

## 依托数字化转型推进上海地铁高质量发展

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近十年来,上海地铁始终坚持高质量发展理念,不断优化上海地铁网络的功能,提升新线建设标准,网络规模在全国率先突破 800 km,日均客流超过 1 000 万人次。上海地铁的发展始终依靠技术进步,特别是紧紧依托数字化转型的有利契机,不断提升地铁建设和运营维护的质量。在新线建设和投入运营方面,采用高集成度、高智能化、高可靠度和高可用性的全自动运行系统。“十三五”期间建成的上海轨道交通 14、15、18 号线均实现了全自动运行,线路一次开通。在运营实践中,全自动运行系统的高可靠性和高可用性得到了验证,极大地提高了地铁运行的效率和效益。目前,上海地铁共有 5 条线路(合计 167 km)实现了全自动运行。上海地铁全自动运行系统的应用在全国乃至全球都是走在前面的。

在提升服务质量方面,上海地铁在全国率先应用互联网技术实现乘客扫码进出站,大大提高了乘客进出站效率和便利性。目前,上海地铁已经与包括长三角有地铁城市在内的全国 18 家地铁公司实现了票务系统二维码扫码进出站的互联互通,为长三角轨道交通一体化发展做出了积极贡献。2022 年 9 月 28 日,上海地铁实现了微信和支付宝直接刷码进出站,极大地方便了乘客。

随着地铁运营时间的延长,留给运营维护的时间越来越少。上海地铁依托数字化技术大力推进智慧维保建设,对设备系统中的车辆、通信信号和供电三个关键专业系统开展数字化、智能化维护改造,实现了对关键设备系统的实时在线监测,能够及时掌握设备系统的运行状态。由此,上海地铁将传统的被动型计划修模式转变为了主动型状态修模式,实现了故障快速定位,大大提高了设备故障处置效率,同时也减少了日常的设备检修工作量,降低了全寿命周期的运营维护成本。

展望未来,上海地铁将坚持走数字化转型的创新之路,坚持高质量发展。将通过大修更新改造不断提升网络中老旧线路的功能,并逐步实现全网络的全自动运行,从而进一步提升整体网络的可靠性和运行效率。将积极推进智慧维保建设,通过数字化转型全面提升网络的安全性、可靠性和服务功能,为上海加快建设具有世界影响力的社会主义现代化大都市做出积极贡献。

### Commentary

## Relying on Digital Transformation to Promote High Quality Development of Shanghai Metro

BI Xiangli

(Chairman of Shanghai Shentong Metro Group Co., Ltd., Senior Engineer)

Over the past decade, Shanghai Metro has consistently adhered to the concept of high-quality development, continuously optimizing the functions of the Shanghai Metro network and improving the construction standards of new lines. Its network scale is the first to break through 800 km in China with a daily average passenger flow of over 10 million. The development of Shanghai Metro has always relied on technological progress, especially the favorable opportunity of digital transformation, to continuously improve the quality of subway construction and operation maintenance.

In terms of new line construction and operation, a fully automated operation system featuring high integration, intelligence, reliability, and availability has been adopted. During the '13th Five-Year Plan' period, the Shanghai Metro Line14, Line15, and Line18 which were constructed have all realized fully automated operation, with the lines opening all at once. In practical operation, the high reliability and availability of the fully automatic operation system have been validated, greatly improving the efficiency and benefit of the subway operation. Currently, five Shanghai Metro lines (totaling 167 km) have achieved fully automatic operation. The application of Shanghai Metro's fully automated operation system is at the forefront not only nationally but also globally.

In terms of improving service quality, Shanghai Metro is the first to apply internet technology to allow passengers to enter and exit the station by scanning QR codes in China, greatly improving the efficiency and convenience of passengers' entry and

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