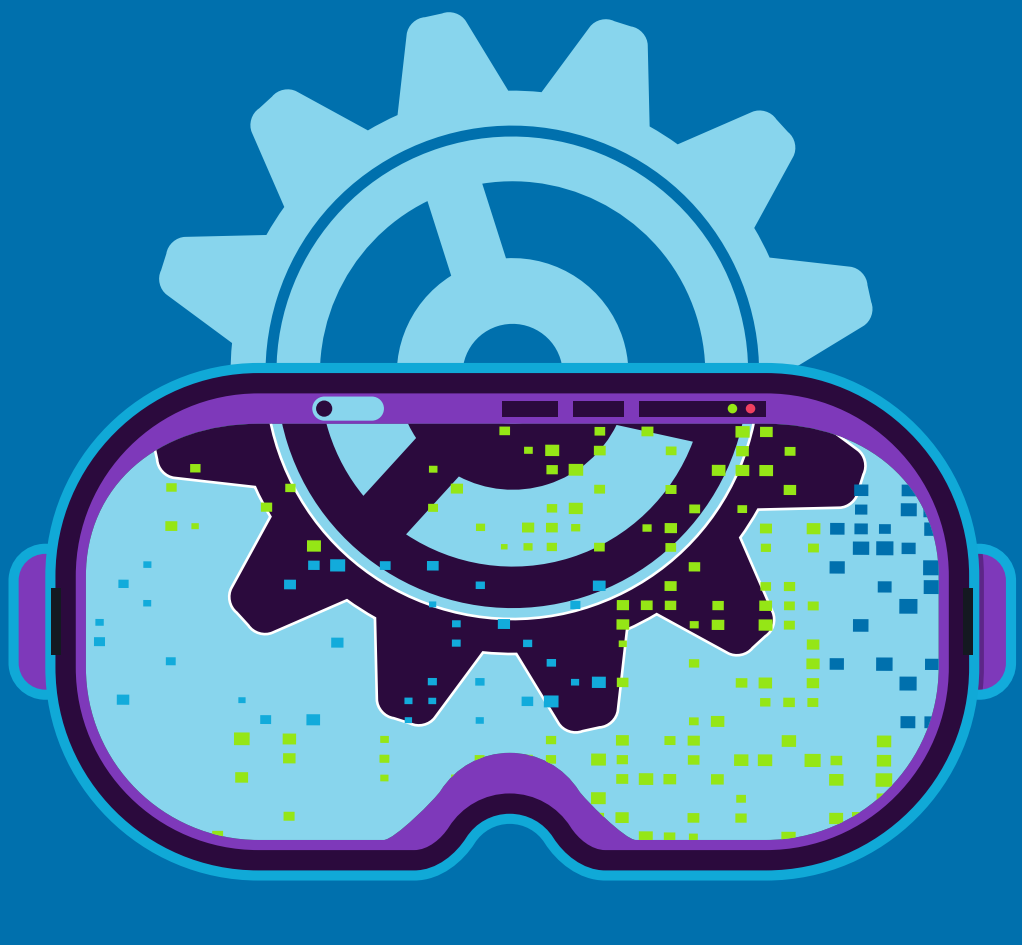
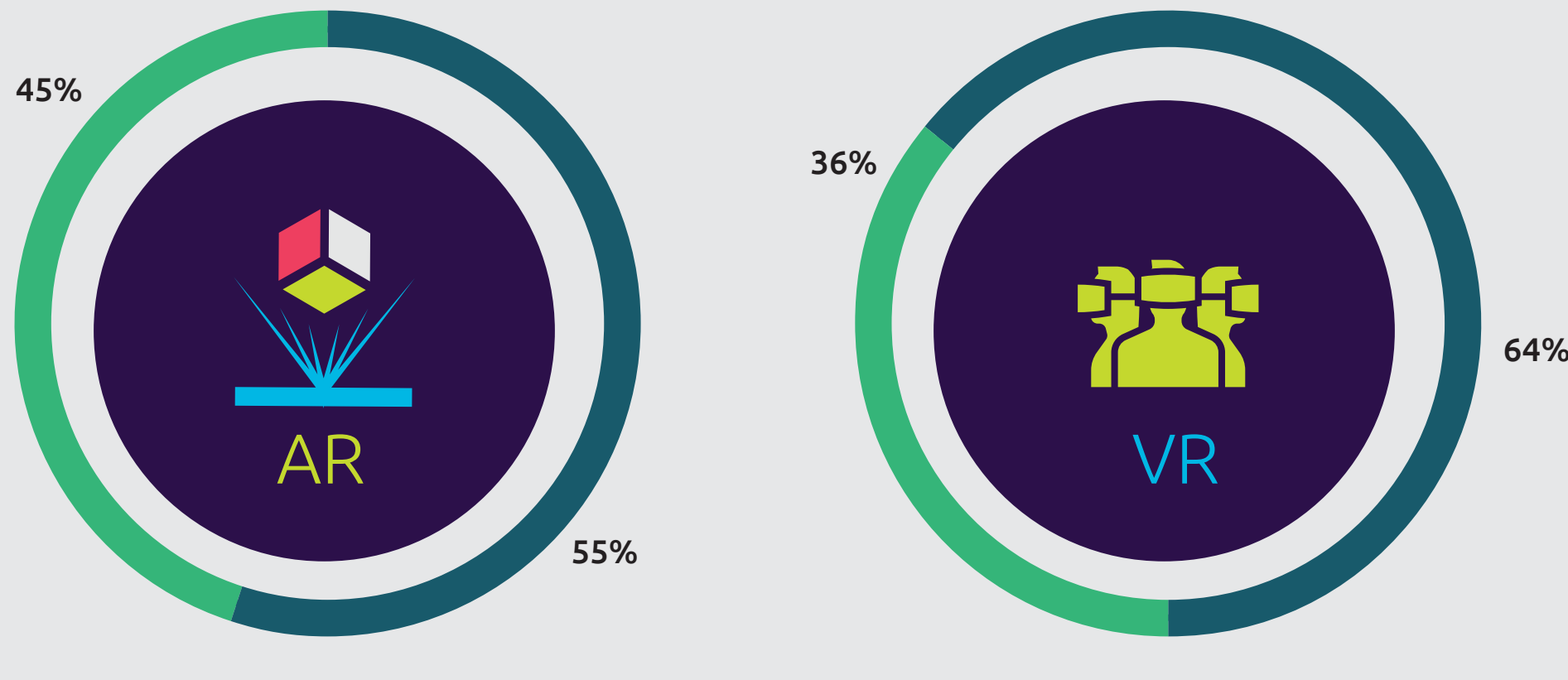


# Augmented and Virtual Reality in Operations

A guide for investment



## Immersive technology has arrived, with AR the more widely practiced



Out of companies deploying AR, 55% are experimenting and 45% are implementing

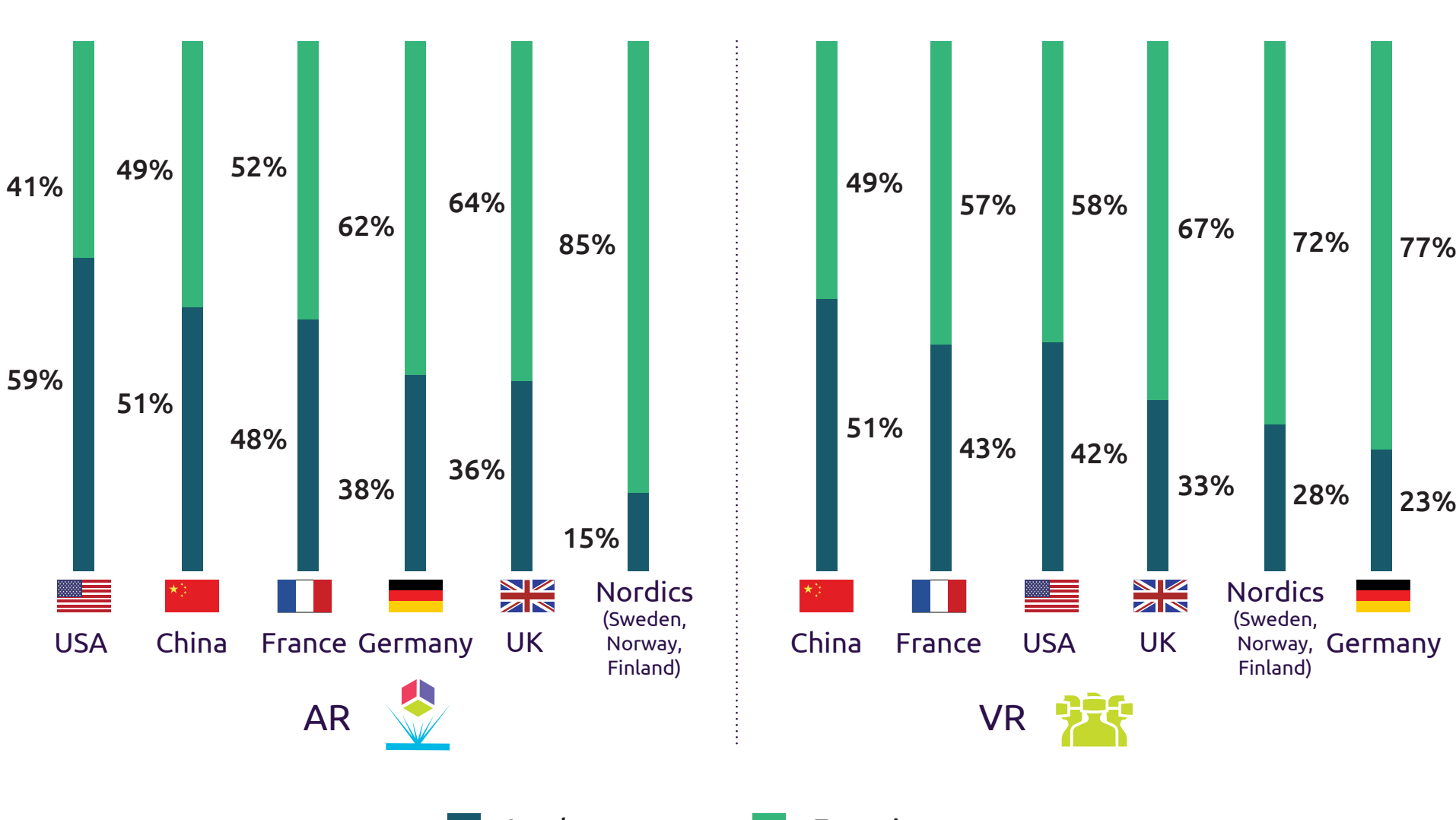
Out of companies deploying VR, 64% are experimenting and 36% are implementing

■ Experimenters ■ Implementers

Source: Capgemini Research Institute, Augmented and Virtual Reality Survey; May-June 2018, N=603 organizations that are exploring and implementing Augmented Reality and Virtual Reality.

Implementers: companies with small or large-scale implementations; Experimenters: companies with proof of concepts or pilots.

## Companies in the US, China and France currently lead the implementation race

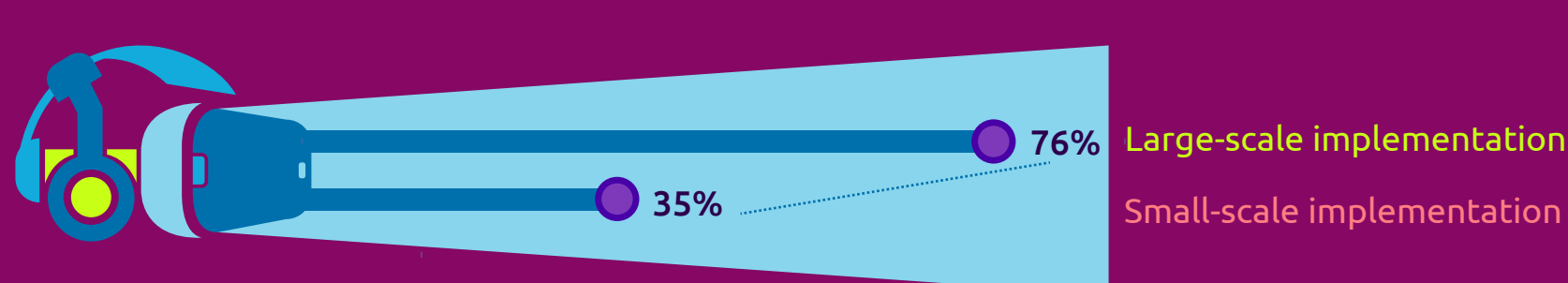


Source: Capgemini Research Institute, Augmented and Virtual Reality Survey; May-June 2018, N=603 organizations that are exploring and implementing Augmented Reality and Virtual Reality. Implementers: companies with small or large-scale implementations; Experimenters: companies with proof of concepts or pilots.

## Large share of companies see over 10% operational benefits with AR/VR

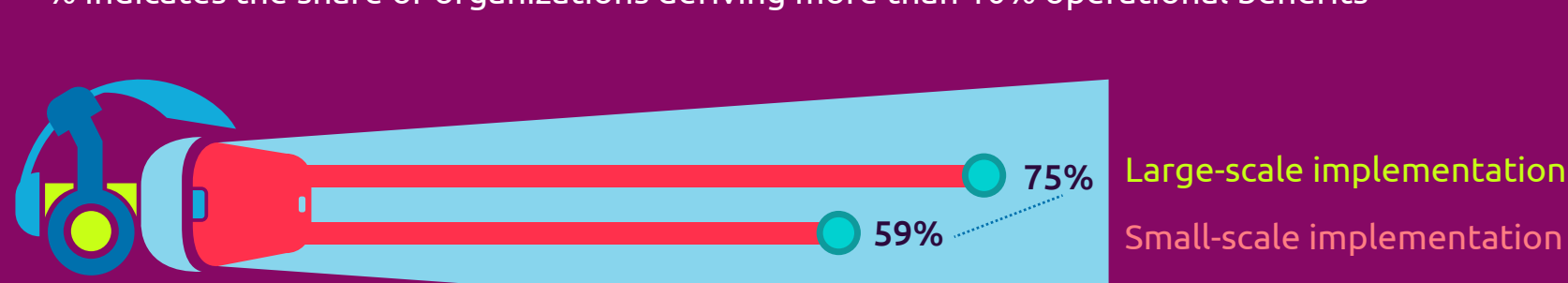
### Large-scale vs. small-scale implementation, AR

% indicates the share of organizations deriving more than 10% operational benefits



### Large-scale vs. small-scale implementation, VR

% indicates the share of organizations deriving more than 10% operational benefits



Source: Capgemini Research Institute, Augmented and Virtual Reality; N=152 and 275 organizations implementing at-least two Augmented Reality use cases at large scale and small scale respectively, N=116 and 220 organizations implementing at-least two Virtual Reality use cases at large scale and small scale respectively.

## Leading organizations are already implementing AR-VR "must do" use cases

### Superimpose step-by-step instructions

**Boeing** technicians work with AR instructions for airplane wiring schematics in their field of view allowing technician to be hands-free. This cuts wiring production time by 25% and reduced error rates to zero.

Adoption Rate: 29%

### Early design of concept fully created in VR

**BMW** engineers and car designers use VR to test how various prototyping of a car look when assembled without physical prototyping. This brings down the cost of the engineering process significantly.

Adoption Rate: 27%

### Virtual walk-through of the site

At **Pacific Gas and Electric (PG&E)**, VR and plant data is used to provide a quicker and safer way for workers to inspect equipment, lowering the risk of technicians getting hurt.

Adoption Rate: 22%

### Visualize equipment in production environment to see final product

VR is used at **Airbus** to integrate digital mock-ups into production environments, giving assembly workers access to complete 3D models of the aircraft under production, reducing time required to inspect by 86%.

Adoption Rate: 27%

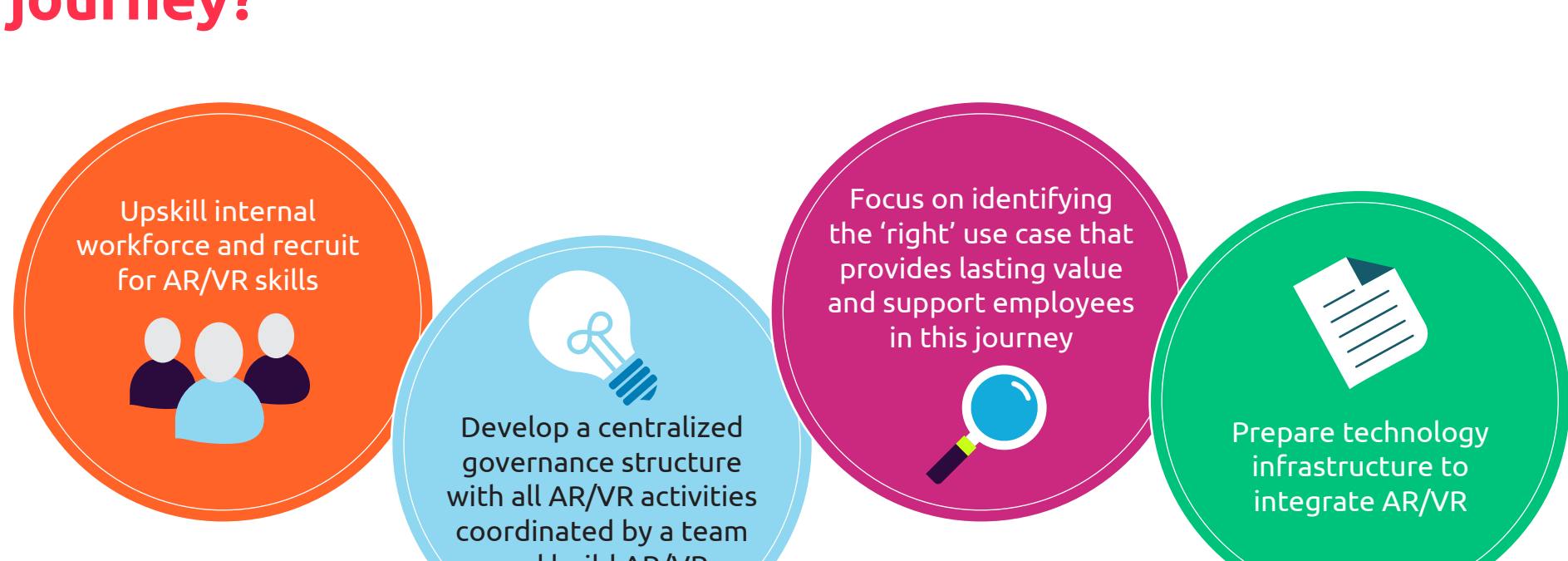
### Remote collaboration

Designers at **Ford** collaborate with each other across vast geographic distances to virtually tour a new vehicle with the engineering team. This avoids incurring travel costs.

Adoption Rate: 23%

Source: Company websites and Capgemini Research Institute Analysis. Adoption rate: % of companies implementing the use case out of all companies deploying AR/VR.

## How can organizations begin or enhance their AR/VR journey?



Source: Capgemini Research Institute

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