



**Committed to connecting the world**

## ITU-T work programme



[2017-2020] : [[SG20](#)] : [[Q1/20](#)]

[[Declared patent\(s\)](#)] - [[Associated work](#)]

<i>Work item:</i>	<b>Y.DT-interop</b>
<i>Status:</i>	<a href="#">Under study</a>
<i>Approval process:</i>	AAP
<i>Type of work item:</i>	Recommendation
<i>Version:</i>	New
<i>Provisional name:</i>	-
<i>Equivalent number:</i>	-
<i>Timing:</i>	2024-Q2 (Medium priority)
<i>Liaison:</i>	ITU-T SG13, ISO/IEC JTC 1/SC 41, ETSI Smart M2M, 3GPP, OMA, IETF, IEEE-SA
<i>Supporting members:</i>	Egypt, Nigeria, Algeria, Senegal, Tunisia
<i>Subject/title:</i>	Interoperability framework of digital twin systems in smart cities and communities
<i>Summary:</i>	<p>Digital twins can improve the efficiency and sustainability of cities and communities by creating a virtual representation of a city and using it to simulate challenges, emergencies and other situations that its counterpart may experience in the physical world. Digital twins provide a safe testing environment that enable city stakeholders to enhance operational efficiency across sectors, improve urban design, better prepared in disaster situations and among other benefits that are crucial for the transition to smart city and community and contribute to the achievement of the Sustainable Development Goals and other global objectives. Implementing digital twin technology in cities and communities involves creating a complex system that consists of a multitude of key functionalities including real-time monitoring, seamless connectivity, dynamic</p>

	<p>simulations, and predictions (e.g. preventive maintenance use cases) for safe and secured operation of cities and communities. To realize such system, digital twin cities need to take into consideration three key aspects. First, it is the data interoperability aspect by developing semantics, and modeling languages that would facilitate interoperability of data, effective data collection and management. Second, it is the digital data processing aspect which refers to the use of different digital technologies (e.g., 5G, AI, cloud, big data analytics etc.) to facilitate the operation of digital twins. And third, it is the infrastructure aspect which refers to the digital infrastructure required to enable connectivity among all connected objects. The architecture framework described in this Recommendation provides necessary to cities and communities stakeholders to implement and operate digital twin technology based on the criteria of these three aspects.</p>
<b>Comment:</b>	-
<b>Base text(s):</b>	<div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;"> <a href="#">[TD 2218-R3-GEN]</a> </div> <div style="border: 1px solid #ccc; padding: 2px;"> <a href="#">[TD 2256-R1-A.1-GEN]</a> </div>
<b>Contact(s):</b>	<div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;"> <a href="#">Ali Abbassene</a>, Editor         </div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;"> <a href="#">Bilel Chabou</a>, Editor         </div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;"> <a href="#">Ahmed Eldemerdash</a>, Editor         </div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 2px;"> <a href="#">Achime Malick Ndiaye</a>, Editor         </div> <div style="border: 1px solid #ccc; padding: 2px;"> <a href="#">Bako Wakil</a>, Editor         </div>
<b>ITU-T A.5 reference(s):</b>	-
	<div style="border: 1px solid #ccc; padding: 2px;"> <a href="#">[Submit new A.5 reference]</a> </div> <div style="border: 1px solid #ccc; padding: 2px;"> <a href="#">See guidelines for creating &amp; submitting ITU-T A.5 justifications</a> </div>
<i>First registration in the WP: 2021-05-31 17:38:18</i>	
<i>Last update: 2021-05-31 17:42:02</i>	

© ITU 2021 All Rights Reserved

[Back to top](#)