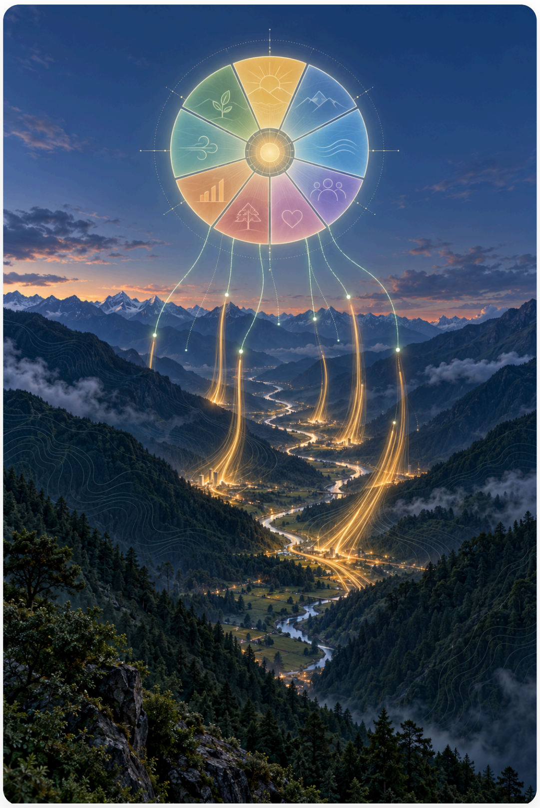

Bhutan: The Interface Race

Objective–Actuator Coupling Under Acceleration

Bhutan has not abandoned Gross National Happiness, and its institutions are not out of control. It is accelerating its economic machinery for good reason — to create the opportunities that might persuade its educated young people to stay — while building the interfaces that connect that machinery to its constitutional objective. This report diagnoses the Interface Race and proposes an Actuator Interface Register as the concrete first step.

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Country Report · Bhutan

https://bjornkennethholmstrom.org/reports/bhutan-interface-race

Executive Summary

The Paradox

Bhutan has done something almost no other state has attempted. It has written into its constitution that the state shall strive to promote the conditions that enable the pursuit of Gross National Happiness, and it has built the instruments to take that commitment seriously: nine domains of wellbeing, 33 indicators, sufficiency thresholds rather than ever-rising targets, a policy screening tool, and Five-Year Plans with explicit GNH goals alongside economic, social and ecological ones. At the level of national purpose, Bhutan has refused the compression that most governance failures begin with.

And yet. In 2023 the country's civil servants received a 50 percent rise in their minimum pay scale, meant explicitly to retain talented people the state was losing. Voluntary resignations had nearly quadrupled. Monthly departures through Paro International Airport had risen from fewer than 500 before the pandemic to more than 5,000. For two years, around two-thirds of the rise was financed by extraordinary dividends from the cryptocurrency operations of Druk Holding and Investments, the state's commercial investment arm—operations financed between 2020 and 2022 by US$539 million of central-bank resources, roughly a fifth of GDP, and publicly disclosed only in April 2023.

The episode contains the whole of this report: exit, as educated young people compare their prospects at home with those abroad; acceleration, as the state turns to institutions that can move money quickly and at scale; an interface, the connection between those institutions and the whole of what Bhutan values, which in this case engaged only after the commitment was made; and a mismatch of timescales, as volatile revenue funded a permanent obligation.

The question is not whether Bhutan still means what its constitution says. It plainly does. The question is what it takes to keep meaning it as the institutions capable of changing the country grow faster, larger and more autonomous.

The Core Diagnosis: The Interface Race—Objective–Actuator Coupling Under Acceleration

The **Interface Race** is the condition in which a governance system, under pressure to create opportunity, accelerates specialised institutions capable of transforming national outcomes while having to build—at a comparable pace—the interfaces that connect their narrower mandates to its multidimensional national objective. The evidence shows both a precedent for high-latency coupling and substantial current efforts at institutional catch-up. It does not yet establish which will dominate.

An *actuator* is any institution that can change the state of the country: a ministry, a state investor, a central bank, a hydropower authority, an autonomous economic zone. An *interface* is whatever connects its proximate mandate to the whole objective: an assessment before commitment, a legal duty, an audit, a published standard, an independent reviewer. Delegation to narrow mandates is not a flaw; it is how modern states function. The risk is temporal: that the institutions able to change reality grow faster than the interfaces able to test, constrain and correct them against the whole.

In the language of this series, Bhutan has achieved unusually high *observability* of a high-dimensional objective. The Interface Race concerns its *controllability*: whether that objective retains authority over the institutions that act on it.

This report does not claim that Bhutan has abandoned Gross National Happiness for growth—the evidence does not support that. It does not claim that Bhutan's economic institutions are uncontrolled—they are chartered, governed and audited. And it does not claim that the race is being lost.

The Twin Tensions

Aspect	Outer (Hardware)	Inner (Operating System)
Strength	Constitutional GNH mandate; nine-domain, sufficiency-based measurement; kingdom-wide environmental assessment; constitutional audit; adaptive tourism policy	The middle way: development as a means, not an end; deep, earned royal legitimacy that frames economic transformation as a continuation of GNH; *kidu*, the tradition of direct care
Tension	Fast-growing actuators—DHI's 10X programme, the Gelephu Mindfulness City, strategic reserve deployment—whose wider-objective interfaces are young; one documented case of high-latency coupling; screening whose scope beyond "policy" is unclear	Coupling carried substantially through shared leadership and purpose rather than procedure; informality in a small state; a contested population boundary and a cultural domain that can mean plural cultures or one national identity
Manifestation	Crypto investment of a fifth of GDP disclosed after commitment; volatile dividends funding a permanent wage rise; ESG architecture launched eight months after a tenfold growth mandate	Young, "extensively happy" Bhutanese considering Australia; thousands of Lhotshampa refugees still outside the country; interfaces experienced as delay when people are leaving

The Signature Pattern: The Compare–Exit–Accelerate–Recouple Loop

Each trap in this series has its own characteristic motion. Japan's preserves an inherited equilibrium; Sweden's drifts; Korea's competes. Bhutan's is different in kind, because it is not a closed loop but a race.

Compare. Broad multidimensional sufficiency, combined with mass education and an open border, gives Bhutan's most capable citizens a new reference point: the attainable alternative abroad.

Exit. The comparison becomes movement. The Bhutanese population in Australia doubled between 2020 and 2024; 53 percent of recent migrants hold university degrees and nearly half previously worked in government.

Accelerate. The state responds by creating opportunity faster: an economic "driving force" in the 13th Five-Year Plan, a tenfold growth mandate for DHI, and an autonomous city covering a tenth of the country.

Recouple. Each acceleration requires new interfaces connecting the faster institutions to the whole objective. Bhutan is building them: an ESG system at DHI, integrity and audit arrangements at Gelephu, the continued reach of national environmental law.

The loop does not close by itself. If recoupling keeps pace, Bhutan becomes evidence that a rich objective can survive the building of a modern economy. If acceleration persistently outruns it, the danger is quiet: the objective remains richly observed and sincerely valued while practical power migrates toward faster, narrower control loops.

The Open-System Sufficiency Gap

The pressure driving the race comes from Bhutan's own success. In 2022, people aged 15 to 39 recorded the highest GNH Index of any age group. Yet the same group showed the sharpest deterioration in working hours, sleep, mental health and negative emotions, and urban wellbeing stagnated despite rising resources. Migrants typically earned under Nu 40,000 a month at home and far more abroad. A sufficiency architecture asks whether people have enough; the emigrant asks whether what they have is as good as what they could have elsewhere. In an open country, being sufficiently well off and considering exit are not contradictory states.

The Evidence: A Heterogeneous Architecture

A census of Bhutan's major actuators found no general disconnection from the national objective. Ordinary planning and budgeting are integrated with it. Environmental assessment binds major projects before commitment, including inside Gelephu. Tourism shows adaptive coupling at its best: when the Sustainable Development Fee, raised to US$200 a night in 2022, depressed arrivals, the government halved it while keeping the high-value principle behind it. DHI is chartered, governed and audited, but its interface with the wider objective historically ran through commercial and financial channels; its ESG system dates from April 2026. The central bank's mandate is deliberately narrow. In this small sample, the institutions growing fastest have the youngest interfaces—a suggestive pattern, not a law. And the dated record shows interfaces now following expansion within months: the evidence supports a race, not a demonstrated lag.

The Boundary: Whose Happiness?

No interface can answer a prior question: whose flourishing the objective counts. In the early 1990s, around 100,000 Nepali-speaking Lhotshampa left Bhutan or were expelled, amid citizenship and cultural-integration policies whose history remains contested. More than 6,000 remain in refugee settlements in Nepal; the citizenship architecture of that era remains in force; international human-rights processes continue to address cases rooted in the conflict. None of this implies that present GNH statistics are manipulated. It establishes a conceptual point: the dimensionality of an objective cannot compensate for a contested population boundary.

The Series Boundary Condition

Most countries in this series suffer first-order deficits: of execution, integration, sensing, synchronisation, calibration. Finland and Japan met second-order ceilings; Korea showed an objective collapsed onto a few rankings. Bhutan is the case in which the objective itself is least in question. What is in question is the connection between a rich objective and its accelerating machinery. Like Finland's throughput constraint, the Interface Race names a structural challenge rather than a demonstrated failure.

The Opportunity

Building interface capacity does not mean extending the GNH screen to every decision, which would destroy the speed the new institutions exist to provide. It means coupling what matters, where it matters, before commitment becomes irreversible: clear triggers for which decisions require pre-commitment interfaces; an ESG system at DHI that changes decisions rather than merely reporting them; a Norwegian-style boundary framework for strategic exposures; a rule keeping volatile revenue away from permanent commitments; and the gradual codification of Gelephu's coupling into law, standards and measurement. The transition's Trojan Horse is **GNH materiality**: the internationally familiar language of ESG carrying Bhutan's own domains into its commercial institutions. Its most time-sensitive step is a GNH and ecological baseline at Gelephu, taken before the city's largest developments reshape the region.

The Concrete First Step: The Actuator Interface Register

A register, maintained by an institution with constitutional audit standing and published annually to Parliament, would record for each major institution its mandate, its power, its interfaces before and after commitment, its oversight and its record of correction—culminating in a coverage map of which GNH domains reach each institution, and when. It changes no mandate and delays no decision. It makes the controllability of Bhutan's objective as visible as its observability already is, and it provides the means to test five registered predictions about whether the race is being won.

The Honest Conclusion

Bhutan has not abandoned Gross National Happiness, and its institutions are not out of control. It is accelerating its economic machinery for good reasons, and it is building interfaces around that machinery faster than it once did. One major episode shows what late coupling costs; the newer institutions show a country trying hard not to repeat it. Whether interface construction keeps pace with a decade of planned acceleration is genuinely open. The boundary question lies outside the race and remains unresolved.

Bhutan's first great achievement was to decide what a country should value. Its next may be to show that a society can build fast, powerful institutions without letting them forget what they are for.

Series Coherence Table (Updated)

System	Core Deficit	Signature Pattern	Cultural Anchor	Transition Feasibility
Germany	Execution	Paralysed spending	Engineering rigour	Feasible
France	Integration	Reform-explosion-retreat	Jacobin clarity	Feasible
Sweden	Feedback	Drift loop (signal suppression)	*Saklighet*	Feasible
India	Synchronisation	Leap-lag cycle	*Jugaad*	Feasible
EU	Coherence	Negotiation-dilution	Subsidiarity	Feasible
UK	Control-delivery mismatch	Centralise-fail-centralise	Muddling through	Feasible
Brazil	Accumulation	Breakthrough-Capture	*Jeitinho*	Difficult but possible
Russia	Legibility	Control–Blindness–Shock	*Ne vysovyvaysya*	Impossible under current regime
USA	Integration	Escalate-Block-Bypass-Delegitimise	Bootstrap individualism	Possible via sub-federal
Finland	Throughput Constraint	Anticipate–Consensus–Increment–Pressure	*Sisu* + Quiet Consensus	Feasible
China	Calibration	Campaign–Overshoot–Abrupt Correction	*Míng zhé bǎo shēn*	Difficult; recoverable under current regime
Japan	Continuity Trap (Paradigm Lock-in)	Pressure–Accommodate–Preserve–Defer	*Wa* + *Kaizen* + *Gaman* + *Shouganai*	Feasible with controlled creative destruction
Nigeria	Substrate Deficit (State–Society Dissociation)	Extraction–Dissociation–Adaptation–Crisis	*Oga-Madam* + "The National Cake" + *Jugaad* + Pentecostal Resilience	Generational; feasible via interface-building from below

System	Core Deficit	Signature Pattern	Cultural Anchor	Transition Feasibility
Israel	Boundary Deficit (Contingency Lock-In)	Threat–Mobilization–Securitization–Fragmentation–Renewed Threat	*Ein Breira* + *Balagan* + Covenant Consciousness + *Tikun Olam*	Difficult; requires constitutional settlement via incremental boundary stabilization
Spain	Integrative Closure Deficit (Transition Trap)	Crisis–Centralisation–Peripheral Mobilisation–EU Mediation–Accommodation	*Convivencia* + *Las Dos Españas* + *El Aplazamiento*	Feasible via orthogonal interventions; unlikely via direct constitutional reform
South Korea	Tournament Trap (Consequence Coupling Under Effective Scarcity)	Effective Scarcity–Rank–Invest–Concentrate	*Gwageo* + *Hakbeol* + *Gongjeong*	Feasible if stakes are lowered before selection is changed
Bhutan	**Interface Race (Objective–Actuator Coupling Under Acceleration)**	**Compare–Exit–Accelerate–Recouple**	**GNH + *Kidu* + *Driglam Namzha* + *Tha Damtshig Ley Jumdrey***	**Transition case; outcome depends on interface construction keeping pace**
Bhutan is the case that asks: *What happens when a country knows unusually clearly what it values—and must now build institutions fast enough to keep its people, without letting them outrun that knowledge?* The answer is not				

System	Core Deficit	Signature Pattern	Cultural Anchor	Transition Feasibility
yet written. The task is to keep the objective steering while the machinery accelerates.				

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1. The Interface Race

1.1 Opening: The Raise Paid in Bitcoin

In the summer of 2023, Bhutan's civil servants received the largest pay rise in the country's modern history. The Sixth Pay Commission, constituted that February, recommended raising the minimum pay scale by half, with especially large allowances for doctors and nurses. Its report was unusually candid about the purpose. The revision was meant not only to protect living standards but to "motivate and retain talented people in public service." The state was losing them. Voluntary resignations from the civil service, which had averaged around 64 a month in the years before mid-2022, had risen to around 234 a month. In the financial year 2022–23, 3,413 civil servants resigned voluntarily, and the attrition rate reached 16 percent. Teachers and health workers led the exodus. Many of them were bound for Australia.

The raise cost roughly Nu 6 billion a year—about 2.3 percent of GDP, a permanent addition to the recurrent budget of a small state whose ordinary revenues could not easily absorb it. The Pay Commission's financing plan drew on a source few outside Bhutan would have guessed: a special transfer of Nu 4 billion a year for two years from Druk Holding and Investments, the state's commercial investment arm. The International Monetary Fund later identified where much of that money came from. For those two years, extraordinary dividends from DHI's cryptocurrency operations financed, on average, around two-thirds of the wage increase. Bhutan had been mining bitcoin with its hydropower.

The mining programme was not a response to the exodus. It predated it. Between August 2020 and April 2022, the Royal Monetary Authority had acquired some US$539 million of DHI securities to finance the initial investment—a sum equivalent to roughly a fifth of GDP and around 40 percent of the country's foreign reserves at the time. Mining began in 2022. The programme became publicly known only in April 2023, after the commitment had been made. It later drew electricity that would otherwise have been exported to India, and the IMF would warn against letting the volatility of crypto income transmit into recurrent government spending.

Read one way, this is a story about improvisation under pressure: a country losing its teachers and nurses found the money to keep more of them. Read another way, it is a story about a very large economic decision taken through channels that the public, and the country's celebrated framework for weighing national choices, saw only afterwards. Both readings are true. And the episode contains, in compressed form, everything this report is about.

It contains **exit**: educated young Bhutanese leaving because the opportunities abroad looked better than those at home. It contains **acceleration**: a state responding by turning to institutions that can move money quickly and at scale. It contains an **interface**: the connection between those institutions and the whole of what the country says it values—a connection that, in this case, was established only after the fact. And it contains a **mismatch of timescales**: volatile revenue from a fast-moving asset used to fund a slow, sticky commitment that no government can easily reverse.

This is a country that wrote into its constitution that the state shall strive to promote the conditions that enable the pursuit of Gross National Happiness. The question the episode raises is not whether Bhutan still means it. It plainly does. The question is what it takes to keep meaning it as the institutions capable of changing the country grow faster, larger and more autonomous.

1.2 The Compare–Exit–Accelerate–Recouple Loop

Each report in this series identifies a characteristic motion. Japan's architecture preserves an inherited equilibrium; Sweden's drifts; Finland's stalls against the limits of its throughput; South Korea's competes. Bhutan's motion is different in kind, because it is not yet a closed loop. It is a race whose outcome is undecided. The pattern has four stages.

Compare. Bhutan has achieved something rare: broad, multidimensional sufficiency for much of its population, measured with unusual care. Its national surveys found young adults to be, on aggregate, the happiest age group in the country. But the same success—mass education, rising capability, an open border—gives its most educated citizens a new reference point. They no longer compare their lives only with their parents' or their neighbours'. They compare them with the attainable alternative abroad, where earnings can be several times higher and careers more varied. The comparison is relative, and a national architecture built around sufficiency is not designed to benchmark it.

Exit. The comparison becomes movement. Monthly departures through Paro International Airport rose from fewer than 500 before the pandemic to more than 5,000 in early 2023. The Bhutanese population in Australia roughly doubled between 2020 and 2024, from about 12,400 to more than 25,300. Those leaving are disproportionately the people a small state can least afford to lose: 53 percent of recent migrants hold university degrees, against around 7 percent of the working-age population, and nearly half previously worked in government. Exit is a fast signal, and it arrives in a country whose richest measure of wellbeing is sampled every five to seven years.

Accelerate. The state responds to the signal the way any responsible government would: by trying to create opportunity faster. The 13th Five-Year Plan makes economic transformation its "driving force," explicitly to "re-balance" a Gross National Happiness whose economic dimension had lagged its social, cultural and environmental ones. It sets targets of a US$5 billion economy by 2029 and a "High-Income GNH Economy" by 2034. DHI has launched a "10X Journey" aiming at tenfold corporate growth within a decade and has described an investment horizon in the tens of billions of dollars. And in the south, the Gelephu Mindfulness City—a special administrative region covering roughly a tenth of the country, with its own executive, legislature and judiciary—has been created to attract the investment and jobs the old economy could not.

Recouple. Each acceleration creates a second task: connecting the faster, more autonomous institutions to the whole objective they are meant to serve. Bhutan is doing this too. DHI launched a group-wide environmental, social and governance system with support from the International Finance Corporation in April 2026, about eight months after its 10X programme began. The Gelephu Mindfulness City is building its own integrity and audit institutions, has signed a cooperation agreement with the national Anti-Corruption Commission, and falls under a statutory audit arrangement being prepared by the Royal Audit Authority; national environmental law continues to apply there unless the city's own legislation displaces it.

The race. The loop does not close by itself. If recoupling keeps pace with acceleration, Bhutan becomes evidence that a richly specified national objective can survive the building of a modern economy. If acceleration persistently outruns recoupling, the danger is not that Gross National Happiness disappears from the constitution or the speeches. It is quieter than that: the objective remains richly observed and sincerely valued while the practical power to change the country migrates toward faster, narrower control loops. The bitcoin episode shows what late coupling looks like. The newer institutions show a country trying hard not to repeat it. Which tendency prevails is the question this report cannot answer yet, and does not pretend to.

1.3 The Interface Race Defined

The Interface Race is the condition in which a governance system, under pressure to create opportunity, accelerates specialised institutions capable of transforming national outcomes while having to build—at a comparable pace—the interfaces that connect their narrower mandates to its multidimensional national objective. The evidence shows both a precedent for high-latency coupling and substantial current efforts at institutional catch-up. It does not yet establish which will dominate.

Three terms in that definition carry the argument.

An **actuator** is any institution that can change the state of the country: a ministry spending its budget, a state investment company deploying capital, a central bank managing reserves, a hydropower authority building dams, a special economic zone writing its own commercial law. Modern states need many actuators, and they need many of them to be specialised. A central bank that tried to pursue every national goal at once would manage money badly. An investment company required to maximise national happiness with every transaction would not survive as an investor. Delegation to narrower mandates is not a flaw. It is how complex states get things done.

An **interface** is whatever connects an actuator's proximate mandate to the whole objective: a legal duty, an assessment before commitment, an independent reviewer, a published standard, an audit, a parliamentary hearing, a board that answers to someone who holds the wider view. Interfaces differ in what they cover, in whether they act before or after a decision, in how binding they are, and in how long they take to correct a mistake. An interface that acts after an irreversible commitment is still an interface, but it behaves very differently from one that acts before.

The **race** is the relationship between the two over time. A state that expands its actuators slowly can build interfaces at leisure. A state that expands them quickly, under pressure, must build interfaces quickly too—or accept a period in which some of its most powerful institutions are connected to its deepest commitments mainly through trust, shared purpose and later correction.

It matters what this definition does not claim. It does not claim that Bhutan has abandoned Gross National Happiness for growth; the evidence does not support that, and the current plan retains explicit social, ecological and cultural objectives alongside its economic ones. It does not claim that Bhutan's economic institutions are uncontrolled; they are audited, chartered and governed. And it does not claim that the race is being lost. It claims that the race exists, that one important episode shows what happens when coupling arrives late, and that the outcome depends on choices Bhutan is making now.

1.4 The GNH Experiment

To understand why the race matters, it is necessary to understand what Bhutan built, because it is more serious and more sophisticated than its international reputation suggests.

The phrase "Gross National Happiness" is often heard abroad as a pleasant slogan, or as a claim that Bhutan maximises happiness instead of income. Neither is accurate. The constitutional commitment is carefully worded: the state shall strive to promote the *conditions* that enable the *pursuit* of Gross National Happiness. It is not a quantity to be maximised but a set of conditions to be secured, leaving the pursuit itself to people's own lives. That is a meta-objective, not a formula—and a considerably more defensible one than its caricature.

Its measurement is equally deliberate. The national GNH surveys operationalise the concept through nine domains—psychological wellbeing, health, time use, education, cultural diversity and resilience, good governance, community vitality, ecological diversity and resilience, and living standards—and 33 indicators. Each domain carries equal weight. Most unusually, each indicator is assessed against a *sufficiency* threshold. A person either has enough of something or does not; having more than enough adds nothing further to their score. The national index therefore asks whether people have enough across enough of the dimensions of a good life, not how much of any single thing they can accumulate.

That design choice is one of the most interesting in the whole field of national measurement. An index built on sufficiency cannot reward escalation within a single domain. It is, by construction, resistant to the logic of the tournament.

The architecture reaches beyond measurement. Bhutan developed a policy screening tool to test proposed policies against the GNH domains before adoption, and the historical record contains at least one striking case in which screening appears to have changed a national decision: according to GNH institutions, officials initially inclined toward joining the World Trade Organization reversed their assessment after applying the tool, and accession did not proceed at the time. (Negotiations resumed in 2026; whether and how the tool was applied to that decision is not on the public record.) Five-Year Plans carry explicit GNH targets. The Constitution requires the country to maintain at least 60 percent forest cover for all time; actual cover stands at around 70 percent.

In the language of this series, Bhutan attempted to solve the problem Paper VI describes: what happens when a governing objective compresses the many dimensions of a society onto a few measures, so that everything outside those measures becomes invisible. Bhutan's answer was to refuse the compression at the level of national purpose—to keep many dimensions in view by design. On the evidence, it largely succeeded in doing so at the level of observation and planning. The harder question, which this report takes up, is what happens to a richly specified objective when the institutions that must act on it multiply and speed up.

1.5 Bhutan and Korea: Mirror Problems

The report on South Korea that preceded this one diagnosed a *Tournament Trap*: a society whose many values had become, in practice, projected onto a small number of early rankings, so that a university admission reached far into employment, geography and family life. Korea's state is strong and fast. Its reforms, however, have tended to act on the discriminator—how contestants are ranked—rather than on what winning buys.

Bhutan presents almost the mirror image. Its national objective is deliberately rich; its measurement is built on sufficiency rather than rank; its planning keeps social, ecological and cultural dimensions explicitly in view. Where Korea's difficulty lies in the objective, Bhutan's lies in the connection between the objective and the machinery. Korea has powerful actuators aimed at too few variables. Bhutan has a well-specified set of variables and a growing set of actuators whose connection to them is still being built.

The two cases also meet at one point. Bhutan's sufficiency architecture declines to run a tournament at home—but it cannot switch off the global tournament that its educated citizens are free to enter. The civil servant who leaves for Australia is not failing Bhutan's sufficiency test. They are responding to a relative comparison that no national sufficiency measure is designed to capture. Korea shows what a domestic tournament does to a society. Bhutan shows what an external one does to a society that has chosen not to have one.

A second comparison is worth making. Like Finland's *Throughput Constraint*, Bhutan's condition is a structural challenge rather than a demonstrated failure. Finland's problem was that a highly competent system could not transform itself quickly enough. Bhutan's may be the opposite risk: that it transforms some of its institutions quickly enough, but not all of the institutions that keep them accountable to the whole.

1.6 Bhutan's Genuine Strengths

Any honest account of Bhutan must begin from what it has achieved. Within two generations, a country that was among the least developed in the world built universal basic education and health care, extended life expectancy dramatically, electrified its valleys with renewable hydropower, and became carbon negative while keeping around 70 percent of its land under forest. In 2008 it made a peaceful transition from absolute to constitutional monarchy—initiated from the throne rather than forced upon it—and has since held competitive elections in which power has changed hands between parties.

Its capacity for adaptive policy is real. When the tourism model it adopted after the pandemic—a Sustainable Development Fee raised from US$65 to US$200 a night—produced a recovery weaker than hoped, the government cut the effective fee in half in 2023 while explicitly retaining the high-value, low-volume principle behind it. That is what a system that holds several objectives at once should do: adjust a parameter under pressure without abandoning the purpose. Its environmental assessment law applies across the whole kingdom and requires review before commitment. Its audit and anti-corruption institutions have constitutional standing.

And its newest institutions are not being built in ignorance of the risks. The ESG system at DHI and the nested accountability architecture emerging around Gelephu are evidence of a state that recognises the need to connect its fast-growing actuators to its wider purpose. Few countries attempting rapid economic transformation build such interfaces at all, let alone within months of the expansion they are meant to govern.

1.7 The Real Question

Most reports in this series diagnose a trap: an architecture that reproduces its own failure. Bhutan does not fit that pattern, and this report does not force it to. The evidence points instead to a transition in progress, with a real risk and a real chance of managing it.

The risk is specific. Bhutan is accelerating its economic institutions for sound reasons—to create the jobs, earnings and careers that might persuade its educated young people to stay. Every increase in the power, speed and autonomy of those institutions raises the importance of the interfaces that keep them answerable to the whole of what Bhutan values. The one episode in which a major commitment was made before those interfaces engaged—the bitcoin investment—shows what the cost of late coupling can be: macroeconomic exposure, reallocated energy, and a permanent obligation funded by volatile revenue. The newer institutions show a country building interfaces faster than before. The race is between those two tendencies.

There is also a question this report cannot avoid, and which no degree of interface quality can answer. Before asking whether Bhutan's institutions serve everyone's flourishing, one must ask whose flourishing counts. In the early 1990s, around 100,000 Nepali-speaking Lhotshampa left Bhutan or were expelled, amid citizenship and cultural policies that remain contested to this day; more than six thousand remain in refugee settlements in Nepal. That history belongs in any serious account of Gross National Happiness, and Section 2 addresses it directly—not as a footnote to the race, but as a boundary condition that sits logically before it.

The central question, then, is not whether Gross National Happiness works, nor whether Bhutan is secretly maximising growth. It is this:

> ***Can the architecture that defines what Bhutan values evolve as quickly as the institutions being built to change what Bhutan can do?***

Bhutan spent half a century answering the question of what a country should aim for more thoughtfully than almost any other state. It now faces the harder engineering question of how to keep that answer in command of the machinery—at the very moment the machinery is being made faster, larger and more autonomous, so that its people have reasons to stay.

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2. The Interface Race: Structural Mechanisms

2.1 What "Interface Capacity" Means

Every report in this series names a capacity the country lacks or strains against. For Bhutan the relevant capacity is not the ability to decide what matters—Bhutan has done that more carefully than almost any state—but the ability to carry that decision into every institution powerful enough to change the country. This report calls it **interface capacity**.

An interface is anything that connects an institution's immediate mandate to the whole national objective. Its capacity can be described along seven properties, and each of them matters independently:

Coverage. Which dimensions of the national objective does the interface actually bring to bear? An environmental assessment covers ecology and some social impacts; a financial audit covers legality and prudence; a GNH screen, in principle, covers all nine domains.

Timing. Does the interface act before commitment, during implementation, or after the fact? An assessment before a dam is approved behaves very differently from an audit after it is built.

Binding strength. Is the interface advisory, procedural, able to veto, or constitutional?

Transparency. Can the public, Parliament or independent reviewers see the trade-off being made while it can still be changed?

Independent oversight. Is there someone outside the institution with the standing to question it?

Correction latency. How long does it take, once something has gone wrong, for the system to notice and respond?

Reversibility. Once a decision has been taken, how feasible is it to undo?

None of these properties has to be at its maximum for every institution. A central bank with its reserve decisions exposed to daily political review would be worse, not better. The engineering question is whether the interfaces around each institution are matched to its power: to the scale, speed, autonomy and irreversibility of what it can do. Interface capacity is therefore a relationship, not a quantity. It asks whether the connection is strong enough for the actuator it connects.

2.2 Observability Without Automatic Controllability

Control engineering distinguishes two properties of a system that are easy to confuse. **Observability** is the ability to know the state of the system from what can be measured. **Controllability** is the ability to move the system to a desired state using the actuators available. A system can be highly observable and poorly controllable: its operators may see exactly what is happening and still lack the levers to change it, or have levers that answer to something else.

Paper VI of the *Governance as Engineering* series treats a governing objective as an observation architecture: what a system chooses to optimise determines what it can see, and dimensions left out of the objective eventually return as disturbances. Most governance failures the series has examined begin there, with objectives that compress too much of reality onto too few measures.

Bhutan inverts the problem. At the level of observation, it has refused compression by design. Nine domains, 33 indicators, sufficiency thresholds and explicit planning targets keep a very wide range of what matters in view. On observability, Bhutan is among the most ambitious states in the world.

What the Interface Race concerns is controllability—specifically, whether the institutions that can change Bhutan's state are steered by that rich objective or by something narrower. The distinction matters because the two can come apart without anyone intending it. No one needs to reject Gross National Happiness for it to lose practical authority. It is enough that the institutions with the most capacity to change the country operate through control loops that the objective reaches only indirectly, or late.

This is the central conceptual claim of the report, and it is a narrow one. It does not say that Bhutan's objective is wrong or insincere. It says that a well-specified objective does not steer anything by itself. Its authority depends on the interfaces that carry it to the actuators—and those interfaces must be built, maintained and, when the actuators grow, strengthened.

2.3 The Open-System Sufficiency Gap

The pressure that is accelerating Bhutan's institutions does not come from within its wellbeing architecture. It comes from outside the country, through the choices of its most mobile citizens.

The 2022 national GNH survey found that younger Bhutanese were, on the survey's own measure, doing comparatively well. People aged 15 to 39 recorded the highest GNH Index of the three age bands, at 0.797, and the highest share classified as happy, at 51.1 percent, against 45.7 percent for those aged 40 to 64 and 40.7 percent for those over 65. They had gained the most in formal education, knowledge and income since 2015.

The same survey recorded warning signs. The younger group showed the largest deterioration since 2015 in working hours, sleep, mental health and negative emotions. Urban Bhutan—where most of the educated young live—saw its GNH Index fall from about 0.811 to 0.796 and its share of happy people fall from 54.6 to 50.5 percent, even as rural Bhutan improved. The survey's authors described urban progress as stagnant despite greater access to economic resources and services. Living standards themselves were not the problem: all three living-standards indicators showed sufficiency above 71 percent, and among people classified as happy, living standards contributed more to sufficiency than any domain except health.

Then the migration came. A World Bank survey of 1,208 households in 2024 found that migrants typically earned less than Nu 40,000 a month in Bhutan and at least Nu 60,000 abroad; some migrants and aspiring migrants said they would need domestic earnings above Nu 100,000 a month to reconsider—pay comparable to Bhutan's highest earners. The drivers the survey identified were earnings, career progression, education abroad and the networks that make migration easier.

The survey's own authors, constructing illustrative profiles from their subgroup data, sketched a composite young, urban, working woman whom the index classifies as "extensively happy"—and who, if circumstances do not improve, intends to go to Australia. The profile is synthetic, not a real respondent. But its logic is exact. In an open country, being sufficiently well off and considering exit are not contradictory states.

This report calls the mechanism the **Open-System Sufficiency Gap**: a population achieves substantial absolute sufficiency across many domains while its internationally mobile members evaluate their futures against external opportunity sets that the domestic sufficiency architecture does not directly benchmark. The claim is deliberately limited. The GNH survey does measure life satisfaction, emotions, time use and governance, and some of the pressure behind migration registers there. What a sufficiency architecture does not encode is the *relative* value of an attainable foreign alternative. It asks whether people have enough. The emigrant is answering a different question: whether what they have, and could have, is as good as what they could have elsewhere.

There is a paradox inside this gap. Bhutan's success in education raises its citizens' sufficiency and, at the same moment, their capacity to leave. A country can improve on every dimension it measures and still lose the people whose improvement it measured.

2.4 Multi-Rate Sensing

The national GNH survey is an unusually rich instrument, but it is slow. Its national waves ran in 2010, 2015 and 2022; the most recent fieldwork took place between April and July 2022. The emigration surge accelerated after that fieldwork ended. A sensor sampled every five to seven years cannot steer a response to a disturbance that multiplies tenfold in less than two years.

Bhutan's government did not wait for the next survey. The 13th Five-Year Plan's economic turn draws on faster signals: youth unemployment, financial insecurity, the structural weakness of the economy and, explicitly, the outflow of educated citizens. It then frames the response as a rebalancing of Gross National Happiness—a correction to its lagging economic dimension.

This report does not treat that as a failure of the GNH architecture. It is what any well-designed system facing disturbances on several timescales should look like: a slow, high-dimensional reference that defines the purpose, combined with faster, narrower sensors that trigger short-run responses within it. The *Governance as Engineering* series argues that no single-rate controller can stabilise disturbances arriving at very different speeds. Bhutan's combination of a slow national wellbeing sensor with fast administrative and economic ones is a reasonable answer to that problem.

What the multi-rate architecture does is shift the question. If fast signals trigger action, the quality of governance depends on whether the actions they trigger remain subordinate to the slow reference when the two conflict. That depends on interfaces.

2.5 The Interface Census

To test whether Bhutan's objective actually reaches its actuators, this report examined the country's major institutions in turn. The result does not support a general finding that Bhutan's economic institutions are disconnected from its national purpose. It shows something more specific: the strength, coverage and timing of interfaces vary substantially from one actuator to another.

The ordinary budget and ministries are the most tightly coupled. The 13th Five-Year Plan incorporates the GNH Index into national planning, with a target of raising it from 0.781 to 0.850 by 2029 alongside social, ecological, governance and economic targets. Annual budgets must align with the Plan's deliverables. Public spending is audited by the Royal Audit Authority, which has constitutional standing, and audit findings are followed up through Parliament's Public Accounts Committee. The policy screening architecture still exists in revised form. It has not always been applied comprehensively—in 2019 the National Council noted that only some draft policies had been screened and recommended screening every nationally important plan—and a 2024 peer-reviewed study found that Bhutanese programme evaluation had not yet fully incorporated GNH principles. But the ordinary machinery of government is recognisably what a GNH state should look like.

Hydropower and major projects are coupled strongly on specified dimensions. The Environmental Assessment Act of 2000 extends to the whole kingdom and requires assessment before clearance of projects that may affect the environment; clearance depends on acceptable impacts, attention to affected people, and the conservation of natural and cultural heritage. Energy proposals undergo techno-economic and socioenvironmental vetting, and audits have identified substantial irregularities in hydropower projects, showing that scrutiny is not merely formal. These interfaces do not cover all nine GNH domains, but they act before commitment and bind.

Tourism is the clearest case of adaptive coupling—and the strongest evidence against any simple story in which economic pressure overrides everything else. When the Sustainable Development Fee was raised from US$65 to US$200 a night in 2022, it embodied the country's high-value, low-volume approach to protecting culture and environment. When arrivals in 2023 reached only around a third of their 2019 level, the government cut the effective fee in half, to US$100, explicitly citing jobs, foreign exchange and growth. But it kept the fee, kept the principle, made the concession time-limited and reserved the right to revise it. That is exactly what a system holding several objectives at once should do: adjust a parameter under pressure without abandoning the purpose.

Druk Holding and Investments is where the pattern changes. DHI is wholly state-owned, created by Royal Charter, governed by a board, audited externally and by the Royal Audit Authority, and subject to company law. Its vision refers explicitly to Gross National Happiness. But its operating mandate is commercial: it exercises "full commercial discretion and flexibility" over investment and divestment under its board, and its governance historically focused on financial prudence, compliance and portfolio performance. No public evidence was found that its investment decisions pass through the national GNH screening architecture. That is not a malfunction. It is designed delegation, of the kind every modern state uses. It becomes a first-order question because of DHI's scale: in 2025 it contributed around Nu 9.5 billion in taxes and dividends, about 12 percent of domestic revenue, and its 10X strategy is making it the principal engine of economic transformation. In April 2026, DHI began building a group-wide environmental, social and governance system with support from the International Finance Corporation. The interface is being built. Its effectiveness is not yet observable.

The Royal Monetary Authority has a deliberately narrow mandate: price stability, financial stability, and management of reserves under the principles of safety, liquidity and return. That narrowness is correct for a central bank. Its interface with the wider objective is statutory and financial rather than multidimensional—which mattered greatly in the one case, examined below, where its balance sheet financed a strategic investment of national scale.

The Gelephu Mindfulness City is the largest and most autonomous actuator of all. Established by Royal Charter as a special administrative region covering roughly 4,046 square kilometres—about a tenth of the country—it has its own executive, legislative and judicial authority, and its Authority is chaired by the King, who appoints its members. Its charter writes wellbeing, sustainability and Gross National Happiness into its purposes. Its accountability architecture is *nested* rather than isolated. Its Application of Laws Act keeps Bhutanese law in force for matters its own laws do not govern, which on the published framework means the national Environmental Assessment Act continues to apply there unless displaced. National transport assessments already model the city's cumulative impacts on forests, water and wildlife corridors. The Royal Audit Authority is preparing statutory audit arrangements for it, and its own Audit and Corruption

Investigation Bureau signed a cooperation agreement with the national Anti-Corruption Commission in 2026. Whether its internal constraints bind under real economic pressure cannot yet be known; its decisive decisions lie ahead.

International commitments form a final category. The historical WTO case is the strongest documented example of GNH screening changing a national deliberation. When Bhutan resumed accession negotiations in July 2026, after an eighteen-year hiatus, the Cabinet decision and the inter-agency preparation were publicly documented; no contemporary GNH screening record was. That does not establish that screening was bypassed. It raises a question about scope that the public record does not answer: which classes of state decision—policies, treaties, sovereign investments, special regimes—fall within the multidimensional screen at all.

Taken together, the census shows an architecture that is **heterogeneous**: integrated in ordinary government, strongly coupled on specified dimensions for major projects, adaptively coupled in tourism, commercially governed but only now acquiring a wider-value interface at DHI, statutorily narrow at the central bank, and nested but untested at Gelephu. In this small sample, the institutions Bhutan is expanding fastest are also those whose wider-objective interfaces are youngest. That pattern is suggestive rather than a law, and the evidence of the last two years—interfaces following expansion within months rather than years—is the strongest reason not to overstate it.

2.6 The Crypto Episode: What Late Coupling Looks Like

One case shows what happens when a very large commitment is made before the interfaces that would weigh it against the whole objective engage.

Between August 2020 and April 2022, the Royal Monetary Authority acquired US$539 million of DHI securities, financing the state's entry into cryptocurrency mining. The sum was roughly 19 percent of GDP and around 40 percent of the foreign reserves held before the transaction. The authorities' rationale was coherent: Bhutan could use its renewable hydropower to diversify its economy, build capabilities relevant to future data-centre industries and earn returns on energy that was not always fully used. Mining began in 2022. The programme was publicly disclosed in April 2023.

Its consequences reached well beyond DHI's balance sheet. According to the IMF, domestic electricity consumption rose by more than 60 percent in 2023, largely because of mining, while electricity exports to India fell by about a third and dry-season imports increased. Reserves came under pressure. The IMF raised governance and transparency concerns and recommended safeguards.

The system was not open-loop. By the 2025 IMF consultation, the operation had a stop-loss strategy, the authorities were limiting further reserve exposure, and extraordinary crypto transfers for the budget were no longer envisaged. Correction happened. But its timing tells the story. Commitment came in 2020–22, public visibility in 2023, systematic external risk assessment in 2024, and observable adjustment in 2025–26. That is a coupling latency measured in years, around a decision whose scale was measured in a fifth of GDP.

The episode also contains a second mechanism. The civil-service pay revision of 2023 created a permanent recurrent cost of around Nu 6 billion a year. For its first two years, extraordinary dividends from DHI's crypto operations financed around two-thirds of it. Crypto income is volatile and was expected to taper as mining equipment aged; wages, once raised, do not fall. The IMF warned specifically against allowing crypto boom-and-bust cycles to transmit into recurrent spending. This report calls the pattern an **actuator timescale mismatch**: a fast, volatile resource used to fund a slow, sticky commitment. It does not foretell a fiscal crisis—the transfers have ended and attrition has since fallen, to around 5 percent of the civil service in 2024–25, for reasons that include but are not limited to pay. It does show that when actuators operating on different timescales are connected without an interface designed for that connection, the fast one can leave the slow one carrying a lasting obligation.

The lesson of the crypto episode is not that the investment was wrong. Reasonable people differ on that. It is that a decision of this magnitude reached the public, and Bhutan's broader architecture for weighing national choices, only after it had been made.

2.7 The Race in Time

What distinguishes a race from a lag is the evidence of timing, and the dated record is more encouraging than the crypto episode alone would suggest.

Period	Actuator power	Interface development
2020–22	RMA finances DHI's crypto investment; mining begins	No public evidence of a wider-objective interface before commitment
April 2023	Crypto programme disclosed	Public and macroeconomic scrutiny becomes possible
2024–25	Mining expands; DHI grows more central to diversification	IMF risk assessment; stop-loss and exposure limits follow
February 2024	Gelephu Mindfulness City established as an autonomous region	Charter embeds wellbeing, sustainability and GNH in its purposes
December 2024	Gelephu begins enacting its own legal system	Bhutanese law remains the default where Gelephu law is silent
August 2025	DHI launches its 10X Journey	—
February 2026	DHI describes a US$40 billion investment horizon over 10–15 years	—
April 2026	—	DHI launches a group-wide ESG system with IFC support
June 2026	Gelephu institutions continue scaling	Gelephu's audit bureau signs cooperation agreement with the national Anti-Corruption Commission
August 2026	—	Royal Audit Authority prepares statutory audit arrangements for Gelephu

Two readings follow from the table, and both must be held at once. The crypto commitment shows that high-latency coupling has occurred, at national scale. The newer expansions do not yet show the same pattern: DHI's ESG architecture followed its 10X launch by about eight months, and Gelephu has been building legal, integrity and audit interfaces within roughly two years of its founding. The evidence supports a race. It does not support the claim that interfaces are falling behind. Whether interface construction can keep pace with a decade of planned acceleration is the prospective question on which this report registers its predictions in Section 6.

2.8 The Boundary: Whose Happiness?

Everything in this report so far concerns whether Bhutan's institutions serve the objective the country has defined. There is a prior question that no interface can answer: who is included in the population whose flourishing the objective represents.

In the late 1980s and early 1990s, Bhutan tightened its citizenship regime and pursued policies of national cultural integration. The census of the period classified many residents of the south—predominantly Nepali-speaking Lhotshampa—as non-nationals. By the early 1990s, around 100,000 Lhotshampa had arrived in refugee camps in eastern Nepal. The facts of how they came to leave remain contested. Bhutan's position, as recorded by the UN refugee agency, has been that many left voluntarily or were not citizens; the refugees have maintained that they were forced out because of their ethnicity. Independent scholarship documents the tightening citizenship rules and the homogenising national-cultural project that preceded and accompanied the crisis, and human rights organisations have documented discriminatory laws, abuses and large-scale forced displacement.

The problem is historical in origin but not merely historical in consequence. More than 113,500 refugees were eventually resettled abroad, most of them in the United States; according to UNHCR, 6,365 remained in the two settlements at Beldangi and Pathari-Sanischare in 2025, still without a durable solution. The citizenship architecture of that era remains in force: the Constitution requires both parents to be Bhutanese citizens for natural-born citizenship, naturalisation requires fifteen years of lawful residence and knowledge of Dzongkha and Bhutanese culture, and the 1985 Citizenship Act allows applications to be refused without reasons. The UN Committee on the Rights of the Child has continued to raise the lack of progress for Lhotshampa refugees and children. Human Rights Watch reported in 2025 that at least 32 people it considers political prisoners remained in detention, most in cases linked to the conflicts around 1990, and UN special procedures raised allegations concerning nineteen long-term prisoners in the same year; Bhutan replied to that process. In 2025, Bhutanese refugees deported from the United States were reported to have been unable to remain in Bhutan.

None of this implies that present-day Bhutan is unchanged from the early 1990s, or that current Gross National Happiness statistics are manipulated. The national GNH surveys began long after the crisis, and they measure the resident population, as national surveys do. The point is conceptual, and it is fundamental: **the dimensionality of an objective cannot compensate for a contested population boundary.** A state can measure nine domains, or ninety, and still fail a universality test if some people's membership in the governed population is denied.

The boundary also shows that the dimensions within Gross National Happiness can pull against each other. Scholarship on Bhutan's development philosophy has described two faces of GNH: a universal account of wellbeing, and a nation-building project centred on a particular national culture. The domain of "cultural diversity and resilience" can mean the resilience of Bhutan's many cultures, or the preservation of a dominant national identity. In the crisis of the early 1990s, the nation-building face prevailed. This report treats the question of whose flourishing counts as a boundary condition that sits logically before the Interface Race, not as part of it. An architecture perfectly coupled from objective to actuator would still need to answer it.

2.9 The Cultural Operating System

Every report in this series examines the cultural operating system beneath the institutional hardware. In Bhutan's case, the culture is not merely a background to the governance architecture. It is part of the architecture.

The first layer is **Gross National Happiness** itself, which is best understood as a cultural achievement before it was a measurement system. It draws on a Buddhist understanding of the middle way—the idea that wellbeing lies in balance rather than accumulation—and it gives Bhutanese public life a shared vocabulary in which economic growth is a means rather than an end. This is why the economic turn of the 13th Plan is framed as rebalancing GNH rather than departing from it. The language constrains what can be said, and what can be said constrains, at least in part, what can be done.

The second layer is the tradition of **kidu**, the monarch's prerogative to grant relief and welfare directly to citizens, written into the Constitution. Kidu expresses an old and deeply valued form of governance: direct responsiveness from the throne to the needs of the people. It also illuminates the role royal leadership plays in the present transition. The Gelephu Mindfulness City is the King's vision, and its Authority is chaired by him; the 13th Plan describes its strategic shift as inspired by his guidance. Royal leadership therefore provides an important integrative coupling channel between Bhutan's development philosophy and its emerging economic institutions. It carries the legitimacy that allows economic transformation to be understood as a continuation of GNH rather than a challenge to it. The structural question—which this report asks without predicting any answer—is how far that coupling becomes institutionalised and reproducible as the new architecture matures, so that it rests on procedures as well as shared purpose.

The third layer is **driglam namzha**, the code of etiquette, dress and conduct that expresses Bhutanese national identity. It is a source of genuine cultural cohesion and pride. It is also, historically, part of the story told in Section 2.8: the 1989 decree enforcing national dress and etiquette is widely cited among the integration policies that preceded the Lhotshampa crisis. The same cultural resource that sustains a shared national identity has been used to define its edges. That dual face is the cultural counterpart of the boundary condition.

Bhutanese discussions of national values often add two further ideas: *tha damtshig*, the sacred commitment and loyalty between people and to one's obligations, and *ley jumdrey*, the understanding of cause and effect. Both have obvious resonance for the Interface Race. Commitment is what an interface formalises; cause and effect is what a well-designed interface tries to trace before, rather than after, a decision takes effect.

2.10 How the Mechanisms Fit Together

The mechanisms described in this section are not a list of separate problems. They form a single causal story, with one boundary condition standing outside it.

The story begins with success. Bhutan institutionalised a rich, sufficiency-based national objective and delivered broad improvements in education, health and living standards. That success, in an open country, produced the **Open-System Sufficiency Gap**: educated citizens comparing their futures with those available abroad, and leaving in large numbers. Exit was a fast signal, and **multi-rate sensing** ensured the state responded to it without waiting for the next national survey. The response was acceleration: a stronger emphasis on economic transformation, a larger and faster DHI, and the creation of Gelephu. Every acceleration increased the importance of **interface capacity**, and the **interface census** shows that Bhutan's interfaces are strongest where its institutions are oldest and youngest where its institutions are growing fastest. The **crypto episode** showed what late coupling can cost, including a **timescale mismatch** in which volatile revenue funded a permanent commitment. The dated record since then shows interface construction following expansion within months—a genuine race, not a demonstrated lag.

The signature loop introduced in Section 1 can now be restated precisely. **Compare** is the Open-System Sufficiency Gap. **Exit** is the fast signal. **Accelerate** is the growth of specialised actuators. **Recouple** is the building of interfaces. Unlike the loops in the rest of this series, it does not close on its own. Its outcome depends on whether recoupling keeps pace.

Outside this story stands the **population boundary**, which asks whose flourishing the objective counts at all. It interacts with the race only indirectly—a Gelephu or a DHI that serves Bhutan's objective perfectly would still serve the objective as the boundary defines it—but it is logically prior to everything else in this report.

The architecture can be summarised in the language of the series:

> ***Bhutan has achieved high observability of a high-dimensional objective. The Interface Race concerns whether it can maintain controllability—the authority of that objective over the institutions that change the country—as those institutions grow faster, larger and more autonomous than the ones that built it.***

That is the question the rest of this report takes up: what building interface capacity would look like, what slows it, and how Bhutan might begin.

3. What Building Interface Capacity Would Look Like

3.1 The Principle: Couple What Matters, Where It Matters, Before It Is Too Late

The first temptation, faced with the Interface Race, is to reach for the tool Bhutan already has: extend the GNH screen to everything. Every DHI investment, every Gelephu concession, every reserve decision could be scored against nine domains and 33 indicators before it proceeds.

That would be the wrong answer. It would destroy the very thing the specialised institutions were created to provide. DHI exists because commercial decisions need commercial discipline and speed. The Royal Monetary Authority's reserve management is narrow because a central bank that answered to every national goal would protect none of them well. Gelephu was created as an autonomous region precisely because investors need a legal and administrative environment that can move faster than the ordinary state. A universal screen would not strengthen the coupling between these institutions and Gross National Happiness. It would simply slow them down until the pressure that created them—the departure of Bhutan's educated young people—found another outlet.

The international benchmarks point the other way. Norway's Government Pension Fund and Singapore's Temasek are both commercially autonomous; neither government directs individual investments. Both have spent decades building explicit interfaces between that autonomy and selected wider national commitments. Neither attempts to make every investment maximise national wellbeing. What they have in common is that the boundary between commercial freedom and wider values is explicit, institutionalised and inspectable.

The organising principle for Bhutan follows:

> ***Couple what matters, where it matters, before commitment becomes irreversible.***

Not every dimension of Gross National Happiness needs an interface at every actuator. The dimensions that do are those where a decision can cause large, lasting or irreversible harm to the whole objective: reserve exposure, fiscal commitments, ecological integrity, community displacement, cultural heritage, and the transparency that allows the public to weigh these trade-offs at all. For those dimensions, and above a threshold of scale, interfaces should act before commitment rather than after it. Below that threshold, and on other dimensions, specialised institutions can and should be left to do their work.

The sections that follow apply this principle to the actuators examined in Section 2. They end with the two questions no interface design can settle on its own: how to answer the comparison that is driving exit, and whose flourishing the objective includes.

3.2 Selective Coupling: Which Decisions Need Interfaces Before Commitment

The crypto episode was not a failure of Bhutan's policy screen. It was a decision that fell outside its scope. The most useful single reform is therefore not to strengthen existing interfaces everywhere, but to define clearly which decisions must meet one before they proceed.

A workable definition would rest on four triggers. A decision would require an ex-ante interface if it:

- commits public resources above a defined share of GDP or of foreign reserves;
- creates obligations lasting beyond the current plan period, including recurrent spending;
- is difficult to reverse, such as major infrastructure, land allocation, or long-term concessions and international treaties;
- materially affects a GNH domain protected by constitutional or statutory limits, such as forest cover or cultural heritage.

For decisions that meet a trigger, the interface need not be the full GNH screen. It should be proportionate: a structured assessment of the triggered dimensions, a record of the trade-off, a reviewer independent of the deciding institution, and—unless there is a compelling commercial or security reason for delay—public disclosure before commitment or within a short, defined period afterwards.

The same definition would answer the scope question the WTO case left open. Bhutan's screening architecture was built for *policies*. The decisions now reshaping the country increasingly take other forms: treaties, sovereign investments, reserve deployments and the actions of special jurisdictions. A published statement of which decision classes fall within which interfaces would cost little and would close the ambiguity that the public record currently leaves.

3.3 Internalised Interfaces: What DHI's ESG System Could Become

Singapore's Temasek shows one route to coupling a commercial actuator to wider values: build the values into the actuator itself. Temasek assesses environmental, social and governance factors from pre-investment through post-investment, applies an internal carbon price to its decisions, sets portfolio emissions targets and reports on sustainability annually, with board-level oversight. None of this is imposed by a government screen. It is part of how the institution decides.

DHI's 2026 ESG system is a step in exactly this direction, and it deserves to be taken seriously rather than dismissed as reporting. Its value will depend on whether it becomes a decision instrument or remains a disclosure one. Four features would mark the difference:

Pre-investment integration. ESG assessment should occur before investment commitment, not only in annual reporting on the portfolio.

Disclosed materiality. DHI should publish which environmental, social and governance factors it treats as material, and why—including those derived explicitly from GNH domains such as community vitality and ecological resilience.

Consequential cases. An interface that never changes a decision is not yet an interface. Over time, DHI should be able to point to investments modified, conditioned or declined on ESG grounds.

Board accountability. Responsibility for ESG outcomes should sit with the board, with a defined link to its reporting to the Ministry of Finance as shareholder.

DHI has an advantage Temasek lacked: a national objective already specified in considerable detail. Its ESG materiality framework could draw directly on the GNH domains, translating a national philosophy into investment criteria. That would make DHI not merely a commercially disciplined investor with a sustainability policy, but a sovereign investor whose value interface is anchored in a constitutional conception of flourishing—something no benchmark institution has attempted.

3.4 Explicit Boundary Interfaces: The Norwegian Lesson

Norway shows a second route: leave the investment institution commercially focused, but draw an explicit, legislated boundary around it. Norway's fund aims at the highest return consistent with acceptable risk; its management is delegated to Norges Bank without day-to-day political direction. Around that autonomy sit ethical guidelines specifying investments incompatible with wider national norms, historically administered through an independent Council on Ethics whose recommendations were public, and an annual report from the Ministry of Finance to Parliament. Norway has recently been reviewing parts of this arrangement, but the principle—that the boundary between financial autonomy and wider values is legislated and inspectable—has not changed.

For Bhutan, the relevant boundary concerns less the ethics of foreign equity holdings than the national consequences of domestic strategic investment. A Bhutanese analogue might take the form of a published **investment boundary framework** for DHI and the RMA's strategic exposures, setting out:

- limits on the share of reserves that can be committed to any single strategic investment, and the procedure for exceeding them;
- categories of investment that require Cabinet and parliamentary notification before commitment;
- the independent body—the Royal Audit Authority, a parliamentary committee, or a new standing panel—that reviews compliance with the framework and reports publicly.

The framework would not tell DHI what to invest in. It would tell the country, in advance, where DHI's freedom ends and the wider architecture begins.

3.5 Timescale Matching: Keep Volatile Revenue Away from Permanent Commitments

The crypto-financed pay revision revealed an interface gap of a different kind: not between an actuator and the national objective, but between two actuators running on different clocks. Fast, volatile revenue funded a slow, permanent commitment.

The remedy is well established in the management of resource revenues, and Bhutan is well placed to adopt it. Revenues that are volatile, extraordinary or finite—crypto dividends, windfall hydropower earnings, one-off asset sales—should flow first into a stabilisation or savings buffer, with transfers to the budget governed by a published rule. Recurrent commitments such as wages should be financed from structural revenue, or from buffer transfers that the rule shows to be sustainable. The IMF has already recommended safeguards of this kind to prevent crypto volatility from transmitting into recurrent spending.

The principle generalises beyond crypto. As DHI's 10X programme generates new and possibly lumpy returns, and as hydropower exports expand with new projects, the temptation to finance permanent obligations from temporary income will recur. A timescale-matching rule is an interface between the fast economic actuators and the slow fiscal commitments of the state. It costs little to adopt, and it would have prevented the one mismatch this report has documented.

3.6 Institutionalising the Coupling at Gelephu

The Gelephu Mindfulness City is already building the most interesting interface architecture in Bhutan: nested, rather than isolated. National environmental law applies by default where the city's own laws are silent. National audit is being extended to it. Its own integrity bureau cooperates formally with the national Anti-Corruption Commission. Its charter writes wellbeing, sustainability and Gross National Happiness into its purposes.

The task now is to make those commitments observable and binding as the city grows. Four developments would do so:

Multidimensional outcome reporting. Gelephu should publish, alongside investment, company formation and employment, indicators for the other dimensions its charter names: ecological integrity of its forests and wildlife corridors, community outcomes for residents already living in the region, cultural continuity and wellbeing. The GNH survey methodology offers a ready foundation.

Explicit environmental law. If Gelephu enacts its own environmental framework, it should be at least as protective as the national Environmental Assessment Act, and the relationship between the two should be stated in law rather than left to default provisions.

Codified coupling. Much of the present alignment between Gelephu's economic mission and Bhutan's wider philosophy is carried through shared leadership: the King defines the city's vision and chairs its Authority. That leadership has given the project coherence and legitimacy. Over time, the same alignment should become increasingly visible in published standards, measurement, independent review and decision procedure, so that it is carried by institutions as well as by purpose. This is not a comment on present leadership. It is the ordinary maturation of any institution that is expected to outlast its founders.

Visible constraint bite. The strongest evidence that Gelephu's multidimensional commitments are real will be a decision in which one of them binds at economic cost—a corridor preserved against a profitable development, a concession conditioned on community outcomes—and is explained publicly.

3.7 Answering the Comparison, Not Only the Exit

The Interface Race is driven by a response to emigration: accelerate the institutions that create opportunity. That response is reasonable, but it is not the only one available, and it is the one that places the heaviest demands on interface capacity. Other responses act directly on the comparison that drives exit, and they require no acceleration of autonomous actuators at all.

The World Bank's migration research points to several. **Career progression in the public service** matters as much as pay: exit surveys continue to cite further study, career prospects, recognition and work–life balance as reasons for leaving, and reforms that improve progression address the comparison without adding to recurrent costs on the scale of a general pay rise. **Training and certification in critical occupations**, particularly health and education, can be designed to be recognised both at home and abroad, so that skills gained in Bhutan remain valuable wherever their holders are. And **support across the whole migration cycle**—departure, work abroad and return—can turn a one-way exodus into circulation. A diaspora of more than 65,000 people, many of them highly educated and still closely tied to Bhutan, is also a resource: for remittances, for investment, and for skills that return.

None of these measures removes the pressure for economic transformation. Bhutan needs more productive jobs, and the institutions it is building to create them may succeed. But the more of the comparison that can be answered by these slower, lower-risk measures, the less the country depends on actuators whose interfaces are still being built.

3.8 The Boundary: What a Universal Objective Would Require

No interface design addresses the question raised in Section 2.8: whose flourishing Gross National Happiness counts. It would be presumptuous for an external report to prescribe how Bhutan should resolve a history that remains contested and painful on all sides. But the logic of the objective itself points in a clear direction, and it can be stated without adjudicating the past.

A national objective that aspires to universality needs a boundary that can be examined and defended. Three steps would move in that direction. The first is a **durable solution for the remaining refugees**—more than six thousand people still in settlements in eastern Nepal, and the smaller number of deportees and stateless people whose status has become newly uncertain—developed with Nepal and UNHCR, and including a credible pathway for verified return where that is sought. The second is a **review of the long-term detention cases** raised by UN special procedures and human rights organisations, through a process whose findings are made public. The third is attention to the **interpretation of the cultural domain** within Gross National Happiness itself: making explicit that cultural diversity and resilience include the languages, faiths and practices of all the communities within Bhutan's borders, and measuring them accordingly.

These steps would not rewrite history. They would align the boundary of the objective with the universality its language claims.

3.9 Cultural Software Update: From Guardianship to Architecture

Every transition in this series ultimately requires the cultural operating system to evolve without losing its strength. Bhutan's is unusually well suited to the task, because the idea at its centre—that development must serve the whole of a good life, not a single measure of it—is exactly what interfaces exist to protect.

What must change is how that idea is carried. For half a century, Gross National Happiness has been carried largely by guardianship: by the vision and commitment of successive monarchs, by the moral authority of Bhutanese Buddhist culture, and by a small, closely connected elite that shared the philosophy and could apply it through personal judgement. That form of carriage served Bhutan remarkably well while its institutions were few and its economy small. It is harder to sustain when the institutions multiply, speed up and must attract foreign capital and talent that do not share the culture.

The evolution this report proposes is from guardianship to **architecture**: from a philosophy carried by the people who hold it to one embedded in the procedures of every institution powerful enough to affect it. *Tha damtshig*, the sacred commitment, becomes a published framework that says in advance what each institution is bound by. *Ley jumdrey*, the attention to cause and effect, becomes an assessment made before a decision rather than a correction made after it. *Kidu*, the throne's direct care for the people, is complemented by institutions that extend the same care as a matter of routine.

This is not a departure from Gross National Happiness. It is how a philosophy survives the growth of the state that serves it: by being written into the machinery as well as the hearts of its guardians.

4. What Slows Interface Building

4.1 Friction, Not Immunity

Every report in this series has examined a political immune system: the institutions, interests and norms that protect an existing order from challenge. In most cases that system defends a dysfunctional equilibrium—Germany's bureaucratic inertia, Japan's stability bias, the legitimacy of Korea's narrow ranking.

Bhutan's case is different, because the Interface Race is not a trap that something is defending. No constituency in Bhutan argues against connecting DHI or Gelephu to Gross National Happiness. The Royal Government, DHI, the Gelephu Authority and the country's oversight institutions all describe their work in its terms, and the evidence of the past two years shows interfaces being built. What exists instead is **friction**: forces that make interfaces slower, thinner or later than the actuators they are meant to govern, even when everyone involved wants them to exist.

The distinction matters for how reform should be approached. An immune system has to be outmanoeuvred. Friction has to be reduced. The forces described below are not opponents of Gross National Happiness. Most of them are legitimate concerns in their own right, and several are strengths of Bhutanese governance that happen to cut against the building of formal interfaces.

4.2 The Speed Imperative

The strongest source of friction is the pressure that created the race in the first place. When educated young people are leaving at a rate of thousands a month, schools are rehiring retired teachers and the health ministry has warned it may need to recruit doctors and nurses from abroad, every delay has a visible cost. An interface that requires assessment before commitment looks, in that environment, like an obstacle standing between the country and the jobs that might persuade people to stay.

This is not an illusion. Interfaces do take time, and some of the decisions Bhutan needs to make are genuinely urgent. But the speed imperative distorts the calculation in a predictable way. The cost of delay is immediate, concentrated and visible: a project postponed, an investor frustrated, a month of departures continuing. The cost of late coupling is deferred, diffuse and often invisible until it arrives: a reserve exposure discovered later, an obligation funded by revenue that ends, a wildlife corridor closed by a sequence of individually reasonable approvals. Under pressure, any system will overweight the first kind of cost and underweight the second.

The crypto episode shows the pattern clearly. Its scale and speed were part of its rationale, and the interfaces that eventually engaged—public disclosure, IMF review, exposure limits—arrived only after the commitment was made. The speed imperative did not cause that sequence, but it made it easier to accept.

4.3 Commercial Confidentiality

The second source of friction is a legitimate norm that limits transparency. Commercial investment requires confidentiality. A state investor that disclosed its intentions before completing a transaction would pay more and win less. Foreign investors considering Gelephu want to negotiate privately. Intergovernmental agreements on hydropower—the backbone of Bhutan's public finances and its relationship with India—are negotiated between governments, not in public.

Each of these is a reasonable practice. Together, they mean that the actuators Bhutan is growing fastest operate in the domains where transparency before commitment is hardest to achieve. This is precisely why the benchmark institutions separate two things that are often confused: confidentiality about individual transactions, and transparency about the rules that govern them. Norway does not publish its trades before making them, but it publishes the ethical boundaries its fund may not cross. Temasek does not disclose negotiations, but it publishes its sustainability framework and its carbon price. Confidentiality of the deal need not mean confidentiality of the interface.

In Bhutan, that separation is not yet fully drawn. The absence of a public record of how the renewed WTO accession was assessed, or of how the original crypto investment was weighed against wider objectives, reflects not secrecy for its own sake but the absence of a published framework saying which decisions must leave such a record. Until that framework exists, confidentiality will continue to spill over from the transaction to the trade-off.

4.4 Legitimacy That Makes Scrutiny Feel Unnecessary

The third source of friction is the most delicate, because it arises from one of Bhutan's great strengths.

The Bhutanese monarchy is the author of Gross National Happiness, the initiator of the country's democratic transition, and the source of the vision behind the Gelephu Mindfulness City. Its legitimacy is deep, and it has been earned. That legitimacy gives the current transition a coherence few rapidly transforming countries enjoy: economic transformation is understood within Bhutan as a continuation of the national philosophy, not as a betrayal of it.

The same legitimacy creates a subtle form of friction. When an initiative carries royal endorsement, formal scrutiny of it can feel unnecessary—or, in a culture that places high value on respect and deference, inappropriate. The question "has this been weighed against every dimension of Gross National Happiness?" sounds redundant when the initiative comes from the institution most identified with Gross National Happiness itself. This is not a matter of anyone discouraging scrutiny. It is that the very trust that makes the transition coherent reduces the perceived need for procedures that would make its coherence visible.

The implication is not that royal initiatives should be treated with suspicion. It is that interfaces should be understood as a way of *carrying* the vision rather than questioning it: as the means by which a philosophy held by its guardians becomes durable in institutions that will outlast any individual. The strongest case for formal interfaces around Gelephu is not distrust of its founding vision. It is fidelity to it.

4.5 Small-State Capacity

The fourth source of friction is arithmetic. Bhutan has fewer than 800,000 people and a civil service of around 31,000. Every interface proposed in Section 3—a trigger-based assessment process, an investment boundary framework, independent review of strategic exposures, multidimensional outcome reporting at Gelephu, an ESG function at DHI—needs people with specialised skills to staff it. They are exactly the people the country is losing: the educated, the technically trained, the civil servants in their late twenties and early thirties.

This creates a cruel feedback. The emigration that drives acceleration also drains the capacity needed to build the interfaces that acceleration requires. A small state that loses a large share of its skilled public servants in a single year cannot simultaneously expand its oversight bodies at the pace its new institutions are growing.

Smallness also brings informality. In a society where senior officials, investors, regulators and auditors often know one another personally, much coordination happens through relationships rather than procedures. That informality is efficient and often admirable. It also means that the absence of a formal interface can go unnoticed, because the people involved feel confident that the right considerations are being weighed. Sometimes they are. A formal interface makes it possible to show it.

4.6 The Boundary Question

The fifth source of friction concerns the matter raised in Section 2.8, and it operates differently from the others. The question of whose flourishing Gross National Happiness counts is politically and emotionally difficult in Bhutan. The events of the early 1990s are understood very differently inside and outside the country; they touch on national security, national identity and the integrity of the state; and they are rarely discussed in Bhutanese public life.

That difficulty makes it hard to build the kind of interface that would bring the boundary within the objective's scope—an examined definition of the population whose flourishing is measured, or a plural interpretation of the cultural domain. It is easier to measure the resident population carefully than to ask who should be part of it. The result is that the most fundamental dimension of the objective's coverage is also the one least open to institutional review.

4.7 Who Benefits from Thin Interfaces—Named Honestly

The series names the beneficiaries of each country's immune system. Bhutan's friction has beneficiaries too, and they deserve the same candour, with one qualification that is peculiar to this case: nearly all of them are acting in what they believe to be the national interest.

Institutions that value speed benefit from interfaces that act after rather than before commitment. DHI's management, pursuing a tenfold growth mandate, faces fewer delays when its investment decisions do not require wider assessment. That is not a corrupt interest; it is the interest of an institution doing what it was asked to do.

Investors seeking certainty and discretion, particularly in Gelephu, benefit from arrangements negotiated privately and approved quickly. Their presence is what the city was designed to attract.

Governments facing electoral cycles benefit from visible action that can be completed within a term. Interfaces that slow decisions push their benefits beyond the next election; their costs arrive within it.

Partners in long-standing bilateral arrangements, above all in hydropower, benefit from the stability of agreements negotiated government to government, outside ordinary public review.

And, most honestly, **citizens who want jobs now** benefit from speed. The young graduate weighing Australia against a new job in Gelephu does not want the job delayed by an assessment process. Any account of friction that treats the demand for speed as illegitimate misunderstands why Bhutan is accelerating in the first place.

These interests overlap with the interests of the country. That is what makes the friction hard to reduce. No one needs to oppose Gross National Happiness for its interfaces to grow more slowly than its actuators. It is enough that each actor, facing real pressure, prefers the decision now to the assessment first.

4.8 The Narrative Strategy

How interface building is framed will determine whether it is experienced as delay, as distrust, or as fidelity. Five principles follow from the analysis.

Frame interfaces as instruments of Gross National Happiness, not constraints upon the economy. An interface is how DHI and Gelephu demonstrate that they serve the national philosophy. Presented that way, it strengthens their legitimacy rather than questioning it.

Frame interfaces as a source of credibility with investors. The benchmark institutions show that explicit interfaces around autonomous investment are not a cost to commercial success but part of its foundation. International capital values predictable governance. A published investment boundary framework, a genuine ESG process and transparent outcome reporting at Gelephu are assets in attracting the investors Bhutan wants, not obstacles to them.

Frame institutionalisation as fidelity to the founding vision. The case for codifying the coupling at Gelephu is that a vision written into law and procedure endures beyond the people who hold it. That is a tribute to the vision, not a hedge against it.

Lead with Bhutanese evidence. The tourism fee showed that Bhutan can adjust an economic parameter under pressure while keeping its purpose intact. Environmental assessment shows that pre-commitment interfaces can bind. The rapid construction of DHI's ESG system and Gelephu's integrity institutions shows that interface building can keep pace. These are Bhutanese precedents, not imported prescriptions.

Distinguish the deal from the rule. Confidentiality about individual transactions is legitimate. Transparency about the rules governing them is what makes the confidentiality trustworthy. Saying so explicitly would dissolve much of the apparent conflict between speed and accountability.

The friction that slows interface building cannot be removed entirely, and should not be. But most of it arises from actors who share the objective the interfaces serve. The task is not to overcome them. It is to show them that the interfaces are theirs.

5. Working with the Grain: Transition Architecture for Bhutan

5.1 The Principle: Start Where Coupling Already Works

Bhutan does not need to import a model of interface building. It already has working examples, and the transition should begin from them.

Environmental assessment shows that an interface can act before commitment and bind, across the whole kingdom, including inside the country's most autonomous new jurisdiction. The tourism fee shows that a system holding several objectives can adjust a parameter under economic pressure while keeping its purpose intact, publicly and quickly. DHI's ESG system and Gelephu's integrity and audit arrangements show that interfaces can be built within months of the expansion they are meant to govern. Each of these is a Bhutanese precedent, and each demonstrates a different property the Interface Race requires: binding strength, adaptive speed, and construction at pace.

The transition should also respect the way Bhutan changes. Its largest transformations have combined two features rarely found together. They have been initiated decisively from the centre—the democratic transition of 2008 came from the throne, the civil-service transformation of 2022 followed royal initiative, and the Gelephu project is the King's own vision. And they have been carried out deliberately, with an emphasis on balance and continuity that reflects the middle-way philosophy at the heart of Gross National Happiness. Bhutan does not change by drift, and it does not change by rupture. It changes by considered initiative.

That pattern suggests the shape of the transition. It should be initiated clearly, framed in the language of the national philosophy, begun where coupling already works, and extended step by step to the actuators where it is youngest.

5.2 The Trojan Horse: GNH Materiality

Every transition architecture in this series has identified a Trojan Horse: a mechanism that carries a transformative payload inside familiar packaging, so that it is welcomed rather than resisted. In Korea, it was fairness itself. In Japan, it was *kaizen* applied to governance.

In Bhutan, the Trojan Horse is **GNH materiality**: the use of an internationally familiar instrument—the environmental, social and governance materiality framework that investors, lenders and development partners already expect—to carry Bhutan's own national objective into its commercial actuators.

The packaging is ESG. It is the language of the International Finance Corporation, of global investors, and of the frameworks DHI adopted in 2026. No investor will object to it; many will require it. The payload is Gross National Happiness. When DHI and the Gelephu Authority decide which environmental, social and governance factors are material to their decisions, they can draw those factors from the GNH domains: ecological diversity and resilience, community vitality, cultural diversity, good governance, time use, psychological wellbeing. The result would be an ESG framework that satisfies international expectations and, at the same time, carries the national objective into the investment process.

This does something neither the GNH screen nor a conventional ESG framework can do alone. The GNH screen was built for policies and does not easily reach commercial decisions. A conventional ESG framework reaches commercial decisions but reflects international priorities rather than Bhutanese ones. GNH materiality reaches the actuator *and* carries the objective. It also answers the friction described in Section 4: it is fast enough for commercial use, compatible with confidentiality, and presented as part of what makes DHI and Gelephu credible to the investors they want to attract.

5.3 Safe-to-Fail Pilots

Three pilots would test the transition architecture at low cost and low risk, each designed to generate evidence that can be published whether it succeeds or not.

Pilot 1: GNH materiality at DHI. Apply a GNH-anchored materiality assessment to all new DHI investments above a defined size for a two-year period, with the assessment completed before commitment and the aggregate results reported publicly. Success would be measured not by the number of assessments completed but by whether any investment was modified, conditioned or declined as a result, and by whether the process added unacceptable delay. If it adds delay without changing decisions, it should be redesigned. If it changes decisions without significant delay, it has demonstrated its value.

Pilot 2: a Gelephu baseline. Before Gelephu's largest developments take shape, conduct a baseline survey of the region using the national GNH methodology, covering the residents and communities already living there, alongside ecological baselines for its forests, rivers and wildlife corridors. This is the single most time-sensitive recommendation in this report. A baseline taken now can never be reconstructed later. Repeated at intervals, it would allow Bhutan—and the world—to see whether the most ambitious economic project in its history is advancing the nine domains or trading some of them for others. It would turn the prospective test in this report into a measured one.

Pilot 3: a decision-class register. For twelve months, require every Cabinet decision above defined thresholds—resources committed, duration of obligation, irreversibility—to record which interface, if any, it passed through before commitment. The register need not initially be public. Its purpose is to show where the scope of existing interfaces ends, and to give the government its own evidence on how often major decisions fall outside them.

Each pilot is voluntary in design, inexpensive, and informative whatever its outcome. None slows the economic transformation Bhutan is pursuing. Each makes the interface side of the race visible.

5.4 Upgrading the Slow Sensor

The national GNH survey is the richest instrument Bhutan has, and it can be strengthened to observe the pressure that is driving the race.

The next survey wave could add a small set of questions on migration intentions, perceived career prospects, and the comparisons respondents draw between opportunities at home and abroad. It would then observe the Open-System Sufficiency Gap directly rather than inferring it from outside data. It would allow Bhutan to see whether its sufficiency is holding among the people most likely to leave, and whether the policies aimed at them are changing their calculation.

Between waves, a lighter annual pulse survey drawing on a subset of GNH indicators—particularly those for time use, psychological wellbeing and governance, where the youngest and most urban Bhutanese showed the sharpest deterioration—would narrow the gap between the slow sensor and the fast disturbances it must help interpret. Bhutan already operates a multi-rate architecture. This would give the slow reference a faster pulse without replacing it.

5.5 Scaling by Attraction

Interfaces spread most effectively when they are seen to work. The transition should be designed so that each successful interface creates pressure for the next.

The most powerful source of that pressure is investor credibility. If DHI's GNH materiality framework and Gelephu's outcome reporting become recognised as evidence of sound governance, they will strengthen Bhutan's position with the international investors, lenders and development partners it needs. Other state enterprises would then have reasons of their own to adopt them. Gelephu, competing with other special economic zones for capital, would find in credible multidimensional reporting a genuine distinction. A zone that can demonstrate that its growth is ecologically and socially sound offers investors something few competitors can.

Domestic pressure matters too. The tourism fee adjustment was public and explained; the result was an adaptive policy that retained public confidence. If the interfaces built around DHI and Gelephu are similarly public in their rules and results, they will create a standard against which other institutions are measured. The state's role is to publish, to explain, and to hold up the institutions that do it well.

5.6 Sequencing

The transition architecture does not need to wait for any one element to be complete before beginning the next, but the order of priority matters.

First, make the landscape visible. The actuator interface register proposed in Section 6 establishes where Bhutan's major institutions sit: their mandates, their interfaces, their oversight and their record of correction. It is the foundation for everything else and changes nothing for any institution.

Second, adopt the timescale-matching rule. Keeping volatile revenue away from permanent commitments requires only a published fiscal rule. It addresses the one documented mismatch directly and prevents its recurrence as DHI's returns grow.

Third, build internal interfaces where the actuators are growing fastest. GNH materiality at DHI and the baseline and outcome reporting at Gelephu are the priority, because these institutions' power is expanding most quickly.

Fourth, draw the boundary frameworks. The investment boundary framework for strategic exposures and the published statement of which decision classes require which interfaces formalise what the earlier stages will have tested.

Two tracks run in parallel, on their own timelines. The measures that answer the comparison directly—career progression, portable certification, support across the migration cycle—should proceed alongside all of the above, because every reduction in exit pressure reduces the pace at which actuators must accelerate. And the boundary question should be pursued on its own terms, not as the last step in a sequence. Its resolution does not depend on the interface architecture, and it should not wait for it.

5.7 The Role of the Centre: Make the Coupling Durable

The centre's most important contribution is to ensure that the interfaces outlast the moment that produced them.

Bhutan has an advantage most countries in this series lack. The monarchy provides a continuity of vision across elected governments, and Gross National Happiness has survived every change of ruling party since 2008. That continuity has allowed Bhutan to hold a long-term objective steadily through political cycles that elsewhere tend to fragment it.

The task is to extend the same continuity to the interfaces themselves. Four measures would do so. **Legislate the frame, not the details**: place the decision-class triggers, the timescale-matching rule and the requirement for GNH materiality at state investors on a statutory basis, so that they cannot be quietly abandoned when pressure returns. **Strengthen independent review**: give the Royal Audit Authority, or a standing parliamentary committee, an explicit mandate to report on the interfaces around strategic investments and special jurisdictions, not only on their financial compliance. **Publish the rules**: make the frameworks governing DHI, the Royal Monetary Authority's strategic exposures and Gelephu's multidimensional commitments public, even where individual transactions remain confidential. **Protect the capacity**: treat the specialists who staff these interfaces as critical personnel in the civil service retention strategy, because interfaces without people are only paper.

The centre should also resist one temptation. Faced with the complexity of multiple actuators, it may be drawn to create a single new body to oversee them all. That would add another layer to an architecture whose strength is distributed responsibility. The better course is to make each actuator responsible for its own interface, to publish the rules that bind them all, and to give existing oversight institutions the mandate and capacity to see across them.

Bhutan built one of the world's most thoughtful answers to the question of what a country should value. The transition architecture proposed here asks it to do something it has already shown it can do: take a vision held by its guardians and make it the operating system of its institutions.

6. A Concrete First Step: The Actuator Interface Register

6.1 The Logic of the First Step

The Interface Race is a structural condition, and no single measure will settle it. The first step should therefore not be the most ambitious reform this report has described. It should be the one that makes every later reform easier: low in cost, unthreatening to the institutions it concerns, and capable of producing the evidence that the race itself requires.

Two tempting candidates fail that test. A new oversight body with authority over DHI, the Royal Monetary Authority and Gelephu would add a layer to an architecture whose strength lies in distributed responsibility, and it would provoke exactly the friction—concerns about speed, confidentiality and deference—described in Section 4. An extension of the GNH screen to all commercial decisions would slow the institutions Bhutan has created precisely to move quickly.

The first step proposed here does neither. It changes no institution's mandate and delays no decision. It asks a question that Bhutan, for all the care it has taken in defining what it values, has never systematically answered:

> ***Which institutions can change the country, and what connects each of them to the whole of what the country values?***

The answer at present is distributed across charters, acts, annual reports, audit schedules and board papers. No single place records it. The **Actuator Interface Register** would be that place.

6.2 What the Register Would Record

For each institution above a defined threshold of power, the register would record, in a standard format, the properties this report has used to describe interface capacity.

Mandate. What the institution is formally designed to achieve, and under what legal instrument: statute, charter, company law or intergovernmental agreement.

Power. Indicators of the institution's capacity to change national outcomes: the resources it commits, its share of revenue or of reserves, the territory or sectors it governs, and the degree of its operational autonomy.

Ex-ante interfaces. What assessments, approvals or notifications its major decisions must pass through before commitment, which dimensions of Gross National Happiness they cover, and whether they are advisory, procedural or binding.

Oversight. Which independent bodies—the Royal Audit Authority, Parliament, the Anti-Corruption Commission, external auditors, regulators—review its decisions, and what they review: legality, finances, or wider outcomes.

Transparency. Whether the rules governing its decisions are published, and whether the trade-offs in its major decisions become visible before commitment, shortly after, or only much later.

Correction record. Cases in which its decisions have been revised in response to adverse evidence, and how long the correction took.

Coverage map. A simple matrix showing, for each institution, which GNH domains are covered by an interface before commitment, which only after, and which not at all.

The coverage map would be the register's most useful single output. It would show at a glance where Bhutan's objective reaches its institutions before they act, where it reaches them only through later audit, and where it does not reach them at all. In the language of this report, it would make the controllability of the objective as visible as its observability already is.

6.3 Which Institutions

The register should begin small and grow. A reasonable initial threshold would include any institution that commits resources exceeding a defined share of GDP in a year, holds or deploys a significant share of the country's foreign reserves, governs a significant share of its territory, or contributes a significant share of domestic revenue.

On the evidence of this report, the initial register would include:

- the ordinary national budget and the ministries that implement it;
- Druk Holding and Investments and its largest portfolio companies;
- the Royal Monetary Authority, in respect of reserve deployments and strategic exposures;
- the hydropower system, including the bilateral arrangements that govern its major projects;
- the Gelephu Mindfulness City Authority;
- international commitments as a class, including treaty accessions and major bilateral agreements.

Institutions could be added as they grow. The register would also complement the internal decision-class register piloted in Section 5.3: one records which decisions pass through which interfaces; the other records which institutions are connected to the objective, and how.

6.4 Institutional Design

The register's value depends on its credibility, and its credibility on who maintains it.

It should be maintained by an institution with constitutional standing and existing access to the actuators it describes. The Royal Audit Authority is the natural candidate. It already audits the ordinary budget, DHI and hydropower projects, and it is preparing statutory audit arrangements for Gelephu. Maintaining the register would extend its mandate from asking whether institutions complied with their rules to recording what those rules are and what they cover. The Centre for Bhutan and GNH Studies, which designs and administers the national GNH survey, could contribute the methodology for the coverage map, ensuring that the register speaks the same language as the national objective.

The register should be published annually, presented to Parliament alongside the Royal Audit Authority's annual report, and require a response from the Cabinet to its principal findings—without binding the Cabinet to act on them. Each institution should prepare its own entry, with the maintaining authority verifying it. That design places the burden where the knowledge is, keeps the cost low, and gives each institution ownership of how its interfaces are described.

The register would not require access to confidential commercial information. It records rules, procedures and outcomes, not negotiations. That distinction, drawn in Section 4, allows it to be public without compromising the confidentiality that commercial actuators legitimately need.

6.5 Registered Predictions

This report offers a diagnosis that evidence should be able to weaken or overturn. It therefore registers five predictions now, before their outcomes are known. The Actuator Interface Register would provide the means to test several of them.

P1 — DHI's interface matures beyond reporting. If the present period reflects institutional maturation rather than persistent lag, DHI's ESG system will, within a few years, show explicit pre-investment procedures, disclosed materiality criteria, and at least one consequential investment modified, conditioned or declined on environmental, social or governance grounds. If it remains retrospective reporting while DHI's investment power expands, the case for concern strengthens.

P2 — Gelephu's constraints bind. Gelephu will publish outcome measures beyond investment, company formation and employment, covering ecological integrity, community outcomes, cultural continuity and wellbeing; and at least one development decision will visibly demonstrate that such a constraint binds at economic cost. If economic expansion repeatedly overrides these commitments without transparent justification, the case for concern strengthens.

P3 — The scope of screening is clarified. Bhutan will clarify whether contemporary treaty accessions, such as the WTO process resumed in 2026, fall within the GNH screening architecture, another whole-of-government assessment, or a different decision class. Publication of a screening or mitigation record would weaken the concern that high-impact decision classes fall outside the objective's interfaces; persistent ambiguity would strengthen it.

P4 — Interfaces grow with actuators. As DHI, Gelephu and other economic actuators grow in capital, autonomy and speed, their transparency, pre-commitment review, independent oversight and correction speed will strengthen at least comparably. If they do, the Interface Race will have been won, and this report's central concern will have resolved itself. If actuator power grows substantially faster for a sustained period, the race will have become a lag.

P5 — The coupling becomes institutional. Gelephu's multidimensional alignment will become increasingly visible in law, published standards, measurement, oversight and decision procedure, rather than resting primarily on shared leadership and purpose. This prediction makes no claim about the quality of present or future leadership. It concerns only how the coupling is carried.

Each prediction can fail. That is their purpose. If all five are borne out in Bhutan's favour, this report's concern will have been a description of a successful transition rather than a warning—and Bhutan will have demonstrated something rarely shown anywhere: that a rich national objective can keep command of the machinery built to realise it, even under the pressure of a globalising economy.

6.6 What the Register Would Not Do

The register would not rank Bhutan's institutions or judge their performance. It would not second-guess commercial decisions, publish confidential negotiations, or require any institution to maximise every dimension of Gross National Happiness. It would not create a new authority over DHI, the Royal Monetary Authority or Gelephu. And it would not resolve the boundary question raised in Section 2.8, which lies outside any register of institutional interfaces.

Its purpose is narrower: to make visible, in one place and in a common language, how the objective reaches the institutions that act on its behalf. What Bhutan then chooses to do with that visibility is a matter for its government, its Parliament and its people.

6.7 How to Measure Success

The register's own success should be judged over five years, by whether it changes how Bhutan understands and governs its institutions rather than by any immediate change in their behaviour.

Five markers would show that it is working. The first register has been published and debated in Parliament. Its coverage map has identified at least one interface gap that has since been addressed. The major new actuators—DHI's expanding portfolio and the Gelephu Authority—have entries that grow more detailed and more complete over successive years. At least one correction has been recorded and explained publicly with the help of the register's framework. And public discussion of Bhutan's economic transformation has begun to ask not only whether new institutions are growing, but whether what connects them to Gross National Happiness is growing with them.

That last marker matters most. Bhutan's international reputation rests on having asked, earlier and more seriously than almost any other state, what a country should aim for. The register would add a second question to its public life, as necessary in an age of fast-growing institutions as the first was in an age of fast-growing economies: not only what Bhutan values, but whether everything powerful enough to change Bhutan answers to it.

7. Coda: The Keeper of the Whole at the Frontier of Speed

7.1 The Wealth That Matters

Bhutan is rich in something most states never attempt to build: a shared, explicit and carefully measured account of what a country is for. It did not arrive at that account by accident. It chose, deliberately and against the grain of its century, to define national progress as the securing of conditions for a good life across many dimensions at once—health and education, but also time, community, culture, governance, the natural world and the inner life of its people. It wrote that choice into its constitution. It built instruments to measure it, and it kept those instruments honest by designing them around sufficiency rather than accumulation.

That is a larger achievement than its international reputation usually conveys. Much of the governance literature, and most of this series, is a catalogue of what happens when societies compress their purposes onto too few measures: the tournament that consumes Korea's young, the growth figures that blinded others to what they were losing. Bhutan is one of the few countries that set out, from the beginning, to refuse that compression. On the evidence of this report, it largely succeeded.

The wealth that matters in the next era is not only the ability to define a rich objective. It is the ability to keep that objective in command of the institutions that must now be built—faster, larger and more autonomous than any Bhutan has known—so that its people have reasons to stay.

7.2 The Shift

For half a century, Gross National Happiness was carried by guardianship. Successive monarchs articulated it. A small public service shared it. A culture shaped by Buddhist ideas of balance gave it meaning. The institutions that could change the country were few, closely connected and slow enough for personal judgement and shared purpose to hold them to the whole.

That arrangement is now being tested by Bhutan's own success. An educated generation has acquired the capacity to compare its prospects with those abroad, and many have chosen to leave. The state has responded, reasonably, by building institutions capable of creating opportunity quickly: a state investor with a tenfold growth mandate, an autonomous city covering a tenth of the country, strategic uses of its hydropower and its reserves. These institutions must move at the speed of global capital. They cannot all be carried by guardianship alone.

The shift this report describes is therefore not from Gross National Happiness to growth. The evidence does not show that, and Bhutan has given no sign of wanting it. The shift is in how the objective is carried: from guardianship to architecture—from a philosophy held by the people who lead to one written into the interfaces of every institution powerful enough to affect it. That shift is already under way. DHI's new ESG system, Gelephu's integrity and audit arrangements, and the continued reach of national environmental law are its first visible forms. The question is whether it can proceed as quickly as the institutions it must govern.

7.3 The Wider Significance

Bhutan is small, but the problem it faces is not. Every state now builds institutions that act faster and at larger scale than its accountability structures were designed for: sovereign funds and state investors, special economic zones with their own laws, central banks with expanded balance sheets, and, increasingly, automated systems that decide at machine speed. Everywhere, the capacity to change reality is growing faster than the architecture that connects it to what societies say they value. This series has examined a version of the same pattern in its report on frontier AI organisations, where the velocity demanded by competition pulls against the coherence needed to steer what is being built.

What makes Bhutan significant is that it faces this problem with an unusually clear account of what the institutions should serve. Most states cannot say precisely what their objective is, so they cannot say whether their institutions are drifting from it. Bhutan can. That makes it an unusually clean test of a general question: can a well-specified objective keep command of fast, specialised, autonomous machinery? If Bhutan can show that it can—through interfaces that are explicit, proportionate and built at pace—it will have produced a model that states with far vaguer objectives will need. If it cannot, the lesson will be sobering for everyone: that even a country that knew exactly what it valued could not keep its fastest institutions answering to it.

The comparison with the report that preceded this one is instructive. Korea's difficulty lies in its objective: a society whose many values have collapsed, in practice, onto a few rankings, pursued by strong institutions aimed at the wrong variable. Bhutan's difficulty, if it becomes one, will lie in the connection between a rich objective and its machinery. Together they suggest that good governance requires both: an objective wide enough to see what matters, and interfaces strong enough to make the machinery answer to it.

7.4 The Honest Conclusion

This report has proposed a diagnosis, and it must be honest about what the evidence establishes and what it leaves open.

The evidence establishes that Bhutan has institutionalised an unusually rich, multidimensional national objective, and that its recent economic turn has been framed and pursued within that objective rather than against it. It establishes that emigration of educated young people, disproportionately from the civil service, has created intense pressure for faster economic transformation. It establishes that Bhutan is responding by expanding the scale and autonomy of specialised economic institutions, above all DHI and the Gelephu Mindfulness City. It establishes that the interfaces connecting Bhutan's institutions to its objective vary substantially in strength, coverage and timing—strongest in ordinary government and environmental regulation, adaptive in tourism, and youngest around the actuators growing fastest. And it establishes that one major commitment, the cryptocurrency investment financed from the country's reserves, was made before interfaces weighing it against the wider objective engaged, and that its revenues were later used to fund a permanent obligation.

The evidence equally establishes that interfaces are being built at pace. DHI's ESG system followed its 10X programme within months; Gelephu remains within the reach of national environmental law and national audit, and is building its own integrity institutions. The race, on the evidence, is being run.

Much remains open. Whether DHI's ESG system will change investment decisions or merely report on them is not yet known. Whether Gelephu's multidimensional commitments will bind when they become costly cannot be known until they are tested. The scope of the GNH screen in the age of treaties, sovereign investment and special jurisdictions has not been publicly clarified. Whether the coupling between the national philosophy and the new institutions will become increasingly institutional is a question for the coming decade. And the question of whose flourishing the objective counts—the question of the Lhotshampa who remain outside the country, and of the boundary drawn around the people whose happiness is measured—remains unresolved, and lies outside what any interface can settle.

This report does not diagnose failure. It identifies a race, registers predictions by which its outcome can be judged, and proposes a modest instrument—the Actuator Interface Register—by which Bhutan can see for itself how the race is going.

7.5 A Final Word

In a hydropower-rich valley, machines run through the night, turning water into computation and computation into revenue. In Thimphu, a teacher opens a pay slip that is larger than it was a few years ago, and wonders whether it is large enough. At Paro, a young engineer boards a flight to Australia. At Gelephu, surveyors mark out a city that does not yet exist, in a forest that has always been there.

Each of these scenes is part of the same story. A small country that has thought more carefully than almost any other about what a good life requires is building, at speed, the machinery it hopes will allow more of its people to live that life at home. The machinery is necessary. The question is whether it will remain answerable to the vision that made it worth building.

Bhutan's first great achievement was to decide what a country should value. Its next may be harder, and more widely instructive: to show that a society can build fast, powerful institutions without letting them forget what they are for. If it succeeds, the world will have learned that a rich objective can survive the building of a modern economy. If it does not, the objective will not disappear from the constitution or the speeches. It will simply stop steering.

The keeper of the whole now stands at the frontier of speed. What it does next will matter not only to the teacher deciding whether to stay, but to every society learning, as Bhutan is, that knowing what it values is only the beginning of making its institutions serve it.

Appendix A: Value Systems and Policy Mindsets — A Guide for the Bhutanese Context

A Note on This Appendix

The main body of this report speaks the language of governance architecture: objectives, actuators, interfaces and latency. This appendix offers a complementary lens for readers who wish to understand the value-system dynamics beneath the Interface Race. It draws on Spiral Dynamics integral theory, simplified. It is optional, but it makes the report's underlying logic transparent.

A.1 The Basic Insight

Institutions and political cultures operate from different centres of gravity in how they understand governance, resources and change. These are not personality types or party affiliations. They are underlying value systems—ways of constructing what feels real, legitimate and important—each a coherent response to particular life conditions, each with characteristic strengths and blind spots. What follows is a simplified map of the systems most relevant to Bhutan.

A.2 The Value Systems in the Bhutanese Arena

Kinship and the Sacred Landscape (sometimes called "Purple"). Much of rural Bhutan remains shaped by village community, household ritual and a landscape understood as inhabited by protective deities. Mountains, lakes and forests carry sacred meaning. Strengths: deep attachment to place, community reciprocity, and an ecological restraint rooted in reverence rather than regulation—part of the reason Bhutan's forests have survived. Blind spot: a world organised by belonging can have difficulty extending belonging to those defined as outside it.

Order and Sacred Duty (sometimes called "Blue"). The monastic tradition, the monarchy, *driglam namzha* and the constitutional order express a value system built on legitimate authority, shared rules and duty. Strengths: continuity, discipline, a shared national identity, and a moral framework within which Gross National Happiness could be articulated and sustained for half a century. Blind spots: a tendency to equate cohesion with uniformity, as the integration policies of the late 1980s showed; and a deference to legitimate authority that can make formal scrutiny of its initiatives feel unnecessary.

Achievement and Strategy (sometimes called "Orange"). DHI's 10X Journey, the Gelephu Mindfulness City, the crypto investment, the Royal Civil Service Commission's call for an "enlightened entrepreneurial bureaucracy" and the aspiration of a High-Income GNH Economy express a value system of strategic ambition, measurable growth and competition in global markets. Strengths: dynamism, speed, and the capacity to create the opportunities that might persuade educated Bhutanese to stay. Blind spots: a tendency to treat what can be measured in money as what matters most, and to experience interfaces as friction.

Wellbeing and Care (sometimes called "Green"). Gross National Happiness itself contains a strong Green strand: its attention to psychological wellbeing, time use, community vitality and ecological resilience, and its insistence that development serve the whole of a good life. Strengths: moral clarity about what growth is for. Blind spot: a philosophy of balance can be articulated more easily than it can be operationalised in fast commercial institutions.

Integrative and Systemic (sometimes called "Yellow"). This mindset asks not whether growth or wellbeing should prevail, but how an architecture can hold both. In Bhutan it is visible in the design of the GNH Index—multidimensional, sufficiency-based, explicit about its weights—and in the emerging effort to build interfaces around the new economic institutions.

A.3 The Interface Race as a Value-System Question

For half a century, Bhutan sustained an unusual synthesis: a Blue order of monarchy, monastery and national identity articulating a largely Green conception of development, rooted in a Purple reverence for community and landscape. Gross National Happiness is the name of that synthesis.

The Interface Race begins when Orange arrives in force. Emigration demands opportunity; opportunity demands institutions that think in returns, speed and scale. The question is not whether Orange belongs in Bhutan—it must, if the country is to keep its people—but whether it will be integrated into the synthesis or gradually displace it. Integration is the Yellow task: building the interfaces that allow Orange institutions to pursue returns within boundaries that the older synthesis defines. The transition architecture in this report is designed as that integration: GNH materiality speaks Orange's language while carrying Green's payload, and codified coupling turns Blue guardianship into durable procedure.

The boundary question has its own value-system reading. A Purple and Blue sense of belonging, fused with nation-building, defined the edges of the community whose happiness counts. A mature synthesis would extend the universality of Gross National Happiness's Green aspirations to that boundary as well.

Appendix B: International Analogues and Precedents

The proposals in this report are informed by international experience, though none transfers directly. The following are design analogues, not prescriptions.

B.1 Norway: Explicit Boundaries Around an Autonomous Fund

Norway's Government Pension Fund Global is managed by Norges Bank with operational independence and a financial objective: the highest possible return at an acceptable level of risk. Around that autonomy sits an explicit interface architecture: a statutory framework set by Parliament, a management mandate from the Ministry of Finance, ethical guidelines specifying categories of investment incompatible with national norms—historically administered through an independent Council on Ethics whose recommendations were public—and an annual report to Parliament. Norway has recently been reviewing parts of this arrangement, and it explicitly declines to use the fund as a general policy instrument. The lesson for Bhutan is the boundary itself: commercial autonomy and wider values can coexist when the line between them is legislated and inspectable.

B.2 Singapore: Interfaces Built Into the Actuator

Temasek is commercially autonomous; the Singapore government does not direct its individual investments. Its interfaces are partly constitutional—the President acts as a "second key" over the protection of past reserves—and partly internal: environmental, social and governance assessment from pre-investment onward, an internal carbon price, portfolio emissions targets, board-level sustainability oversight, and voluntary publication of annual reviews and sustainability reports. The lesson for Bhutan is the internalised interface: wider values embedded in how the institution itself decides. DHI's 2026 ESG system points in this direction.

B.3 Wales: A Statutory Duty and an Independent Guardian

The Well-being of Future Generations (Wales) Act 2015 places a legal duty on public bodies to pursue a set of national well-being goals—economic, social, environmental and cultural—and established an independent Future Generations Commissioner to advise, monitor and report on their progress. It is one of the few examples anywhere of a multidimensional national objective connected to many institutions through a statutory interface and an independent reviewer. Its experience—including debate about how much the duty changes decisions in practice—is directly relevant to the question of how Bhutan's objective can reach its institutions without a single central screen.

B.4 Chile: Keeping Volatile Revenue Away from Permanent Commitments

Chile's structural balance rule and its Economic and Social Stabilization Fund, established to manage volatile copper revenues, are among the best-known examples of timescale matching in public finance: revenue above its long-run level is saved rather than spent, and recurrent commitments are financed from structural revenue. The mechanism is a direct analogue for the rule proposed in Section 3.5, which would keep crypto dividends, windfall hydropower earnings and other volatile returns from funding permanent obligations.

B.5 Autonomous Commercial Jurisdictions: Abu Dhabi and Dubai

The Gelephu Mindfulness City has adopted elements of its commercial legal framework from established international financial centres, including the Abu Dhabi Global Market. Such jurisdictions show how autonomous legal zones can attract international capital through predictable, internationally recognised law while remaining embedded in a host state. They also show that an autonomous zone's relationship to its host's broader objectives—environmental, social, cultural—must be designed deliberately; it does not follow automatically from commercial success. Gelephu's charter, unlike most such zones, writes wellbeing and sustainability into its purposes. Whether it can make them bind is its distinctive test.

B.6 Bhutan's Own Precedents

The most important analogues are Bhutanese. The adjustment of the Sustainable Development Fee shows adaptive coupling under economic pressure. The Environmental Assessment Act shows a binding pre-commitment interface that reaches every part of the kingdom. The historical screening of WTO accession shows that the GNH screen could change a national deliberation. And the rapid construction of DHI's ESG system and Gelephu's integrity institutions shows that interfaces can be built at pace. These precedents matter strategically as well as analytically: the case for interface building is strongest when made from Bhutan's own experience.

Appendix C: The Governance as Engineering Connection

C.1 The Architectural Foundation

This report draws on the Governance as Engineering series, which models governance institutions as feedback control systems using control theory, information theory and cybernetics. This appendix summarises the parts that underpin the Interface Race and distinguishes what the papers establish from what this report infers.

Unlike the South Korea report, this report inherits no prior estimate from the series' measurement programme. Bhutan was not among the countries piloted in Paper VIII, and no Variety Gap figure is available for it. The diagnosis here rests on the report's own evidence.

C.2 The Papers in Brief

Paper II — Fractality as Stability shows that a controller with a single response rate cannot stabilise disturbances arriving on very different timescales. Bhutan's combination of a slow, high-dimensional GNH survey with faster administrative and economic signals is interpreted in this report as a reasonable multi-rate architecture, not a deficiency. The same paper illuminates the actuator timescale mismatch: a fast, volatile resource funding a slow, sticky commitment.

Paper VI — The Variety Gap treats objective functions as observation architectures and warns that dimensions excluded from an objective return as disturbances. Most cases in this series illustrate that failure. Bhutan illustrates the reverse: an objective deliberately kept high-dimensional. This report's contribution is to show that high observability of such an objective does not by itself secure controllability over the institutions that act on it.

Paper XI — Reform Exhaustion examines how directives lose fidelity as they pass down delegation chains. The Interface Race concerns a related but distinct problem: not the degradation of a directive as it descends a hierarchy, but the coupling between a national objective and specialised institutions that operate through their own control loops. The two problems share a concern with how intent survives delegation.

Paper XIII — Legitimacy treats legitimacy as an operational gain parameter. In Bhutan, deep royal legitimacy provides an important integrative coupling channel between the national philosophy and the new economic institutions—raising the effective gain of that coupling—while also, as Section 4 argues, reducing the perceived need for formal procedure.

C.3 Observability, Controllability and the Interface Race

The report's central formal claim draws on a standard distinction in control theory. A system is **observable** if its state can be inferred from what is measured, and **controllable** if its actuators can move it to a desired state. The two can come apart. Bhutan's GNH architecture makes a rich set of national conditions observable. Whether the national objective can steer them depends on the coupling between that objective and each actuator.

The report summarises the dynamic as a relationship between actuator power A and interface capacity I:

$$\frac{dA}{dt} \quad \text{versus} \quad \frac{dI}{dt}$$

This is diagnostic shorthand, not an estimated relationship. Actuator power encompasses scale, autonomy, decision speed, capital intensity and irreversibility; interface capacity encompasses coverage, timing, binding strength, transparency, oversight, correction latency and reversibility. A temporary period in which the first grows faster than the second is ordinary institutional maturation. It becomes a governance problem only if it persists long enough for consequential, hard-to-reverse divergence to accumulate. Correction latency is the most informative single variable, because it determines how much commitment can occur before an interface engages.

C.4 What Bhutan Adds to the Framework

The series has so far diagnosed first-order deficits, second-order ceilings, and—in Korea—an objective compressed onto too few variables. Bhutan adds a case in which the objective is rich and explicit and the question concerns its authority over accelerating machinery. That suggests a candidate for future formal work: a model of objective–actuator coupling in which the effective dimensionality of a governance system is bounded not only by what it observes but by what its interfaces carry to its actuators. In such a model, a system's effective objective would be the intersection of what it values and what its interfaces transmit—a quantity that can shrink even while the formal objective stays constant.

Appendix D: Anticipated Objections

D.1 "Gross National Happiness is branding. Bhutan's real objective has always been growth and stability."

The evidence does not support this. GNH is constitutionally anchored, measured through a genuinely multidimensional and sufficiency-based index, embedded in national planning, and historically capable of changing national deliberations. The 13th Plan's economic emphasis is framed explicitly as a rebalancing within GNH, and the plan retains social, ecological and cultural targets. This report takes the objective seriously precisely because the evidence shows it to be serious.

D.2 "What this report calls actuator decoupling is simply normal governance of state-owned enterprises and central banks."

Correct—and the report says so. Delegation to narrow mandates is how modern states function, and Norway and Singapore show that autonomous institutions can remain aligned with wider values. The report's claim is narrower: that the interfaces around Bhutan's fastest-growing actuators are younger than those around its established institutions, that one major commitment was made before any wider interface engaged, and that whether interface construction keeps pace is an open question. The comparison with Norway and Singapore concerns the maturity of interfaces, not the existence of autonomy.

D.3 "An outside report has no standing to raise the Lhotshampa question."

The question is raised because the logic of the national objective requires it, not to adjudicate a contested history. An objective that aspires to universality must be able to say whose flourishing it includes. The report presents Bhutan's position and the refugees' position as contested, distinguishes documented facts from disputed ones, states that present GNH statistics are not impugned, and notes that the boundary question lies outside the Interface Race. Omitting it would have been the greater failure of respect—to Bhutan's own stated aspiration as much as to those affected.

D.4 "The cryptocurrency investment was a sensible use of hydropower that would otherwise have been wasted, and it paid off."

This may be true, and the report does not argue otherwise. Its concern is not the merit of the investment but the timing of its interfaces: a commitment of roughly a fifth of GDP and 40 percent of reserves was made before any wider-objective assessment was publicly visible, and its revenues were later used to fund a permanent obligation. A good decision made through a high-latency interface is still evidence about the interface.

D.5 "The report questions the role of the monarchy."

It does not. It describes royal leadership as an important integrative coupling channel whose legitimacy has given Bhutan's transition unusual coherence. Its recommendation—that the coupling become increasingly institutional over time—is framed as fidelity to the founding vision and as the ordinary maturation of institutions expected to outlast their founders. It makes no claim about the quality of present or future leadership.

D.6 "Bhutan is too small and too particular for its experience to generalise."

Bhutan's scale makes some of its arrangements—such as informal coordination among a small elite—specific to it. But the central problem is general: every state is building institutions that act faster and at larger scale than its accountability structures were designed for. Bhutan's value as a case lies precisely in its unusually explicit objective, which makes it possible to ask whether institutions are drifting from it.

D.7 "Emigration is normal and beneficial. Remittances are rising, and migrants may return."

The report agrees that migration brings benefits, and it recommends treating the diaspora as a resource and supporting circulation across the migration cycle. Its argument does not depend on emigration being harmful. It depends on emigration having created pressure for rapid acceleration of economic institutions—which the 13th Plan, the pay revision and DHI's strategy all document.

Appendix E: About the Author and Method

The Author

This report was written from a position of comparative engagement with governance systems across many countries, but not from within Bhutan's institutional life. The author is not Bhutanese, does not live in Bhutan, and does not claim the authority of lived experience within its institutions, its culture or its history. The perspective offered here draws on a background in engineering physics and mathematical optimisation, and on sustained engagement with complexity science, developmental psychology, governance theory and control-theoretic approaches to institutional design. The limitation is real: much of the texture of Bhutanese public life, religious culture and policy-making is inaccessible from outside, and Bhutanese readers will see what this report misses.

The author has also contributed to governance design through the Global Governance Frameworks, the Governance as Engineering whitepaper series and the Country Reports for Systemic Change. The report is offered in the spirit of collaborative sense-making, not definitive pronouncement. Feedback, criticism and dialogue are welcomed.

A Note on Method

This report was developed through a structured, multi-model synthesis process in which several large language models analysed Bhutan's governance architecture from different angles, and their contributions were compared, challenged for contradictions and integrated by the author. The AI served as a research partner and a perspective engine; the editorial judgment and the intellectual responsibility are entirely human.

The Bhutan report extended the evidentiary discipline introduced in the South Korea report. Research began not with a diagnosis but with a baseline map of how Gross National Happiness travels from constitution to measurement, screening, planning, budgeting and implementation. A falsification matrix then set competing hypotheses against each other, and three evidence passes revised them substantially. The hypothesis that the GNH Index directly triggered the recent economic turn was weakened when the 2022 survey proved not to identify living standards as the lagging domain. The hypothesis that Bhutan had recentred on economic growth was not established. A hypothesis of objective–actuator decoupling was refined, after comparison with Norway and Singapore, into a question of interface maturity; a systematic census of Bhutan's major institutions then partially falsified the stronger claim of an interface deficit, leaving the race described in this report. Targeted closures tested the rate claim against a dated timeline, established that national environmental law and audit reach the Gelephu Mindfulness City, and confirmed that the population-boundary question remains current. The surviving claims were recorded in a claim-and-evidence ledger with wording ceilings, and the report was held to it.

Where the report says "evidence shows", it refers to external empirical findings; where it says "this report interprets" or uses the language of the framework, it refers to synthesis within Governance as Engineering. The report registers predictions that could weaken or overturn its diagnosis. Like any work of synthesis, it is provisional.

The Country Reports Series

This report is the eighteenth in the series of Country Reports for Systemic Change. The earlier reports examined Germany through the lens of an execution deficit, France through an integration deficit, Sweden through a feedback deficit, India through a synchronisation deficit, the European Union through a coherence deficit, the United Kingdom through a control-delivery deficit, Brazil through an accumulation deficit, Russia through a power-vertical deficit, the United States through an integration deficit, Finland through a throughput constraint, China through a calibration deficit, Japan through a continuity trap, Nigeria through a substrate deficit, Israel through a boundary deficit, Spain through a transition trap, Switzerland through a boundary-expansion deficit, and South Korea through a tournament trap.

Together, the reports span first-order deficits of execution and integration, second-order constraints of velocity and paradigm lock-in, the foundational challenge of substrate construction, the challenge of constitutional incompleteness, and the compression of a society's objectives onto a few rankings. Bhutan adds a further category: a system whose objective is rich and explicit, and whose challenge is keeping that objective in command of institutions that are growing faster, larger and more autonomous than the ones that built it. The keeper of the whole at the frontier of speed, Bhutan is the case that asks whether knowing what a country values is enough to make its institutions serve it.

Appendix F: The Crypto–Pay Case File

F.1 Why This Case

The cryptocurrency investment and its connection to the 2023 civil-service pay revision are used in this report as the clearest documented example of high-latency coupling and of an actuator timescale mismatch. They are not used as a verdict on the investment's merits, on which reasonable people differ.

F.2 Chronology

August 2020 – April 2022. The Royal Monetary Authority acquires approximately US$539 million of DHI securities, financing DHI's entry into cryptocurrency mining using domestic hydropower. The sum is roughly 19 percent of GDP and around 40 percent of pre-transaction foreign reserves. Mining begins in 2022.

June 2022 – February 2023. Voluntary civil-service resignations rise from around 64 a month to around 234 a month. The 2022 civil-service transformation and the reopening of borders coincide with the surge.

February 2023. The Sixth Pay Commission is constituted, with retention of talented public servants among its explicit objectives.

April 2023. DHI's crypto programme is publicly disclosed.

2023. The pay revision raises the minimum pay scale by 50 percent at an annual cost of around Nu 6 billion (about 2.3 percent of GDP). The financing plan includes Nu 4 billion from DHI in each of FY2023/24 and FY2024/25. Domestic electricity consumption rises by more than 60 percent, largely because of mining; electricity exports to India fall by about a third.

2024. The IMF finds that extraordinary crypto dividends financed around two-thirds of the wage increase across the two fiscal years, and warns against allowing crypto volatility to transmit into recurrent spending.

2025. Extraordinary transfers for the wage increase are no longer envisaged; the operation has a stop-loss strategy and further reserve exposure is being limited. Civil-service attrition falls to around 5 percent in FY2024–25.

F.3 Competing Interpretations

Strategic diversification. The investment used renewable energy with limited alternative uses at certain times, built capabilities relevant to future data-centre industries, and produced substantial returns that funded public priorities.

Macroeconomic risk. The investment exposed a significant share of reserves to a volatile asset, reallocated electricity from exports, and created fiscal dependence on uncertain revenue.

Governance and transparency. A commitment of national scale was made through the DHI–RMA channel and disclosed only after substantial commitment.

Adaptive correction. Once risks were visible, the system responded: transfers ended, exposure was limited, and risk management was strengthened.

F.4 What the Case Shows

Whatever weight these interpretations carry, the case shows two structural points. First, correction latency matters: commitment in 2020–22, visibility in 2023, external risk assessment in 2024 and observable adjustment in 2025–26 describe a coupling that worked, but over years. Second, connecting actuators with different timescales requires its own interface: volatile revenue should not fund permanent commitments without a rule designed for that connection.

Appendix G: The Gelephu Mindfulness City — Legal and Accountability Architecture

G.1 Scale and Autonomy

The Gelephu Mindfulness City was established by Royal Charter as a Special Administrative Region covering approximately 4,046 square kilometres—around a tenth of Bhutan. It has its own executive and legislative authority and an independent judiciary, and extensive powers over investment, finance, regulation and commerce. The GMC Authority is its highest decision-making body; it is chaired by the King, who appoints its members.

G.2 Purposes

The charter writes wellbeing, happiness, sustainability and Gross National Happiness into the city's purposes. Its City Development Department holds an explicit mandate to integrate sustainability, resilience, cultural values and community wellbeing into infrastructure decisions, and business registration includes a preliminary alignment assessment.

G.3 Legal Architecture

From December 2024, Gelephu began enacting its own legal system, adopting commercial laws drawn from established international financial centres. Its Application of Laws Act provides that, for matters not otherwise governed by Gelephu law, the laws of the Kingdom of Bhutan continue to apply. At the time of writing, Gelephu's published legislation includes no separate environmental statute. On a reading of the published framework—offered as analysis, not as a legal opinion—the national Environmental Assessment Act, which extends to the whole kingdom and requires assessment before commitment, therefore continues to apply within Gelephu unless and until Gelephu law displaces or adapts it. National transport assessments already model Gelephu's cumulative impacts on forests, water and wildlife corridors.

G.4 Accountability Architecture

The Constitution empowers the Royal Audit Authority to audit all public authorities and bodies administering public funds; in 2026 the Authority was preparing statutory audit arrangements for Gelephu. Gelephu has created its own Audit and Corruption Investigation Bureau, which in June 2026 signed a cooperation agreement with the national Anti-Corruption Commission while retaining an independent mandate. The resulting architecture is nested rather than isolated: internal accountability institutions connected to national ones.

G.5 The Open Questions

Three questions will determine whether Gelephu becomes a model of internal recoupling or an illustration of interface lag. Will its multidimensional purposes be measured and published alongside its economic results? Will its internal constraints bind when they become costly? And will the coupling between its economic mission and Bhutan's wider philosophy become increasingly visible in law, standards and procedure, as well as in shared leadership? This report registers these as predictions P2 and P5 in Section 6.5. Their answers lie in the decade ahead.