Drones, Data and Automation in our AI-Enabled World

Building towards NT's Thriving Economy
through Digital Transformation

Dictionary
Definitions from Oxford Languages · Learn more

intelligence
/ɪnˈtɛlɪdʒ(ə)ns/

noun
noun: intelligence
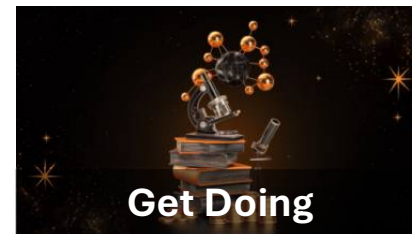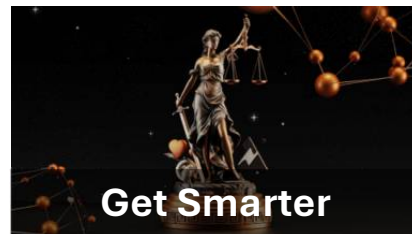
1. the ability to acquire and apply knowledge and skills.

NT DRONE
INDUSTRY NETWORK

Digital Darwin
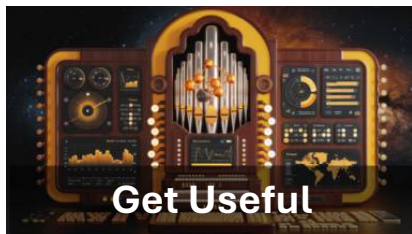
https://digitaldarwin.com.au

An Overview

- **NT's Major Project History**

- **Current Challenges and Opportunities**

- **A Vision of 2030**

- **Practical Next Steps**

Intelligence as Infrastructure

Bought online or made locally

Get Useful

Get Smarter

Get Doing

History of Major Projects

<1839   Long established trade routes SE Asia, West and South

1839   HMS Beagle sailed into Darwin Harbour

1869   135 men and women from South Aust settle at Port Darwin

1871   **Cable** laid from Java to Port Darwin
Connecting Australia to the British telegraphic cable system.

1872   The **Overland Telegraph Line** Darwin to Adelaide
3,200 km, 36,000 telegraph poles and 11 repeater stations

1884   Railway wharf built at Darwin Harbour

1889-1929   **North Australia Railway (NAR)** – Darwin to Pine Creek - 1st section opened
1889 last section opened 1929 316 miles of 3 ft 6 in narrow gauge railway

1912   **1st Electricity generation**
For ice, butter, and frozen meat for Darwin residents - (Felix Holmes)

1934   **1st Power Station** built by Territory Generation
QANTAS Hanger erected in Darwin

WW2 era   **Manton Dam** was built as a water supply for Darwin

The road to Alice Springs was upgraded and sealed
Military airports were built at Darwin and Batchelor
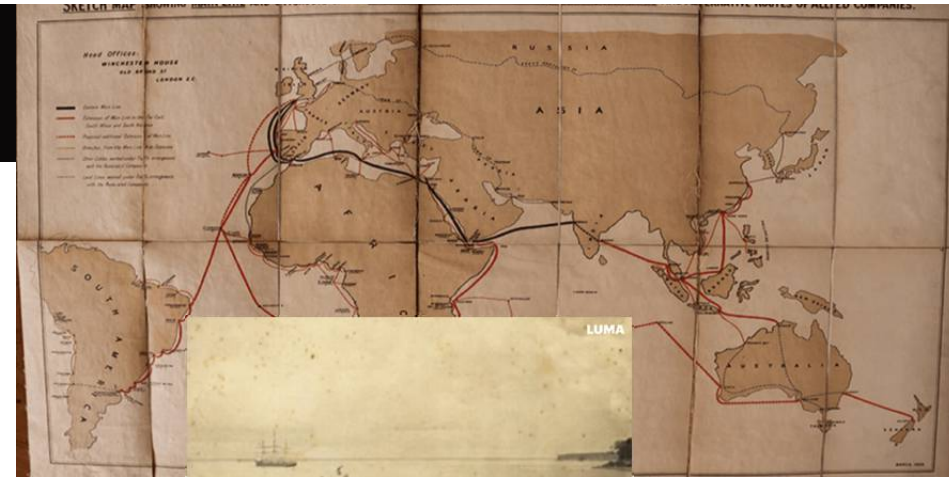
1919
Ross and Keith Smith land at Fannie Bay Airfield

Snapshot of Then, Now & Vision for the 2030s

THEN

Infrastructure

Shipping Port	1869
Comms	1872
Rail	1889
Electricity	1912
Airport	1934
Water Reservoir &	1942
Sealed Road	

Devastating Cyclones & bombings
- 1897
- 1937
- 1942
- 1974

NOW

Population	252,500
GSP	$34.6B

- **Infrastructure** Deficiencies
  - Roads
  - Aviation
  - Water
  - Digital Connectivity
- High Costs for Business
- Workforce Shortages
- Housing Availability & Affordability
- First Nations Economic Disparities
- Vulnerable to Climatic Events
- Thin markets
- absence of scale
- underdeveloped and vulnerable supply chains

THE VISION

Population	300,000
GSP	$40B

- **Infrastructure to unlock industry**
- **to create jobs to grow population**
- **to enable household formation**
- **for a thriving 2030's … so that …**
- **our home is a vibrant community …**
- **for us all to invest, live, work and play and**
- **have hope and pursue happiness**

THE ACTION PLAN

Northern Australia Action Plan 2024-2029

Released 20 Nov.

- **Infrastructure** to Unlock Growth
- A safe & secure North
- Activating the Northern Economy
- Livable, health & Resilient communities

Digital Darwin

1921   **1953**   **2007**   **2022**   **2023**   **2024**   **Q4 2024**

Q4 2024 – Tesla Full Self Driving 12.5+ and Optimus Gen 3

Jan. 25, 1921

Jan. 1, 1953

Jun. 29, 2007

Nov. 30, 2022

Mar. 16, 2023

Jul. 23, 2024

Q4 2024 –

The word "Robot" invented Meaning "forced labour"
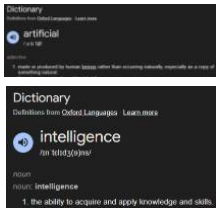
IBM Model 701 1ˢᵗ Business Computer

Apple Iphone

ChatGPT Launched

Large Language Model (LLM)

Intelligence – the ability to **acquire** and **apply** knowledge and skills

Artificial – made or produced by humans rather than occurring naturally
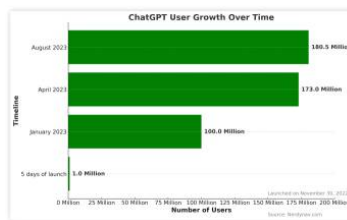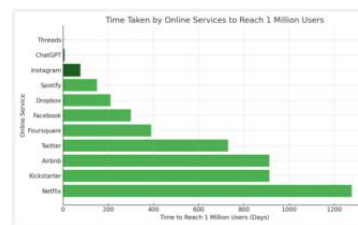
2023: Large Language Models EVERYWHERE
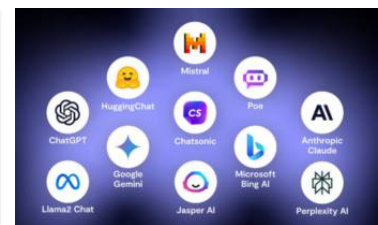
- ChatGPT >180M users (100M weekly users)
- 23 Jan '23 **Microsoft** invest $1B into OpenAI-ChatGPT
- Feb'23 Open-Source Llama (**Meta**) was released
- 14 Mar '23 Anthropic Launches Claude
- 16 Mar '23 Microsoft introduces Co-Pilot (ChatGPT) into Office
- 6 Dec'23 **Google** launches Gemini

Next Page

2024: LLM's enable Agents, Agents fit in matchboxes and do work

- Jul 23 – Mark Zuckerberg makes his Open Source speech
- Aug 13 – Morgan Stanley Report – Humanoid robots are the embodiment of AI
- **24 Oct Jensen Huang – Keynote speech in Mumbai**
- As of 25 Nov – Top 10 companies by Market Cap – Nvidia, Apple, Microsoft, Alphabet, Amazon, Saudi Aramco, Tesla, Meta, Berkshire Hathaway, Visa

Q4 2024 –

10 Oct- Tesla Full Self Driving 12.5+ and Optimus Gen 3

24 Oct– Jensen Huang speech

6 Nov – US Presidential Election

12 Nov - Trump selects Elon Musk to lead government efficiency department

Digital Darwin

Market Capitalization Dashboard

Track the market capitalization of the world's top 10 companies over time. Data sourced from Yahoo Finance.

Market Capitalization Over Time

Market Capitalization Rankings

Company	Ticker	Market Cap	% Change
NVIDIA	NVDA	$3.48T	194.33%
Apple	AAPL	$3.47T	21.71%
Microsoft	MSFT	$3.10T	10.96%
Amazon	AMZN	$2.07T	33.43%
Meta	META	$1.22T	67.56%
Tesla	TSLA	$1.13T	49.34%
Alphabet	GOOGL	$962.69B	21.08%
Berkshire Hathaway	BRK-B	$633.10B	31.89%
Visa	V	$535.57B	22.88%

Dashboard by DigitalDarwin - Data provided by Yahoo Finance. Updated as of 2024-11-25

- **As of 25 Nov**
- **NVIDIA valuation exceeds $3 Trillion – with a "T"**
  - **Up 194% over the last 12 months**
  - **For the QTR ending 27 Oct Rev = $35.1B**
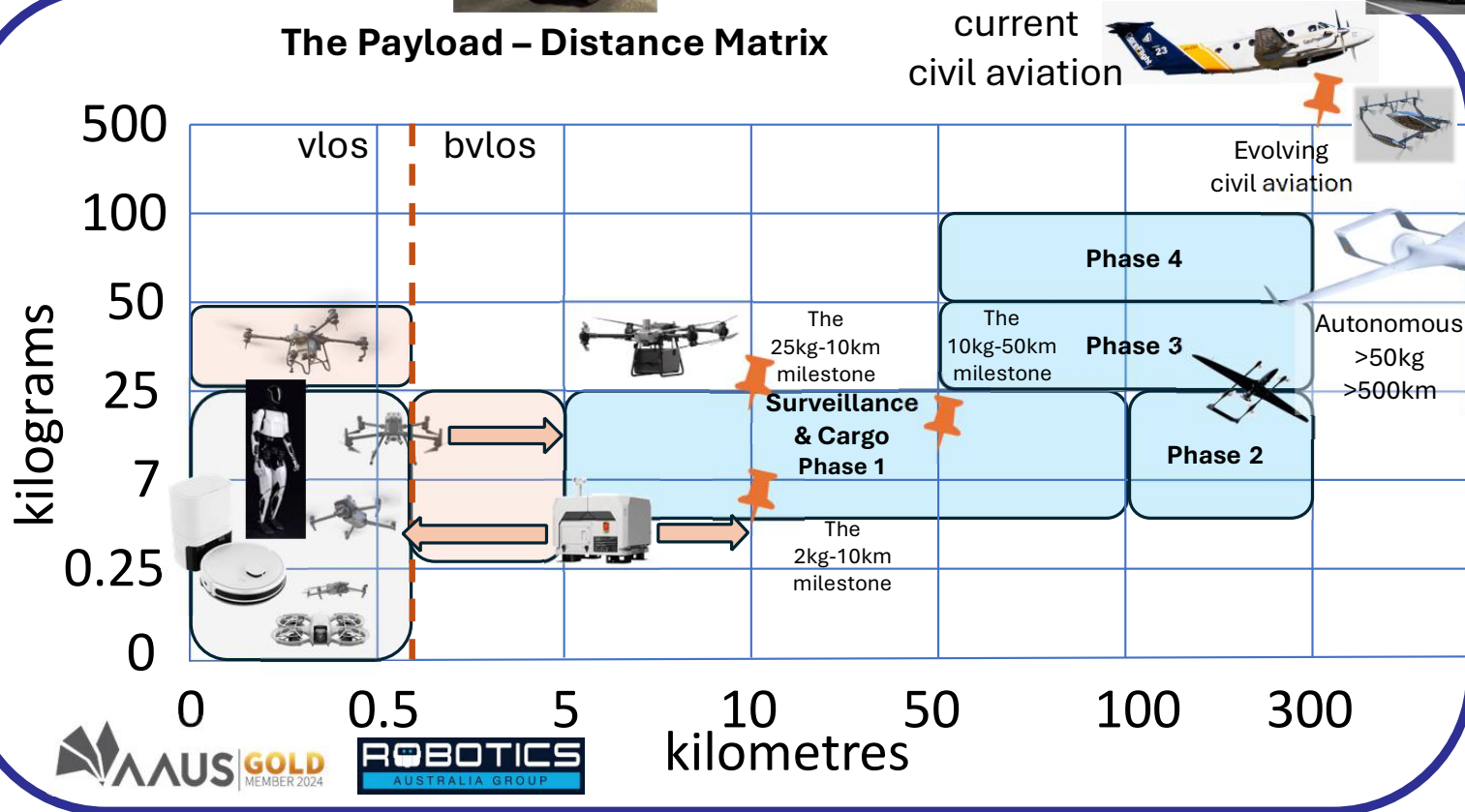- **Tesla valuation exceeds $1 Trillion**
  - **spike since election**

**2025 –
from inside the computer
to inside the machine**

Drones are robots enabled by AI
AI is getting smarter, easier and cheaper
Smart business will start using smart machines sooner

**Drones do Data
Drones do Payload
Drones do Work**

The Payload – Distance Matrix

current civil aviation

Evolving civil aviation

vlos | bvlos

Phase 4

The 25kg-10km milestone

The 10kg-50km milestone

Phase 3

Autonomous >50kg >500km

Surveillance & Cargo Phase 1

Phase 2

The 2kg-10km milestone

kilograms: 500, 100, 50, 25, 7, 0.25, 0

kilometres: 0, 0.5, 5, 10, 50, 100, 300

RIO Tinto's fleet of autonomous haul trucks have moved their 1 billionth tonne of material as Komatsu celebrates the 10th anniversary of the commercial deployment of the Autonomous Haulage System.
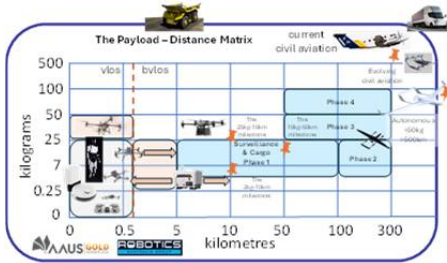
Paspalis invests in Agricultural Robotics' mango harvesting robot at Croc Pitch

Elon Musk bets Tesla on Optimus, says over 1,000 robots working in factories next year

NT DRONE INDUSTRY NETWORK

Digital Darwin

AAUS GOLD MEMBER 2024

ROBOTICS AUSTRALIA GROUP

- **Carrying What**
- **From Where To Where**
- **When**
- **Why – for Who**
- **How best done**

Drones do Data
Drones do Payload
Drones do Work

- Think about this in terms of kilograms and kilometres

- As the overall **systems** get:

  - Smarter, Easier, Cheaper

  - The **solutions** will become the right business decision

AI Into 2025 -30

Physical AI

from inside the computer to inside the machine

Up-skilling our current workers

As of now, Think of:
- AI as Intelligence
- Intelligence as Infrastructure
- Intelligence as a commodity

Just like electricity ...
- able to make lots of things happen
- **Bought from online suppliers or made locally**

- Jensen Huang,
- CEO, NVIDIA,
  Mumbai, 24 Oct 2024

- **AI Agents** - On comprehensive Knowledge Bases with tools

- **Design** your work process

- **Simulate** loops until workable

- **Make it Real** - Put the brain into the physical machine
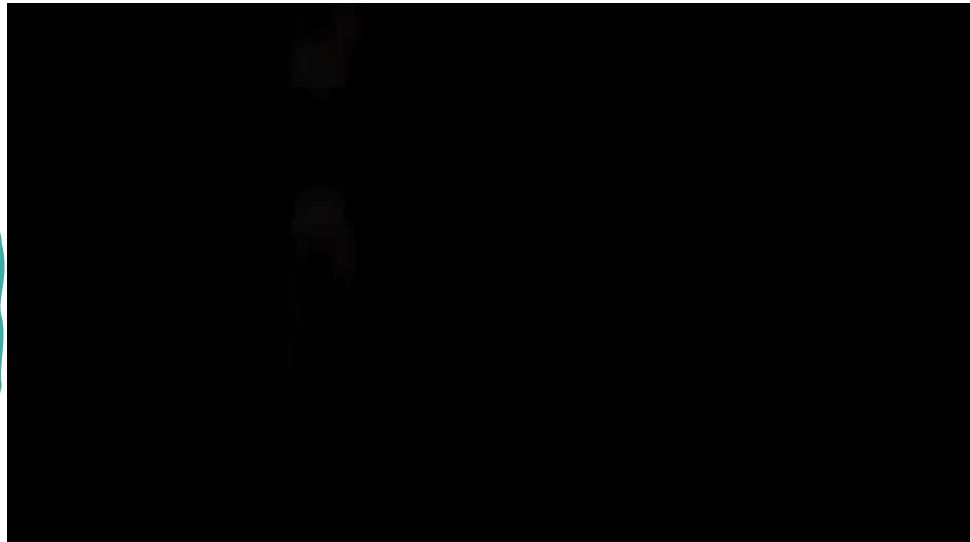
The Omniverse –
A world of digital twins where AI can train and refine behaviours

Attracting new skilled workers

Live locally work globally

A place to train, leading to ...

Physical AI –
Where the machines are doing more and more of the work

- **AI-Driven Workflow Automation & Orchestration**
  - autonomously manage end-to-end business processes, reducing manual handoffs by 60-70%
  - Intelligent process mining and optimization will identify and eliminate inefficiencies in real-time, reshaping workflows on the fly

- **Intelligent Collaboration Platforms**
  - Real-time translation, summarisation, and AI-driven suggestions will improve communication across diverse teams.
  - AI-enabled knowledge-sharing systems will curate and recommend relevant resources, fostering continuous learning and collaboration.

Digital Darwin

Our History

Shipping Port	1869
Comms	1872
Rail	1889
Electricity	1912
Airport	1934
Water Reservoir	1942

Our Now

Population	252,500
GSP	$34.6B

Our 2030 target

Population	300,000
GSP	$40B

Nov 2024
Action Plan
Housing
Roads
Aviation
Ports
Digital Comms
Water

- **Activating the Northern Economy**
- **Growing the Northern Australia Workforce**
- **Digital Economy**

The tropics:
home to 40% of the world's people

Darwin

Possibly the most politically and commercially stable major service centre within the tropics that also has direct access to enormous sustainable energy resources and large tracts of land and sea (globally)

A Summary of it all:

- We're talking in the Context of **NT Major Projects**

  - **Infrastructure, jobs, population**

- Darwin was established to enable communications for Australia **(1872)** – and subsequently upgraded for Northern defense purposes **(WW2)**

- Over the 50 years to 1942 the key infrastructure for the NT was established

- Over the last 80 years the NT has yet to grow to a sufficient sustainable economic activity and population to activate a vibrant economy and attract and retain investment and skilled workforce that then reinforces intergenerational family growth

... so we keep trying

- **Digital Systems have now evolved**

  - **Improving at a rate of 10x per year**

  - **Intelligence as Infrastructure**

  - **The art now is to –**

- **use it to make jobs and**
- **attract population**

- **able to make lots of things happen**
- **Bought from online suppliers or made locally**
- **Evolving from inside the computer to inside the machine**

Digital Darwin
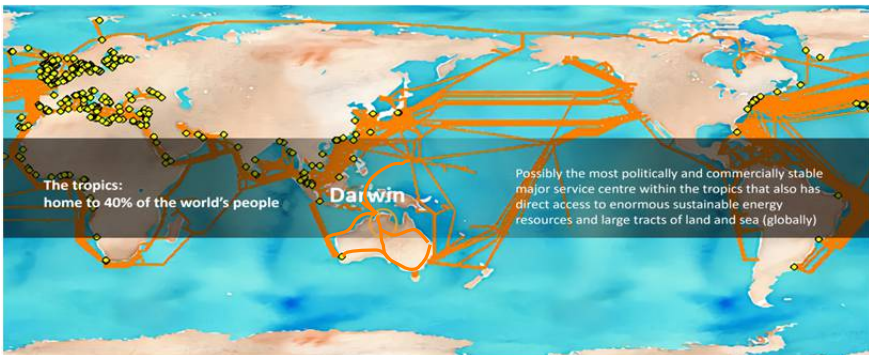
Practical Next Steps

Using Intelligence as Infrastructure

Step 1 — Personally – Get Useful

start using the tools

On your phones

- Use ChatGPT, Claude, Gemini, Perplexity
- Learn from Dante St James
  https://dantestjames.com/

Step 2 — Professionally – Get Smarter

start learning the risks, rewards and opportunities

On your computers

- Ask deeper and deeper questions from the tools
- Podcasts on
  https://digitaldarwin.com.au

Step 3 — Professionally – Get Doing

start learning by doing

and then In your systems and machines

- Your business processes
- Your business data
- Your business machines

NT DRONE INDUSTRY NETWORK

ROBOTICS AUSTRALIA GROUP

The future of work

A morning tea discussion with Dr Sue Keay

**10:15 to 10:45am on Friday 29th November
Level 1, Development House, 76 The Esplanade, Darwin**

https://ntdin.au

Dictionary
Definitions from Oxford Languages · Learn more

intelligence
/ɪnˈtɛlɪdʒ(ə)ns/

noun
noun: intelligence
1. the ability to acquire and apply knowledge and skills.

Intelligence :
the ability to acquire and apply skills

Digital Darwin

About DigitalDarwin ...
Connecting the Dots

so that ... our home is a thriving place for us all to live, work and play

DigitalDarwin's comprehensive suite of services, combined with its deep understanding of the Northern Territory's unique challenges and opportunities, positions it as an ideal partner for organisations looking to embrace digital transformation and AI-enabled technologies.

By offering tailored solutions, advanced data analysis, AI-enabled transformation, and a community-centric approach, DigitalDarwin empowers businesses and government agencies to thrive in the digital age and contribute to the overall development of the region.

The company's commitment to innovation, security, and ethical practices ensures that clients receive cutting-edge solutions that are both effective and responsible.

With a focus on comprehensive training and support, DigitalDarwin enables organisations to fully leverage the potential of digital technologies and AI agents, driving efficiency, innovation, and growth.

As the Northern Territory continues to evolve and face new challenges, DigitalDarwin stands ready to support organisations in their journey towards thriving operational excellence, helping them create meaningful connections with stakeholders, optimise operations, and contribute to the sustainable development of the Territory.

https://digitaldarwin.com.au