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EXECUTIVE INSIGHT | DEEP-DIVE REPORT

From Knowledge to Capability

What China, Vietnam and Europe Reveal About the Next Competitive Race

How long does it take until knowledge changes the economy?

EXECUTIVE SUMMARY

The Competitive Question

Across major economies, governments and companies are committing substantial resources to artificial intelligence, advanced manufacturing, research and higher education. Yet investment alone does not create competitiveness. Organisations can possess strong science, capital and infrastructure and still struggle to turn them into industrial capability at the required speed. Technology can move faster than the institutions expected to absorb it.

A recent Times Higher Education article on China's effort to bring higher education closer to industry prompted this Executive Insight. The point is not that China has found a model others should copy. It has not. The more useful question is what changes when an economy deliberately tries to shorten the distance between research, education and industrial application.

How long does it take until knowledge changes the economy?

This paper examines three very different starting points. China is testing tighter coordination and faster translation, with potential gains and material trade-offs. Vietnam has an unusual opportunity to shape connections while industrial, educational and technological capabilities are still developing. Europe, and Germany in particular, already has exceptionally strong institutions; its challenge is to remove friction where it slows useful interaction while preserving quality.

The strategic variable is therefore not institutional strength alone. It is how reliably and how quickly knowledge becomes usable capability.

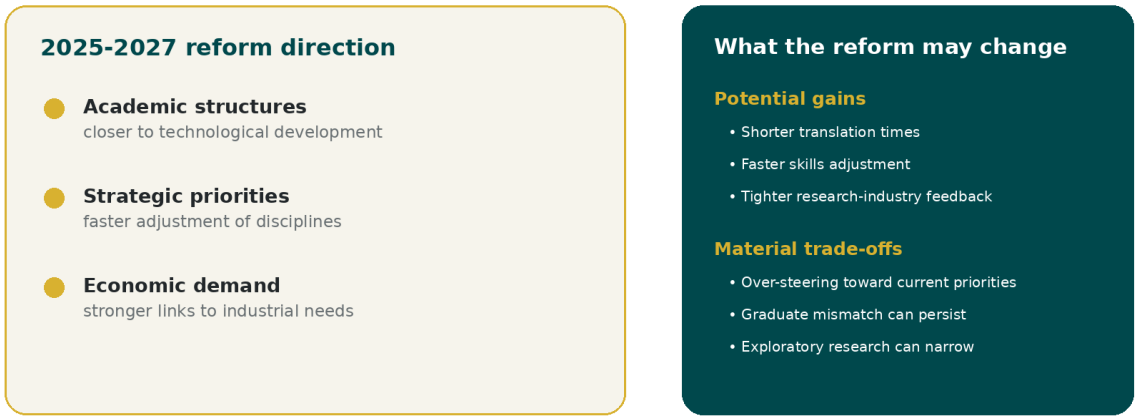
PART I | CHINA

Shortening the Distance - Without Assuming the Answer

The significance of China's current reforms lies in their attempt to reduce the institutional distance between higher education, technological priorities and industrial demand. In 2025, the Ministry of Education launched a three-year Action Plan for the Adjustment and Optimization of Academic Disciplines and Majors. The plan explicitly links academic structures more closely to technological development, national strategic priorities and changing economic demand.

China Reform Logic

The relevant question is not whether China has found the model, but what changes when institutional distance is deliberately reduced.



Source note: Ministry of Education of the PRC, 28 August 2025; Times Higher Education, 7 August 2026.

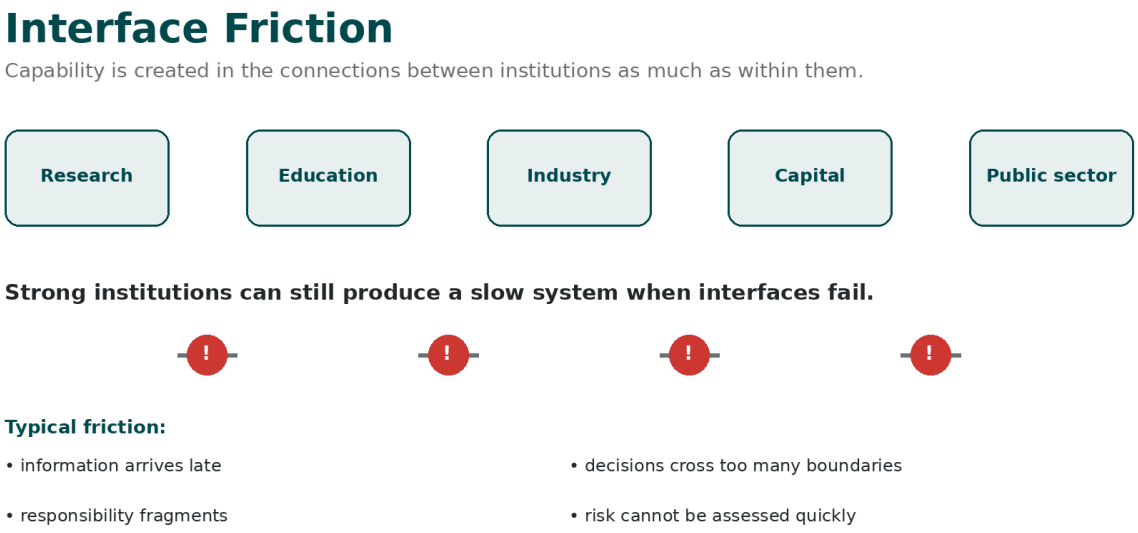
Scale matters, but scale is not evidence of system quality. A very large university system can create critical mass in researchers, students, laboratories and disciplines. It can also create coordination problems, graduate mismatches and pressure to steer education too closely towards current priorities. Coordination can shorten translation times; over-steering can narrow the exploratory research on which future breakthroughs depend.

PART II | THE MECHANISM

When Strong Institutions Still Produce Slow Systems

I come to this question from corporate transformation rather than higher-education policy. In transformations, organisations rarely become slow because every function is weak. More often, capable functions are separated by weak interfaces: information arrives late, decisions cross too many boundaries, and responsibility becomes fragmented.

Finance optimises capital and control. Operations optimises reliability and throughput. Sales, engineering and human resources pursue equally legitimate objectives. Each function may perform well on its own, yet the organisation can still be slow if knowledge and decisions do not cross functional boundaries at the required speed.

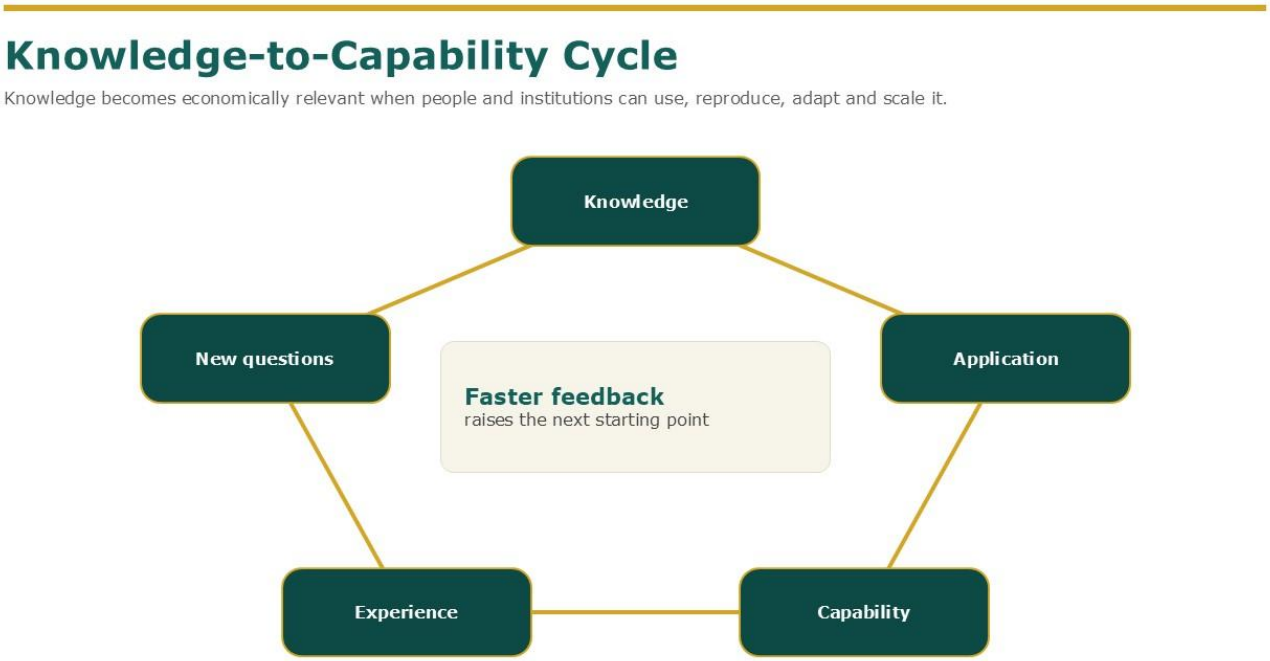


The same logic applies at system level. Universities pursue education and research. Companies pursue commercial performance. Investors allocate capital. Public institutions operate within statutory and policy mandates. Each has legitimate objectives. Competitiveness, however, is created in the connections between them as much as within them.

The interface problem becomes strategically important when technology moves faster than institutional routines. Scientific advances can arrive quickly. Building skills, changing curricula, financing scale-up, adapting regulation and developing executive judgement usually take longer.

From Knowledge to Capability

Knowledge and capability are not the same. Knowledge becomes economic capability when people and institutions can use, reproduce, adapt and scale it. Capability can sit in different places: with an engineer who can apply a method, a laboratory that can validate it, a supplier that can meet a new specification, a management team that can judge its strategic value, or an investor that can assess its technical and commercial risk.



Capability grows through application, repetition and feedback. Organisations that industrialise a technology earlier begin learning earlier. Engineers encounter practical problems, suppliers adapt, customers expose new requirements, managers improve allocation decisions, and new questions return to research. Each cycle can begin from a higher level of experience.

AI Can Accelerate the Learning Cycle

Universities, companies and public institutions already hold enormous bodies of knowledge. The constraint is increasingly not only knowledge creation, but retrieval and connection: finding what is relevant, linking it across organisational boundaries and making it reusable when decisions have to be made.

AI Retrieval Layer

AI can reduce the friction of retrieving and connecting knowledge, but it does not replace scientific judgement.

Boundary condition:

AI accelerates discovery and connection. Reliable knowledge still depends on evidence, methodology, experimentation and critical verification.

AI can reduce part of that friction. It can help locate expertise, compare prior work, connect research across disciplines and preserve institutional memory that would otherwise remain dispersed across people and documents. In large knowledge organisations, this can shorten the time between a question and an informed response.

That is an acceleration mechanism, not a substitute for scientific judgement. AI can support discovery, comparison and hypothesis formation. Reliable knowledge still depends on evidence, sound methodology, experimentation and critical verification.

PART III | VIETNAM

Building While the System Is Moving

Vietnam starts from a different position. Its industrial base is deepening while higher education, technological capability, digital infrastructure and public-sector capacity are also developing. Resolution 57 places science, technology, innovation and national digital transformation at the centre of the country's development agenda. In July 2026, implementation guidance sharpened that agenda further by linking applied research to application, transfer and commercialisation and directing universities and vocational institutions to prioritise strategic technologies, digital skills, innovation capability and AI from the 2026-2027 academic year.

That simultaneity creates a strategic window. Mature economies often have to redesign relationships that have hardened over decades. Vietnam can, in selected fields, build stronger interfaces while the underlying capabilities are still taking shape.

Vietnam's opportunity is not to copy another system. It is to shape the interfaces while the system is still moving.

This is not an argument for copying China, Germany or any other model. The practical leadership question is narrower: where can Vietnam reduce the distance between knowledge, talent, capital, public-sector capacity, executive judgement and industrial application in ways that fit its own institutions and economic structure?

Source note: Resolution No. 57-NQ/TW, 22 December 2024; Government Notice No. 24-TB/CQTTBCĐ, 7 July 2026.

Semiconductors Show Why the System Matters

Vietnam's semiconductor strategy makes the system requirement visible. For 2024-2030, the official strategy envisages a semiconductor workforce of more than 50,000 engineers and graduates, at least 100 chip-design companies, one small-scale manufacturing facility and ten packaging and testing plants. Implementation has already moved beyond planning: on 16 January 2026, Viettel began construction of Vietnam's first domestic semiconductor fabrication plant at Hoa Lac High-Tech Park, with trial production targeted by the end of 2027.

Vietnam Semiconductor Targets

Workforce, design, fabrication and packaging targets become an ecosystem question the moment implementation begins.

>50,000	100+	1	10
engineers & graduates	chip-design companies	domestic fab	packaging & testing plants

Strategy -> implementation

16 January 2026: Viettel began construction of Vietnam's first domestic semiconductor fabrication plant at Hoa Lac High-Tech Park. Trial production is targeted by the end of 2027.

Source note: Decision No. 1018/QD-TTg, 21 September 2024; Vietnam Government News, 23 September 2024 and 16 January 2026.

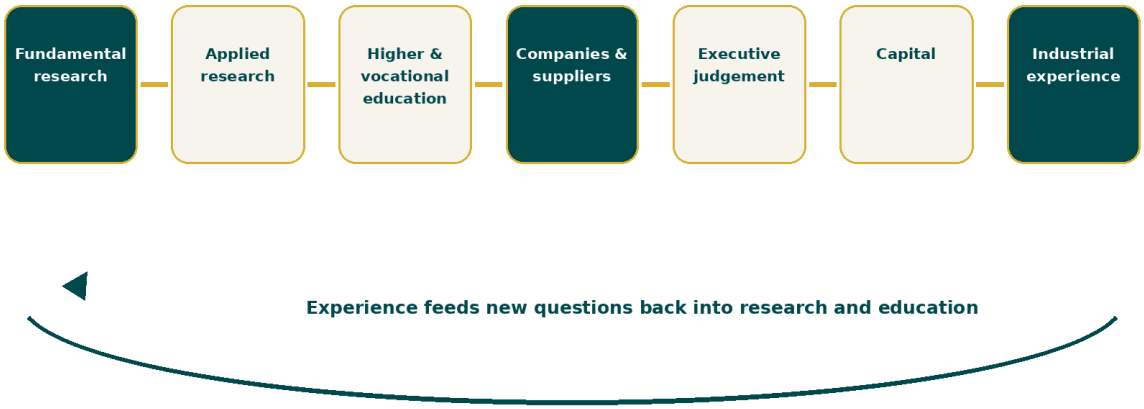
Targets of this scale cannot be delivered by education policy or industrial policy alone. Technical talent cannot create full economic value unless the surrounding system can employ, challenge, develop and retain it. Companies, experienced specialists, laboratories, suppliers, research environments, infrastructure, management capability and finance have to develop in relation to one another.

The Capability Chain

A high-performing cluster is better understood as a chain of capabilities than as a collection of institutions. Fundamental research explores uncertain questions. Applied research converts selected findings into testable solutions. Higher and vocational education build different layers of talent. Companies contribute operating problems and market knowledge. Executives decide whether technology enters strategy and operating models. Investors provide capital suited to different stages of technical and commercial risk. Industrial experience then feeds new questions back into research and education.

Capability Chain

A high-performing cluster is a connected chain of capabilities, not a collection of institutions.



No single institution can own that chain. Universities are central, but they cannot substitute for the other links. Vocational education supplies the technicians, operators, maintenance specialists and quality expertise that high-technology industries cannot function without. Executive education matters because technological capability can grow faster than the ability of boards and management teams to understand, finance and deploy it. Capital matters because technologies differ sharply in risk, time horizon and path to scale.

Regional Capability, Not Generic Innovation Hubs

The regional level is where this chain becomes operational. Northern Vietnam combines electronics and advanced-manufacturing supply chains with Hanoi's universities and research institutions. Greater Ho Chi Minh City combines a dense industrial base with technology businesses, universities, international companies and financial services. Central Vietnam, including Da Nang, is developing a different mix of engineering and digital capabilities.

Regional Capability Logic

Vietnam does not need identical clusters. It needs regions whose existing assets connect into differentiated capability chains.

Design principle:

Regional value comes from connecting differentiated assets into credible capability chains with clear economic demand behind

These regions do not need to resemble one another. Their value may come from greater differentiation, not greater similarity. The task is to identify fields in which existing regional assets can be connected into a credible capability chain with clear economic demand behind it.

Vietnam National University, Hanoi's Technology and Innovation Park provides one concrete example of that direction. It brings research institutes, start-up and knowledge-transfer capacity, human-resource development and enterprise partnerships into closer proximity around fields including semiconductors, AI, biotechnology and advanced materials.

Source note: Vietnam National University, Hanoi, Technology and Innovation Park, 13 February 2025.

Beyond the Border: From Production Corridors to Capability Networks

Once capability chains are taken seriously, national and administrative borders are no longer the only useful frame for clusters. Supply chains, research networks, talent and capital already operate across borders.

Northern Vietnam and Southern China illustrate a possibility, not an established innovation cluster. Existing manufacturing and logistics links could, over time, support deeper engineering cooperation, specialist education, research partnerships and supplier development. The economic logic is complementarity, not political integration.

Strategic relevance does not require self-sufficiency. It requires capabilities that larger networks cannot easily replace.

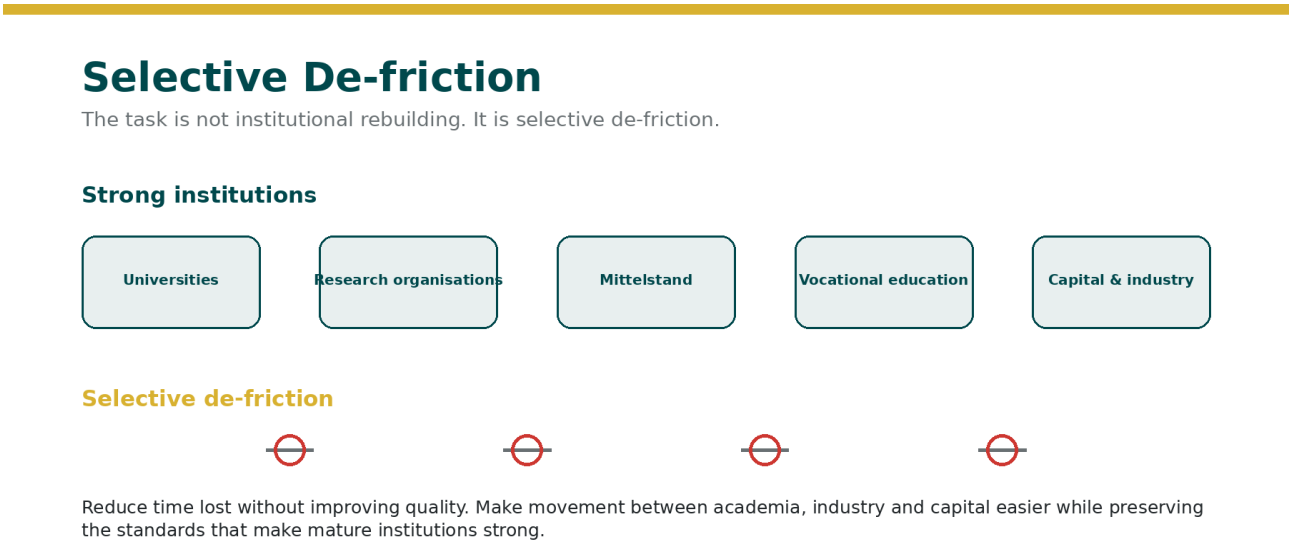
For Vietnam, the strategic objective need not be self-sufficiency in every technology. It is relevance within wider capability systems: building selected strengths that are difficult to replace and valuable enough for larger regional networks to seek connection with them.

PART IV | EUROPE AND GERMANY

Strong Institutions, Different Friction

Europe faces the same underlying issue from almost the opposite direction. It does not need to create strong institutions from scratch; it already has them. Germany illustrates this particularly clearly through its universities and research organisations, engineering depth, specialised Mittelstand and vocational education system.

Europe's own competitiveness debate increasingly recognises that research strength does not automatically produce commercial scale. The Draghi report and the European Commission's Competitiveness Compass focus on the path from innovation to commercialisation, financing, skills and scale. Germany's High-Tech Agenda similarly links research leadership to stronger technology transfer and commercial application.



Source note: European Commission: Draghi report and Competitiveness Compass; German Federal Government: High-Tech Agenda.

Germany's task is therefore neither to copy China nor to rebuild its institutional landscape from the ground up. It is selective de-friction. The task is to identify where time is lost without improving quality, where movement between academia and industry is unnecessarily difficult, and where strong institutions can work together faster without weakening the standards that make them strong.

PART V | EXECUTION

Start With the Interfaces

The practical starting point is not another broad innovation strategy. It is a capability map focused on one strategically important industry in one region. Identify what is already present: research, university and vocational education, companies, suppliers, laboratories, executive expertise, capital, public-sector capabilities and international partnerships.

Then examine the transitions. Where does knowledge stop moving? Where do companies identify capability gaps too late? Where does research lack a test environment? Where do suppliers lack engineering support? Where does capital hesitate because technical risk cannot be evaluated? Where do public processes add delay without adding quality? Where do executives make major technology decisions without sufficient access to expertise?

Execution Sequence

Start with one strategically important industry in one region. Improve only the interfaces that matter most.

Leadership test

Do the interfaces produce faster learning, better decisions and capabilities that remain after individual projects end or key people move on?

The next step should be selective. Do not connect everybody with everybody. Build two or three critical interfaces, assign clear ownership, demonstrate value, preserve what has been learned and only then scale what works regionally or internationally.

Management Ownership

Responsibility is distributed, but it should not be diffuse. Government and public administration can set priorities, create reliable rules and distinguish necessary safeguards from avoidable delay. Universities can open selected pathways to industry without sacrificing academic independence. Companies must contribute real problems, technical demand and co-investment. Investors need the capability to assess technology, not only financial projections. Boards and executives must turn technological possibilities into choices about capital, people, risk and operating models.

The test is not how many partnerships, programmes or institutions exist. It is whether the interfaces produce faster learning, better decisions and capabilities that remain after individual projects end or key people move on.

CONCLUSION

A Different Competitive Question

China's university-industry reforms matter not because they provide a blueprint, but because they expose a deeper competitive issue. Knowledge creation is only the beginning. Economic value is created afterwards, when knowledge moves into people, organisations, investment decisions, production systems and markets, and when practical experience generates the next round of questions and knowledge.

China is testing tighter coordination and faster translation, but the approach carries trade-offs and does not establish a universal institutional model. Vietnam has an unusual opportunity to build stronger interfaces while industrial, educational and technological capabilities are developing. Europe, and Germany in particular, faces a different task: making exceptionally strong and mature institutions easier to connect without lowering the standards that give them value.

Technological leadership will continue to depend on outstanding science, capable companies, investment and talent. As technological change accelerates, relative competitiveness will also depend on how well institutions learn from one another, how quickly useful knowledge crosses boundaries and how reliably experience becomes the next generation of capability.

The next competitive race will not be decided only in laboratories or factories. A significant part of it will be decided in the space between them.

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