

Transformational Growth

Global Shifts and Implications for Australia

Hitachi Social Innovation Forum 2018 SYDNEY

| 21 November 2018

Technology Convergence, Mega Trends and Social Innovation



Source: Frost & Sullivan

The Mega Challenges



CITIES

*Making Growing
Cities Liveable*



MINING

*Getting More
from Less*



MOBILITY

*Reducing Transport
Inefficiencies*



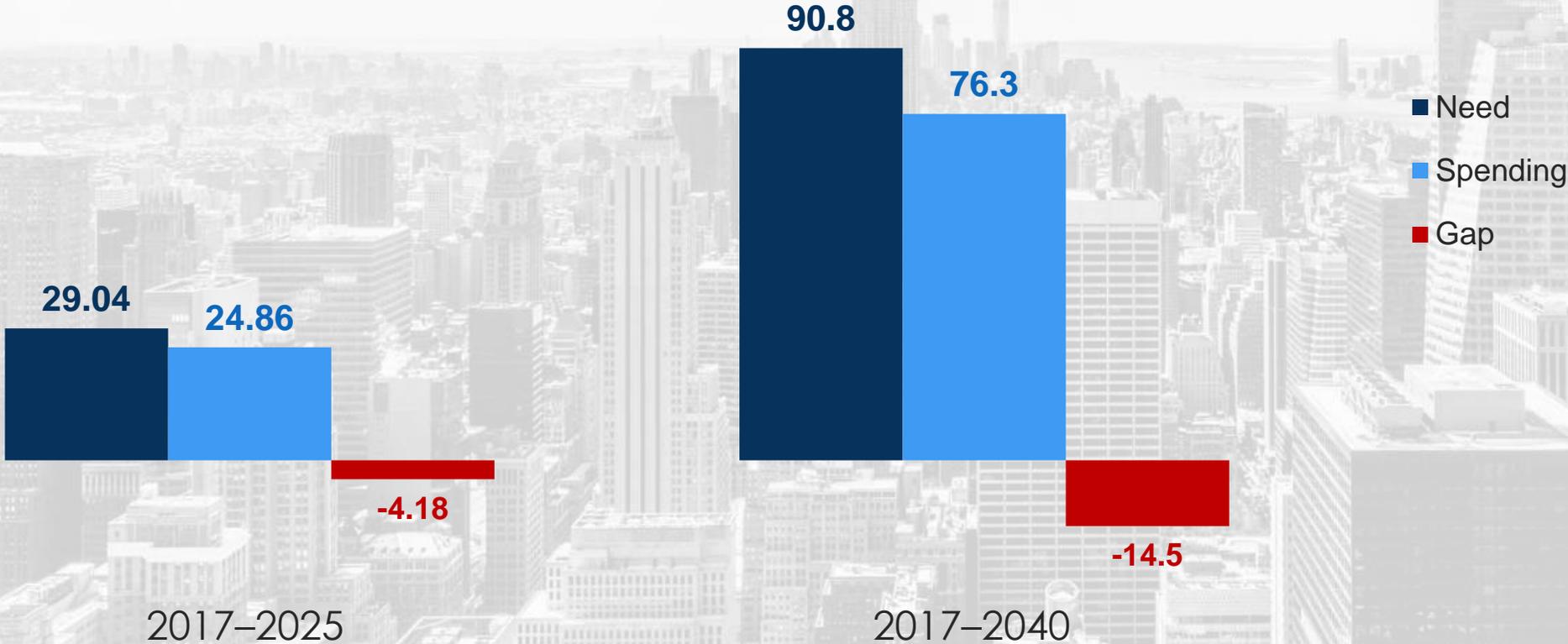
AGRICULTURE

*Feeding a Growing
Planet*

Image Source: Pexels, Freepik; Source: Frost & Sullivan

CITIES: Making Growing Cities Liveable

Global Infrastructure Need versus Spending, 2017–2040



Source: Frost & Sullivan

CITIES: Making Growing Cities Liveable

Smart Cities Success Factors, Global, 2017

Success Factors			
Staying citizen-centric		While technology enables Smart City, strategies should be focused on citizens, and citizens should be involved in decision making. Technology is only beneficial when it improves people's lives and creates for them a sustainable urban environment.	Paris Open City Model
Centralizing strategy implementation with dedicated Smart City leadership		Without a centralized team to ensure that city agencies and initiatives are aligned with Smart City vision and strategy, the city risks investing in a portfolio of one-off projects that fail to truly forward the city's core goals.	Vienna Smart City Wien Strategy
Draw funding from a diverse range		Funding initiatives is a top barrier to Smart City development. However, resourceful cities are looking to a wide range of supporters, including philanthropic agencies and private entities, to drive initiatives.	London's Diversity of Funding
Aggregation data across city agencies		Cities achieve synergistic value in aggregating data across all agencies, including finding latent patterns only exposed through data examination and the ability to run 'what if' predictive scenarios for better city governance.	Virtual Singapore
Centralized systems to open up green spaces		Smart parking and traffic management, centralized security, district cooling and energy management.	One Bangkok

Source: Frost & Sullivan

MOBILITY: Reducing Transport Inefficiencies

**Need to reduce
congestion**



**Rising tourism-driven
demand**

**Continued demand
from the resources
sector**



**Need for safer and
healthier transport**



Freight sector growth



**Integrated mobility
/ multi-modal
models**



Source: Frost & Sullivan

MOBILITY: Reducing Transport Inefficiencies

Operation-wide Improvements

Traffic Management

Safety Systems

New Aftermarket
business models

Big-data-driven new
products and services

Asset Management

Predictive maintenance
analytics

Performance
forecasting to

Manufacturing

Advanced
Manufacturing

Lightweight
materials

Advanced
Propulsion

Emissions
Reduction

Source: Frost & Sullivan

MINING: Getting More from Less

1

Smarter Exploration:

Need to identify physical properties, chemical properties for minerals directly in the field and address challenges from the early stages of exploration.

2

Efficient Mining Methods:

Need for real-time monitoring of the rock flows and ore through the processing plants and mines.

3

Safer Working Conditions:

Need to increase sophistication in transportation and underground mining

4

Minimising Environmental Impact:

Need to identify a solution to deal with acid mine drainage

5

Minimizing Airborne Emissions:

Need to reduce emissions from the combustion of fuels used in stationary equipment and vehicles.

6

Reduction in Noise:

Need to simplify processes because vibrations and shocks can lead to noise and collapse of a structure

7

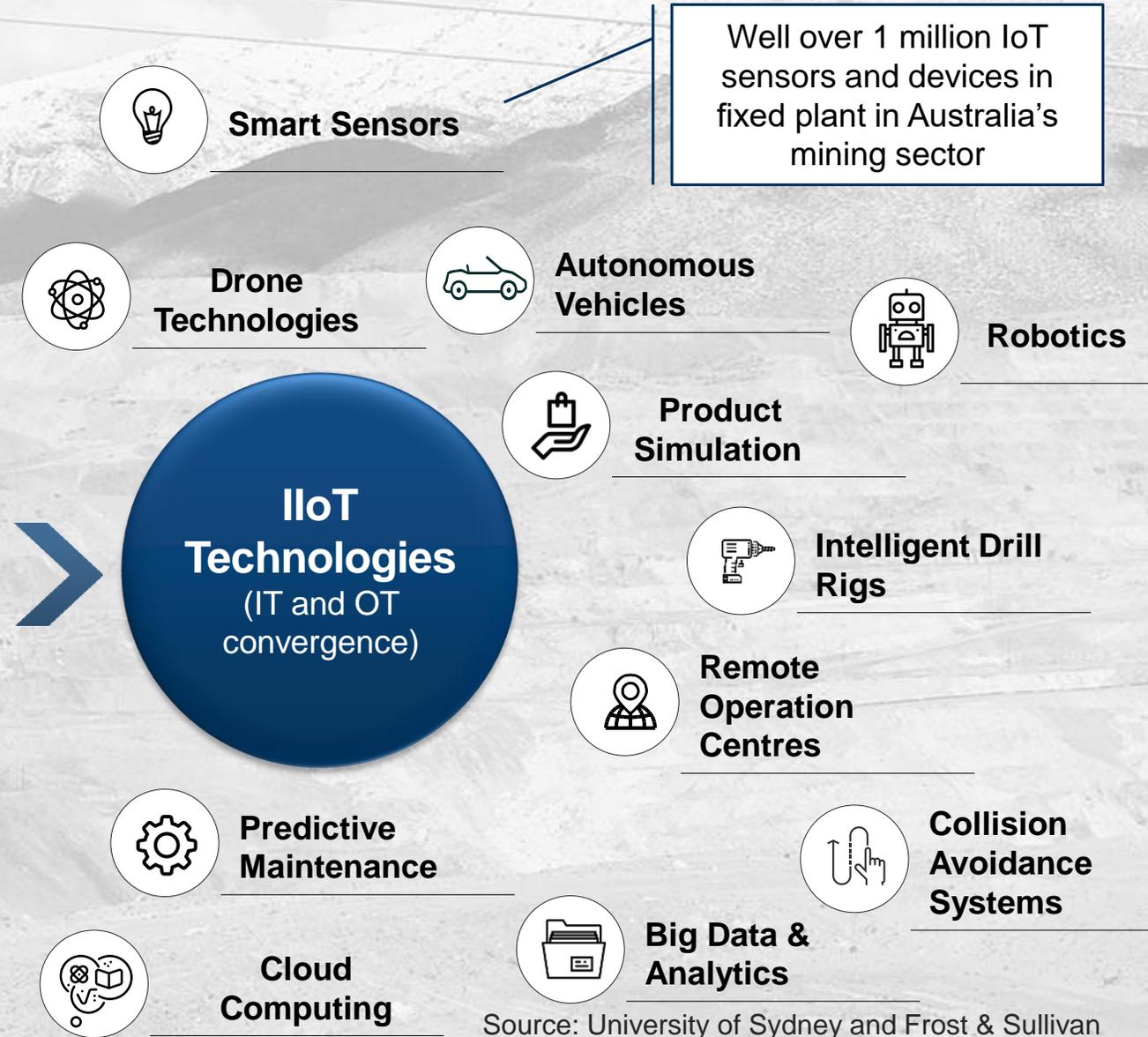
Digitisation: Mines have lacked technological support, there is a need to effectively bridge the gap between business operations and end-user demands



Image Source:: Pexels; Source: Frost & Sullivan

MINING: Getting More from Less

Flexibility to adapt to market needs
Quick access to knowledge experts and documents
Integrated value chain
Building customer relationships
Environmental standards
Global footprint – better control
Track and trace
Equipment failure and maintenance
Easy access to data
Economic uncertainty
Focus on customisation
Production efficiency
Product innovation – Remain competitive



AGRICULTURE: Feeding a Growing Planet

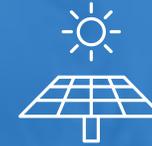
Dietary shifts and economic development driving increased per capita food consumption



Population growth driving overall demand for agri-food



Decline in global arable land



Climate change threat to food security



Increased food safety concerns



Productivity losses and supply chain inefficiencies



Demographic shifts in farming communities



New and growing feedstock demand from the bioenergy industry



Source: Frost & Sullivan

AGRICULTURE: Feeding a Growing Planet

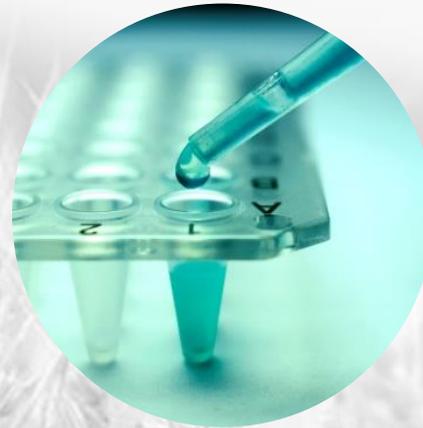
Potential Impact of Digital Transformation on Agricultural Gross Value of Production (GVP)



\$7.4 billion

Automation and labour savings

(e.g. machinery, animal handling and product processing)



\$2.9 billion

Genetic gains through objective data

(e.g. animal and variety selection)



\$2.3 billion

Tailoring inputs to need

(e.g. fertiliser, seed and water)



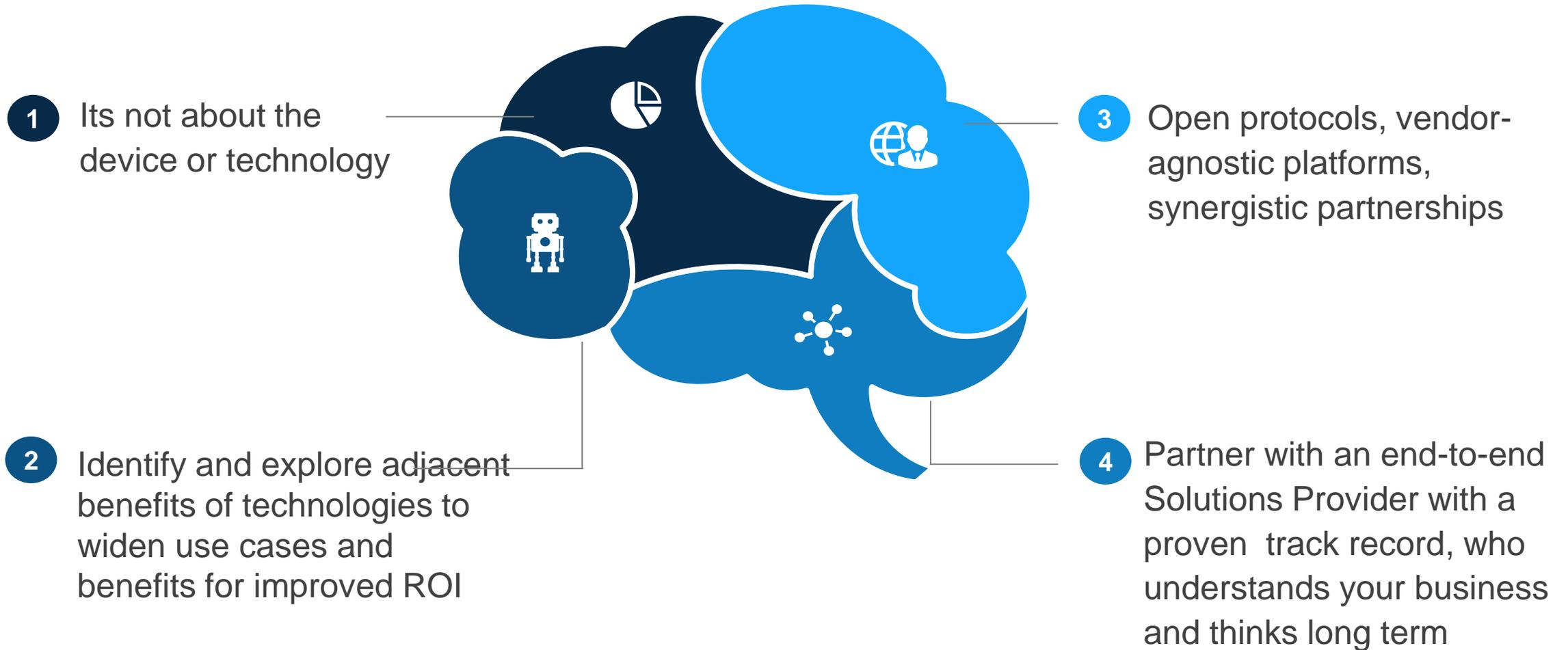
\$1 billion

Market access and biosecurity

(e.g. pest and disease control)

Source: CSIRO, CRDC, Frost & Sullivan

Making it happen



Source: Frost & Sullivan

F R O S T  S U L L I V A N

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