frequent manner. Synchronous development of multiple cities within a city cluster is turning out to be a new form of urbanization in the era of globalization. City clustering is the irresistible trend of urbanization worldwide. In 1950s there were only two mega cities in the world whose population exceeded ten million, namely New York and Tokyo. Today across the world there are scores of mega cities which, in aggregation, are home to nearly 5% of global population and generate nearly 20% of world economy. Competition and cooperation in the future will be dominated by cities instead of countries or regions.

### **I. City clustering is an important strategy for economic growth**

Cities are clustered along with the concentration and dispersion of industries and people caused by technology advancement and the effect of economy of scale. City clustering is an inevitable trend of urbanization within a country, a form of spatial organization of cities, and a mark that urbanization reaches a high level of maturity. City clusters serve as the carrier of regional development and underpin future

economic growth. Therefore, city clustering has become a key national strategy. It will also offer strong support to high-quality economic growth in the future. The 11<sup>th</sup> Five-Year Plan on National Economic and Social Development in 2006 put forth the initiative that “city clusters shall serve as the main form of urbanization, regions with ripe conditions for city clustering should strengthen coordination and planning in order to allow mega and large cities to play the leading role, give full play to hub cities, and build up new city clusters which consume fewer lands, create more jobs, gather more production factors and enable rational demographic distribution.” This is the first time that the concept of city cluster was written in policy papers of the central government. Upon that, city clustering became a new strategy and a new direction for China’s urbanization planning. The Report of the 17<sup>th</sup> CPC National Congress in 2007 pointed out that “we shall base city clustering on large cities which exert greater influence and foster new opportunities for economic growth. The 13<sup>th</sup> Five-Year Plan on National Economic and Social Development in 2011 stipulated that “we shall develop internationally competitive city clusters in eastern region and cultivate a number of city clusters in central and western regions where conditions are ripe”. The Plan also proposed to “promote the construction of multi-tiered inter-city fast transit networks within city clusters that

suit the needs of city clusters, depend mainly on rail transit and expressways and are supplemented by sub-national trunk highways”. These stipulations charted the direction for transport network development within city clusters. The Report of the 18<sup>th</sup> CPC National Congress in 2012 requested to “continue the overall strategy of regional development and make rational planning for city clustering”. The CPC Central Committee Conference on Urbanization in 2013 proposed that “in regions with necessary conditions in Central, West and Northeast China, we shall leverage on market resources and follow national policy in a bid to develop a number of city clusters”. According to the National Outline for New-type Urbanization issued in 2014, China should optimize the format of city clustering by improving the quality of eastern city clusters and cultivating city clusters in central and western regions so as to ensure an integrated growth of city clusters. The policy paper also required the construction of 19 city clusters throughout the country including the Yangtze River Delta, the Pearl River Delta, Beijing-Tianjin-Hebei, the Shandong Peninsula, the West Side of the Taiwan Straits, Harbin-Changchun, Central and South Liaoning, Central China, Yangtze River mid-stream, Chengdu-Chongqing, Shaanxi Plain, the Beibu Gulf, Central Shanxi, Huhhot-Baotou-Erdos-Yuci, Central Guizhou, Central Yunnan, Lanzhou-Xining, Yellow River Belt in Ningxia, and North Half of the

Tianshan Mountain in Xinjiang. City clustering became an increasingly important goal of regional and spatial development policies. The 13<sup>th</sup> Five-Plan on National Economic and Social Development in 2016 called for “the acceleration of city clustering across the country including the world-class clusters in Beijing-Tianjin-Hebei, Yangtze River Delta and Pearl River Delta as well as the others of the aforementioned 19 clusters”. The Report of CPC National Congress in 2017 pointed out that “cities should play the main role in urbanization and large and medium-sized cities and small cities and towns develop in a coordinated way.” The Opinions on Establishing New Mechanism for Effective Regional Development in 2018 made clear that “we shall drive the implementation of key national strategies of regional integration through city clusters such as Beijing-Tianjin-Hebei, Yangtze River Delta, Guangdong-Hong Kong-Macao Great Bay Area, Chengdu-Chongqing, Yangtze River mid-stream, Central China, Central Shaanxi, and etc, and we shall establish a new model in which hub cities take lead in the development of city clusters, and city clusters take lead in regional development, and regions integrate and develop together.” The Priority Missions of New-type Urbanization 2019 released by the National Development and Reform Commission stipulated that “we shall follow the principles of coordinated planning, rational layout, collaborative execution and

large players leading smaller ones, bear in mind the environmental capacity, push ahead with the healthy development of city clusters and metropolitan areas, and build a spatial pattern in which large, medium-sized and small cities and towns develop in a balanced way.” In addition, the policy paper also, in accordance with national master plan, elevated the integration of the Yangtze River Delta to national strategy and combined the Pearl River Delta city cluster with the Guangdong-Hong Kong-Macao Great Bay Area as a whole. Since 2015, general planning on the 19 city clusters has been completed, and the State Council has approved specific development plans for 11 city clusters which offer clearer guidance on the geographic scope, strategic positioning and development goals of these city clusters. Guided by these plans and policies, city clustering initiative has started to show its economic dynamics and got accelerated. It will surely become a strong driving force for economic growth in the future.

## **II. Best Practices of City Clusters Worldwide**

City clusters are important engines driving economic growth. Economic clustering leads the concentration of economic activities through effect of scale, technology spillover and competition. In the meantime, city clustering promotes free flow of

production factors, expands the boundary of market, contributes to the economy of scale and therefore boost economic and social development within a region.

Urbanization of tomorrow will surely be in the form of mega city clusters. There are five mega city clusters today, namely Boston-New York-Washington DC and the Great Lakes of the US, Tokaido of Japan, Central and Southern England, and Northwest Europe. Governments decided to develop city clusters for tackling issues like population overconcentration, traffic congestion, eco-environment deterioration and unemployment rise. They disperse industries and population from a mega city to neighbouring cities. As a result, a group of cities became connected and interwoven and further evolved into a mega metropolitan area as the economy grows. With its unique clustering advantage, a city cluster can play a powerful boosting role in the economic development of a region and a country at large. Major city clusters in the world show the following best practices.

**i) Tiered structure of integrated cities**

City clusters share an evident feature of tiered structure and integrated spatial form.

Advanced city clusters have a well-designed tier system. There are one or multiple mega hub cities within a city cluster that are massive in land area, powerful in economic strength, and significantly influential to other cities. Surrounding these hub cities which are the center of a cluster are a few medium and small-sized cities as well as many towns varying in size and characteristics. Therefore, a city cluster shows a clear tiered form of pyramid. Functions of cities are disseminated throughout the city network in a progressive and orderly way, and a stronger development energy is generated by these cities collectively. Cities in the cluster play varying roles and are complementary to each other. Cities and towns grow closer links, and production factors such as human resources, capital and information flow more freely. As a result, mega hub cities, medium and small-sized cities and towns within the cluster can develop in a balanced and collective way.

The New York-Boston-Washington DC cluster spans on the plain on the Atlantic coast. It covers the massive land from Boston in the north and Washington DC in the south. In this cluster Boston, New York, Philadelphia, Baltimore and Washington DC are the hubs and over 40 smaller cities including Summerville, Worcester, New Bedford, New Haven, Paterson, Trenton and Wilmington connect

the afore-mentioned hub cities and form a super cluster along the 600-kilometer coast. This cluster boasts a 90% urbanization rate and its manufacturing output exceeds 30% of the country's total. Each city has a unique role to play in the cluster and has its own advantageous sector. Cities divide the labour and collaborate with each other, and the cluster becomes the heart of the US economy. Unlike the US and Japan which value "super big" hub cities, the Central and Southern England city cluster, the earliest city cluster in the world, favours "small and fine" towns. London is the hub city and the axis between London and Liverpool connects a few large, medium-sized and small cities such as Birmingham, Manchester and Sheffield as well as many towns. Although covering only 45,000 square kilometres, this cluster hosts many industries and serves as the heart of the UK economy. London is the largest financial centre in Europe as well as one of the three global financial centres. Manchester is a manufacturing hub for printing machinery and automobiles. Leeds, Birmingham and Sheffield play a key part in textile machinery industry. In 1960s, UK population started a massive migration to small towns. Satellite cities and towns surrounding large and medium-sized cities prospered quickly. The UK government moved its departments and affiliated agencies to small towns. Public entities including higher education institutions followed the

government and migrated to small towns. Even large UK companies also chose to locate in small cities and towns. Judging from the afore-mentioned examples, a city cluster gathers a large quantity of cities which vary in feature and size. Within the cluster, cities are closely connected with each other while emerging as a highly open, highly integrated group of cities outside the cluster.

## **ii) Full-fledged public transport network**

Transport system is the most foundational and dynamic factor contributing to the formation and development of city clusters in developed countries. City clusters normally develop along comprehensive transport passages in the early days and then expand and grow as transport infrastructure improves. Advanced mega city clusters always boast regional transport networks composed of multiple modern transport modes including highway, railway, aviation, waterway, and urban transport within cities. These transport modes are connected to each other, operate in high speed and frequency, and link hub cities, medium-sized cities and small cities and towns into a whole, integrated body. Public transport system is developed in a way that fits spatial structures of the cluster. In addition, cities within the cluster normally have large-scale transport network hubs such as sizeable seaports, airports

and land transport interchange terminals.

The Tokaido city cluster in Japan develops from three hubs, namely Tokyo, Osaka and Nagoya and spans from Chiba westward to cities of Tokyo, Yokohama, Shizuoka, Kyoto, Osaka and Kobe. This cluster constitute the political, economic, cultural and transport centre of Japan as well one of the world centres for automobile, household electric appliance, automated office equipment and ship building. The Tokaido city cluster is consist of the three metropolitan areas in Tokyo, Nagoya and Osaka. The cluster started to form as a result of city dispersion caused by railway. The Tokyo metropolitan area is Japan's transportation centre, boasting advanced sea, land and air transport systems that connect Japan to the rest of the world, as well as the densest rail transit networks in the world. Tokyo train system started with two bifurcated lines, evolved into loop lines during its middle stage of development, and later expanded with the JR lines. Later multiple bifurcated lines were radiated to surrounding areas. As the transport network evolved, private railway companies built more railways which promoted the expansion of cities into greater area, and finally the Tokaido city cluster took its shape. Total length of rail transit network in the Tokaido city cluster exceeds 2,500

kilometers. Residents in the cluster depend heavily on rail transit system for daily commute, i.e. Shinkansen, light rail, and urban rail. Rail transit system in the cluster connects to other transport modes and supplement with each other, offering high line density and accessibility. Well-developed public transport network tackles the challenge of passenger traffic within the cluster, and strongly boosts the economic growth of the Tokaido city cluster. Best practices of city clusters in advanced countries show that a well-developed public transport network system promotes regional development. In particular, the fact is acknowledged more widely that rail transit system generates both technology strength and economic effect. It ensures the exchange and gathering of human resource, capital, information and technology, steps up the connection and labour division among cities, allows greater synergy between cities, and supports industrial upgrading and transformation in the cluster, and therefore plays an irreplaceable role.

### **III. Full-fledged transport networks boost city clusters**

Well-developed and full-fledged transport network is the driving force as well as precondition for the development of city clusters. As the medium for the flow of human and other production factors, transport networks converge cities in the

cluster and boost overall development of the cluster on the one hand, and determines the strength of connectivity among cities on the other. Therefore, a full-fledged and highly efficient transport system is of great importance for the formation and growth of a city cluster.

**i) Convergence of multiple transport modes**

Integrated development of city clusters depends on full-fledged transport network. Within a city cluster, transport modes play varying roles, and should be developed in a coordinated way in order to form a comprehensive transport system. Railways, highways, waterways and aviation networks offer freedom of choice to passenger traveling between cities. Despite a certain degree of competition, these transport modes can connect to and supplement each other so as to maximize the benefits of a comprehensive transport system, accelerate the flow of human resources, capital, information, technology and other production factors, and enhance the overall competitiveness and integrated development of the city cluster.

When major axes of a city cluster's transport system support massive passenger traffic, the priority of a transport system should be given to rapid transit networks

which feature high speed and large capacity. High-speed train, highway and inter-city rail transit are ideal options in this regard. The inter-city rail transit system provides large transport capacity, enables fast transportation, consumes less energy and protects environment and therefore is the most optimal mode for major axes and backbone lines of fast passenger transportation. In a rational rail transit system of a city cluster, large-capacity inter-city rail transit is adopted on backbone lines whereas light rail and other modes serve branch lines and link lines that connect cities, towns, and residential/industrial/commercial areas. In so doing, varying transport demands of residents in the cluster can be well satisfied.

**ii) Transport hubs improve efficiency**

Various transport modes have been improved and developed in recent years. Meanwhile, higher demands on transport system have been generated by socioeconomic development and passenger traffic in city clusters. In this context, passenger transport systems in city clusters have been developing in an increasingly comprehensive and integrated way, and comprehensive passenger transport hubs become an integral part in the passenger transport system of city cluster. Passenger transport hubs refer to interchange terminals in large and medium-sized cities where

lines of two or more transport modes or multiple lines of the same mode meet. These hubs cover and serve a large area, support massive passenger traffic, and play a critical role in accelerating passenger traffic and ensuring rapid functioning of the comprehensive transport system. Planning and construction of interchange terminals must be considered seriously when a comprehensive passenger transport system consist of multiple transport modes is designed and developed. From departure to arrival, a passenger trip often involves multipole transport modes. Hubs or interchange terminals connect various transport modes and offer great convenience to passengers, and therefore play a very important role in transport planning.

Large cities in the mainland started the planning and construction of passenger transport hubs fairly late, didn't acknowledge the importance of the hubs, and encountered many problems. Over the years, passenger transport management in city clusters have been following a highly fragmented approach of management. Expressways, inter-city trains, highways, waterways, aviation and urban subway, light rail and bus transport fall into the jurisdiction of different regulators which are independent from each other. This decentralized, fragmented management system

results in the serious issue of lack of coordination among regulators. This issue becomes more acute when it comes to the connection of various transport modes. Agencies in charge of planning, decision making and daily administration are independent from each other and follow their own plans and requirements alone when building transport facilities. They take the planning and construction of transport lines seriously but seldom consider the comprehensiveness of transport system. They pay little attention to the necessity of coordination in planning and constructing the comprehensive transport networks in city clusters. As a result, various transport modes in hubs are separated and scattered. Without effective connection of multiple transport modes, the hubs fail to fully play their consolidating role in the entire transport facility. The fragmented management system leads to the lack of coordination between planning and construction of urban passenger transport hub and the overall planning of urban development and land use. It is the cause of many problems. For example, comprehensive passenger transport hubs are planned with irrational layout or improper size, hubs are not effectively connected to the entire urban transport system, and transport capacity fails to match demand incurred by commuting. Hampered by the management fragmentation, it is very difficult to have coordinated planning on transport hub

development. Various transport modes follow their own requirements and needs to develop hubs and all the planning and construction are done independently with little consideration of the requirements and needs of other transport modes. In particular, coordination is completely absent when it comes to the connection of inter-city transport within a city cluster (such as railway, highway, and airport) and urban transport (such as subway, light rail and bus). Terminals and stations of various transport modes are constructed separately and independently, resulting in lack of connection and inconvenience in passenger concentration and dispersion, low transfer efficiency, and longer transfer time. The “seamless connection” and “zero distance transfer” of high efficiency and high quality can hardly be realized, harming the quality of passenger transport, causing efficiency reduction and resource waste, and holding back the integrated development of the city cluster.

In China, various transport modes are administered by various regulators. Consolidated and coordinated planning is the pre-requisite for maximizing the transport efficiency and transfer convenience at hubs which connect multiple transport modes. While promoting the network-type development of multi-mode transport, careful consideration should be given to the close connection between

inter-city modes such as railway, highway, aviation and waterway and urban transport modes such as subway, light rail, bus and taxi. This allows passengers to transfer easily. Comprehensive passenger transport hubs should enable the connection and dispersion of multi-mode transport, offer multi-layer transfer or “zero distance transfer”, and maximize the total efficiency of passenger transport.

#### **IV. Hong Kong’s best practices can contribute to integrated transport in city clusters**

Transport integration in a city cluster is reflected in four aspects, namely coordinated facility network, efficient operation and organization, convenient transport connection and consistent management mechanism. MTR runs ten metro lines in Hong Kong, an airport express line, two tram lines in Northwest New Territories and multiple shuttle bus lines in downtown. In addition, MTR runs inter-city railways in Guangdong, Beijing, and Shanghai as well as cross-border bus services. It also started in 2018 to provide operating services for the Hong Kong section of Guangzhou-Shenzhen-Hong Kong high-speed train. In cooperation with the SAR government, MTR made unified planning of public transport of multiple modes in Hong Kong, put in place a consistent rail transit regulation system, and

enabled the synergy effect and high efficiency in Hong Kong rail transit networks. In terms of connection of multiple transport modes, MTR follows the principle of putting people first and pursues maximal convenience. The Kowloon station is a good example. The station is located in the new land reclamation area and the project was designed and executed by MTR in the 1990s. It has a 118-level office building which is the tallest skyscraper in Hong Kong, a six-star hotel and service apartment, a shopping mall of 80,000 square meters, and over 4000 luxury residential units. It integrates multiple transport modes including airport express, Guangzhou-Shenzhen-HK high-speed train, metro, cross-border bus, tourist bus, mini bus, taxi and private car. It serves Hong Kong as a very important road and railway hub. Passengers can easily access every part of Hong Kong, and also can travel to major mainland cities via the rail transit system. When designing the Kowloon hub project, MTR took into consideration traffic to Hong Kong international airport, the Guangzhou-Shenzhen-HK high-speed train service and cross-border bus service. Terminal platform, residence, commercial service, bus transfer and other public facilities are integrated throughout a multi-layer layout. All transport modes are connected and seamless transfer is realized. Meanwhile, property projects in neighbouring areas are linked with roofed corridors to offer

convenience to residents who can get to the metro station via the corridors. After the metro operation ends at night, residents can walk back to their neighbourhoods through the 24-hour passages in the shopping mall and the corridors. This is a great convenience for passengers and residents provided by rail transit and passenger transport hubs.

MTR also actively engages in the development of new towns. It plans and constructs many rail lines including Tung Chung line and Tseung Kwan O line, develops rail transit and land in synergy, uses rail transit terminals as centers to build transport and commercial hubs. This approach successfully boosts the construction, development and emergence of new towns in Hong Kong. The rail transit plus land development model practiced by MTR changes the structure of Hong Kong's urban space from single-centre to multi-centre. The fast rail transit system with reasonable layout and its supporting facilities eliminates Hong Kong's structural flaw of large population in limited land. The fast rail transit lines that connect existing downtown areas with suburban areas plays a significant role in moving residents originally living and working in city centres to the suburban areas, and hence reducing population and transport density in the downtown. This

remarkably improves the spatial structure of Hong Kong. Fast rail transit lines connecting residential areas in the suburb makes even greater contribution to the city's expansion from downtown to peripheral areas and the balancing between the suburb and the downtown. As a result, resources are allocated in a more reasonable and fair way, and new towns are created. The Hong Kong government and MTR started in 1973 to develop new towns through rail transit expansion. In old industrial communities, rural villages, farming lands, deserted slopes and mudflats, the largest cluster of new towns in the world was built. Nine new towns were developed through four generations and now are the home to three million people. Sha Tin, a new town along the Kowloon-Guangdong railway, hosts 600 thousand residents. In west New Territories, the West Rail Line and the Light Rail Line serve over a million residents in Tuen Mun, Yuen Long and Tien Shui Wai. The Tseung Kwan O Line which is designed to support the development of Tseung Kwan O makes the local population increase from less than ten thousand to hundreds of thousands. In order to enhance the efficiency and quality of public transport services, MTR makes rational planning consistent with passenger throughput and transfer among metro, residential facility, commercial facility and public road. At each comprehensive hub, there is taxi stand or transfer spot. Multiple entrances to metro are opened in

commercial or residential areas in order to facilitate seamless passenger transfer. Rail transit terminals and surrounding lands are developed in high intensity to serve multiple purposes. Metro entrances are seamlessly connect to residences, shopping malls, office buildings, public facilities and nearby communities. All this satisfies Hong Kong citizens' need for travel, shopping and commuting, and contributes to Hong Kong's prosperity.

City clustering is a national development strategy and a new driving force for economic growth. Public transport is a strong booster to the development of city clusters. Internal communication within city clusters requires multiple transport modes. The effective connection of multiple transport modes and easy transfer are very important for improving the experience and efficiency of passenger traffic. MTR learns a lot from developing new towns in Hong Kong. It boasts best practices in planning, construction, operation and management of both multiple transport modes and comprehensive passenger transport hubs. We at MTR are willing and capable to contribute even more to the development of city clusters in the country.