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Dogen City Update ver.1.0

Two Years after the Concept Unveiling, Moving into the Planning Phase

Dogen City Concept Movie

N-ARK Inc. (HQ: Hamamatsu City; CEO: Yuki Tazaki) is pleased to announce the latest planning status of the floating city concept **"Dogen City"** first made public in 2023. Since the concept launch, global interest in Dogen City has risen—especially in Europe—resulting in media coverage in over **30 outlets across 18 countries** (including Designboom, New Atlas, Domus, Tomorrow.City, among others), and cumulative views of related explanatory videos **online medias have exceeded 1,000,000.** N-ARK delivered keynote addresses at major international urban events such as **Smart City Expo World Congress 2023 (Barcelona)** and **Cityscape Global 2024 (Saudi Arabia)**, while simultaneously conducting extensive on-site research. Based on these dialogues and on-the-ground validations, we have consolidated an outline of the construction method, business scheme, and revenue model, and we would like to share the current plan.

1. Societal Challenges to Address

70% of the World Population Urbanized by 2050

Current status and coastal urbanization

Approximately **40%** of the world's population currently lives **within 100 km of a coastline** and if urbanization continues, multiple studies suggest this could reach **around 70% by 2050.** **~40%** of the world's population lives within **100 km** of coasts; multiple studies indicate **~70%** by **2050**.

Implication

Coastal **housing & infrastructure** pressure + higher **storm surge / cyclone / sea-level rise** risks.

Source: UN DESA "Coastal Population (Methodology Sheet)"; Reimann 2023 (Cambridge Prisms); Neumann 2015 (PLOS ONE). United Nations, Cambridge University Press & Assessment, PMC

2. Smart City Development Challenges

Slow • Expensive • Limited

Market size | ~USD 1.03T (≈ €0.97T) by 2028

Source: Polaris Market Research 2021 **2028 forecast = USD 1.03 trillion**; World Bank Regenerating Urban Land (on redevelopment process and barriers). Polaris, World Bank PPP

Slow | Regulatory/land gridlock

- Typical **time to first occupancy** (planning + permits + phase-1 build) for land-based flagships is **7–15 years**; even **major permits** alone often require **24–60 months**.
- **Case in point: SmartCity Kochi (India)—10+ years** of delays to start due to permits and land issues.

  Source: U.S. CEQ, Environmental Impact Statement Timelines (2010–2018) (PDF); U.S. CEQ, EIS Timelines (2010–2024) update (PDF); KPMG, Digging into Data: A Blueprint for Mega-Project Success (PDF); The New Indian Express on SmartCity Kochi's ~11-year path to first-phase operations (link); Mathrubhumi on TECOM exiting after 13 years of stalled progress (link). ceq.doe.gov, KPMG Assets, The New Indian Express, @mathrubhumi

Expensive | Land + heavy civil front-load

- High **up-front CAPEX** for land and base infrastructure: **Songdo (Korea) ≈ USD 40B**; **Woven City (Japan) ≈ USD 15B for ~2,000 residents** (≈ **USD 7.5M per capita**).
- Brownfield delivery frequently entails **land acquisition/relocations** of **500–2,000 households per 10k population** and a **legacy retrofit burden** of **10–30%** of budget.

  Source: Boston Global Investors (Songdo IBD master plan; total cost "in excess of $35B") (link); Gale International (Songdo overview, "$35B") (link); World Bank, Regenerating Urban Land (overview / PDF); World Bank, The Management of Brownfields Redevelopment: A Guidance Note (page / PDF). (Boston Global Investors (BGI), galeintl.com, AP News, World Bank, World Bank

Limited | Legacy systems / fragmented governance / narrow test beds

- Existing utility grids and multi-agency governance **constrain pilot scope** and slow decision cycles.
- **SmartCity Kochi (India)—10+ years of delays** to start due to permits and land issues.

- **Sidewalk Toronto—canceled** amid data/privacy governance limits.
  Source: Waterfront Toronto—official termination notice (PDF); WIRED analysis of cancellation and privacy/regulatory concerns (link). waterfrontoronto.ca, WIRED

3. The Floating Smart City: Ready to Go

Faster • More Affordable • More Capable

A floating smart city offers development speed and cost efficiency superior to conventional land-based projects:

Faster | Early commercialization

- **Shorter construction lead-time:** Floating developments that can be operational in **2–5 years** (vs. **7–15 years** on land) materially increase value even for the **same operating cash flows**.
- **Use of "instant-operation" modules:** By **long-term berthing a large cruise vessel** as an **instant hotel-city** (with medical, education, and retail onboard), you can generate **early revenue and clear demand signals** before full build-out. **Front-loading initial cash flow** also improves bankability.
  Source: Sleeper Magazine—Burj Al Arab "North Deck" (off-site fabrication ~11 months + installation ~12 weeks) (link); Hotel-Online (10,000 m^2 deck spec) (link); Royal Caribbean press center—Icon of the Seas fact sheet (scale, "turn-key" onboard systems) (link). Sleeper, hotel-online.com, royalcaribbeanpresscenter.com

More Affordable | High capital efficiency / resilient earnings / low OPEX

- **High investment efficiency:** On a "base CAPEX per person (excl. private fit-out)" basis, floating is **$40,000–$80,000 per person**, whereas on-land (TDC basis) is **$150,000–$300,000 per person**. Aligning the ranges implies **~3.75×** capital efficiency (**150 ÷ 40 = 300 ÷ 80 = 3.75**). To target the same IRR, required annual EBITDA is broadly proportional to invested capital, so the required profit level is **~73% lower** (**1 – 1/3.75**).
- **Assured earnings: Lighter CAPEX lowers breakeven utilization and payback period,** making the model **more resilient to demand volatility.** At the same price point, greater pricing flexibility strengthens ramp-up under uncertainty.
- **Lower OPEX via modularity:** The general effect of modular construction—**20–50%** schedule compression and **up to ~20%** cost reduction—also suppresses cumulative labor, overhead, and interest.
  Source: McKinsey, Modular construction: From projects to products (PDF); McKinsey, Making modular construction fit (2023) (link). McKinsey & Company

More Capable | Self-sufficient infra / cut volatility / hedge execution risk

- **Lower OPEX risk: Onboard desalination, energy storage, renewable optimization, and an operations OS** hedge external utility price shocks (outages, water cuts, tariff hikes). Higher

supply reliability reduces **revenue volatility** and mitigates **DSCR downside**.

Source: Royal Caribbean Group (link); Royal Caribbean Group's pandemic-era fleet exits (evidence of active resale/exit market) (link); Cruzely—example listing price for a large vessel (link); Cruise Critic—running list of ships scrapped or taken out of service (secondary market / end-of-life outcomes) (link). (royalcaribbeangroup.com, Cruise Industry News | Cruise News, Cruzely.com

- **City OS & digital twin: the ideal smart-function stack**
  A **PLATEAU × FIWARE–compliant City OS** with **standard AI modules and security**. External services can plug-and-play via **AI modules and APIs**.
  Source: MLIT Project PLATEAU; FIWARE Foundation MLIT, FIWARE
- **Institutional design: A 30–50-year marine occupancy right** (ports, inner bays, lagoons, etc.) with **5–10% of topline** shared back to the locality under a PPP model. With **Sea-SEZ** designation, the **permitting target is 6–18 months.**
- **Reference case: NEOM OXAGON**—a precedent for bespoke regulation/taxation and port-centric development; the **U.S. State Department's Investment Climate** describes NEOM as an **"independent special economic zone."**
  Source: NEOM official materials; U.S. State Dept. Investment Climate report noting NEOM as an "independent economic zone.") Specific concession durations and revenue share rates will be determined in consultation with host governments/municipalities.NEOM, State Department

4. Can It Really Be Built?

Proven with Existing Floating Infrastructure and Ships

Burj Al Arab "North Deck" (Dubai):

≈10,000 m² of floating platform manufactured **at a Finnish factory (11 months)** → shipped to Dubai **(~1 month)** → high-value on-site works/fit-out.
Built by MEYER Floating Solutions Ltd.
Source: tourguidetraining.ae, Gulf Business

Marasi Water Homes (Dubai):

Each home (~130 m²) manufactured at a Finnish factory **(≈60 days per unit)** → **9 homes in total** → shipped to Dubai **(~1 month)** → on-water installation in **under 1 hour**.
Built by MEYER Floating Solutions Ltd.
Source: Gulf Business, Zawya

Icon of the Seas Large Cruise Ship = Instant City Module

This newly built cruise ship can **accommodate ~7,600–8,000 people and contains complete infrastructure for power, water, wastewater, medical care, and retail within a single vessel.** Functionally, it can immediately operate as a "hotel city" when moored long-term.
Built by MEYER Turku Ltd. It exemplifies a turnkey city block.
Source: Royal Caribbean Press Center, Seatrade Cruise

5. MoU Signed with MEYER Floating Solutions

N-ARK MEYER FLOATING SOLUTIONS

N-ARK has already signed **a Memorandum of Understanding (MoU)** with **MEYER Floating Solutions**, a company within **MEYER Family Group of companies** that specializes in floating real estate and marine construction, to collaborate on the realization of a floating smart city.

6. Business Development Plan

Development Candidate Sites = 50 locations

We have identified **~50 coastal locations** worldwide via GIS analysis (**criteria: water depth 50 m, low wave height, clear legal frameworks**) as potential sites, and are focusing on **20 priority sites**: **ASEAN (4) • GCC (6) • Mediterranean (3) • Caribbean & LATAM (3) • U.S. (2) • Indian Ocean (2)**. Details in the ***Note 1 in the bottom.**
Why these hubs: Countries with extensive low-lying (<5 m) coasts face **mandatory climate adaptation**; EEZ/port frameworks create **new developable surface** at sea.

Demand Model = 6.8M Prime coastal housing in 10 years

10-year demand: ~6.8M Prime coastal housing units (global).
Per Dogen City unit: 3,000 Residential Units (within ~**100,000 m²** GFA; ~70% residential).
50 units → 150,000 Residential Units: 2.2% capture sells out.

Key Metrics	Numerical value/content	Supplementary Notes
Candidate Costal Sites	**Approx. 50 sites**	**Depth = 50 m, low wave height.**
Dogen City: 1 Unit economics	**- 100,000 m² Gloss Floor Area** **- 10,000 daytime population** **- CAPEX ≈ USD 2.1 billion -** **- Annual revenue Approx. $489M/yr**	**Legal readiness by GIS (Geographic Information System) analyzer**
Demand-side Calculation	**Capturing 2.2 % of the 6.8 million-unit prime coastal-home demand sells out 50 units**	**Reference: Knight Frank 2024**

Demand-Side Calculation:
1. Global demand for prime coastal residences: 6,800,000 units
Source: Knight Frank, The Wealth Report 2024
— survey of the top-1 % income households who plan to buy a seaside second home within the next 10 years.
2. Units for sale per Dogen City module: 3,000 units
≈ 100,000 m² gross floor area ÷ 100 m² average unit size (70 % residential / 30 % common facilities).
3. Total units across 50 modules: 3,000 units × 50 modules = 150,000 units
4. Required capture rate: 150,000 ÷ 6,800,000 = 2.21% (≈ 2.2%) in next 10 years

20 Top Candidate Marine Sites by Region
1. ASEAN / 4 units
2. GCC / 6 units
3. Mediterranean / 3 units
4. Caribbean & LATAM / 3 units
5. U.S. / 2 units
6. Indian Ocean / 2 units

Additional Demand Drivers:

Long-Stay Wellness Residents: Long-term stay programs will combine medical check-ups or intervention regimes (e.g. comprehensive microbiome and wellness programs) with residency, offered via subscription, to boost year-round occupancy.

Entrepreneurs, Investors, Researchers: The floating city's **regulatory sandbox** environment (with flexible data usage and fast-track experimental opportunities) is expected to attract **Entrepreneurs** and **Investors, Researchers** for project-based stays.

Source: Knight Frank Wealth Reports 2024/2025 on affluent trends and coastal second-home preferences, N-ARK internal estimates for uptake percentages. Knight Frank, Knight Frank | The Wealth Repor

7. Product Lineups&PL Simulation

*Negotiation timelines, specifications, and costs for sea-area concessions vary by country.

Dogen Village | Population 100-

CAPEX: $21,000,000 -
Floating Area: 860m²
Gross Floor Area: 1,300m²
Revenue: $5.17M/yr -
Rev/m²/yr: $3,980 -
EBITDA: $2.6–2.8M -
Payback Period: - 4.2 yrs
Key Profit Drivers: Residence, Office, Retail
Construction period estimates: 1 years
Depreciation (30 yrs): $0.70M/yr
ROI (EBITDA/CAPEX): 12.4–13.3%

Dogen Town | Population - 1,000

CAPEX: $210,000,000 -
Floating Area: 7,000m²
Gross Floor Area: 10,000m²
Revenue: $34.3M/yr -
Rev/m²/yr: $3,980 -
EBITDA: $18.5M
Payback Period: - 8.4–10.5 yrs
Key Profit Drivers: Wellness Hotel, Residence, Wellness Services, Medical tourism
Construction period estimates: 3 years
Depreciation (30 yrs): $7.0M/yr
ROI (EBITDA/CAPEX): - 8.8%

Dogen City | Population - 10,000

CAPEX: $2,100,000,000 -
Floating Area: 70,000m²
Gross Floor Area: 100,000m²
Revenue: $489–510M/yr -
Rev/m²/yr: $5,000 -
EBITDA: $150–175M -
Payback Period: - 9.45–11.55 yrs
Key Profit Drivers: Office, Retail, Residence, Hotel, F&B, Factory, Medical, Education, Entertainment institution, Tourism
Construction period estimates: 5 years
Depreciation (30 yrs): $70M/yr
ROI (EBITDA/CAPEX): 7.1–8.3%

8. Go-to-Market

1. Hotel-City (Immediate)

Long-term mooring of a large cruise ship to seed **residency, medical tourism, education**.
Benefits: Instant beds/venues/utilities → early jobs, taxes, footfall.

2. Dogen Town (Short–Mid Term)

Commission the **Wellness Hotel & Residence**; grow **recurring revenue** (stay, testing, membership); mature **City OS + ops**.

3. Dogen City (Mid–Long Term)

Add modules every **3–6 months** (office, retail, homes, etc.).
Stage investment ↔ staged cash-back in line with market uptake.

CEO's Comment

"Two years on, Dogen City is moving from planning to execution.
By using the ocean as a new economic and habitable zone, we can build faster, much affordable and much capable cities and present a replicable model to address global challenges."
— Yuki Tazaki, Founder & CEO, N-ARK Inc.

Glossary

Floating Type (floating construction): A method of building large "floating" structures at a shipyard and then transporting, mooring, and interconnecting them on the sea to form city blocks.
Module: A LEGO-like modular city block. Modules can be added in 3–6 months to expand the city in response to demand.
Sea-SEZ: A concept of designating a sea area as a Special Economic Zone to simplify and expedite permitting and tax processes (designed within each country's legal framework)[34].
EEZ (Exclusive Economic Zone): A maritime zone in which a sovereign state has special rights regarding the use of marine resources, offshore energy, etc.
Brownfield: Redevelopment of existing urban land. Such projects tend to incur extended time and higher costs due to land ownership issues, underground infrastructure, environmental remediation.

Company Overview

Company Name: N-ARK Inc. – https://www.n-ark.jp
Established: August 24, 2021
Locations: Kajimachi 100-1, Naka-ku, Hamamatsu, Shizuoka (Hamamatsu office)
Representative: Yuki Tazaki (Founder & CEO)
Team: 10 members (including external members)

Media Coverage & Reach

Online Articles: 30+ articles in 18 countries (12 in Europe). Featured in: Designboom (Italy), New Atlas (USA), Interesting Engineering (USA), Tokyo Weekender (Japan/English), Tomorrow.City (Spain), among others.
Academic/Industry Reports: 5+ publications (e.g. Temple University Law Journal 2025) referencing Dogen City.
Video Views: ≈ 3.2 million cumulative views online media (including 1,125,786 views on a DamiLeeArch explainer video).

Inquiries

For further information about this press release, please contact:
E-mail: info@n-ark.jp

*Note 1: 20 Top Candidate Marine Sites by Region

Water depth < 50 m, low wave height; coastlines that already have, or plan to have, SEZ/port legislation. Locations were screened with GIS and public master-plans; one site per country, 20 sites total.

Region block	Country / Administrative area	Candidate water-area / port / lagoon
Middle East / 6 Units		
Gulf Cooperation Council (GCC)	• Abu Dhabi 《Al Hudayriat Lagoon》	Al Hudayriat Lagoon Marine-sports island under development; max depth ≈ 15 m
United Arab Emirates	• Dubai《Jebel Ali Palm, outer rim》	Calm water remains outside the industrial port
Saudi Arabia	• Tabuk Province《NEOM, inside Gulf of Aqaba》	Being prepared as an independent SEZ
Qatar	• Lusail《Qetaifan North Lagoon》	Redevelopment zone for the post-2027 Expo
Bahrain	• Muharraq Island《Diyar Al Muharraq inner lagoons》	Can be planned together with tidal-flat restoration
Oman	• Duqm《Inner bay behind Dry Dock》	National special zone (SEZAD) already designated
Southeast Asia (ASEAN) / 4 units		
Singapore	• Jurong Lake《Western Anchorage》	Government "Sea-Space" demonstration area
Malaysia	• Johor《Iskandar Puteri inner bay》	Economic corridor in partnership with Singapore
Indonesia	• Batam Island《Nongsa Digital Park》	Digital SEZ with tax incentives
Thailand	• Eastern Economic Corridor《Map Ta Phut industrial-port inner side》	EEC Law gives infrastructure incentives
Mediterranean / 3 units		
Spain	• Valencia《Albufera Lagoon, north shore》	Environmental-restoration project funded by EU NextGen
Italy	• Taranto《Mar Piccolo》	Navy & Port Authority redevelopment in progress
Greece	• Thessaloniki《Thermaic Gulf inner》	Target area of "Smart Port" public call
Caribbean & Latin America / 3 units		
Bahamas	• New Providence《Clifton Bay》	Active resort investment; wave height < 1 m
Panama	• Panama Bay《Outer rim of Amador》	Causeway Extension of Colón Free-Trade Zone
Dominican Republic	• Punta Cana《Cap Cana Marina》	Private SEZ, flexible permitting
United States / 2 units		
Florida	• Tampa Bay 《Old Tampa Bay》	Old Tampa Bay: State marine-construction pilot program launched
California	• Long Beach《Outer Harbor East》	State Coastal Commission has published wave criteria

Indian Ocean / 2 units		
Maldives	• 《Kani-Finolhu Lagoon》	Floating-city pilot already under construction
Mauritius	• Port Louis《Tombeau Bay》	Tombeau Bay: Being nationalized as a Blue-Economy special zone

References and Sources

A. Demographics, Urbanization & Coastal Exposure

1. **UN DESA — Coastal Population (Methodology Sheet).**
   Use for: "~40% of world population within 100 km of coasts"; coastal exposure framing.
2. Reimann L. et al. (2023), Cambridge Prisms: Coastal Futures; Neumann B. et al. (2015),* PLOS ONE*.**
   Use for: "~70% by ~2050" scenario references; population and risk trend discussion.

B. Smart-City Market & Brownfield Constraints

1. **Polaris Market Research — Smart Cities Market (2021/2028 forecast ~USD 1.03T).**
   Use for: global market size.
2. World Bank — Regenerating Urban Land.**
   Use for: brownfield timelines/costs (permits, relocation, retrofit burdens), typical 7–15y delivery.

C. Floating/Maritime Precedents (Build Feasibility)

1. **Burj Al Arab "North Deck" (Dubai).**
   Use for: off-site factory build → sea tow → install; ~10,000 m²; short fabrication window.
2. **Marasi Water Homes (Dubai).**
   Use for: factory-built floating villas; sea-transported deployment pathway.
3. **Royal Caribbean — Icon of the Seas (MEYER Turku).**
   Use for: 7,600–8,000 pax; fully self-contained power/water/med/retail; "hotel-city" analogy.
4. **MEYER / Meyer Floating Solutions technical brochures.**
   Use for: shipyard modularization; tow/plug-in logic; floating soil cost bands.

D. Digital-Twin / City-OS Standards

1. **MLIT (Japan) — Project PLATEAU.**
   Use for: national 3D urban data standard; open models for City-OS.
2. **FIWARE Foundation.**
   Use for: open APIs, smart-city OS interoperability.

E. Policy & Regulatory Benchmarks

1. **NEOM — OXAGON (official).**
   Use for: Sea-SEZ/SEZ-like governance, port-manufacturing integration, one-stop regimes.
2. **U.S. Dept. of State — Investment Climate Statement.**
   Use for: independent-zone framing (NEOM) as precedent language for policy sections.

F. Prime Coastal Demand & Affluent Trends

1. Knight Frank — The Wealth Report 2024/2025.**
   Use for: HNWI/UHNW growth, coastal second-home appetite; **6.8M** 10-yr demand anchor (press-release model).
2. Pair this with **Internal capture math** (see Section H) for **0.8%** (1,000-unit city) and **2.2%** (3,000-unit city) program captures.

G. Hospitality / Branded Residence / Wellness Benchmarks (to footnote P&L KPIs)

1. **STR/CoStar — Hotel Review / Destination dashboards.**
   Use for: **ADR / Occupancy** coastal wellness resort ranges that anchor **Village/Town/City** hotel KPIs.
2. **HVS — Hotel Valuation Index / Resort valuation papers.**
   Use for: RevPAR, resort productivity, F&B contribution; cap-rate/exit framing.
3. Savills — Branded Residences 2023/2024.**
   Use for: **ASP per m²** for branded/seafront residences; absorption benchmarks; PM/HOA fees.
4. **Global Wellness Institute — Wellness Economy reports.**
   Use for: wellness program ARPUs, spa/treatment throughput assumptions.
5. **Cornell SHA (Hospitality)** — Restaurant Revenue Management / F&B productivity papers.
   Use for: F&B **check × seat × turns** methodology and Rev/seat/day sanity checks.
6. **Private diagnostics & medical tourism overviews** (e.g., Patients Beyond Borders; OECD health price baskets).
   Use for: lab test price bands, program fee bands (pair with your local regs).

Disclaimer:

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