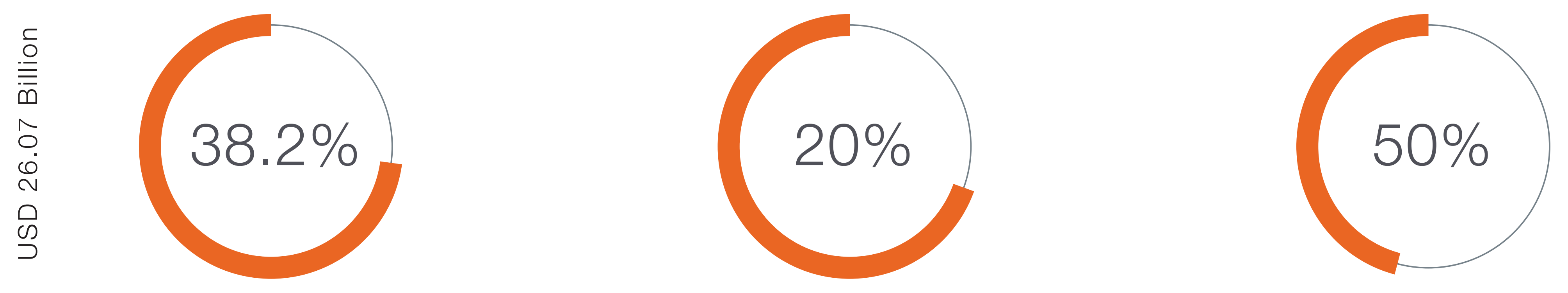
AUTOMOTIVE DIGITAL TWIN

The Purpose

- Create virtual model of vehicle
- Capture it behavioral & operational data
- Analyse overall vehicle performance
- Exude personalized service

Growth Of Global Digital Twin Market



Company annual growth rate | **Manufacturing segment** | **North America & Europe**

Expected global annual growth

Digital Twin Regional Outlook (Revenue, USD Million, 2014 - 2025)

Three Main Components Of Digital Twin

- Physical entities in the real world
- Their virtual models
- Connected data or view that ties the two worlds

Product Lifecycle Steps

Product concept

Product design

Manufacturing planning

Manufacturing execution

Product sales

Product usage & maintenance

Product renewal

Challenges Faced In Automotive Manufacturing

- Added complexity to the current manufacturing facilities
- Skilled labour shortage
- Machine downtime costs during production hours
- Work related accidents

How Digital Twin Overcomes These Challenges

Challenges	How they are overcome
Conventional conveyor belts adds complexity to the current manufacturing facilities	Flexible-cell manufacturing is used as an alternative wherein all the equipment is connected and sends data to the factory's digital twin
Skilled labour shortage	Digital twin trains the workforce by providing real-time guidance
Machine downtime costs during production hours	Digital twin refers to previous experiences to predict failures
Work-related accidents	Bluetooth beacons with sensors are attached to oversee accidents

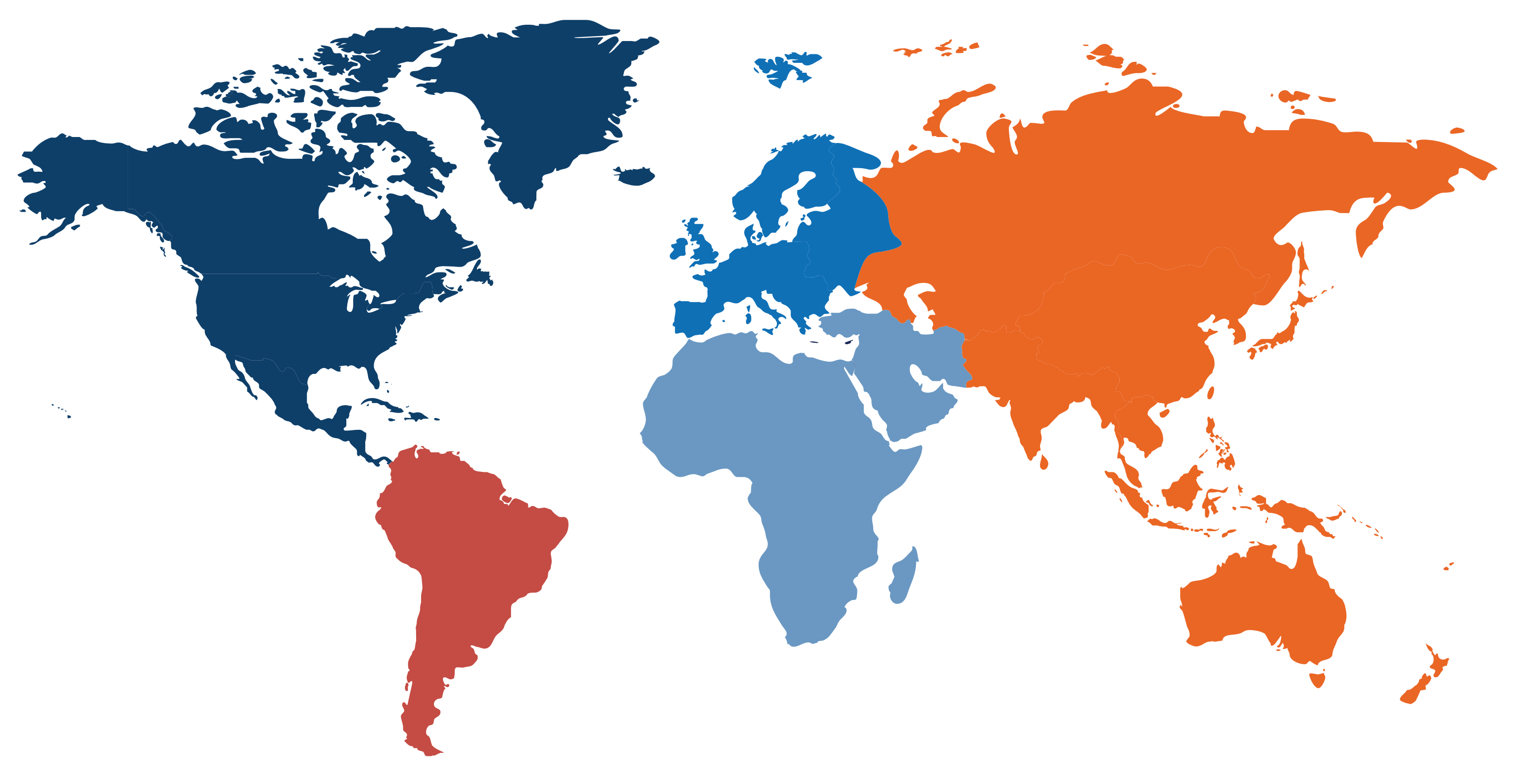
Business Value Of Digital Twin

- Pre-empting asset maintenance needs, thus reducing costs
- Reducing asset downtime
- Optimizing process times
- Improving plant efficiency
- Reducing time to market

Customer Value Of Digital Twin

- Decreasing the friction during the purchasing stage
- Reducing end-consumer expenses after ownership
- Simplifying automobile customization

Global Digital Twin Market Size



2.2%	13.4%	24.5%	2.2%	24.5%
North America	South America	Europe	Middle East & Africa	Asia-Pacific

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