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**4th Edition**  
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# Advanced Technologies for Distribution Utilities' Business Transformation

**South Asia Regional Energy Partnership (SAREP)**  
**February 21, 2023**

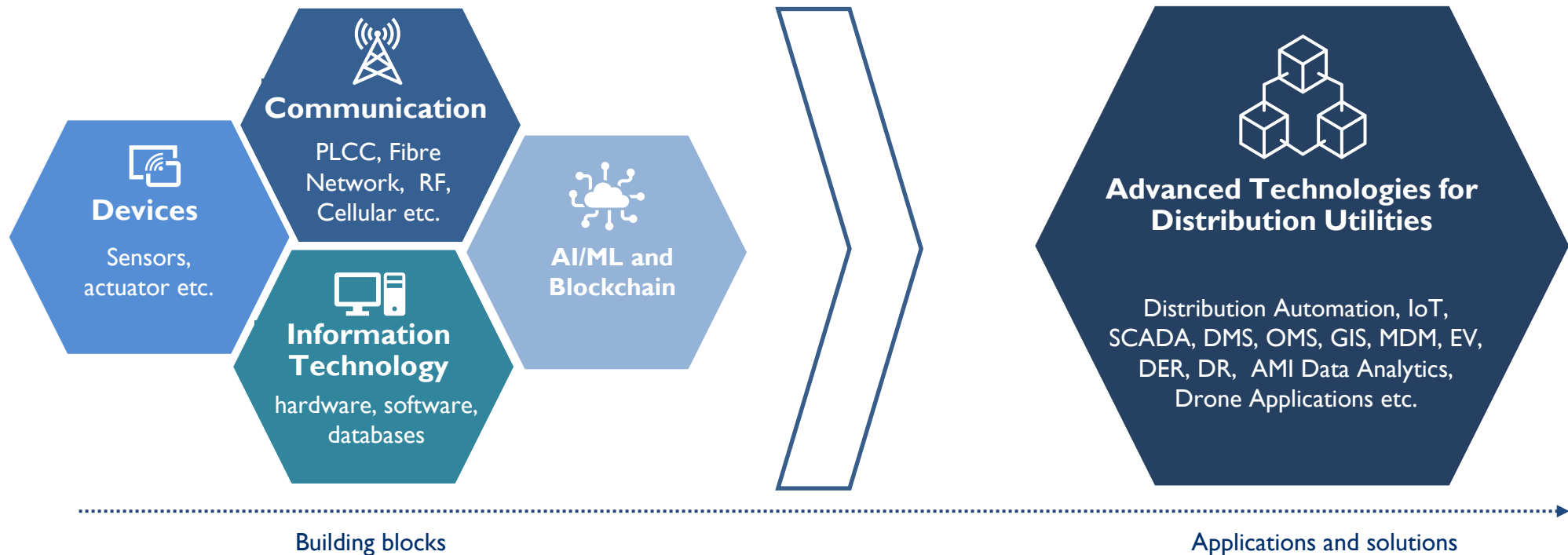


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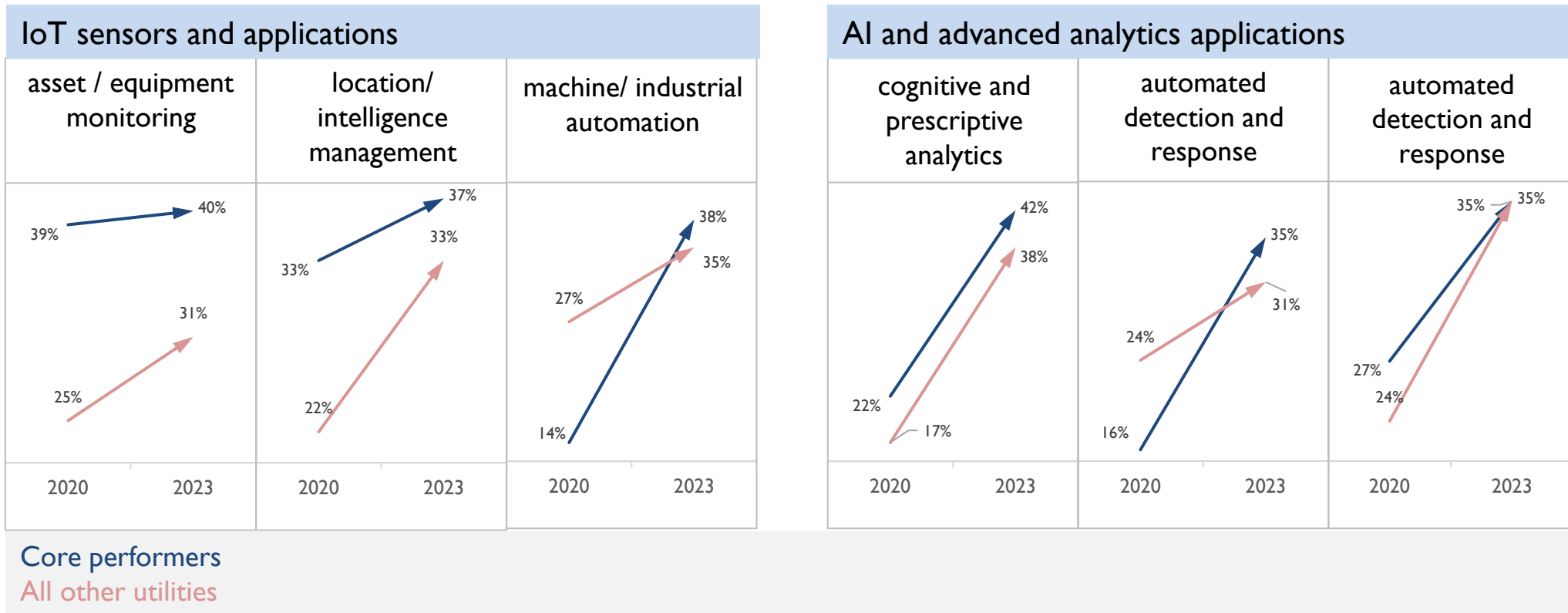
# What are advanced technologies?

- Technologies which can transform the grid operation and consumer interactions
- Benefits are determined not just by their direct use, but also by the functionality they provide for the grid or for a consumer's ability to control the energy consumption and communicate with the system.
- These technologies have the potential to act as a platform or an enabling technology with indirect benefits now or in the future



# Utilities in transition (1/3)

## Trend I: Digitizing assets for intelligent monitoring



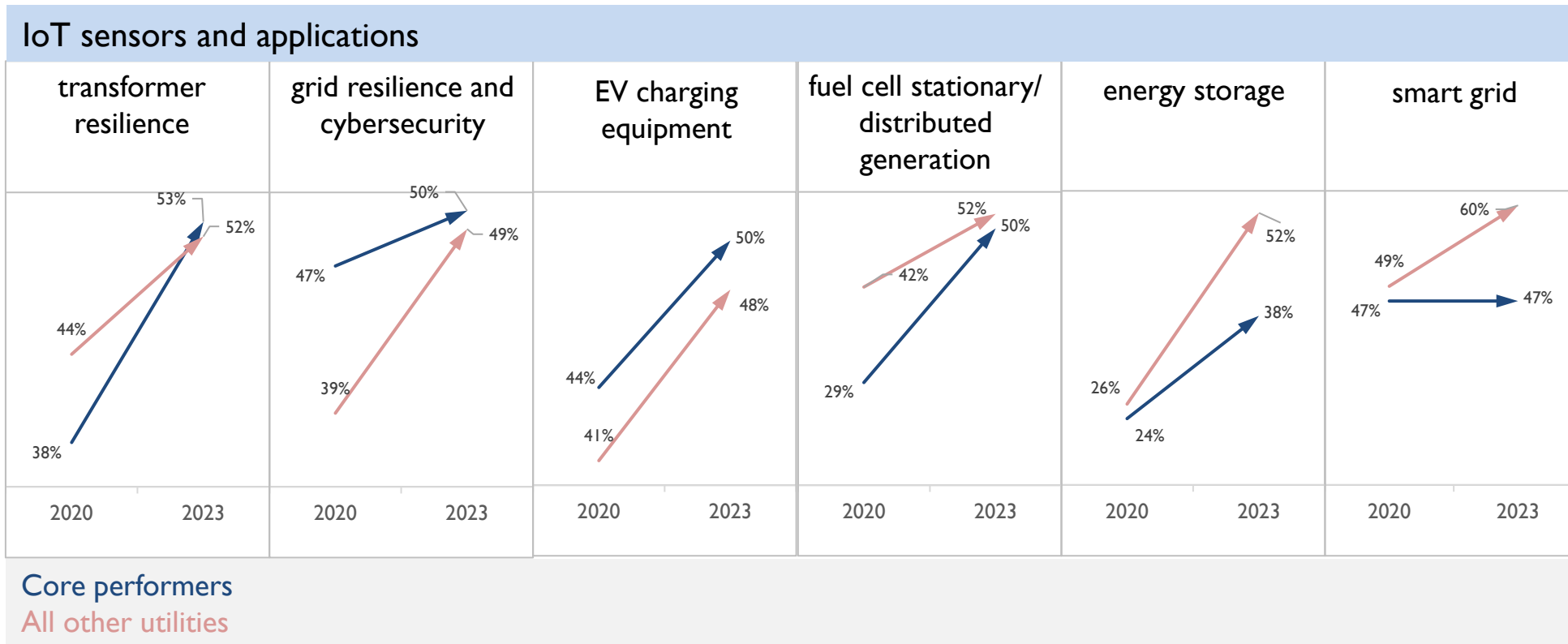
Note:

1. Basis survey of 240 electric power utilities of 17 countries across major geographics
2. Core performers – Utilities that perform better than their peers in core reliability, resilience, and profitability metrics and, they're moving steadily toward a more sustainable energy future; top 50 utilities are considered as core performers out of 240 utilities surveyed

Source: GONZALEZ-WERTZ, C., FISHER, L. G., KLATOVSKY, R. & WERTH, C., 2020. DIGITIZING ELECTRIC UTILITIES, NEWYORK: IBM

# Utilities in transition (2/3)

## Trend 2 : Digitizing grid operations and integrating DERs



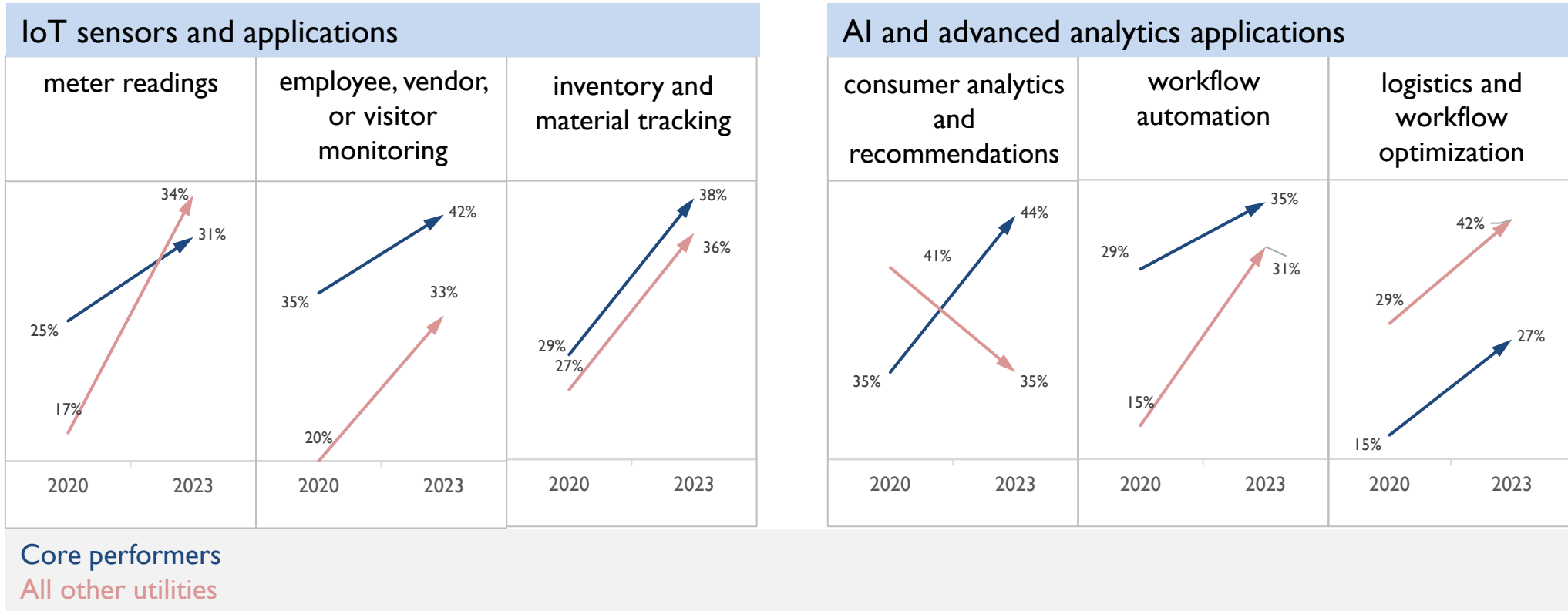
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# Utilities in transition (3/3)

## Trend 3 : Digitizing interactions for stakeholders

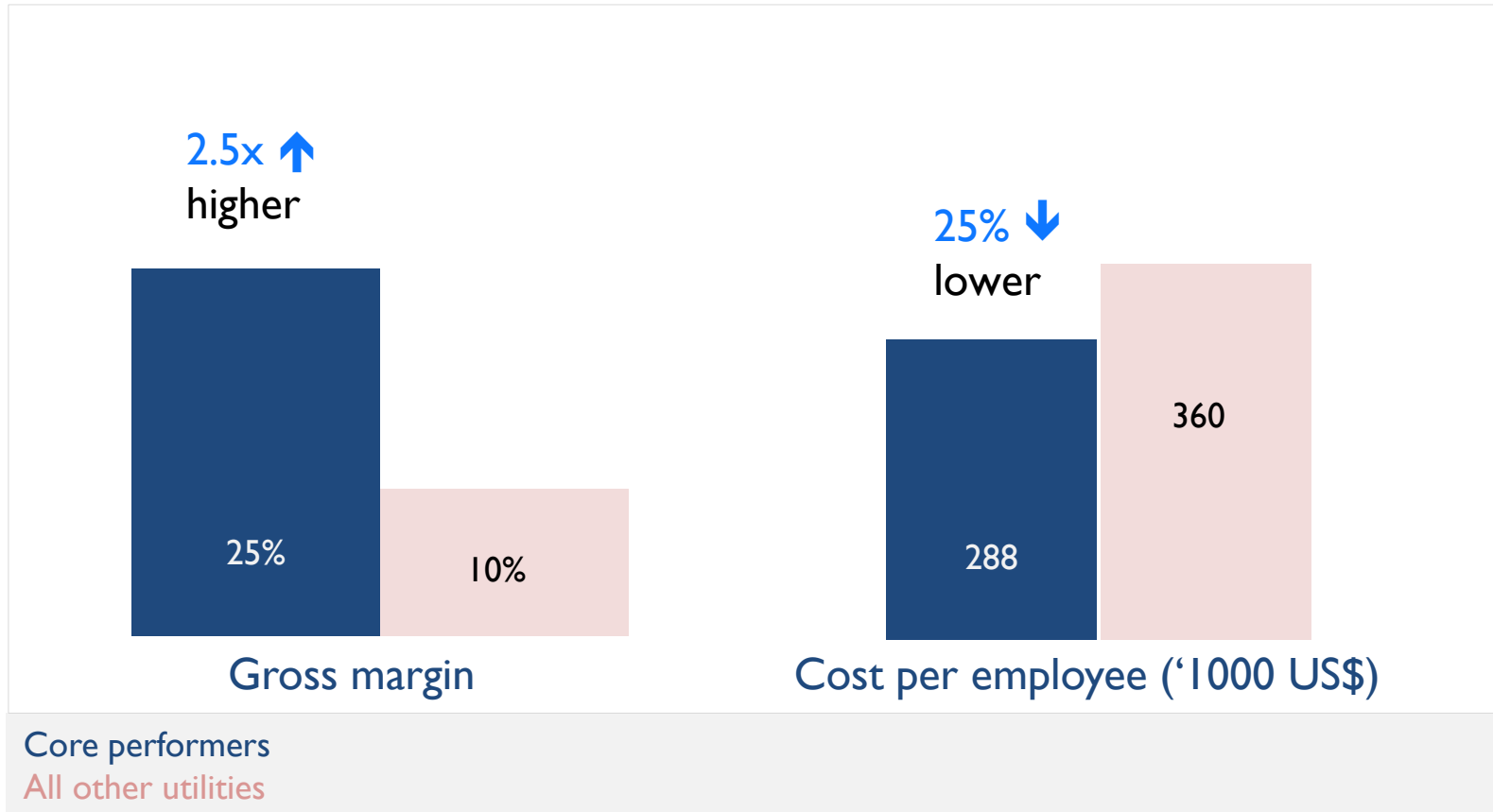


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# How adoption of advanced technologies impacts utilities transition



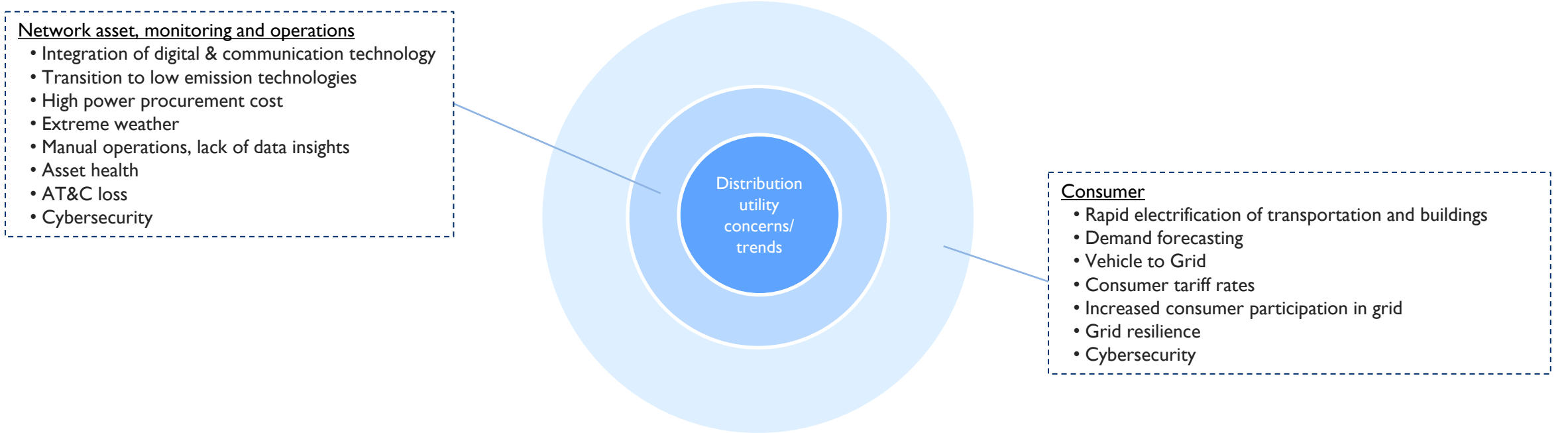
Core performers are more than twice as profitable as other electric power utilities

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2. Core performers – Utilities that perform better than their peers in core reliability, resilience, and profitability metrics and, they're moving steadily toward a more sustainable energy future; top 50 utilities are considered as core performers out of 240 utilities surveyed

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# Advanced technologies for distribution utilities



## Mitigation Approach

- Asset health management using AI/ML, Drones etc.
- Automation, ADMS
- Smart meters data analytics
- Capacity building
- Enhanced models
- Grid integration and accurate accounting for DER
- Advanced technology and models
- Advanced components, system & processes
- AI/ML
- Blockchain

## Benefits

- Increased sustainability
- Enhanced flexibility
- Affordability
- Increased automation
- Reduced losses
- Improved workforce and security
- Improved asset health and resilience
- Improved reliability
- Reduced consumer tariff
- Value added services
- Improved consumer experience




# Advanced technologies for distribution utilities


DISCOM  
Business functions

Applications

Benefits

 Network asset, monitoring and operations

- SCADA, DMS, GIS, OMS etc.
- Distribution automation
- Feeder fault detection
- Asset health monitoring using data analytics
- Asset health monitoring using Drone applications
- Theft detection
- Distribution network analytics and near real time network energy balancing

 Consumer

- Demand (consumption) forecasting
- Demand response
- TOD/TOU application
- Chat-bots for consumer engagement/ grievance
- P2P transactions among prosumers
- Grid-interactive buildings
- Real-time analytics and insights

- Increased sustainability
- Enhanced flexibility
- Affordability
- Increased automation
- Reduced losses
- Improved workforce and security
- Improved asset health and resilience
- Improved reliability
- Reduced consumer tariff
- Value added services
- Improved consumer experience



**THANK YOU**

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