



**NETWORKS**

# **ESB Networks Innovation Project Portfolio**

## **Q2 2021 Summary Report**

These slides give a high level overview of our ESB Networks' innovation project portfolio across our three pillars; Future Customer, Climate Action and Network Resilience. They illustrate the progress and status of our innovation projects and where they are within the three main stages of our innovation process as outlined below.

## **1) Project Identification and Evaluation**

ESB Networks conducts horizon scanning for the latest practices and technologies that could benefit the customer, climate and / or the network. Projects at this stage are ideas or pipeline projects.

## **2) Delivery of Innovation Projects**

Projects identified, are firstly proposed to our governance board and once approved, are resourced by an experienced project manager or assigned to that part of our business best placed to deliver it. Projects are then delivered in accordance with Project Management best practice.

## **3) Transition of Projects to Business as Usual**

Projects that are completed successfully, are transitioned (when appropriate) to the relevant business unit to be incorporated into business as usual. The learnings from all projects are disseminated internally and externally to our stakeholders.

For more detailed information on these projects, please visit the innovation section of ESB Networks website:

<https://www.esbnetworks.ie/who-we-are/innovation/innovation-in-esb-networks>

# 2021 Innovation KPIs and Statistics – Year to Date



**175+**  
Innovation Ideas

## ESB Networks Innovation KPIs

**30**  
Active Projects



**€60M**  
Potential Financial  
Impact of Ideas



**80**  
External Company  
Collaborations



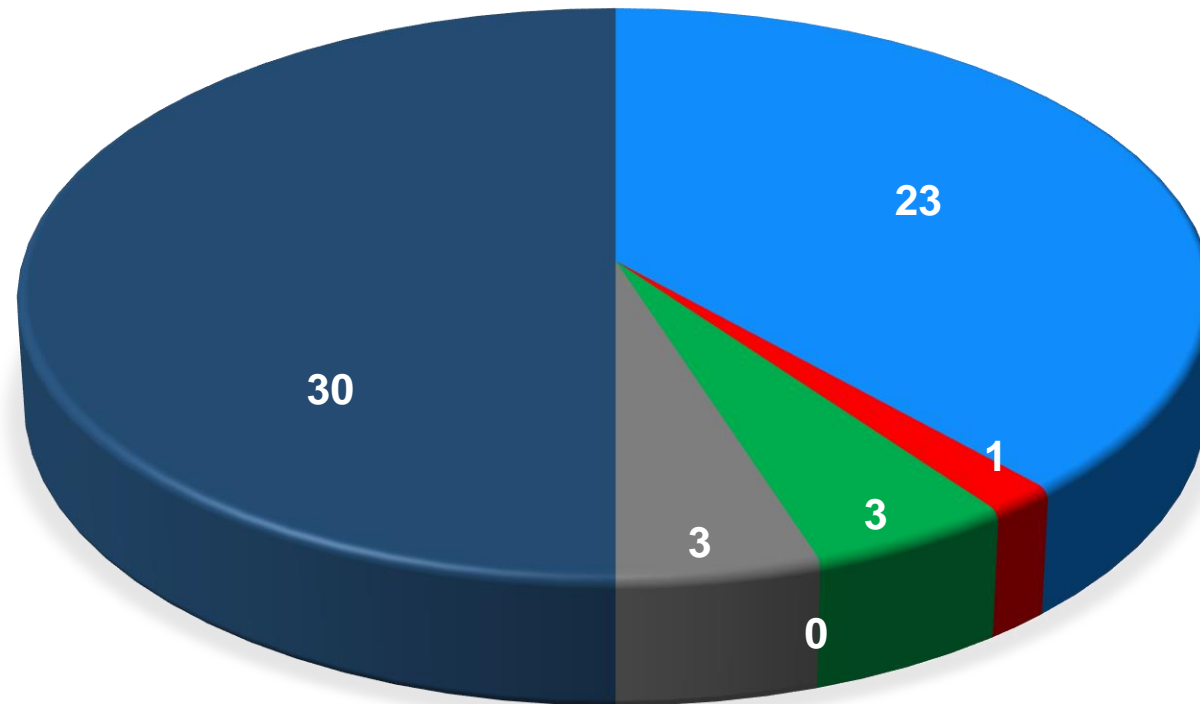
**40**  
Staff Working on  
Innovation Projects



**590**  
Staff Engaged  
with Innovation



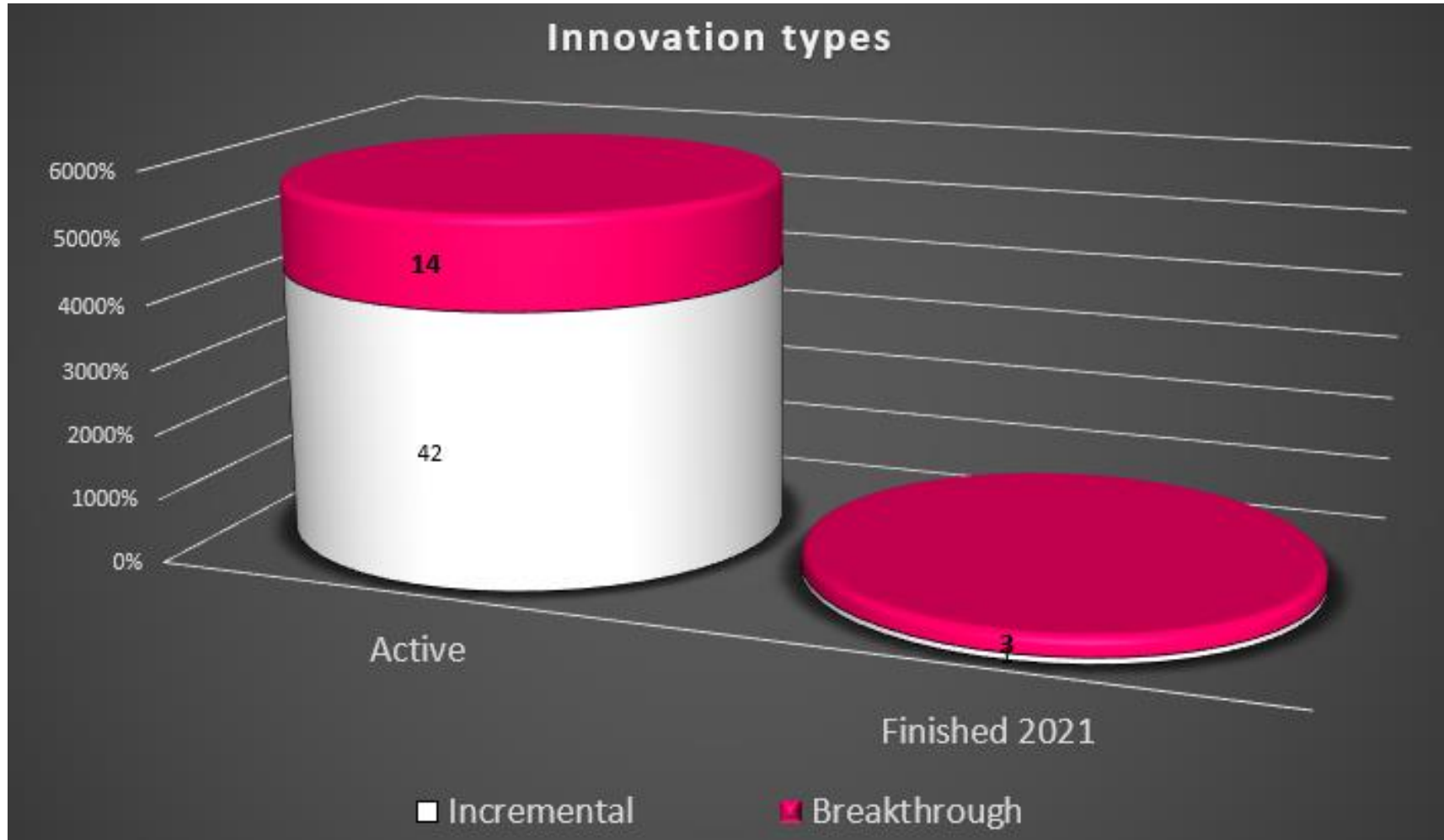
# Innovation Project Portfolio Status



■ Pipeline   ■ Cancelled   ■ Completed

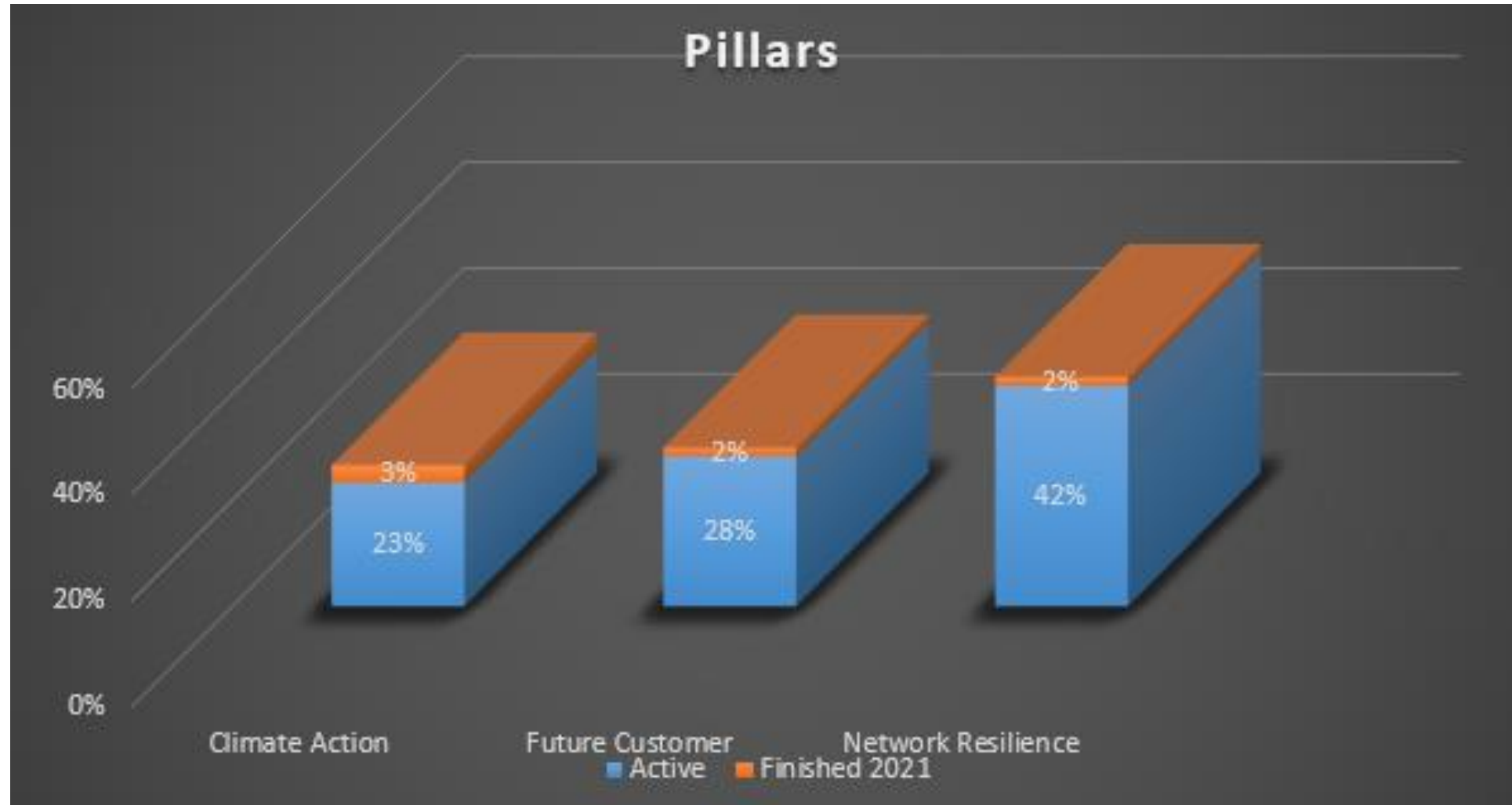
■ Subsumed   ■ On Hold   ■ In Progress

# Innovation Projects – Innovation Types



*\*Active – includes approved pipeline projects*

# Innovation Projects – Split by Pillar



# Innovation Projects - Climate Action Pillar



Climate Action - Decarbonising  
Electricity, Heat and Transport



No.	Project Title	Innovative	Delivery
22	Introduction of Ester and MV.LV TapChanging Transformers	Incremental	Q3'21
24	Introduction of Alternatives to Creosote Wood Poles	Breakthrough	Q1'25
41	Introduction of Sidewalk Transformers	Incremental	Q4'21
62	Unit Substation to 1MVA	Incremental	Q2'21
77	Wildlife OHL Contact Prevention	Incremental	Q4'21
82	Big Data Analytics for Wind Farm Connections	Breakthrough	Q4'21
83	Wind Farm - Reactive Power Optimisation (Blackbox)	Incremental	Q3'21
107	Transformer Loss Load Factor Calculation	Incremental	TBA
133	Tesselo - LiveEO Vegetation Survey System	Incremental	Q3'21
169	Improved ADMD Estimates for Domestic Customers	Incremental	Q2'21
170	Using Real Options for Investment Justification ADMD Change	Breakthrough	Q2'22
202	Modelling and Impact Assessment of Innovative Microgen Op Scenarios	Incremental	TBA
215	Use 2 x 15kVA Transformers instead of full Group Split	Incremental	TBA
216	Investigate Statistical Contributions from Renewable Generation (F-Factor)	Incremental	TBA

# Innovation Projects – Future Customer Pillar



Future Customer - Empowering and Supporting Customers and the Economy



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No.	Project Title	Innovative	Delivery
23	SERVO	Breakthrough	Q2'21
59	Dingle Electrification Project	Breakthrough	Q3'22
74	Exploration of ASHP for Ireland's Residential Heating Needs	Incremental	Q2'22
75	+CityXChange	Breakthrough	Q4'23
81	Development of Modularised Metering and Control for RES Connections	Incremental	Q1'22
98	EV 300kVA+ Pole Mounted Transformer	Incremental	Q3'21
99	5G Docklands	Incremental	TBA
101	Microgrids	Breakthrough	TBA
103	P2P and System Wide Economic Analysis	Breakthrough	TBA
104	Real Option Pricing of Flexibility	Breakthrough	TBA
106	Three Winding Transformer	Incremental	TBA
152	Development of LV models for the Future Network Planning and Operations	Incremental	TBA
158	Developing 400MHz Spectrum Use for Smart Grid Applications	Incremental	TBA
160	Electrification Uptake Data Analytics Forecasting - ESRI / UCD	Incremental	TBA
171	Using SigFox Temperature Sensors to Assess Substation Loading	Incremental	Q2'21
172	Estimation of Allowable Loading on 15/33kVA Single Phase Trafos	Incremental	Q1'22
210	REACT - Island energy Self-Sustainability	Incremental	Q4'22
214	Optimal Heat Pump scheduling to improve hosting capacity of distribution networks for DERs	Breakthrough	TBA



# Innovation Projects – Networks Resilience Pillar



Network Resilience – Efficient,  
Secure, Reliable Electricity



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No.	Project Title	Innovative	Delivery
3	Nodal Controller for Reactive Power	Incremental	Q4'21
9	Leveraging Fibre Infrastructure for Smart Network Management	Breakthrough	Q4'21
19	Inspection of OHLs Using Drones and Image Processing Analytics	Incremental	Q1'22
28	DistriHost Mapping Network Capacity	Incremental	Q4'21
38	Data Analytics to Temperature Correct Loads	Incremental	Q2'22
39	Storm Resilience for Overhead Networks	Incremental	Q4'21
42	Assessment of LV Rural Overhead Infrastructure for Upgrade to 1000V	Incremental	Q2'22
49	New Core and Aggregation IP Network	Incremental	Q4'23
54	Weather Forecasting and Network Damage Prediction	Incremental	Q4'22
56	Development of Dynamic Line Ratings	Incremental	Q4'22
69	HV Stations Health Index	Incremental	Q4'21
71	Climate Change Adaptation Approaches (flooding)	Incremental	Q4'21
78	Smart Securing of Strategic Assets (Electronic Locks)	Incremental	TBA
96	Short circuit Level Assessment - MV and LV	Incremental	TBA
100	Import Export Limitations	Incremental	TBA
102	MV LV Voltage Allocation	Incremental	Q3'22
150	Novel Use of Drone Technology and Artificial Intelligence for Fault Location and Line Patrolling	Incremental	Q1'23
151	Identification of network configurations for Active Network Management (ANM)	Incremental	TBA
153	Leveraging Enhanced LV Monitoring and Data Analytics to Optimise Targeted Network Reinforcement	Incremental	Q2'22
154	Developing and Trialling Novel Approaches to Manage LV Flexibility	Breakthrough	TBA
156	Congestion Management and Capacity Allocation using Operational Management System	Incremental	TBA
157	Development of Optimised LV Design Framework to Enable a Unified Mobile Support Application	Incremental	TBA
164	Provision of Optimised Design for 38kV ArcSuppression Coil (ASC) to Support RES Connections	Incremental	TBA
205	Framework for the Optimal Coordination of Network Management Systems (NMS) and DER	Incremental	TBA
211	Real Time State Estimation on Irish Distribution Network	Breakthrough	TBA
213	How to use Data Analytics for efficient operation of distribution networks	Breakthrough	TBA