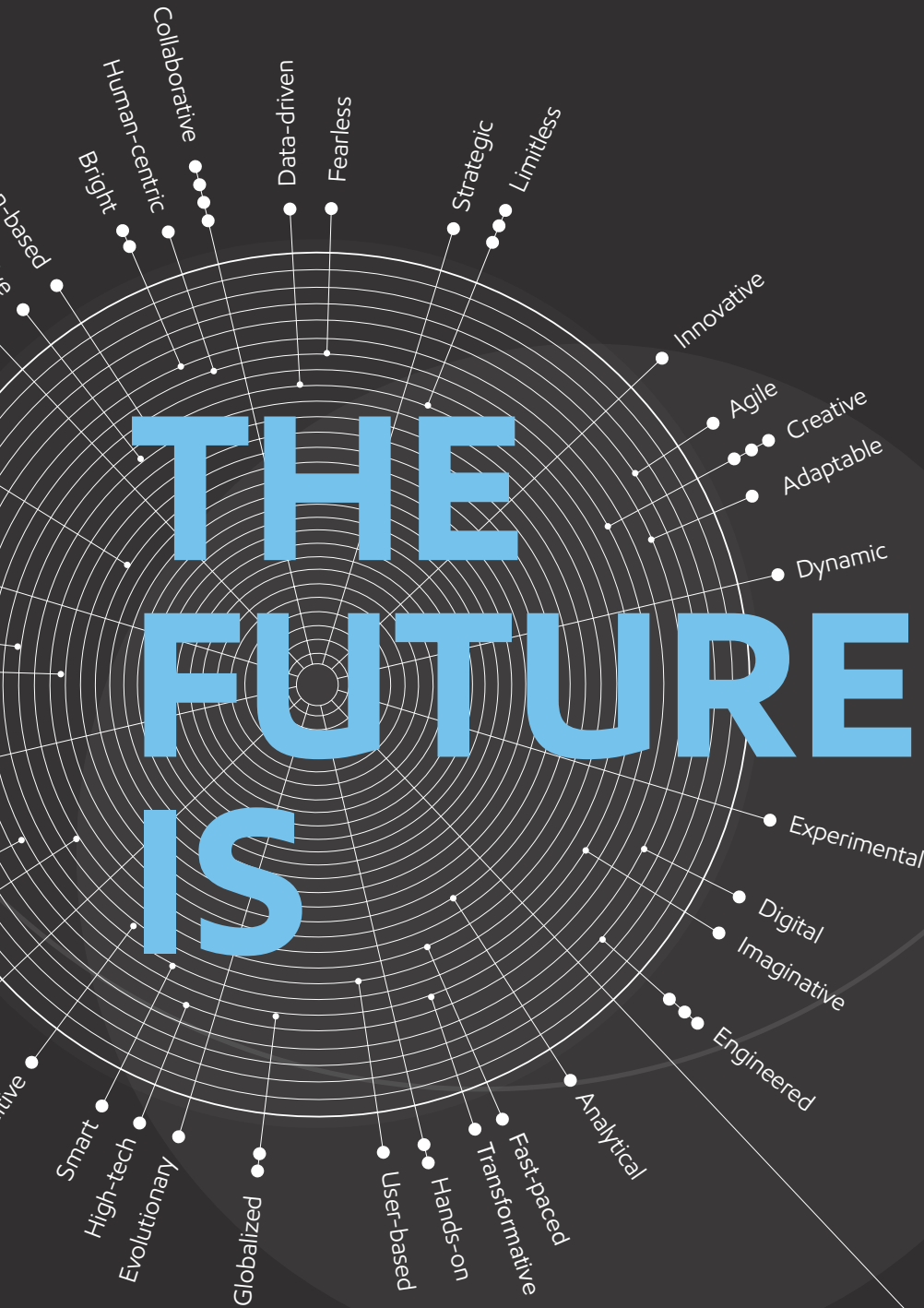


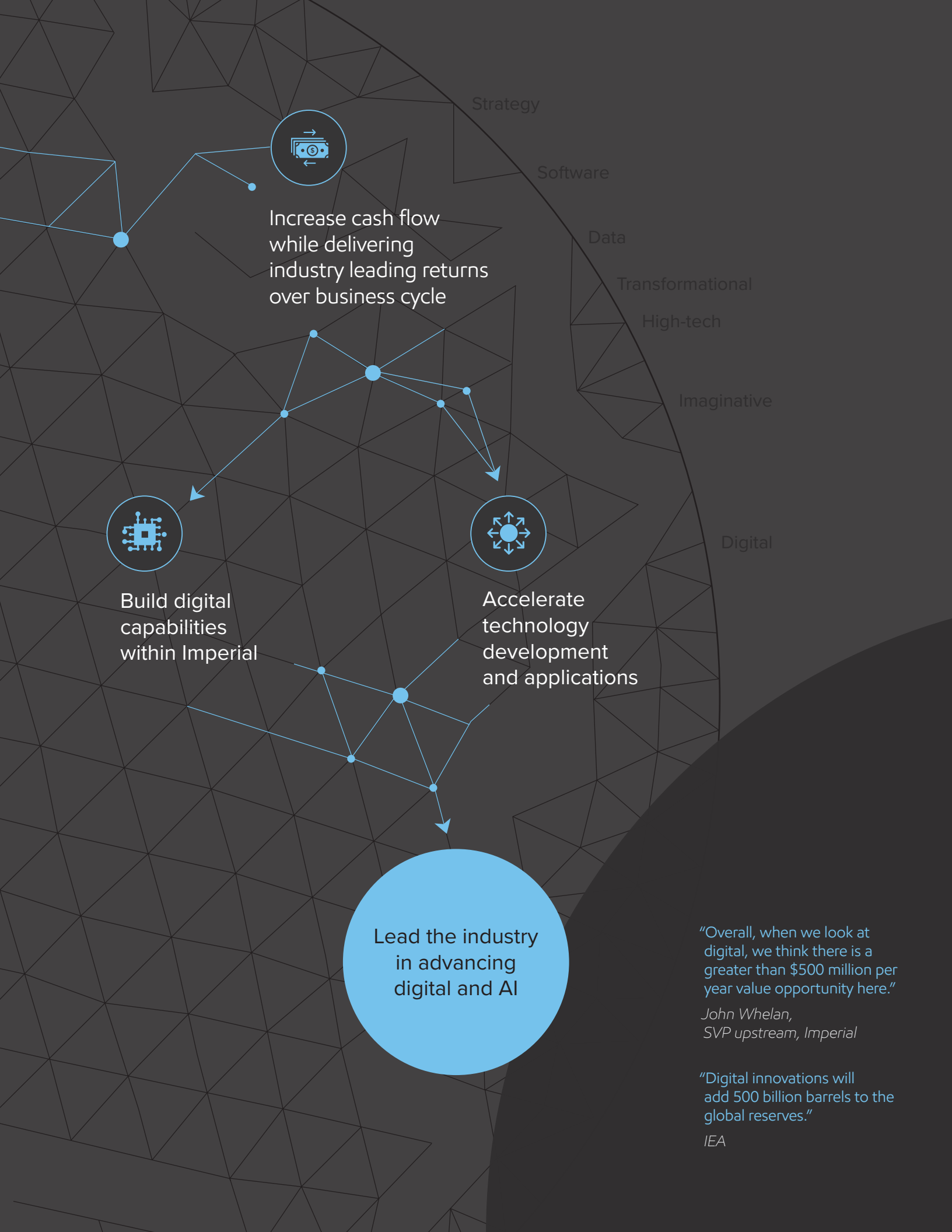
# THE FUTURE IS



# Our mission

Passion  
Purpose  
Integrated  
Agile  
Imaginative  
Design  
Collaboration  
Software  
Data





Strategy

Software

Data

Transformational

High-tech

Imaginative

Digital

Increase cash flow while delivering industry leading returns over business cycle

Build digital capabilities within Imperial

Accelerate technology development and applications

Lead the industry in advancing digital and AI

"Overall, when we look at digital, we think there is a greater than \$500 million per year value opportunity here."

*John Whelan,  
SVP upstream, Imperial*

"Digital innovations will add 500 billion barrels to the global reserves."

*IEA*

# Case study

Uncovering opportunities  
for better production

"We're always seeking new ways  
to optimize production in the  
oilfield. I'm leveraging cloud  
based AI technology to help!"

*Reservoir engineer, Imperial*



## The situation

One common technique to recover heavy-oil from our assets is injecting steam to help oil flow. Engineers are always finding ways to recover more oil by optimizing steam injection across thousands of wells.

## The challenge

The variability of rock and oil properties across the field affects the efficiency of steam injection and oil recovery. Moreover, these properties change over time as oil is recovered. Operating decisions are based on first principle engineering models, which are time consuming to build and calibrate.

## The solution

We used machine learning (XGBoost) to model the oil recovery across the field given several input parameters, including injection rates and oil production. XGBoost, along with optimization algorithms, provide operating recommendations on a continuous basis to improve recovery. The resulting algorithms have been deployed to the field and early tests show promising results. Also, site personnel appreciate ease of use of the tool, the real-time view of the inputs and predicted rate estimates.

# Digital value

Imperial is well positioned to leverage digital

## Organizational readiness

Support from CEO and senior leadership: commitment to long-term vision and support

Dedicated digital group that leverages battle-tested operating principles to engage with the business

Access to top-tier talent, both internal/external

Open, collaborative environment to foster innovation and agility

Top-down commitment to challenge the status quo

Strong support and awareness across the company

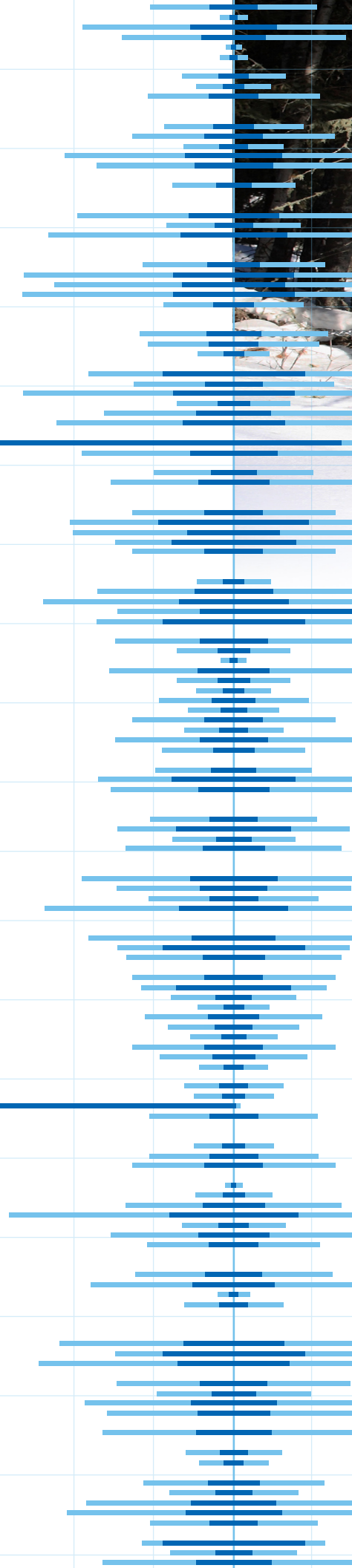
## Infrastructure

### Data

Well maintained historical data across operations, managed in accordance to modern IT standards

### Computing

Access to powerful cloud computing resources to facilitate large, high-end modelling projects





## Opportunity pipeline for application of digital tech

Significant opportunity pipeline identified across 10+ areas to create substantial value for Imperial, constrained only by accelerator bandwidth

## Large opportunity pool across focus areas



Reliability improvement



Production optimization



Surface facilities operations effectiveness



Mine operations optimization



Maintenance efficiency



Well workover efficiency



Project execution excellence



Supply chain optimization



Safety, security, health and environmental excellence



Management & controls effectiveness



Digital Accelerator's  
arsenal is built on

**Cutting-edge  
technologies**



**Big data  
and analytics**

Analysis of large data sets  
to identify new patterns

**Cloud  
computing/storage**

Highly scalable, variable-cost storage  
and processing on demand

**Collaborative  
technology platforms**

Real-time communications and tracking  
Every asset, equipment, employee  
always connected (connected worker)

**Real-time comms.  
and tracking**

Every asset, equipment, employee  
always connected

**Mobile connectivity  
and AR**

Mobile connectivity  
and augmented reality

**Sensors**

Low cost, low power, connected  
sensors capturing spatial and  
environment information

**3D scanning**

Analysis of real-world object or environment to  
collect data on its shape/appearance

**Virtual reality**

Interact more naturally with  
digital devices and services

**Additive  
manufacturing**

Print objects and parts on demand with  
increasing precision, and range of materials

**Unmanned  
vehicles**

Autonomous, low-cost vehicles  
able to perform complex tasks

**Robotics and  
automation**

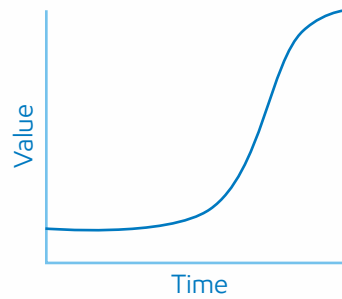
Intelligent robots assist  
with complex assignments

# Digital Accelerator

Leverages agile ways of working  
in order to accelerate value capture

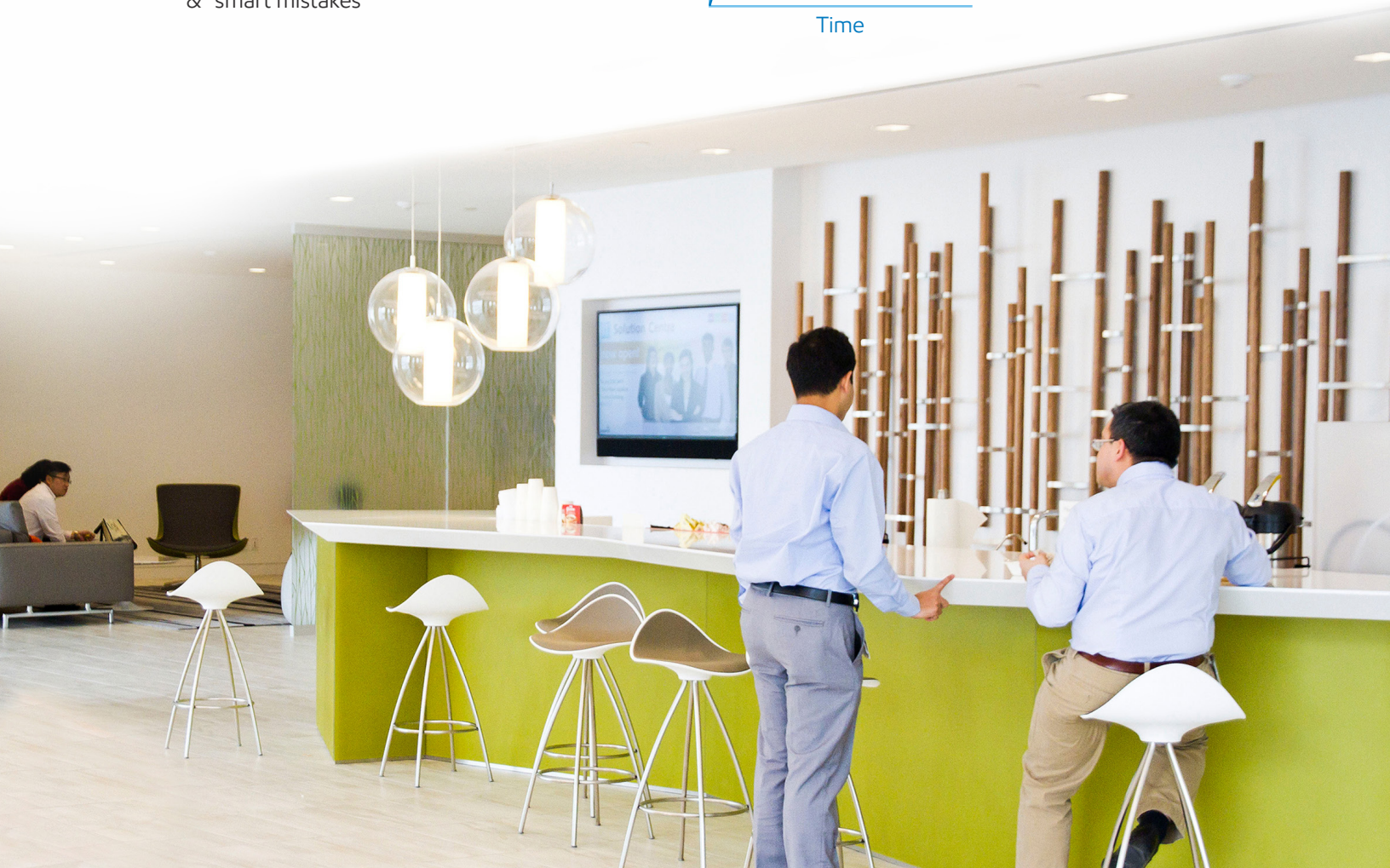
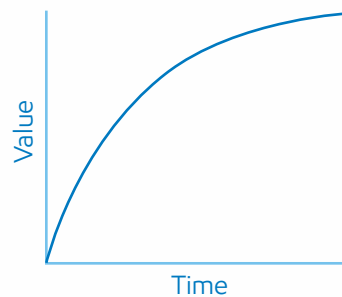
## Traditional project execution

Stage-gated projects (often longer-lived)  
Multiple approvals required  
Value realized all at once (at end)



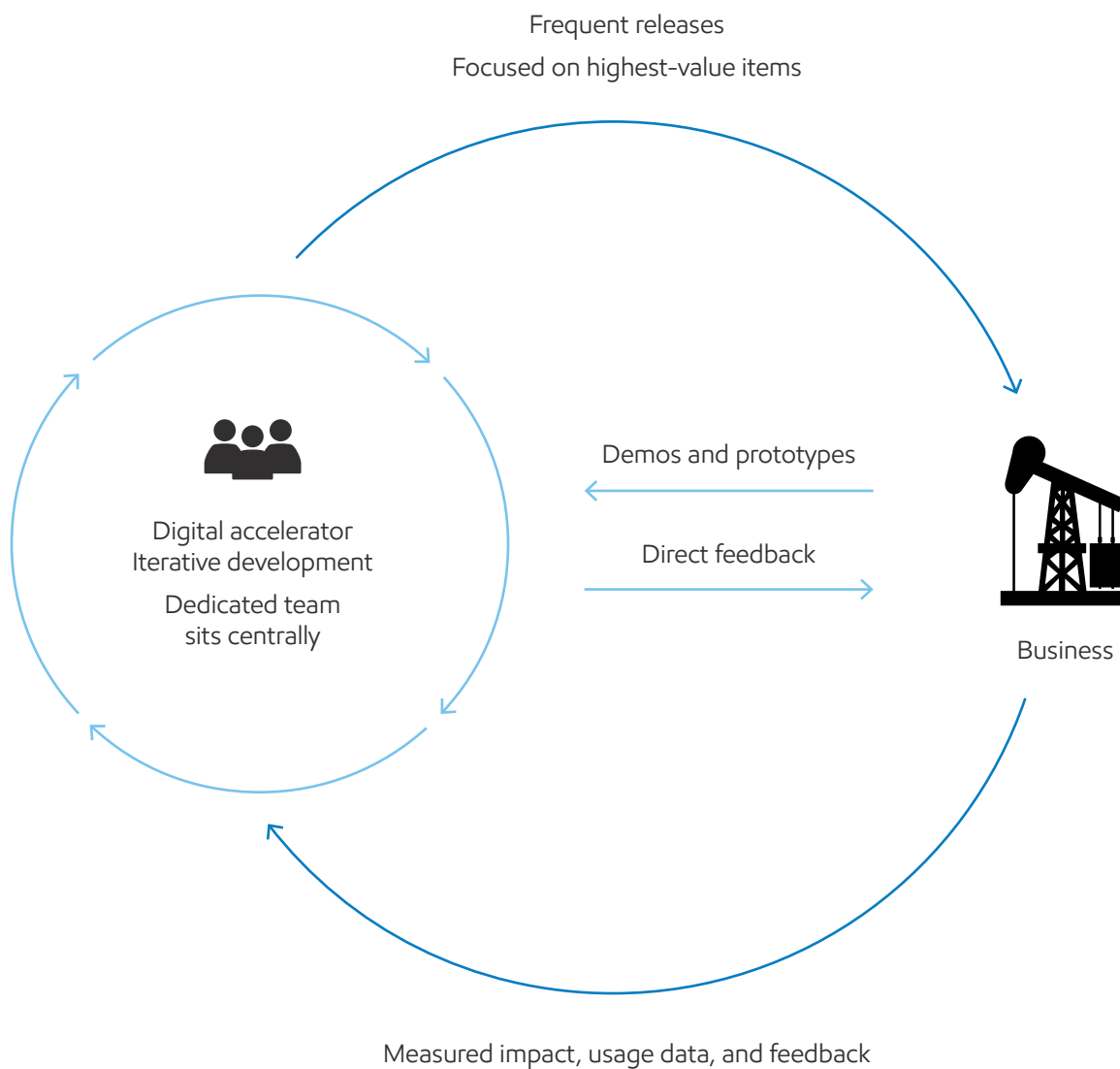
## Digital + agile project execution

Shorter sprints, with iterations & feedback  
Incremental value realized at intervals  
Built-in authority to make decisions  
& "smart mistakes"



# Operating model

Iterative approach to work with the business and improve the product based on feedback



# What's in it for you?

## Cutting-edge projects

You'll work on highly complex, previously unsolved problems that will push your expertise and problem solving skills

## Access to thought leadership

You'll work alongside seasoned experts and a talented peer group

The infographic features a central blue circle with the text 'At Imperial, you'll experience:'. Surrounding this central circle are four smaller white circles, each containing a benefit. Dashed lines connect the central circle to each of the four surrounding circles, and also connect the surrounding circles to each other, forming a network of lines.

## At Imperial, you'll experience:

### A thriving community

As members of the Digital Accelerator, you will have access to the scientific community, both internal and external, through conferences and seminars

### Access to latest technology

You'll work on cutting-edge technology and pioneer its use in upstream

### Visibility from senior leadership

You'll enjoy strong support and visibility from senior leadership, and work closely with business stakeholders to push the boundaries of digital in oil and gas

### Long-term careers

Build your own unique path as you go  
Move into different areas and roles as your skill sets evolve  
Competitive salary and benefits

Imperial's Digital Accelerator  
is looking for top-tier talent

**If you are...**

Passionate

about cutting-edge  
analytics

about the latest  
technology



## Interested

in high-impact  
projects

in fast-paced  
projects

## Eager

to work  
with experts

to learn  
from experts

to tenaciously  
solve problems

## Empowered

by collaborative  
environments

by open  
workspaces

As an integrated energy company, we explore for, produce, refine and market products essential to society. At Imperial, we believe that we can have reliable and affordable energy, a strong economy and a clean environment, and we're committed to making it happen.

### Our technology capabilities



Access to \$1B/yr in ExxonMobil R&D investments



\$2.1B+ spent on R&D over last 20 years

### Our business footprint



Integrated operations: production, refining and marketing



5,700 employees



Coast-to-coast portfolio across Canada



imperialoil.ca

