

Barriers and Opportunities to Broader Adoption of Integrated Demand Side Management at Electric Utilities

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Outline for Presentation

- ◆ Introduction and Overview
- ◆ Motivations and Benefits of those Currently Pursuing IDSM
- ◆ Regulatory and Utility, Barriers to Implementation of IDSM
- ◆ Actions Taken to Implement IDSM
- ◆ Opportunities for Expanding IDSM Portfolios
- ◆ Optimal Future IDSM Portfolios

Demand Side Management

Demand-side management (DSM) is the planning and implementation of programs designed to influence electric and gas utility customer uses of energy in ways that will produce desired changes in a utility's or customer's energy profile.

Current DSM Program Offerings

Programs that incentivize customers that adopt DG technologies, (e.g. photovoltaics, fuel cells)

Distributed Generation and/or Storage

Electric Vehicles

Programs that incentivize the deployment of EV chargers or grid-integrated EV smart chargers

Energy Efficiency

Programs that incentivize deployment of technologies that use less energy

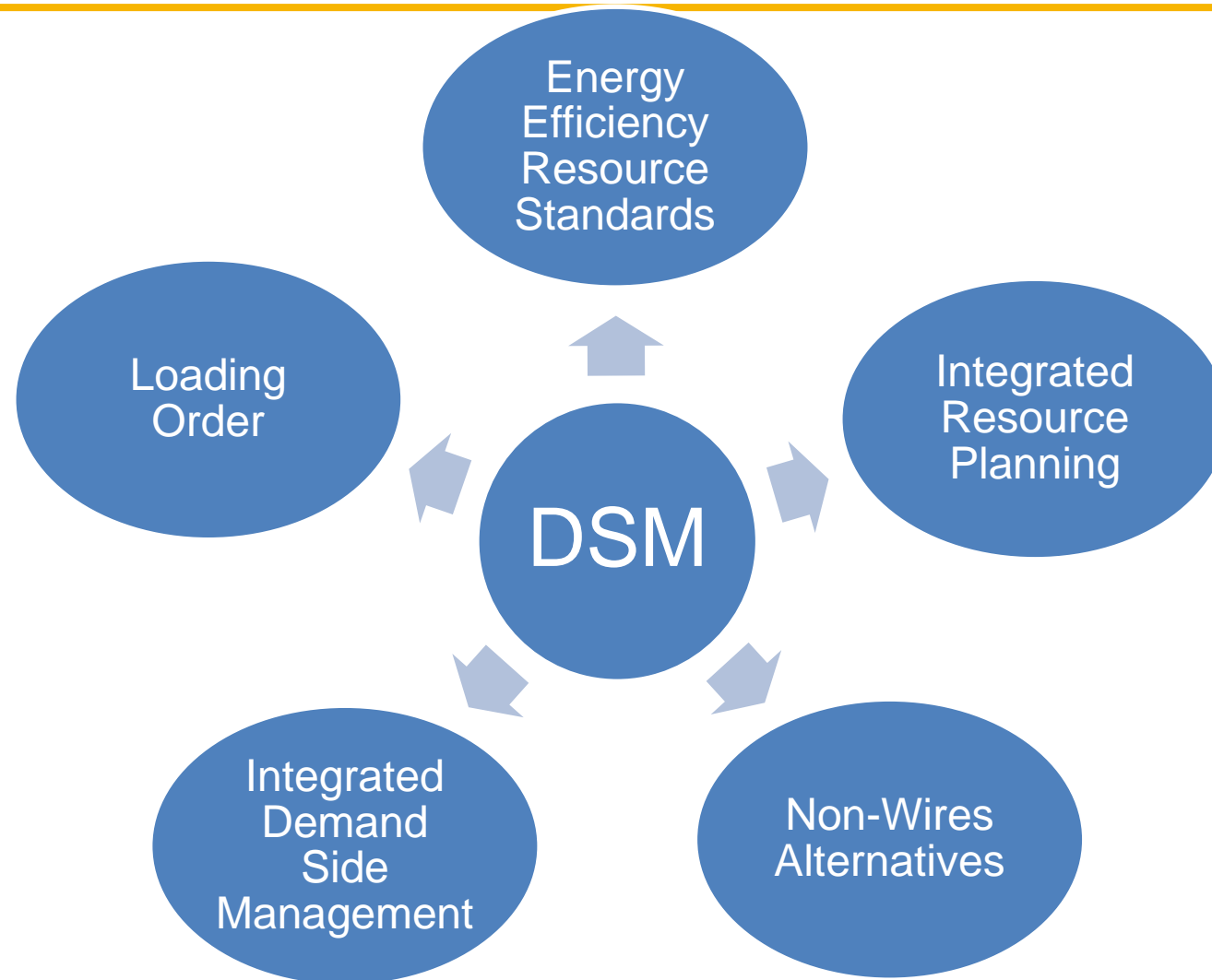
Demand Response

Programs that incentivize customers to change their load profile

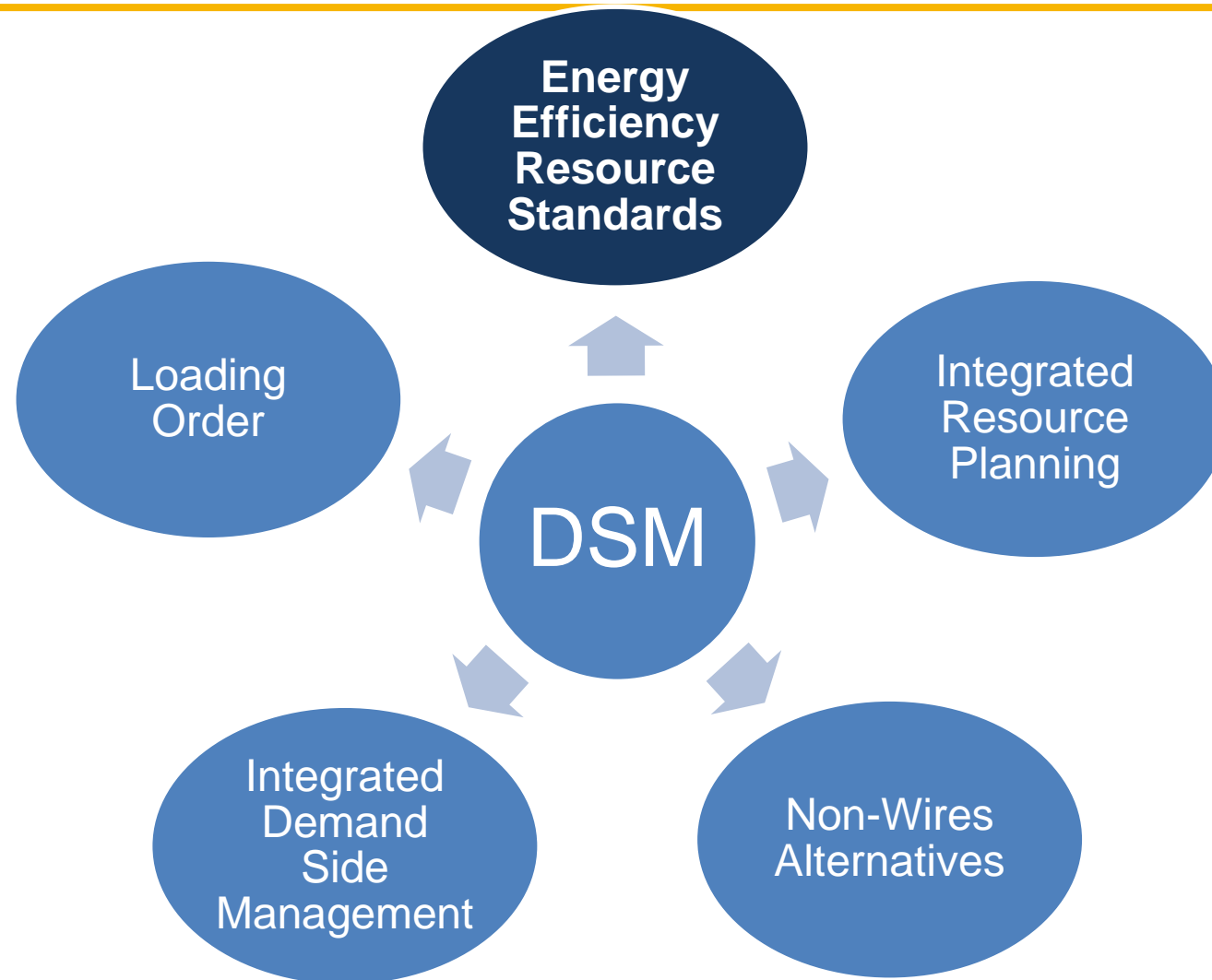
Time-based Rates

Electricity rates paid by customers in which rates vary for different days, times of the day, or events

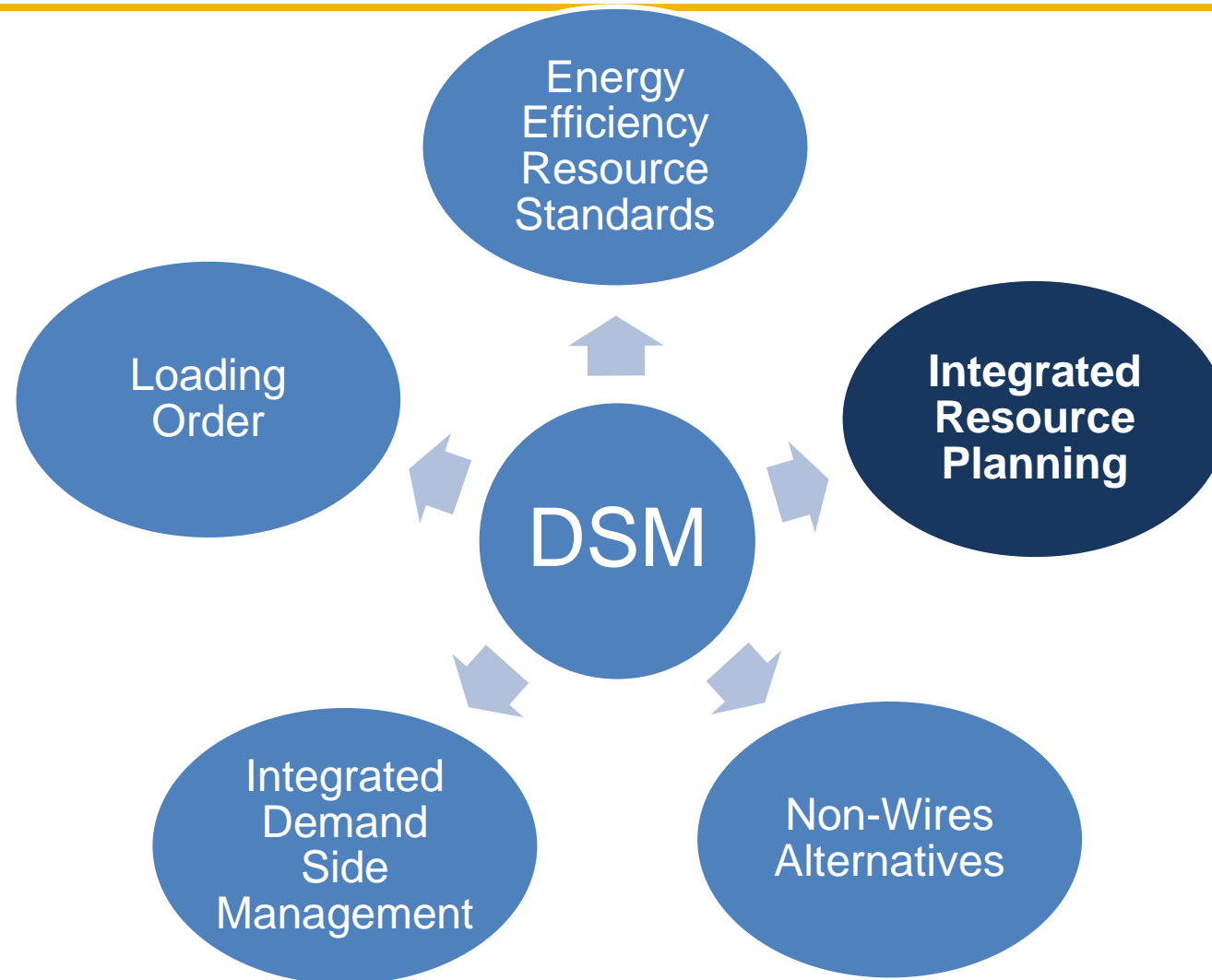
Policies enacted to encourage DSM



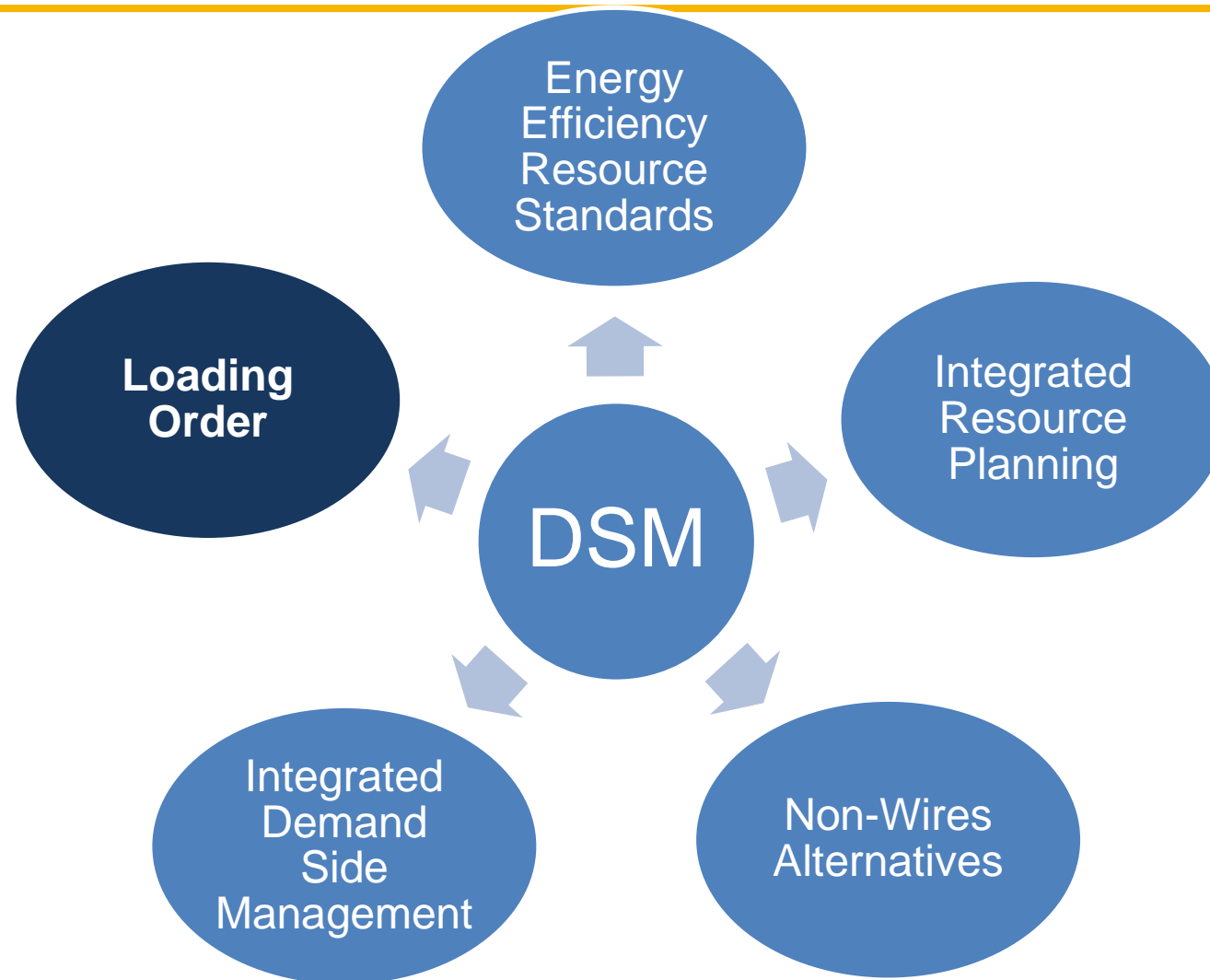
Policies enacted to encourage DSM



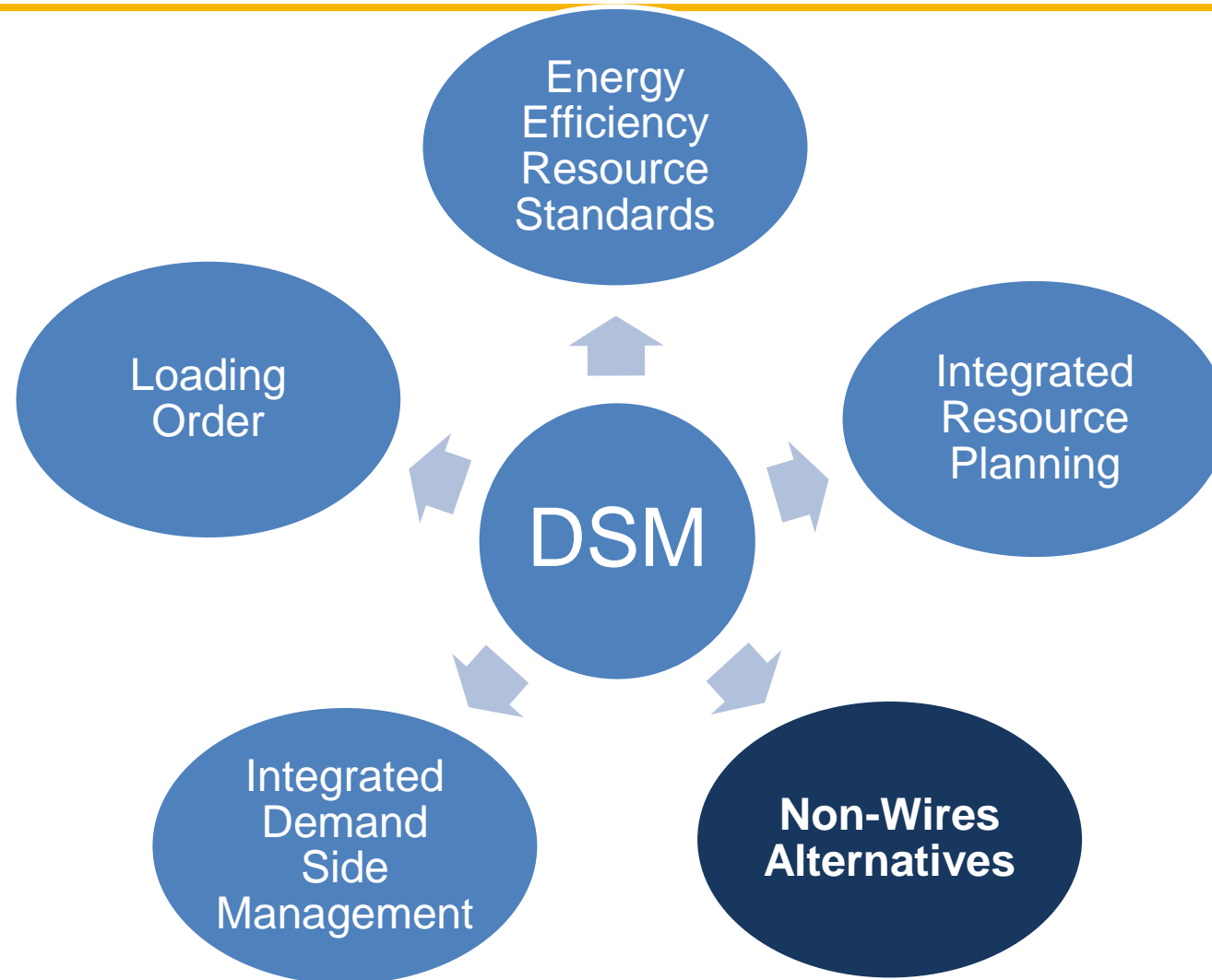
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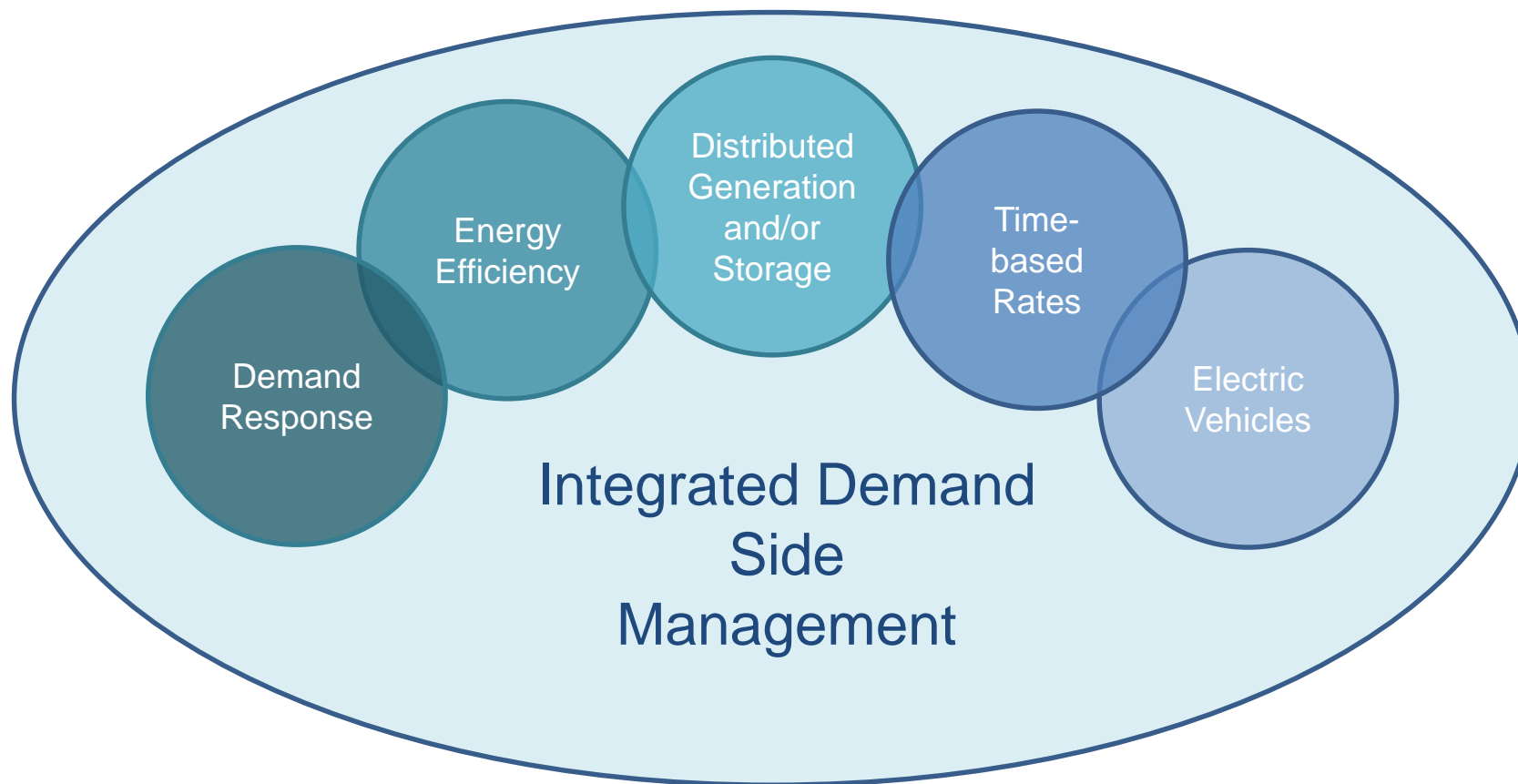
Policies enacted to encourage DSM



Integrated Demand Side Management

The integration/coordination of delivery for three or more of: (1) Energy Efficiency, (2) Demand Response, (3) Distributed Generation, (4) Storage, (5) Electric Vehicle, and (6) Time-Based Rate programs to residential and commercial electric utility customers.

Current IDSM Program Offerings



Limited Industry Experience with IDSM

California

- IDSM Proceeding began in 2009
- Focused on “duck curve”

New York

- Reforming the Energy Vision (REV)
- 40+ customer focused initiatives

Massachusetts

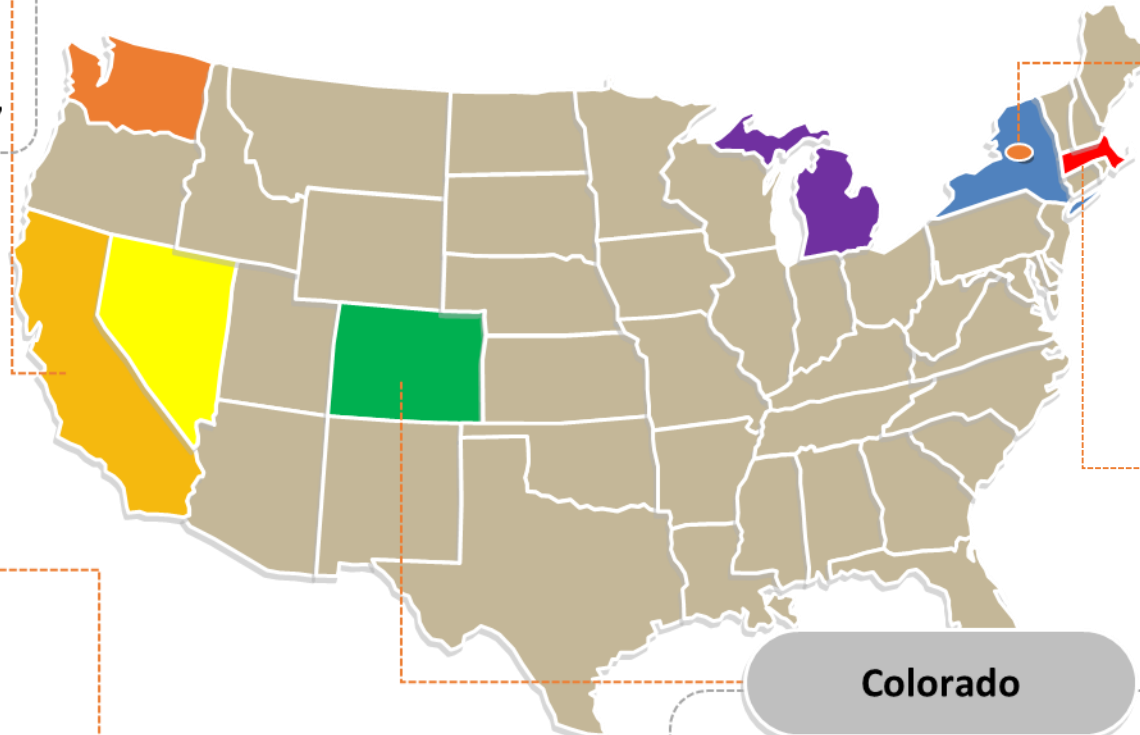
- Grid modernization
- Non-wires alternatives

Hawaii

- Current DR docket and DER initiatives
- 3rd party administered EE

Colorado

- Perf. based utility regulation (HB1250)
- AMI in progress



Objectives of Scoping Study

- ◆ Identify barriers and opportunities for increasing implementation of integrated demand side management (IDSM) programs by:
 - Highlighting examples of programmatic mechanisms that have been or could be deployed for delivering IDSM technologies;
 - Identifying benefits reported by program administrators that IDSM has provided or may provide to the bulk power and distribution system;
 - Identifying a prioritized set of barriers that has been or could be experienced by program administrators to more fully implement IDSM; and
 - Discussing efforts that have been or could be undertaken to overcome these barriers.

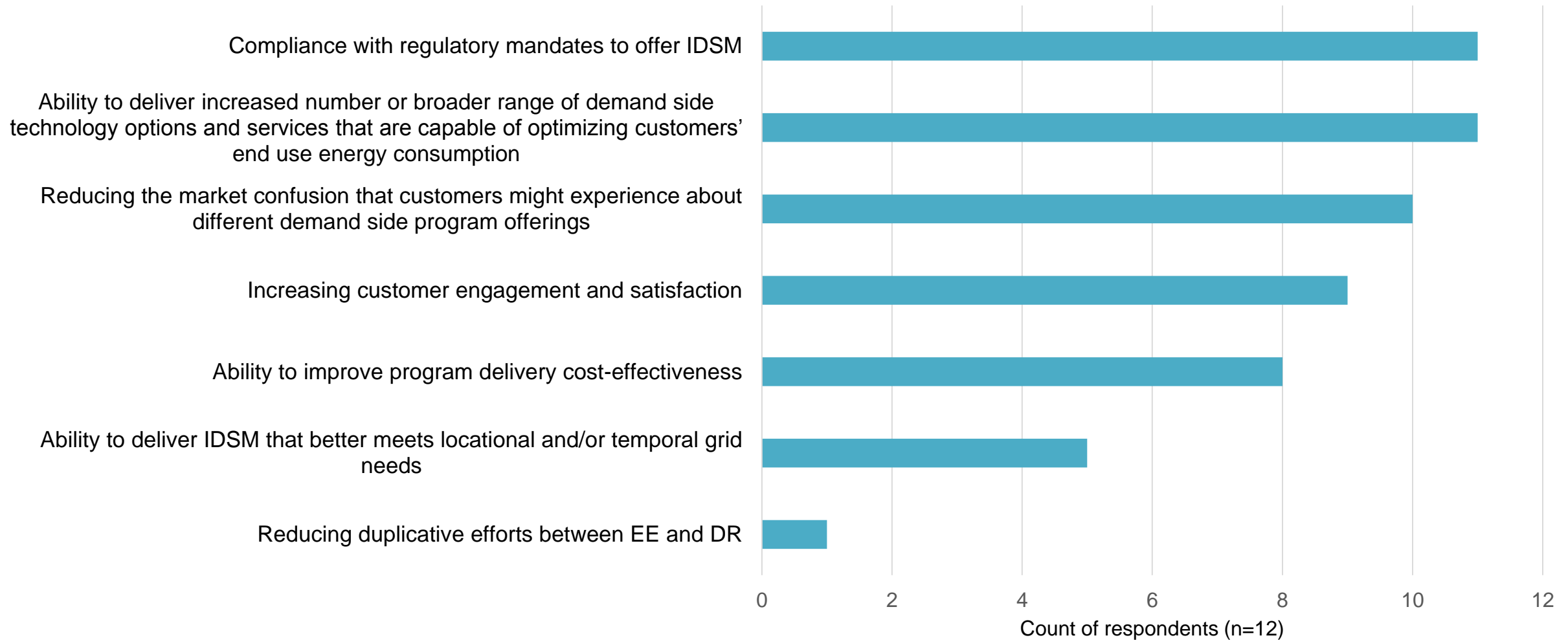
Survey & Interview of Program Administrators and Implementors

Organizations participating in the scoping study

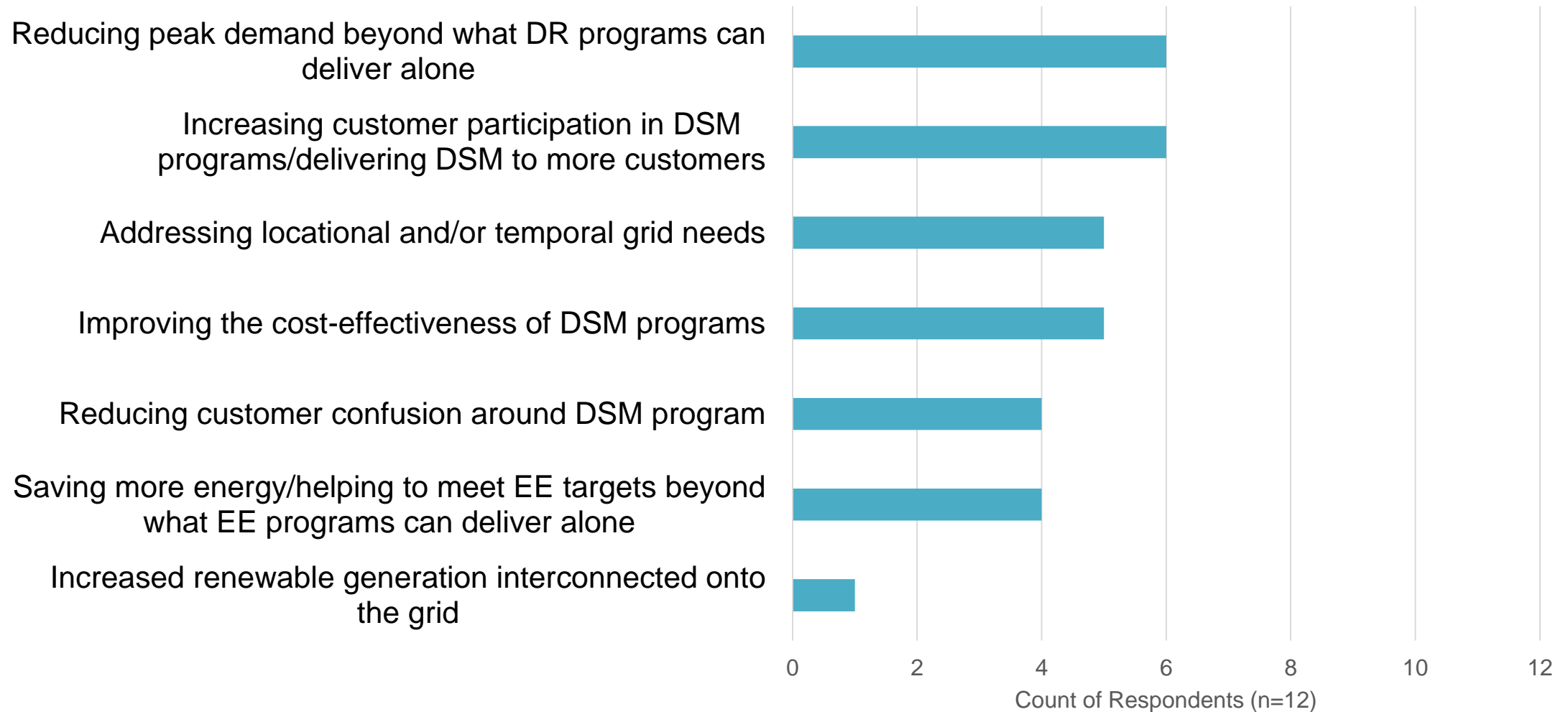
Avangrid	Pacific Gas and Electric (PG&E)
DTE Energy (DTE)	Consolidated Edison (ConEd)
Hawaiian Electric Company (HECO)	Southern California Gas (SoCalGas)
Sacramento Municipal Utility District (SMUD)	Hawai'i Energy (Leidos)
Southern California Edison (SCE)	

Reported Motivations and Benefits of those Currently Pursuing IDSM

Program Administrator Motivations for Implementing IDSM Programs

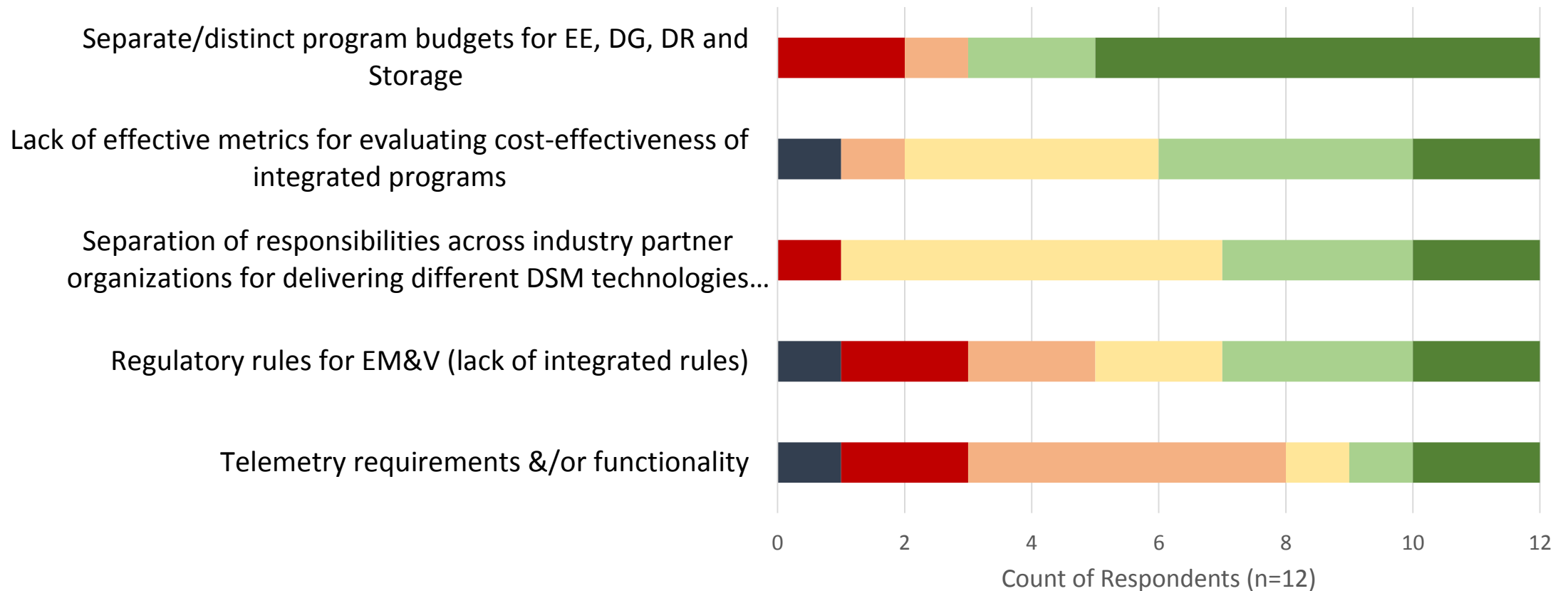


Benefits of IDSM that are Materializing or Showing Potential to Materialize



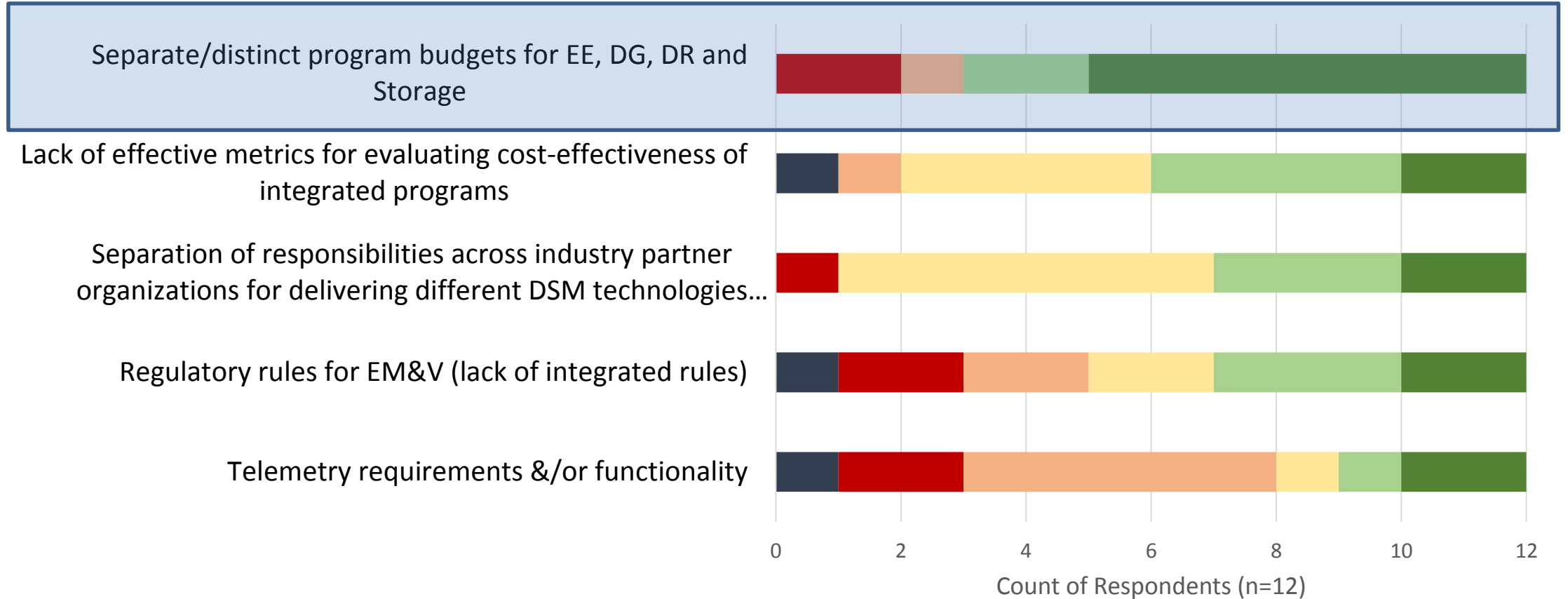
Regulatory and Program Administrator Barriers to Implementation of IDSM

Regulatory Barriers to Implementing IDSM



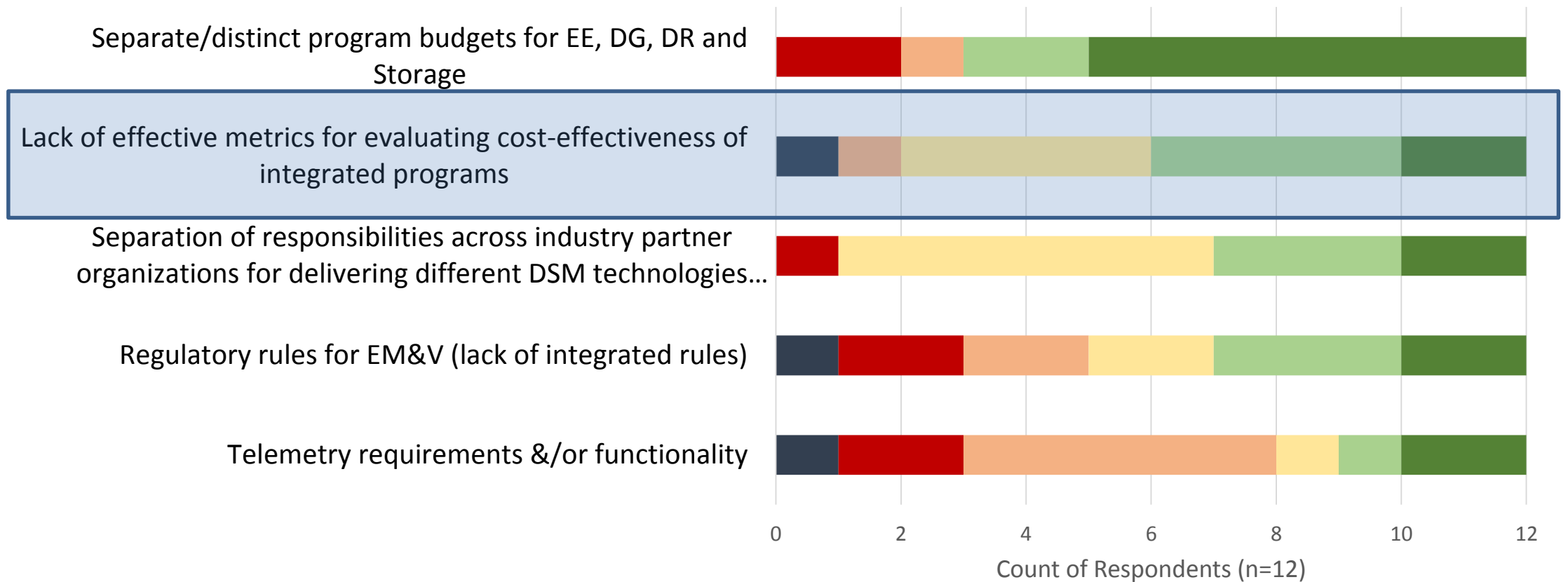
No Answer
 Least significant
 Slightly Significant
 Moderately Significant
 Very Significant
 Most Significant

Regulatory Barriers to Implementing IDSM



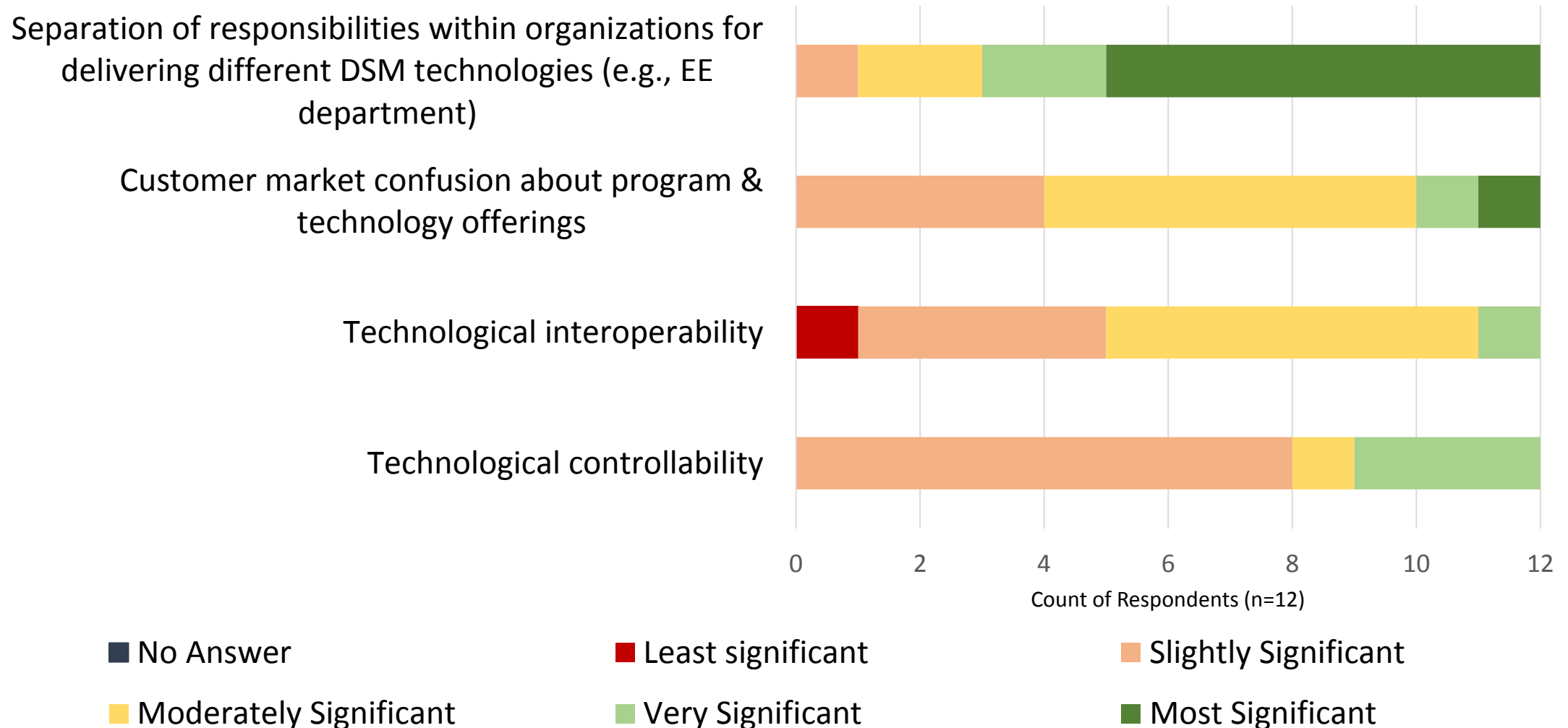
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Regulatory Barriers to Implementing IDSM

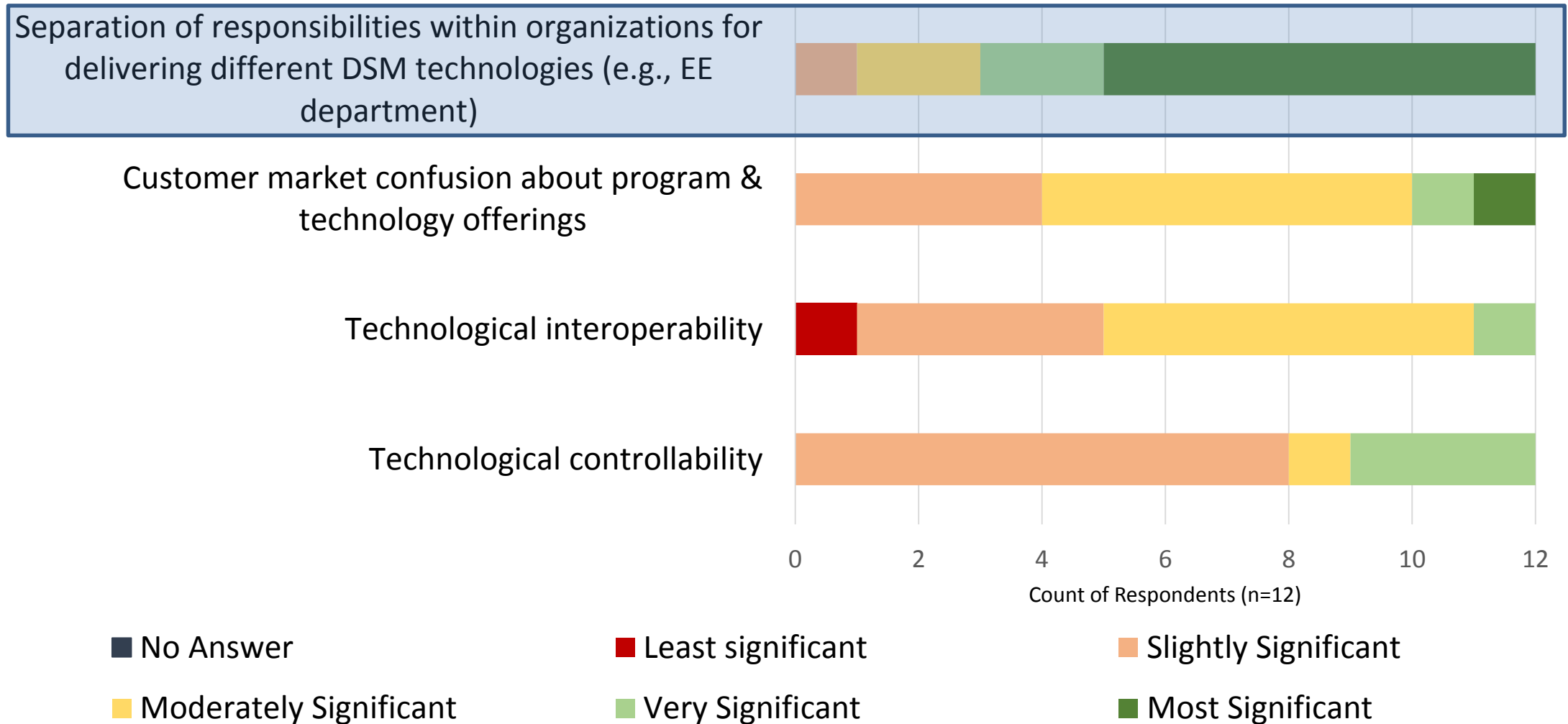


No Answer
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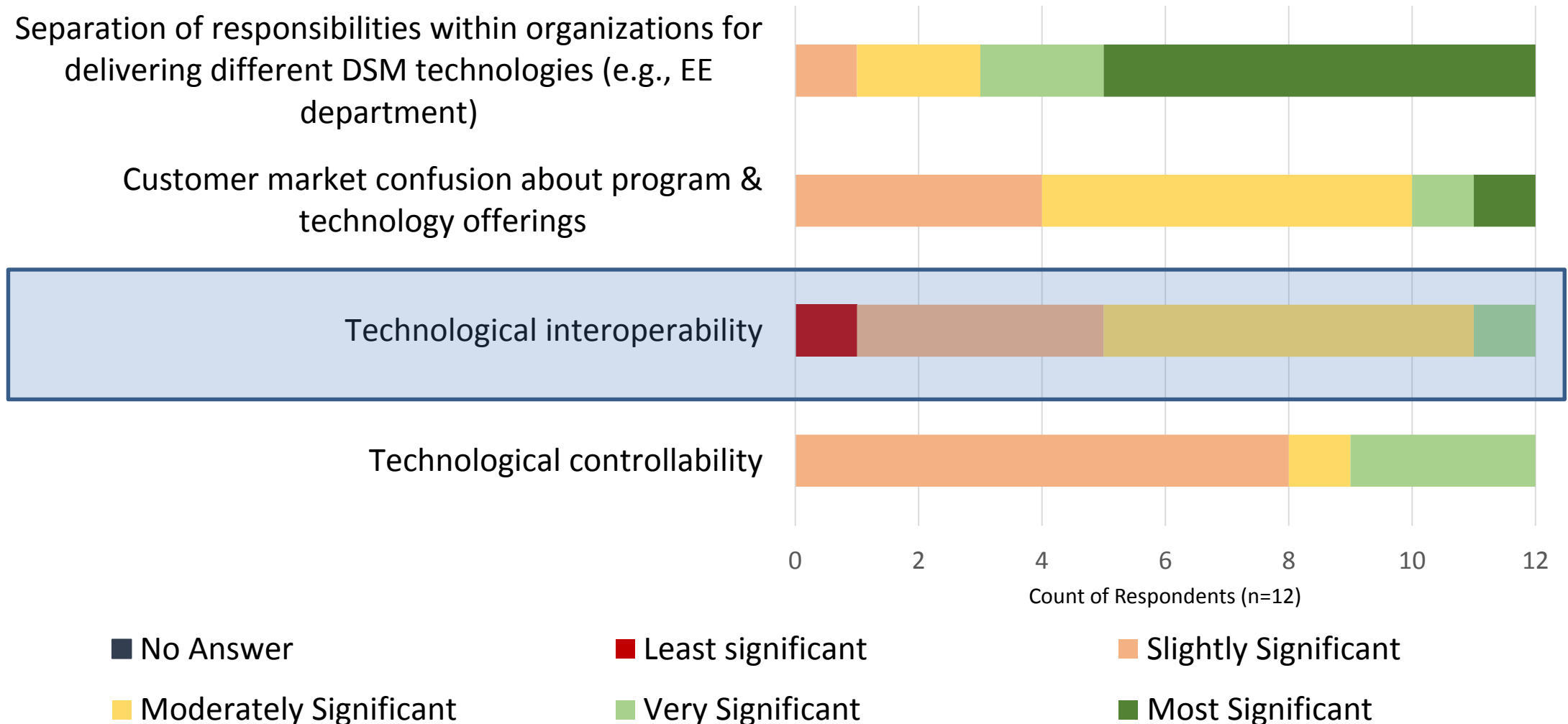
Program Administration Barriers to Offering or Expanding IDSM



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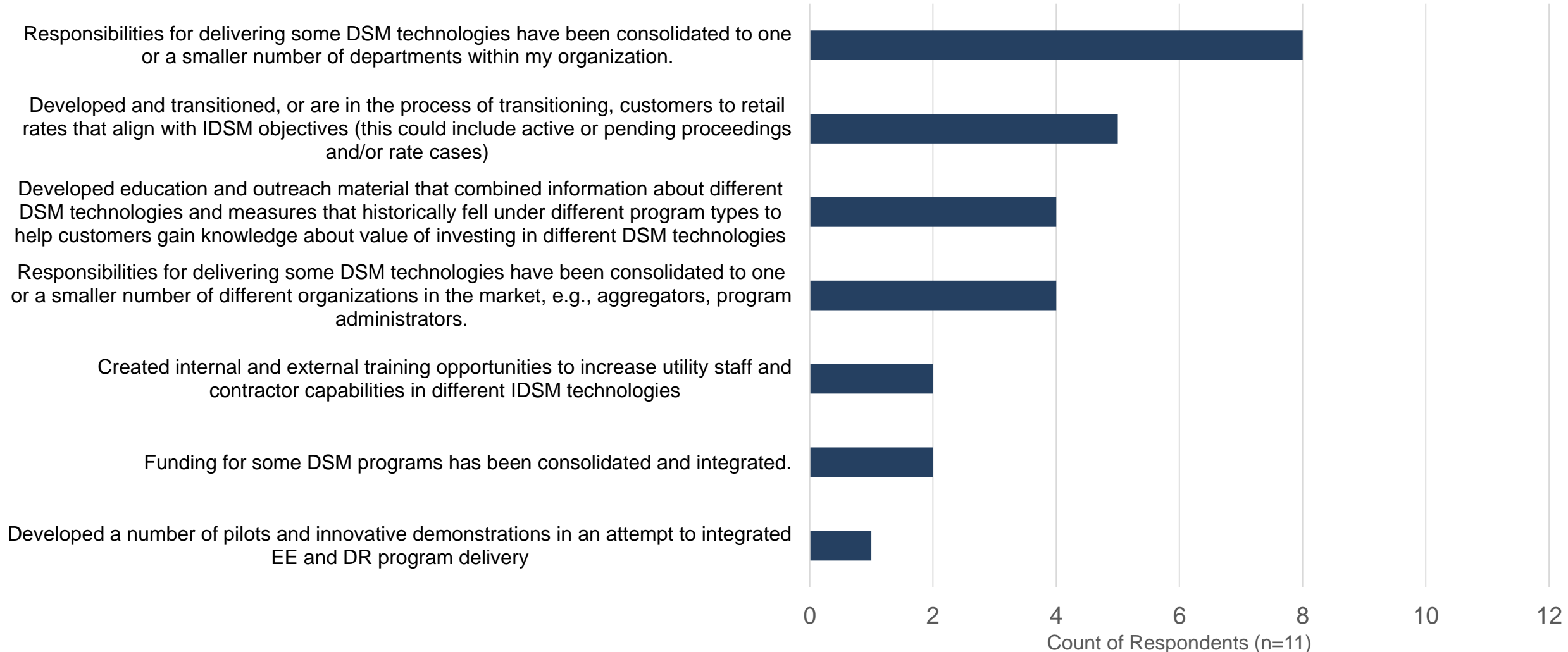


Program Administration Barriers to Offering or Expanding IDSM

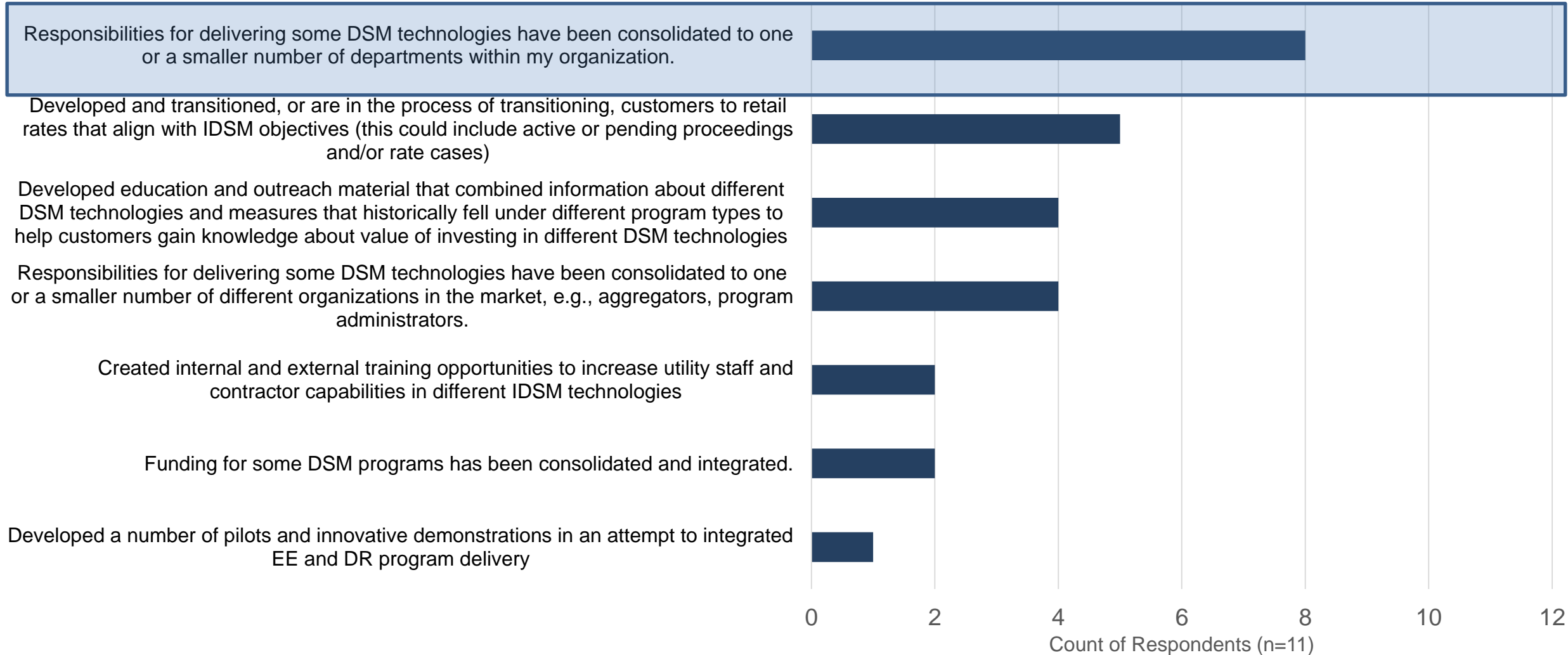


Actions Taken to Implement IDSM

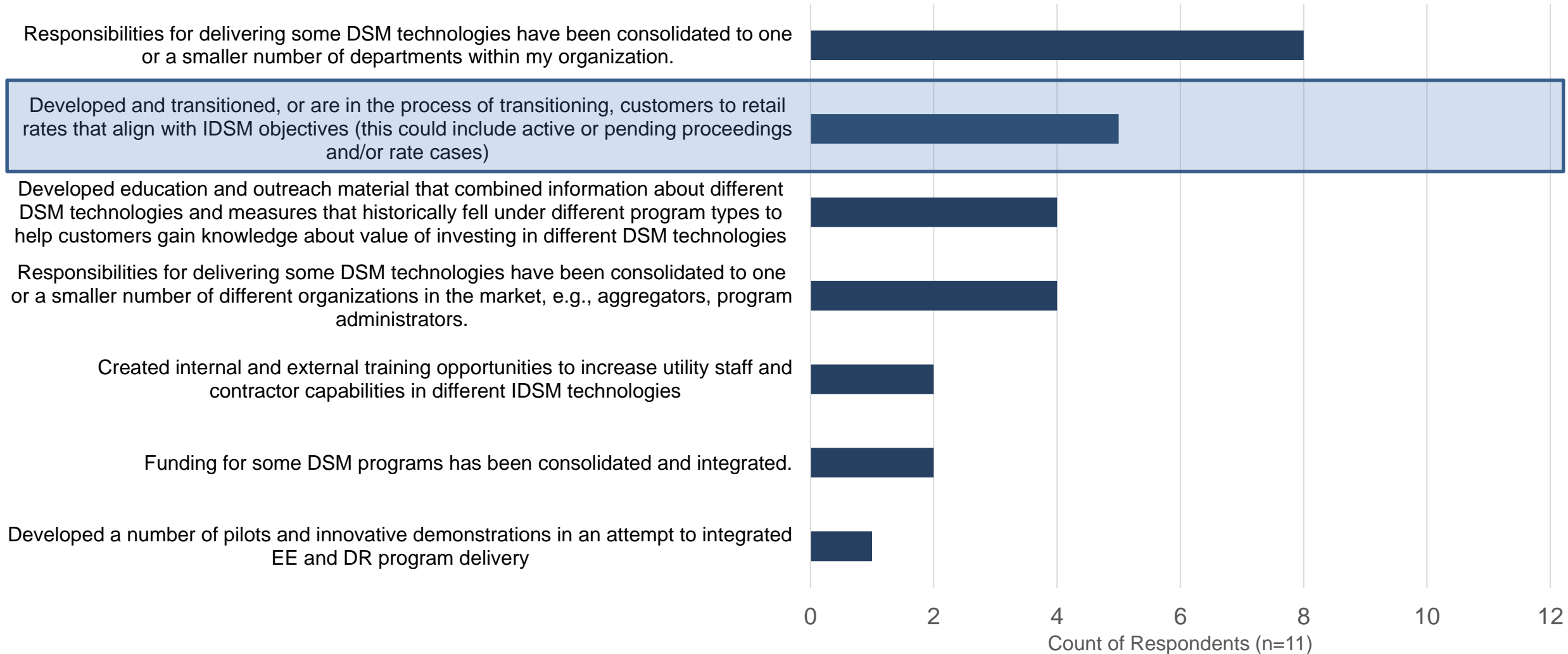
Activities Undertaken To Enable the Integration of DSM Delivery



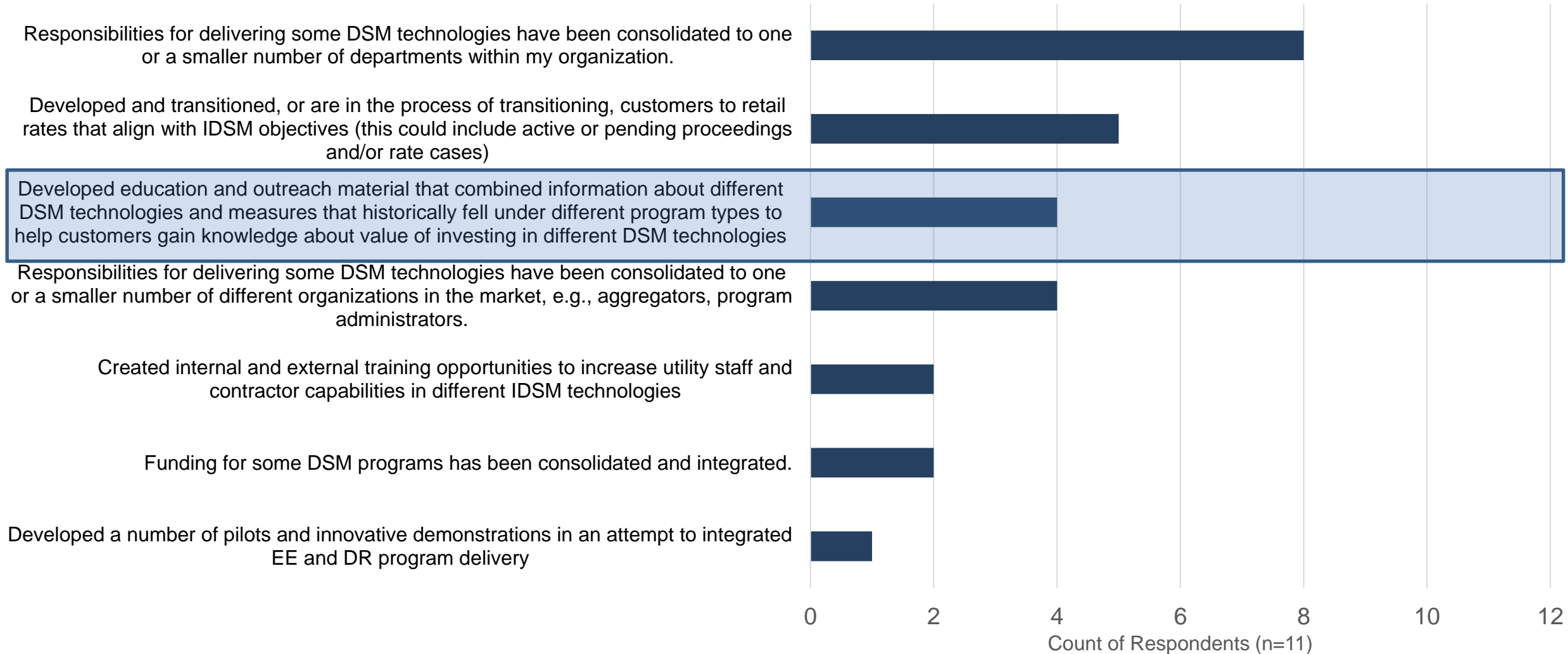
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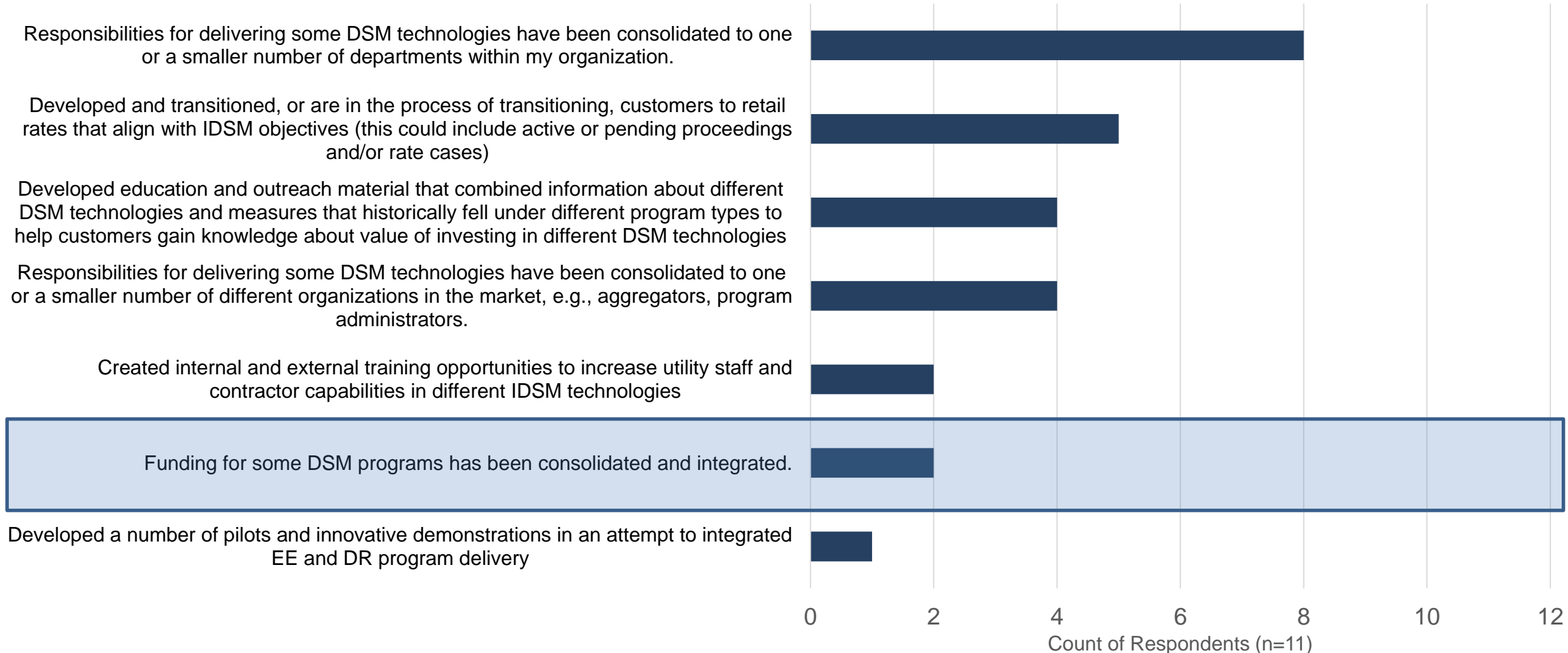
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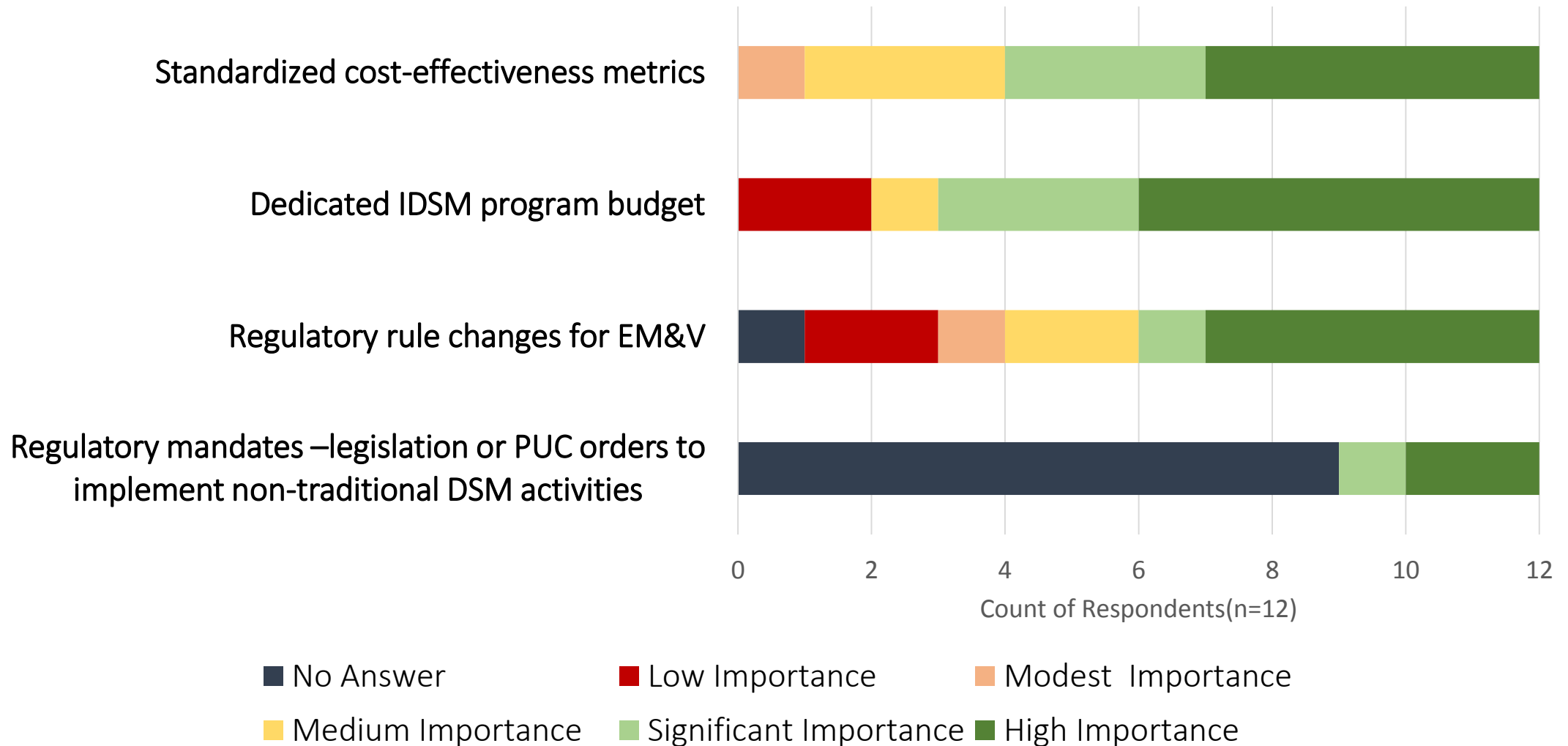


Activities Undertaken To Enable the Integration of DSM Delivery

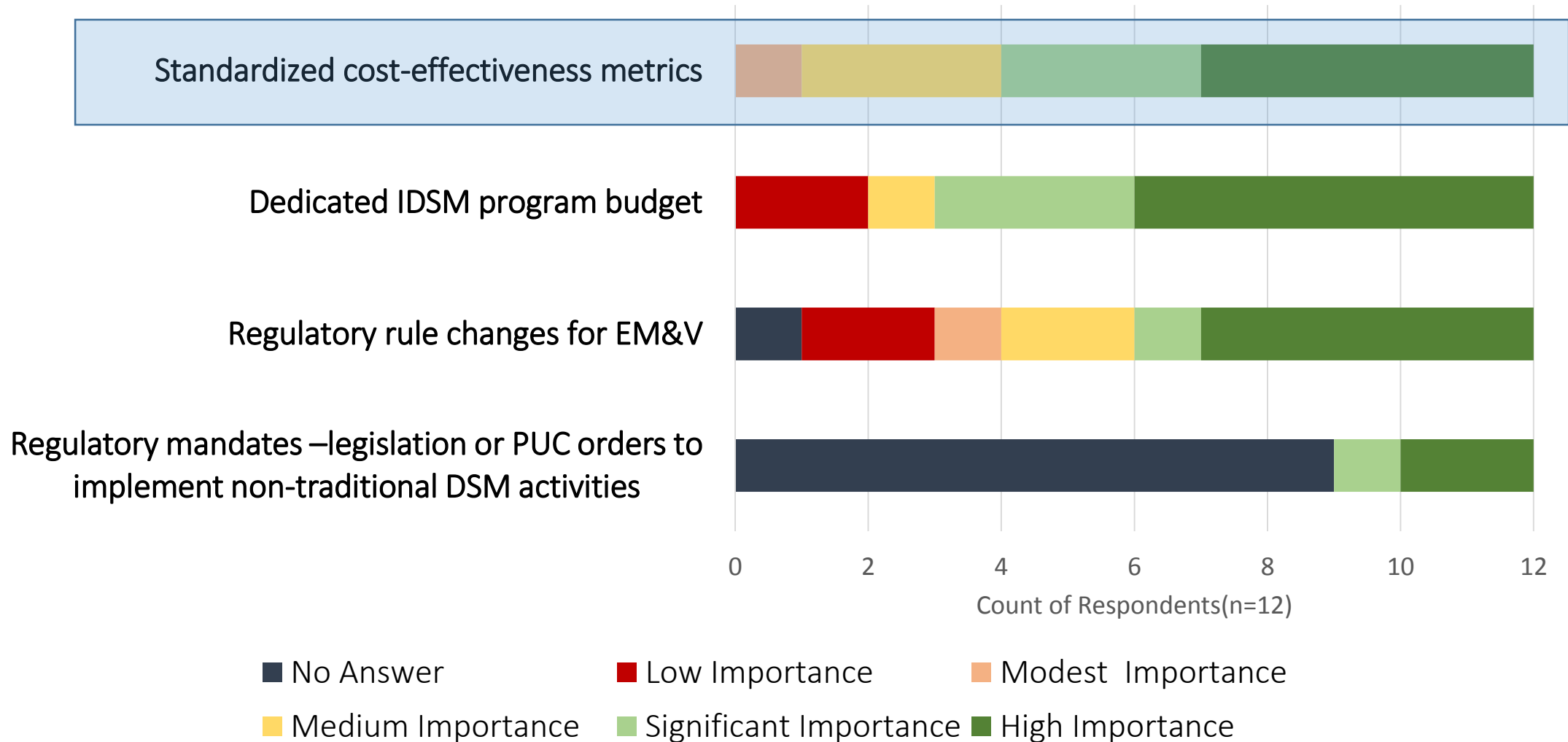


Opportunities and Recommendations for Accelerating Adoption of IDSM

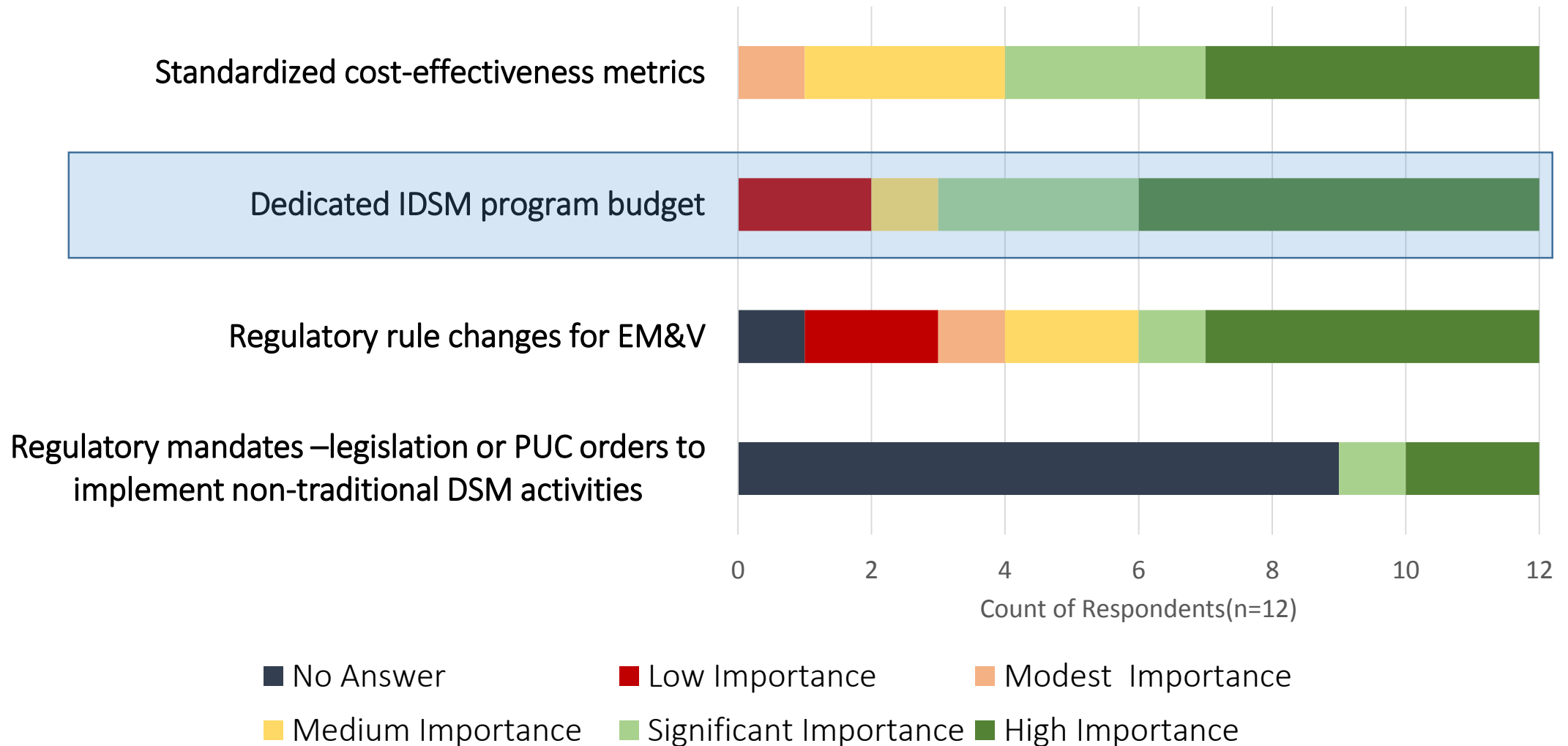
Regulatory Opportunities for Expanding IDSM



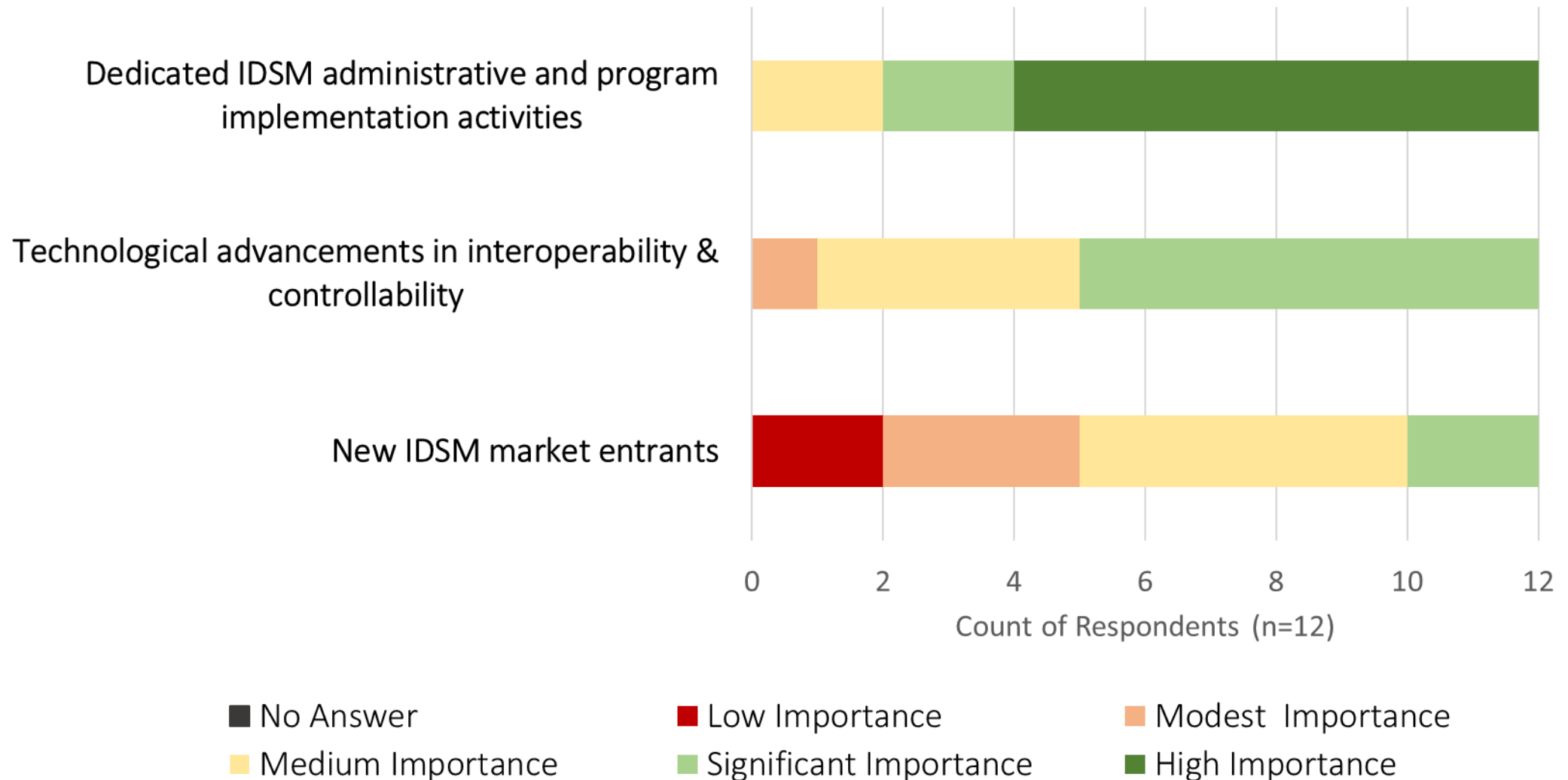
Regulatory Opportunities for Expanding IDSM



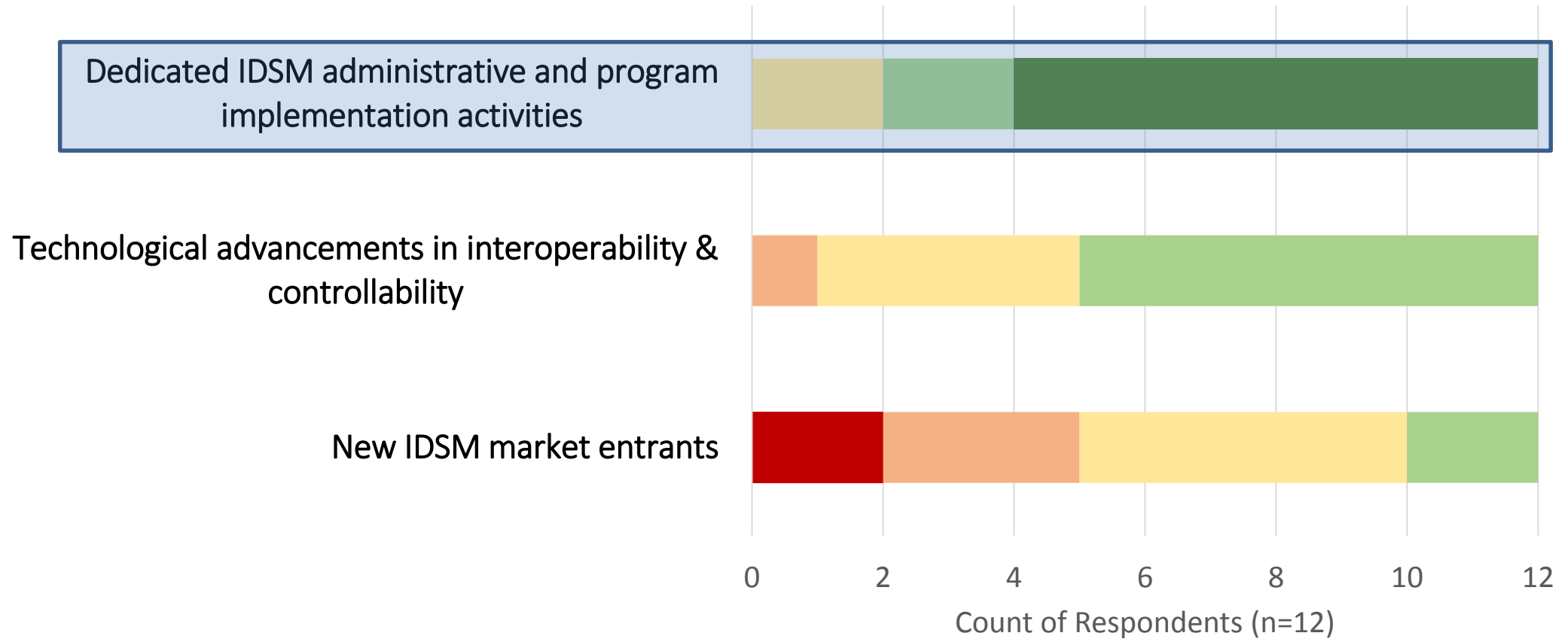
Regulatory Opportunities for Expanding IDSM



Program Administrator Opportunities for IDSM



Program Administrator Opportunities for IDSM



■ No Answer

■ Low Importance

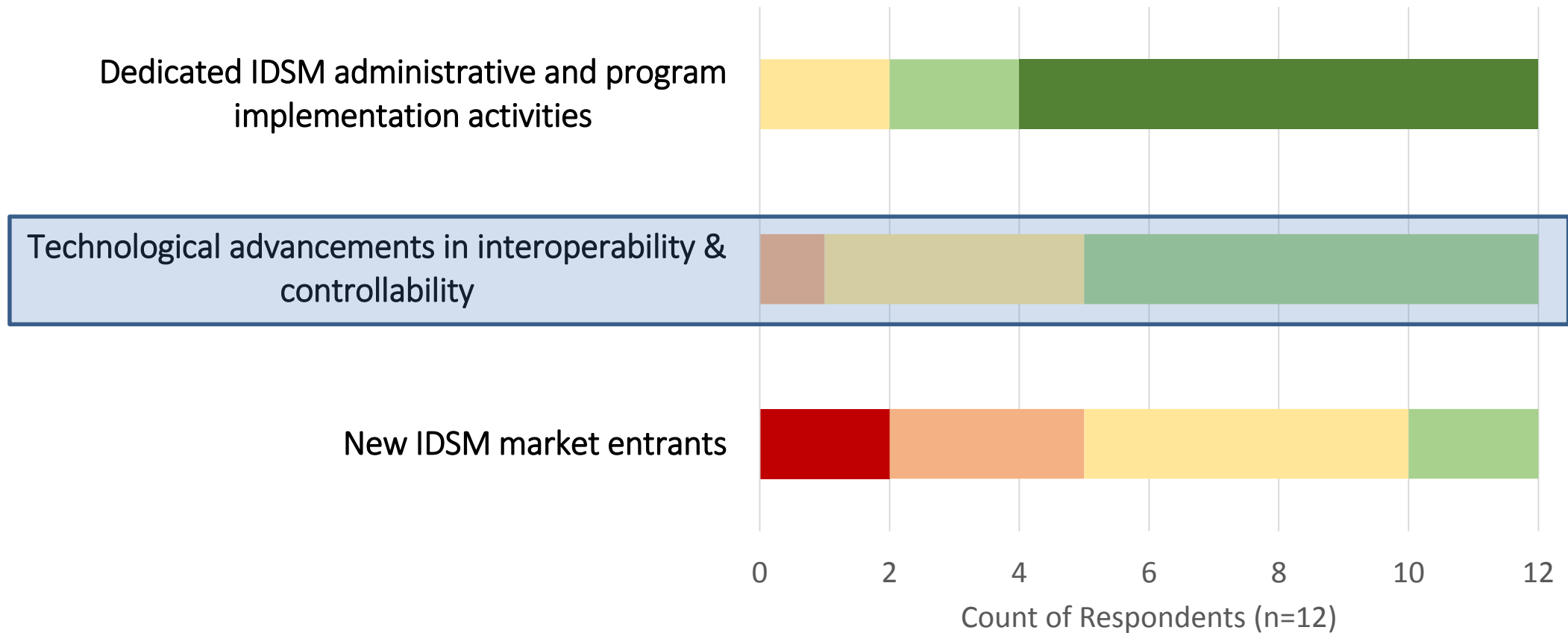
■ Modest Importance

■ Medium Importance

■ Significant Importance

■ High Importance

Program Administrator Opportunities for IDSM



■ No Answer

■ Low Importance

■ Modest Importance

■ Medium Importance

■ Significant Importance

■ High Importance

Future Opportunities for IDSM: Promising IDSM Technologies and Measures Over the Next 10 Years

Promising C&I IDSM Programmatic Opportunities



Lighting Systems & Control



Battery Storage



RETRO-COMMISSIONING



Electric Transportation

Promising Residential IDSM Programmatic Opportunities



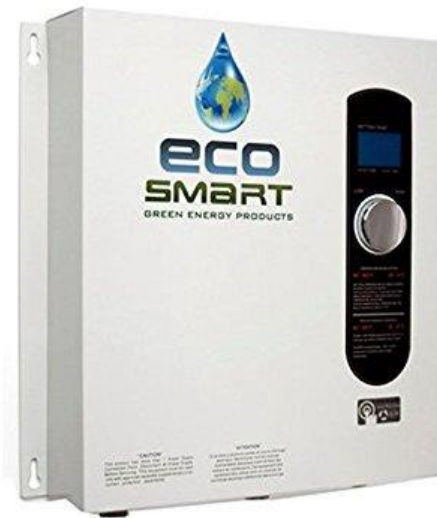
HVAC Controls



Electric Vehicles



Battery Storage



Water Heating



Advanced Solar Inverter

Thank you!



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