

Climate Risks

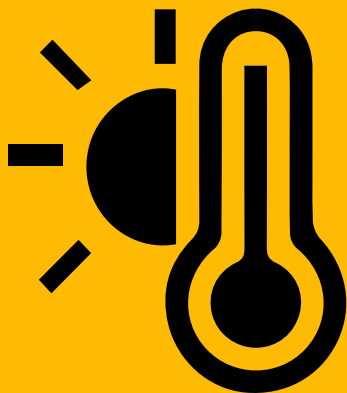
**Infrastructure
Categories**

Future Strategies

Risgau'r
Hinsawdd

Dosbarthau
Seilwaith

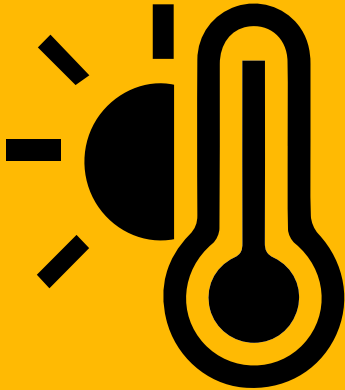
Strategau
Dyfodol



By 2050, Cardiff is expected to experience more frequent and intense heatwaves, with summer temperatures rising significantly.

This could lead to increased risks of heat stress, energy demand spikes, and transport disruptions, such as rail buckling and road damage.

Temperature Extremes



Eithafoedd tymheredd

Erbyn 2050, fe ddisgwylir Caerdydd i brofi poethdonnau mwy aml a chryf, gyda thymhereddau haf gryn dipyn yn uwch.

Gallai'r hyn yn arwain at berygl o bwysau gwres, pigynnau o alw am ynni, ac amhariadau i drafnidiaeth, megis rheil yn crychu a niwed i ffyrdd.



Rising sea levels and heavier rainfall will increase the risk of coastal flooding and erosion in Cardiff.

Coastal infrastructure and low-lying urban areas will face higher vulnerability, leading to potential damage to homes, transport networks, and water drainage systems.

Flooding and Erosion



Bydd cynnydd yn lefel y môr a glaw trymach yn cynyddu'r perygl o lifo ac erydiad arfordirol yn Nghaerdydd.

Bydd seilwaith arfordirol ac ardaloedd trefol isel yn fwy bregus, a fydd yn arwain at niwed posib i gartrefi, rhwydweithiau trafndiaeth, a systemau traenio dŵr.

Llifo ac Erydiad



Projected increases in storm intensity could result in stronger winds, posing risks to overhead power lines, communication networks, and transport infrastructure.

These conditions may disrupt services and increase maintenance costs for critical systems.

Stronger Winds



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Gwyntoed d cryfach



Heavier Rainfall

Cardiff is likely to see more intense rainfall events, with winter precipitation rates increasing by up to 9.2% under a 2°C global warming scenario.

This could lead to heightened risks of surface water flooding and drainage system overload. This could impact urban areas and disrupt local transportation and businesses.



Glaw Trymach

Mae'n debygol y bydd Caerdydd yn profi mwy o achlysuron o fwrw glaw dwys, gyda chyfraddau gwlybanwch yn cynyddu hyd at 9.2% o dan senario o'r byd yn cynhesu gan 2°C.

Gallai'r hyn yn arwain at berygl cynyddol o lifo a systemau traenio dŵr yn cael eu gorlwytho. Gallai'r hyn yn effeithio ardaloedd trefol ac amharu trafndiaeth lleol a busnesau.



These systems enable connectivity and information exchange.

Examples include internet networks, data centers, telecommunication towers, fiber optic cables, satellites, and smart infrastructure components like IoT sensors.

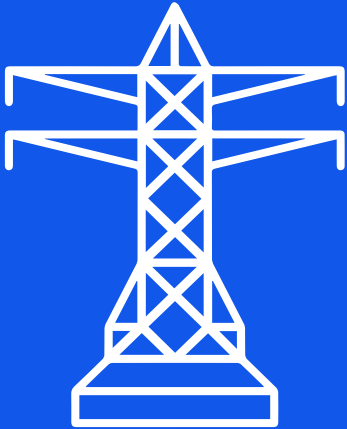
Communication and Digital Infrastructure



Mae'r systemau hyn yn galluogi cysylltedd a chyfnewid gwybodaeth.

Mae enghreifftiau yn cynnwys rhwydweithiau y rhyngwrwyd, canolfannau data, tyrau telathrebu, ceblau opteg ffeibrau, lloerennau a chydannau seilwaith smart megis sensorau'r Rhyngwrwyd o Bethau

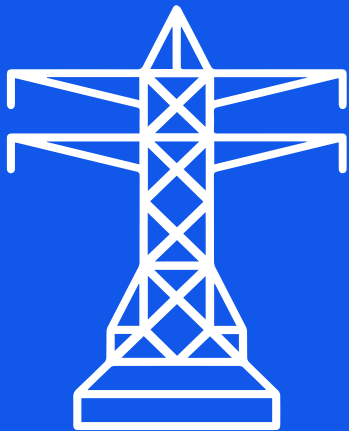
Seilwaith Cyfathrebau a Digidol



These systems generate, store, and distribute energy to power homes, businesses, and industries.

Key components include power plants, renewable energy installations (solar farms, wind turbines, hydropower stations), transmission lines, pipelines, and energy storage systems like batteries and hydrogen storage.

Energy Infrastructure



Seilwaith Ynni

Mae'r systemau hyn yn cynhyrchu, cadw a rhannu ynni i bweru cartrefi, busnesau a diwydiannau.

Mae cydrannau allweddol yn cynnwys gweithfeydd pŵer, meysydd ynni adnewyddadwy (ffermydd heulol, tyrbinau gwynt, gorsafoedd pŵer hydro, lliniau trosglwyddiad, pibellau, a systemau crynhoad ynni megis batris a chrynhoad hydrogen



This category includes systems that facilitate the movement of people, goods, and services.

Examples include roads, railways, airports, ports, bridges, tunnels, bike lanes, and public transit systems like buses, trams, and undergrounds.

Transport Infrastructure



Mae'r categori yma yn cynnwys systemau sy'n hwyluso pobl, nwyddau a gwasanaethau i symud.

Mae enghreiffiau yn cynnwys ffyrdd, rheilffyrdd, meysydd awyr, porthladdoedd, pontydd, twnneli, lonydd beicio, a systemau cludiant cyhoeddus megis bysiau, tramiau a rheilffyrdd tanddaearol.

Seilwaith Trafnidiaeth



This includes systems designed to protect and manage natural ecosystems and biodiversity.

Examples are rewilding projects, wetlands, urban parks, green belts, afforestation projects, and climate adaptation structures like levees and sea walls.

Environmental Infrastructure



Mae'r hwn yn cynnwys systemau a ddarlunir i amddiffyn a rheoli ecosystemau naturiol a bio-amrywiaeth.

Mae enghreifftiau yn cynnwys prosiectau ail-wylltio, gwlyptiroedd, parciau trefol, tiroedd glas, prosiectau coedwigo, a strwythyrau addasiad hinsawdd megis llifgloddiau a muriau môr.

Seilwaith Amgylcheddol



This category covers the supply, distribution, and treatment of water and wastewater.

Examples include water supply systems, dams, reservoirs, irrigation networks, wastewater treatment plants, and stormwater management systems.

Water and Sanitation Infrastructure



Yn y categori hwn yw darparu, dosbarthu a thrinio dŵr a gwastraff dŵr.

Mae enghreifftiau yn cynnwys systemau darparu dŵr, argaeau, cronfeydd dŵr, rhwydweithiau dyfrhau, gweithfeydd trinio gwastraff dŵr, a systemau traenio lifogydd.

Seilwaith Dŵr a Charthffosiaeth



Social infrastructure supports human well-being, education, health, and cultural activities.

Examples include schools, universities, hospitals, libraries, community centers, cultural venues, sports facilities, and public housing.

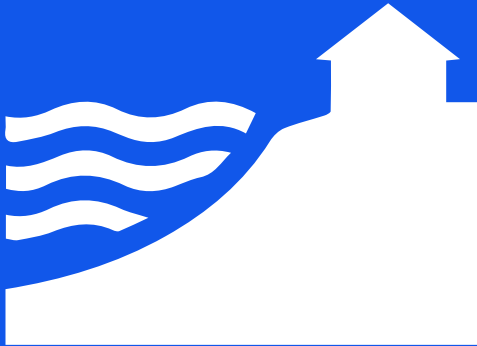
Social Infrastructure



Seilwaith cymdeithasol yw'r hynny sy'n cefnogi lles dynol, addysg, iechyd, a gweithgareddau diwylliannol.

Mae enghreifftiau yn cynnwys ysgolion, prifysgolion, ysbytai, llyfrgelloedd, canolfannau cymunedol, manau diwylliannol, cyfleusterau chwaraeon, a chartrefi cyhoeddus.

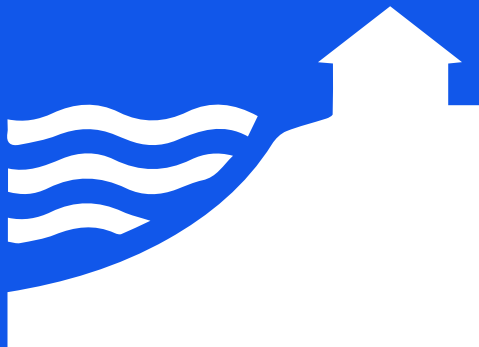
Seilwaith Cymdeithasol



This includes systems designed to protect and manage coastal areas and mitigate environmental impacts.

Examples are seawalls, piers, marinas, sand dunes, and flood barriers.

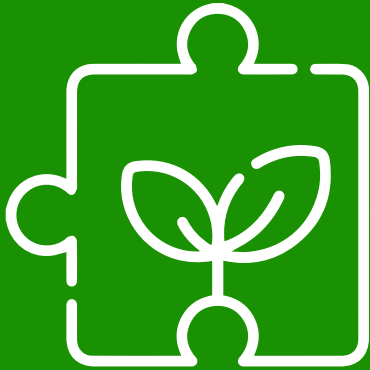
Coastal and erosion Infrastructure



Mae'r hwn yn cynnwys systemau a ddarlunir i amddiffyn a rheoli'r arfordir a lleihau effeithiau amgylcheddol.

Muriau môr, pierau, marinâu, tywodfryniau, a rhwystrau llifogydd yw enghreifftiau

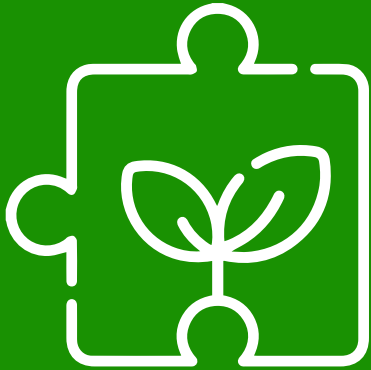
Seilwaith Arfordirol ac Erydiad



Nature-Based Solutions (NBS) leverage natural processes and ecosystems to tackle climate challenges.

Rewilding, green roofs, urban tree planting, and wetlands restoration mitigate flooding and heatwaves, enhance biodiversity, and provide co-benefits like recreation and mental health improvement.

Nature based Solutions



Mae Datrysau yn Seiliedig mewn Natur yn dwyn prosesau naturiol ac ecosystemau i drechu heriau'r hinsawdd.

Mae ail-wylltio, toeon gwyrddion, plannu coed trefol, ac adnewyddu gwlyptiroedd yn lleihau llifogydd a phoethdonnau, gwella bio-amrywiaeth, a darparu buddion ar y cyd megis hamdden a gwella iechyd meddwl.

Datrysau yn Seiliedig mewn Natur



Circular Economy Principles focus on reusing, repairing, and recycling resources to minimize waste and extraction.

Modular construction, repair hubs, and material recovery facilities reduce environmental impact, extend infrastructure lifespan, and foster local job creation.

Circular Economy Principles



Nod yr economi gylchol yw ail-dddefnyddio, trwsio, ac ailgylchu adnoddau i leihau gwastraff a thynfa.

Mae adeiladu modylaidd, caffis trwsio a llyfrgelloedd pethau, a chyfleusterau i ailgylchu deunydd yn lleihau anaf amgylcheddol, estyn bywyd seilwaith, a magu swyddi lleol.

Egwyddorion yr Economi Gylchol



Multi-Functional Infrastructure serves multiple purposes simultaneously, maximizing utility and land use.

Parks that act as floodplains, solar canopies over parking lots, and urban wetlands integrate social and ecological goals while fostering public support.

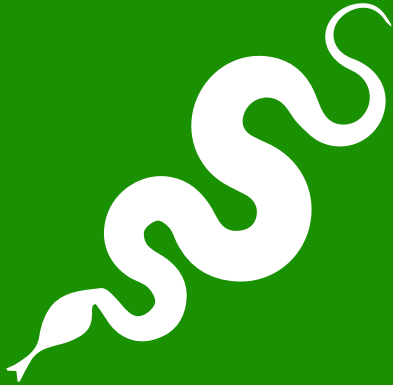
Multi-Functional Infrastructure



Mae sawl nod cydamserol gan seilwaith aml-weithrediadol sy'n mwyhau defnydd-deb a defnydd o dir.

Mae parciau sy'n actio fel gorlifdiroedd, canopïau heulol uwchben meysydd parciau, a gwlyptiroedd trefol yn cyfuno amcanion cymdeithasol ac ecolegol tra meithrin cefnogaeth y cyhoedd.

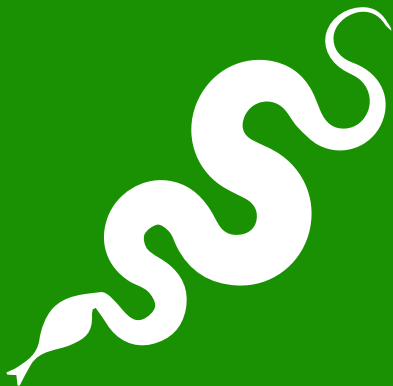
Seilwaith Aml- Weithrediadol



Adaptive and Flexible Design creates infrastructure that evolves with changing conditions and needs.

Modular housing, adaptable flood defenses, and future-ready transport systems ensure long-term utility, reduce waste, and support incremental investments.

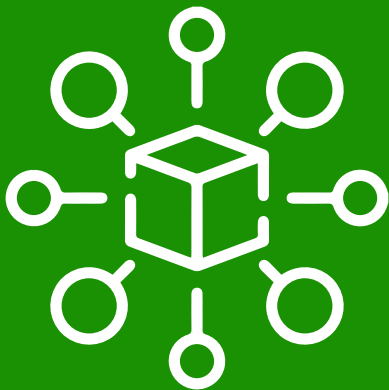
Adaptive and Flexible Design



Mae darlun addasol ac hyblyg yn creu seilwaith sy'n esblygu gydag amodau ac anghenion newid.

Mae tai modiwlaid, amddiffynau llifogydd addasol, a systemau trafndiaeth sy'n barod am dyfodol yn sicrhau defnydd-deb y tymor hir, lleihau gwastraff, a chefnogi buddsoddiadau cynyddrannol.

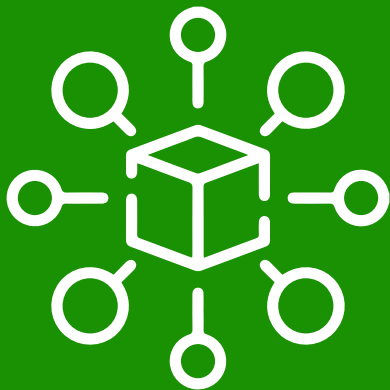
Darlun Addasol ac Hyblyg



This card is about the shift from centralised (regional or national) systems and coordination, to operating through local networks.

Community microgrids, rainwater harvesting systems, and local food hubs reduce transmission losses, improve resilience, and empower communities with greater control.

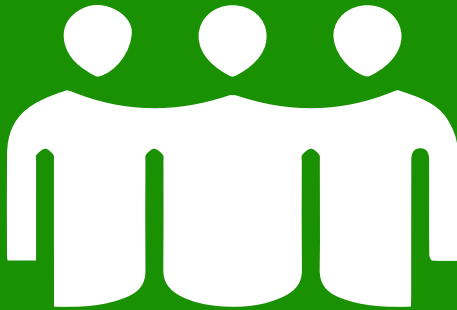
Localised systems and networks



Mae Systemau wedi'u
Dosbarthu a'u Datganoli yn
symud o fodelau canoledig i
rwydweithiau lleoledig.

Mae meicro-rwyllau
cymunedol, systemau
cynaeafu glaw, a hybiau bwyd
lleol yn lleihau colledion
trosglwyddiad, yn gwella
cydniant, a grymuso
cymunedau â rheolaeth fwy.

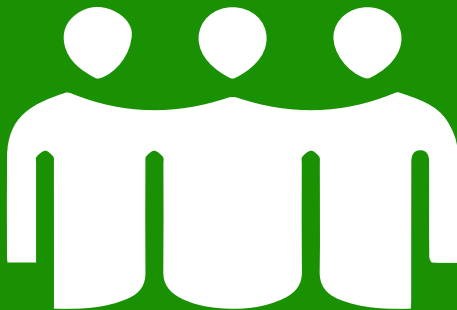
Systemau wedi'u Dosbarthu a'u Datganoli



Community-Led and Participatory Approaches engage stakeholders in planning, designing, and managing infrastructure.

Participatory budgeting, co-design workshops, and community assessments build trust, ensure projects meet needs, and foster long-term stewardship.

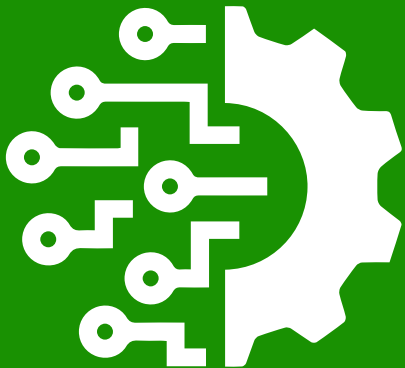
Community-Led and Participatory Approaches



Mae'r dullau hyn yn ymgysylltu hapddalwyr â chynllunio, darlunio, a rheoli seilwaith.

Mae cyllidebu cyfranogol, gweithdai cyd-gynhyrchu, a asemiadau cymunedol yn magu ymddiried, sicrhau bod prosiectau yn gweddu i anghenion, a meithrin gwarchodaeth y tymor hir.

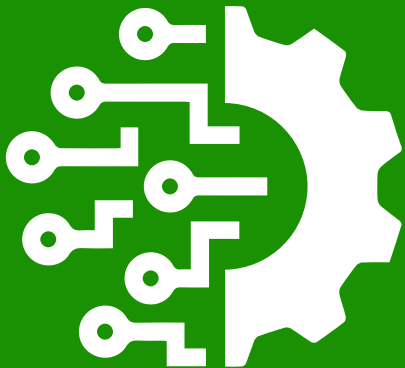
Dullau Cyfranogol a Arweinir gan y Gymuned



Digital-Physical Hybrid Infrastructure combines physical systems with digital technologies for smarter management.

Smart grids, predictive flood systems, and AI-driven traffic optimization improve efficiency, adaptability, and data-driven decision-making.

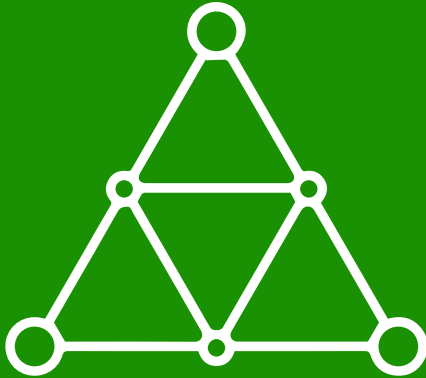
Smart Infrastructure



Mae Seilwaith Hybrid yn Ddigidol a Chorfforol yn cyfuno systemau corfforol â thechnolegau digidol er rheolaeth smartach.

Mae rhwyllau smart, systemau sy'n rhagweld llifogydd, ac optimeiddio traffig gydag AI yn cynyddu effeithrwydd, ymgyfaddasu, a phenderfynu a yrrir gan ddata

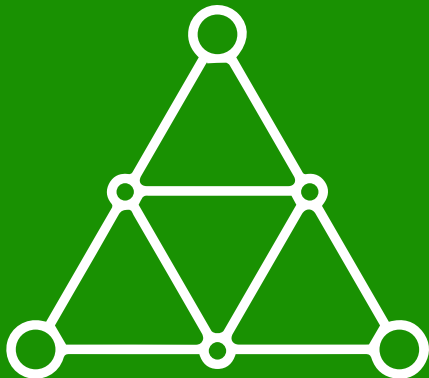
Seilwaith Hybrid yn Ddigidol a Chorfforol



This is about ensuring ensures systems have backups and safety nets so if one thing goes wrong the system is build with fail-safe features.

Decentralised energy grids, multiple transport modes, and diverse water sources enhance resilience by providing alternatives for critical services.

Safety Nets



Mae Seilwaith Afreidrwydd yn sicrhau bod systemau gan eu cymhorthion wrth gefn ac hyblygrwydd i drechu methiannau a digwyddiadau dirfawr.

Mae rhwyllau ynni wedi'u datganoli, sawl modd trafndiaeth, a ffynnonellau dŵr amrywiol yn cynyddu cydniant trwy ddarparu'r eraill am wasnaethau critigol.

Afreidrwydd a Chymorth Wrth Gefn



Resilient and future proof
Design ensures infrastructure is designed to withstand extreme weather and adapts to evolving risks.

Elevated roads, storm-resistant grids, and modular upgrades protect vulnerable populations, minimize damage, and ensure service continuity.

**Built to bounce
back**



Mae Darlun Cydnerth sy'n Ymaddasol i Beryglon yn sicrhau bod seilwaith yn gwrthsefyll tywydd dirfawr ac ymaddasu i risgau ysblygu.

Mae ffyrdd uwch ben, rhwyllau sy'n gryf i stormau, a gwelliannau modiwlaidd yn amddiffyn poblogaethau gwan, lleihau niwed, a sicrhau bod gwasanaethau yn parhau.

Darlun Cydnerth sy'n Ymaddasol i Beryglon