B2AGI

EPAI 2027

EMBODIED PHYSICAL AGENTIC INTELLIGENCE

The Reference Behind the Decision.



B2AGI EPAI 2027

ONE ECOSYSTEM.

ACROSS BORDERS.

IN YOUR LANGUAGE.

B2AGI

For those who

allocate capital,

lead industry,

and shape national policy.

B2AGI

EPAI 2027

EMBODIED PHYSICAL AGENTIC INTELLIGENCE

The Reference Behind the Decision.

B2AGI

CONTENTS

EPAI 2027

I
ENTER EPAI

II
THE WORLD BEHIND THE WINDOW

III
INTELLIGENCE GOES TO WORK

IV
THE EPAI ECONOMY

V
THE POWER TO ACT

VI
BEYOND: WHAT WE MAKE POSSIBLE



PART I · ENTER EPAI

01 Two Blank Looks

02 Every Word Has a Sender

03 EPAI: One Ecosystem

PART II · THE WORLD BEHIND THE WINDOW

04 A Chat Window Needs a Power Plant

05 The Model That Shook the Machinery

PART III · INTELLIGENCE GOES TO WORK

06 The AI That Ran the Shop

07 After the Applause

08 Two Bags of Fluid

09 The EPAI Prism: One Contract, Five Readings

PART IV · THE EPAI ECONOMY

10 The Customer Who Is Also the Bank

11 The Flight Has Landed. Who Pays?

12 Beyond the Photograph

13 The Next AI Business Is Already Running

PART V · THE POWER TO ACT

14 When the Robot Stopped

15 The Switch Was Somewhere Else

16 Across Borders, Across Standards

PART VI · BEYOND: WHAT WE MAKE POSSIBLE

17 A Country Does Not Need to Build Everything

18 Who Takes the First Risk?

19 What We Find Together

20 What the Numbers Cannot Decide

21 The World Through EPAI

REFERENCE

Calls Register

One ecosystem. Across borders. In your language.

USING THIS EDITION

Using This Edition

This book is for people whose decisions depend on fields they do not have time to master. Follow the events far enough to see where another person's work changes your own: a model release can reopen an infrastructure budget; a contract can determine who gets to use a technical achievement. The aim is to judge what deserves action now, what can wait, and which evidence would change that answer.

The chapters follow a connected argument. For a quick reference, return to the definitions in Chapter 3, the Prism application page in Chapter 9, or the Calls Register. The final chapter applies the argument to a new decision.

Cite this edition as: Henry Chan Jung, EPAI 2027, v1.6, 27 October 2026, Chapter [number] or section [number]. For a judgment in the Calls Register, include its identifier and edition so readers can follow subsequent revisions.

I take responsibility for the judgments in this book.

The argument moves through time and across the ecosystem: earlier choices shape today's relationships and the futures they permit. Its subject is intelligence, physical work, capital, security, institutions and the lives affected by them. Familiar events are entry points into that connected world, not separate industries placed side by side.

Chapter source notes identify the documents behind the argument. The Calls Register records the recommendations and the conditions that would change them.

B2AGI EPAI 2027

PART I

Enter EPAI





CHAPTER 1

Two Blank Looks

B2AGI · EPAI 2027

B2AGI ART / 01

Different labels. One task.



EPAI 2027 · Two Blank Looks

CHAPTER 01 · PART 1 · I / ENTER EPAI

1. Two Blank Looks

I was surprised that a Chinese AI expert was unfamiliar with the expression Physical AI. I had been hearing it so often that it had begun to sound like common knowledge.

Then I remembered my own reaction to **具身智能**.

The English translation, embodied intelligence, helped. The Chinese expression had not. I recognized the direction the technology was taking, but the name was unfamiliar. Now I could understand why my familiar terminology might leave someone else puzzled.

In October 2026, at the ITU-T Focus Group on Embodied AI for Multimedia Technologies in Hangzhou, I took part in WG5's discussions on Connectivity & Interoperability: how systems from different organizations could work across models, machines, networks and borders.

The unfamiliar names exposed a problem on our side of those connections. We were people building and studying the things others would buy, finance, regulate and live with. I had no reason to feel superior to the expert who did not recognize my expression. I had supplied one of the blank looks myself.

If we could surprise one another with a name, what was happening one floor above us, where a board or a minister had to decide what to do?

A briefing arrives. The adviser has made it shorter. The definitions have gone into an appendix. Three suppliers remain on the first page, each apparently offering the future.

The decision-maker has twenty minutes.

Imagine an adviser preparing a mayor's briefing on technology for the city's industries. The Chinese material refers to **具身智能**. A Korean supplier calls its proposal Physical AI. An American software company describes its service as Agentic AI. The adviser must explain what the city is being asked to buy before the mayor can decide where to begin.

I propose EPAI, Embodied Physical Agentic Intelligence, as a common name for that discussion. Under one heading, the adviser can bring the proposals together, explain what each covers and show where the city's industries might use them. The mayor can ask which local companies should be involved, what the work will cost and where the money should go. When a technical distinction matters, the specialist who knows it can explain it.

The same name can carry a discussion across borders. Participants can record the terms they use and what their proposals cover, then take that account to the next meeting. They do not have to start by explaining every name again.

The proposals arrive

Give a food distributor three proposals. Its problem is ordinary: orders change, stock sits in the wrong place, and customers want their deliveries on time.

One supplier offers embodied AI. Its machines can perceive their surroundings and handle objects. Another presents a physical AI solution for the warehouse. A third proposes agents that can work through orders, inventory records and delivery arrangements.

Put the three labels in the first column of a comparison table and the purchaser immediately faces the wrong contest. Which kind of AI is best?

The robot demonstration is impressive. The software demonstration is impressive. The integrated warehouse demonstration is impressive. All three presenters can reasonably believe they have answered the brief. The buyer still cannot tell whether to select one, combine two, or buy all three.

Now keep the proposals exactly as they are and change the table.

What receives the order? What decides which stock should be moved? What moves it? What confirms that the right goods have reached the right place? Who handles the order that cannot be completed?

The categories begin to rearrange themselves. Two suppliers may offer competing scheduling functions. One may depend on machinery supplied by another. The agent might change an order in software without having any authority to change what a machine is doing. An apparently complete solution may leave the exception for the distributor's staff to resolve.

The buyer has learned very little robotics. Yet the meeting can now do useful work.

Ask the suppliers to mark what they provide, what they require from someone else, and what they leave to the customer. A duplicate purchase becomes visible. So does an unassigned job. The next commercial discussion can concern those findings instead of the relative glamour of three names.

The distributor can bring the proposals under the same EPAI heading. Each supplier can still use the term that best describes its own work. The buyer now has an account of which purchases substitute for one another and which only work together.

There is already a decision to make. Do not approve a combined package while each supplier describes its own completion and nobody owns the handover. First commission a shared account of the work, including exceptions. That account may support a smaller purchase, a different partnership, or a service that none of the three initially offered.

A problem between people

The human problem kept entering the technical one in Hangzhou. A system has to interpret an instruction. Before it can receive the right instruction, several people may have to agree what the work is. The engineer, the buyer and the institution financing the purchase can use the same word, success, while requiring different evidence.

My later account put it this way: "We are connecting the machines faster than we are connecting the conversations."

Specialists need their precision. They also have work waiting outside this meeting. A financier cannot become a roboticist before the next investment committee; an engineer cannot investigate every change in a supplier's financing. Each needs to recognize when a development elsewhere has changed an assumption inside their own work. People working together need to know where one specialist's answer stops answering the other person's question.

EPAI begins at that boundary.

In China, I kept encountering the language of Embodied AI. In Korea, Physical AI dominated the conversations around me. In discussions involving American finance and big tech, Agentic AI came to the foreground. The institutions, customers and announcements around us make a particular expression feel obvious. Cross that circle and the familiar name becomes a question again.

In the chapters ahead, a chat window will take us to a power station. An AI shopkeeper will encounter customers who are harder to manage than a benchmark. A medical delivery will reach its destination years before the argument about its price is settled. We will meet a customer that helps finance its supplier and a user who pays for intelligence without holding the switch that keeps it available.

These events already belong to the same world. Our reports have often kept them apart.

Before we follow them, stay with the distributor for a moment. There is a useful change in the room. The buyer no longer needs to pretend to know which label wins. The suppliers have work they can identify, dependencies they can discuss, and a missing responsibility somebody might build a business around.

No one had to lose face for that conversation to begin.

Sources

Henry's recorded Hangzhou account in Korean and English companion, 22 October 2026; his account of encountering unfamiliar terminology. The distributor is a hypothetical purchasing case.

B2AGI EPAI 2027

CHAPTER 2

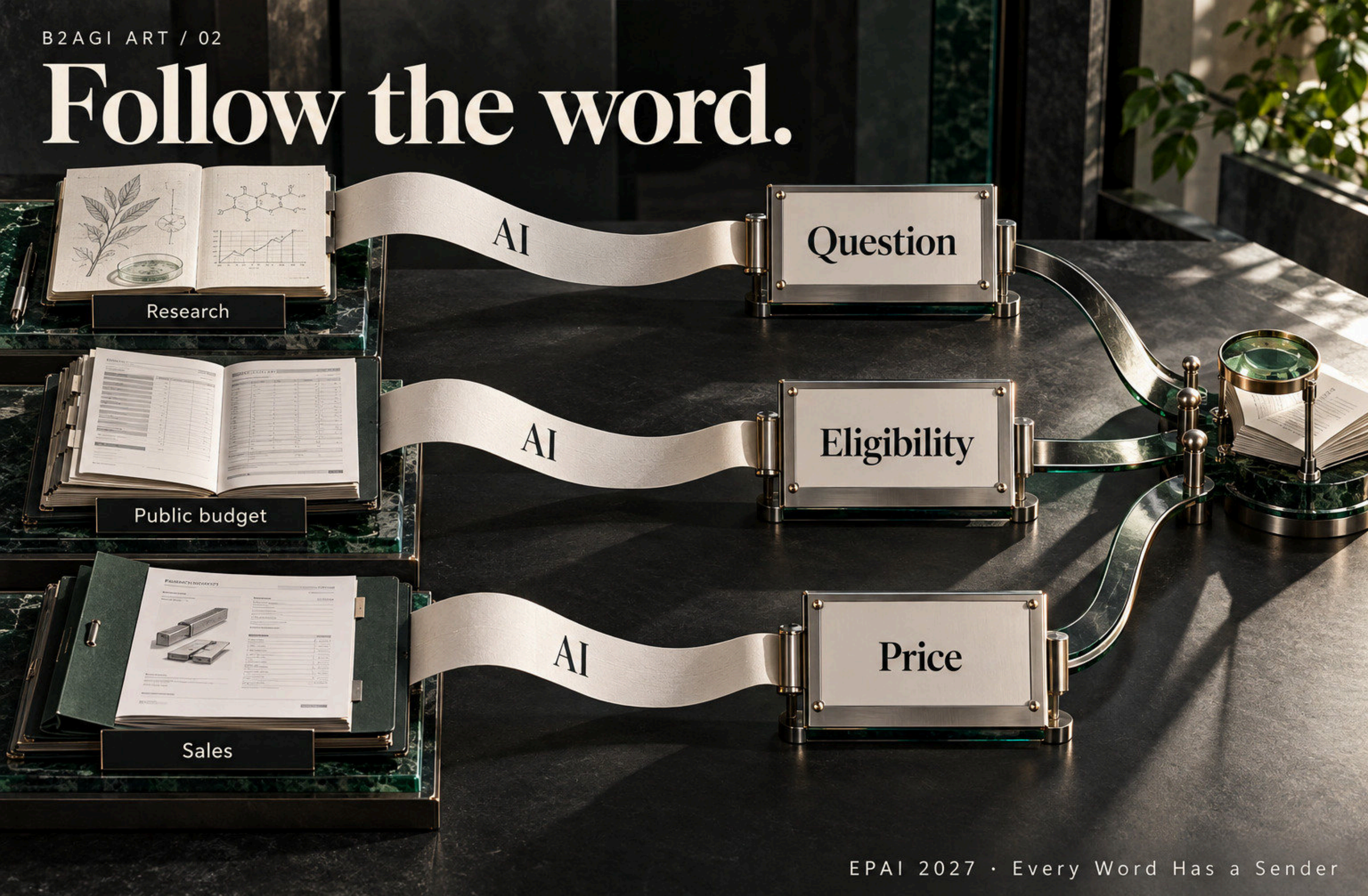
Every Word Has a Sender

B2AGI · EPAI 2027



B2AGI ART / 02

Follow the word.



EPAI 2027 · Every Word Has a Sender

CHAPTER 02 · PART 1 · I / ENTER EPAI

2. Every Word Has a Sender

A word can arrive through a research paper, a government report or a sales presentation. It brings different company on each journey.

In a paper, it travels with a question. In a budget, it travels with eligibility. In a proposal, it travels with a price. This helps explain why intelligent people can become so attached to different descriptions of the same developing industry. A label has helped them organize their work. It may have helped them get that work funded. By the time someone from another field asks what it means, the answer feels obvious.

A place in the national plan

On 5 March 2025, Premier Li Qiang delivered China's government work report. Among the future industries it identified was **具身智能**, embodied intelligence. The list also included fields such as quantum technology and sixth-generation communications. A research expression had acquired a prominent place in a national statement of industrial priorities. [1]

The government report gave an established research idea an institutional destination: a category through which officials and enterprises could discuss future development.

For a local authority deciding which industrial project to advance, a recognized category is useful. For a company preparing a proposal, using that category helps make the proposal legible. An official phrase can travel through plans, applications and presentations without a central instruction dictating every sentence.

Asking only who coined a term misses this part of its history. The person who gives it a route into institutions may matter more to its commercial life. Different vocabularies continue to coexist, but some now arrive with a place in the plan.

The practical question for anyone entering a national market follows directly. Find out what the category enables. Does it name a research priority, a procurement programme, a kind of company, or an ambition? Do not treat inclusion under the same heading as evidence that two projects do the same work.

A place in the platform

NVIDIA offered a different route. At its June 2024 COMPUTEX presentation, Jensen Huang described physical AI as a coming direction of development. The company's wider presentation connected computing with factories, robots and other systems operating in the world. By January 2025, its Cosmos announcement placed world foundation models inside a platform for developing physical AI. [2, 3]

A platform company has a reason to explain several industries together. Developers need tools. Training and simulation need computation. Deploying a system creates further requirements. A name that connects these activities helps customers see why the platform belongs in more than one department's budget.

That pitch matters particularly to Korea's manufacturers. Semiconductor producers, vehicle manufacturers and industrial operators can each find themselves inside the same presentation. Later in this book, a photograph of three executives eating chicken will bring that relationship into unusually public view.

The vocabulary had already been travelling through platforms and presentations well before that dinner. The photograph gave an existing industrial relationship a recognizable public scene.

We should ask a better question of the platform vocabulary. Which activities does it connect, and which parts of that connection will the platform own?

For a supplier, the answer determines where to invest. For a customer, it helps reveal which future purchases may follow the first one.

A place on the invoice

Salesforce's September 2024 Agentforce announcement put autonomous agents into an established business setting: sales, service, marketing and commerce. Its announced starting price was two dollars per conversation. [4]

The price is an especially revealing part of the history. A capability that could be discussed endlessly as a philosophical question now had a unit a purchasing department could enter into a spreadsheet.

An enterprise buyer could compare the proposed charge with an existing service process. The model developer might focus on reasoning and tool use. The service manager would ask whether a customer's problem had been resolved. Finance would ask what the new unit included. A conversation could end without the customer's problem ending with it.

Agentic AI travelled easily through software businesses because it offered a next step from generating an answer to completing work. But the expression did not remove the need to decide what counted as work completed. That question would become more expensive when an agent could change an order, issue a refund or commit resources.

We will return to it in a shop whose manager was an AI. The manager's difficulties were considerably more memorable than its job description.

Follow the route

A national report directs public attention. A computing platform shapes development. A software price defines what can be bought. When evaluating a proposal, ask who benefits from drawing the industry that way.

Every useful map selects something. An industrial ministry needs to allocate attention and support. A platform supplier needs a development path its customers can follow. A software company needs a unit it can sell. Their categories can illuminate real developments while leaving other relationships outside the frame.

For the distributor in our first chapter, a proposal's label therefore supplies a clue rather than a verdict. The embodied AI supplier may know handling exceptionally well. The platform company may make several kinds of machinery easier to develop and connect. The agent company may understand the flow of orders. None of those strengths tells the buyer who has assembled the whole service.

Keep the names. Ask every bidder for the same account of responsibilities and dependencies. Specialist language can then explain a contribution instead of deciding the comparison before it begins.

This also gives a smaller company a way into a conversation apparently dominated by much larger ones. It can identify a responsibility the large proposals leave open and demonstrate how it will perform it. A familiar national label may get the meeting. A necessary contribution gives the meeting somewhere to go.

Sources

1. Beijing People's Congress, Xinhua account of Li Qiang's government work report, 5 March 2025.
2. NVIDIA, COMPUTEX 2024 keynote account, 2 June 2024.
3. NVIDIA, Cosmos platform announcement, 6 January 2025.
4. Salesforce, Agentforce announcement, 12 September 2024. Starting price at announcement.


CHAPTER 3
EPAI:
One Ecosystem
B2AGI · EPAI 2027

B2AGI ART / 03

Put the work in the middle.



EPAI 2027 · One Ecosystem

CHAPTER 03 · PART 1 · I / ENTER EPAI

3. EPAI: One Ecosystem

Embodied AI, physical AI and agentic AI have arrived on the same desk. The people preparing the report need a way to bring them into one conversation. The person receiving it needs to understand what is being proposed and what decision is required.

Embodied Physical Agentic Intelligence is our invitation to examine one connected ecosystem. It brings intelligence, action, infrastructure, people, money and institutions onto a common map. The purpose is to make a real undertaking understandable across the boundaries that usually divide its description.

A common name gives the report a place to begin. The work beneath it still needs to be described: what each technology does, where its responsibilities meet another's, and which people, institutions and resources the undertaking depends on. That account lets a mayor, an operator or an investor take the conversation into the decision each has to make.

The words come from conversations we have already encountered. Embodiment directs attention to intelligence in relation to a body and environment; physical AI brings action in the world into view; agency raises questions about pursuing goals and carrying work forward. Their uses overlap. They offer useful entrances, not an exhaustive taxonomy of intelligence.

An agent can act through software without a robotic body. A machine can perform a physical task while depending on people for decisions. An AI service may never move an object yet change where money and labour go. EPAI keeps these contributions in the same inquiry without requiring every system to possess every attribute.

Put the work in the middle

Return to the food distributor. Put its purpose in the middle of the page: get the right goods to the customer when promised.

Around it, place the capabilities already offered. An agent processes an order. A scheduling system allocates work. A robot handles goods. Existing staff resolve exceptions. Networks and power keep the equipment available. The purchaser pays suppliers; its own customers pay for deliveries. Somebody can change the plan. Somebody can stop an unsafe action.

Now draw the handovers. When the customer changes an order, what tells the warehouse? If a package cannot be handled, where does the request go? If the platform is unavailable, what work continues? If the customer refuses a delivery, which supplier's claim of completion remains true?

The map shows where each supplier's responsibility ends and who takes over. The buyer can settle those boundaries while negotiating the purchase.

An equipment supplier may deliver a capable machine. A local operator may be better placed to keep the entire service working. The agent developer may support the operator with tools. Once we see those relationships, asking one supplier to guarantee the whole result no longer looks like the only possible purchase.

Organizing those handovers could support a new service. If the customer's staff already manage them well, leave the arrangement in place. Buy additional tools only where a specific improvement justifies their cost.

A purchase becomes a different proposition

Suppose the distributor's finance team refuses a large equipment purchase because demand fluctuates. The technical team has been choosing a machine for peak volume. One team is planning for the busiest day; the other is counting the quiet ones.

Bring the schedules together. Could a service operator share capacity among customers whose busiest periods fall at different times?

The engineering question changes. The equipment must now accommodate different work; the operator needs access and customers; finance compares the customers' peak-demand schedules. A machine selected for one warehouse may be the wrong machine for the new arrangement. The disagreement has opened a possible business that neither original proposal described.

If every customer needs peak capacity at the same hour, the proposition may fail. Expensive relocation could defeat it too. The proposal now turns on customers' schedules and the cost of moving capacity between them.

This is the EPAI Prism. A finding in one field changes a question or an option in another. The ecosystem is the connected undertaking we are examining. The framework supplies common questions about its purpose, capabilities, dependencies, authority, evidence and consequences. Those names describe the work we have just done; the reader need not memorize them to use it.

Follow the distributor across a border and the purchase opens into a larger world. A financier may fund the equipment while a foreign supplier retains the software needed to operate it. The host controls the site; another party controls updates. A receiving authority decides which evidence it will accept. The distributor needs all of them to keep its promise to the customer.

Their calendars matter too. The machine may be ready to ship before the site is ready to receive it. Repayments may begin before the customer can accept deliveries. The financier sees an asset delivered; the operator sees a service still unable to earn. Put those dates beside the responsibilities and the next negotiation changes: when should delivery occur, and who pays during the interval?

EPAI · Capital · Security · Global Cooperation. Through EPAI, we can follow how AI capabilities, financing, operating control and international cooperation change one another. A financing condition can change the supplier. A change of supplier can alter access to operating records. An agreement to recognize evidence can make a previously uneconomic market worth entering. The Prism follows those consequences until the choice changes.

Chapter 9 takes the method into an actual contract, where a technical milestone sends money in an unexpected direction.

What the reference owes you

A public reference should let a reader disagree with it productively. That requires stable definitions, identifiable evidence and judgments whose conditions can be inspected.

The map gives each participant work to do. An engineer still has to make the interface function. An evaluator must decide what evidence can be accepted. Someone must commit funds. Naming their connections helps us bring these tasks into the agreement before the project depends on them.

A chief executive may discover that the missing purchase is an operating arrangement. A public authority may find that its grant pays for equipment but leaves nobody able to maintain it. The citizen reading the same proposal can ask whether its promised benefit reaches the people named on the first page. These are different uses of the same account.

Those readers do not need to arrive at a common conclusion. A supplier might want to proceed while a lender declines. A community may understand the promised efficiency and still reject the loss of choice. The reference should make the reasons clearer, including the reasons to say no.

"In your language" includes the language of the work you are responsible for. A finding becomes useful when the next person can see what it changes in a design, a budget or an obligation to the public.

Use EPAI first on a decision already in front of you. Take competing proposals, mark their work and dependencies, and find one consequential question the original comparison missed. If the exercise changes

nothing, ask whether the decision was already well framed or whether our method failed to help.

The useful result is a revised option with a reason the next person can inspect. Everyone in our example could call the project physical AI and still disagree about what to buy. Comparing their schedules changed the purchase.

Definitions for This Edition

§3.1 EPAI. Embodied Physical Agentic Intelligence is B2AGI's proposed common coordinate for understanding AI capabilities and their relationships with physical action, people, infrastructure, capital and institutions. It connects overlapping fields without declaring their terms interchangeable.

§3.2 Ecosystem. The EPAI ecosystem is the field of participants, capabilities, resources, dependencies and affected lives through which intelligence produces consequences. Its boundary is stated for the undertaking being examined and can be revised when an excluded relationship matters.

§3.3 Framework. The EPAI Framework supplies common concepts and questions for examining that ecosystem: purpose, capability, dependency, authority, evidence, economic arrangements and consequences. It supports comparison without substituting for domain-specific requirements.

§3.4 Prism. The EPAI Prism is a method of bringing accounts from different domains into contact so that evidence, constraints or objections in one can change the questions, options or judgments in another. Its contribution is demonstrated by the consequential relationship or decision change it makes inspectable.

B2AGI proposes these definitions as a common reference that readers can cite, apply and challenge.

B2AGI EPAI 2027

PART II

The World Behind the Window





CHAPTER 4

A Chat Window Needs a Power Plant

B2AGI · EPAI 2027



Two clocks. One system.



EPAI 2027 · A Chat Window Needs a Power Plant

CHAPTER 04 · PART 2 · II / THE WORLD BEHIND THE WINDOW

4. A Chat Window Needs a Power Plant

The invitation was wonderfully small. Type something.

OpenAI released ChatGPT as a research preview on 30 November 2022. Its conversational interface allowed follow-up questions, corrections and explanations in ordinary language. You could try it without first learning how the model had been trained. [1]

For the person at the keyboard, the experiment began with a sentence. Somewhere else, it began much earlier: with chips, buildings, electrical connections and people who knew how to keep them working.

The interface's achievement was to hide much of that complexity. Its economic consequence was to send more people toward it.

Less than two years later, in September 2024, Constellation announced a twenty-year power purchase agreement with Microsoft intended to support the restart of Three Mile Island Unit 1 as the Crane Clean Energy Center. The unit had closed for economic reasons in 2019. It was separate from the unit involved in the 1979 accident. The announced plan would return roughly 835 megawatts to the grid, subject to the work and approvals required for a restart. [2]

A familiar name from nuclear history had entered the story of contemporary computing.

The proposed restart served Microsoft's broader data-centre requirements. Behind the rapidly changing applications lay a power commitment measured in decades.

Two clocks

Software can be revised while a customer is using it. A power connection, cooling installation or major construction programme has a different clock. An investment decision must reconcile both.

Imagine underwriting a facility whose commercial case assumes that one generation of computing demand will remain scarce. The equipment changes. The workload changes. A customer discovers a cheaper model or a different way to serve it. Meanwhile, the building and financing continue to exist.

The project might still be excellent. It might accommodate several kinds of customer. Its location might offer a connection that is difficult to replicate. Its cooling and power systems might support upgrades. But those are the reasons to examine the investment. Enthusiasm about a chat interface supplies none of them automatically.

The International Energy Agency estimated worldwide data-centre electricity use at about 415 terawatt-hours in 2024. Its 2025 base case projected roughly 945 terawatt-hours in 2030 across all data-centre workloads. [3]

At a national level, the numbers suggest growth. At a site, the question is whether power can arrive where and when a customer needs it, at a price the business can support. An expanding world market does not rescue an unusable connection.

In the facility we are considering, a delayed connection could leave installed equipment ageing before it earns revenue. Staging delivery might preserve cash, but losing a reserved supply slot could postpone the opening further. The investment decision needs both schedules on the same page. A forecast of rising demand cannot choose between them.

This is an entry point for companies that will never train a frontier model. Electrical engineering, cooling, construction, operations and maintenance become part of the intelligence economy because intelligence needs their work. The opportunity is concrete enough to disappoint anyone seeking effortless riches. It requires local competence, delivery and customers.

For an established infrastructure supplier, I would pursue contracted work around a demonstrated bottleneck before making a speculative bet on an entire AI district. Start with the customer's delivery schedule, connection

position and operating requirements. Secure the work your company can perform. Do not purchase land merely because a national forecast slopes upward.

The strongest reason for a larger early commitment is that scarce sites and long lead times may reward advance investment. That case deserves approval when credible demand, permits, power and financing support it. It should be written in those terms, not as a wager that everyone will keep talking about AI.

The border inside the building

There was another condition on access to computation. In October 2023, the US Bureau of Industry and Security announced updates to controls on advanced computing and semiconductor manufacturing items, building on rules from October 2022. [4]

A buyer could have the money, the building and a technical requirement yet encounter a restriction unrelated to the machine's performance. The supply chain now had to be read through government authority as well as commercial capacity.

It is tempting to leave that matter to the legal department. An operator cannot. A restriction can affect available equipment, suppliers, service arrangements and the timing of a project. A technically possible design may need a different commercial route. A purchase made without examining that route can become a very expensive incomplete system.

EPAI brings this into the same account as the model and its electricity. The relationship works in both directions. Policy changes the infrastructure available to a model developer. A developer's efficiency can change what infrastructure a customer needs. An infrastructure constraint can change which applications are economically attractive.

For policymakers, this leads to a more useful industrial question than how many chips the country should own. What combination of reliable power, usable computation, skilled operation and paying demand would make the capacity productive? Which part is missing locally, and who is willing to build it?

The answer can justify substantial public action. It can also tell a government to stop subsidizing a redundant element while neglecting the one that holds everything else back.

We began at a keyboard because that is where millions of people encountered the change. Following the consequences takes us to people signing agreements for assets they expect to remain useful long after the present interface has been redesigned.

Their confidence rests partly on assumptions about how much computation intelligence will need. In January 2025, a Chinese model would make those assumptions much harder to leave unexamined.

Sources

1. OpenAI, Introducing ChatGPT, 30 November 2022.
2. Constellation, Crane Clean Energy Center announcement, 20 September 2024. Proposed restart, subject to work and approvals.
3. IEA, Energy demand from AI, Energy and AI, 2025.
4. BIS, advanced computing and semiconductor controls. Historical reference for the October 2023 measures.

CHAPTER 5

The Model That Shook the Machinery

B2AGI • EPAI 2027



B2AGI ART / 05

Efficiency changes the question.



Less per task. How many tasks?

EPAI 2027 · THE MODEL THAT SHOOK THE MACHINERY

CHAPTER 05 · PART 2 · II / THE WORLD BEHIND THE WINDOW

5. The Model That Shook the Machinery

On 27 January 2025, NVIDIA shares fell by nearly 17 per cent. Reuters attributed the market upheaval to investor concerns surrounding DeepSeek, whose models challenged assumptions about the resources required to produce competitive AI. Roughly $593 billion of NVIDIA's market value disappeared in one trading day. [1]

The machinery had not vanished. Buildings remained standing. Chips remained in racks. What changed at extraordinary speed was the price investors would pay for their expectations.

The number that travelled

DeepSeek's V3 technical report described a model trained with an emphasis on computational efficiency. Its account of training resources became part of a much larger public argument about the cost of advanced AI. The report explicitly distinguished the reported official training cost from earlier research and experimentation. DeepSeek-R1, released in January, brought further attention to reasoning models and reinforcement learning. [2, 3]

The tempting comparison put a training run on one side and another company's multi-year infrastructure programme on the other. It made an uncertain technical development look like a simple humiliation: one side had apparently spent vastly more to obtain something the other could build cheaply. But the two figures bought different things.

A training run has a boundary. Research programmes contain unsuccessful experiments. Serving customers incurs continuing costs. An infrastructure investment may support many models and workloads. The useful question is which of those costs a new result changes.

Ask the analyst to mark the assumptions that have become weaker: computation required for a particular quality, selling prices, competitive advantage, or expected use. The next investment decision depends on which of these changes persists after the market's first reaction.

The cheaper journey

Consider an ordinary business process with two costs. The first is obtaining an adequate answer. The second is making that answer usable: retrieving the right records, checking exceptions, securing permission and completing the work.

If the first cost falls sharply, the second becomes more visible. A company that merely resells access to an answer may face pressure. A company that owns the customer relationship and reliably finishes the work may gain room to offer a better service. The same technical improvement can weaken one business and strengthen another.

Cheaper models can open uses that previously cost too much. Whether the resulting demand outweighs lower computation per task depends on customers, capacity and prices. A facility's investment case needs those assumptions spelled out.

Use the uncertainty to separate investments. A project with a contracted customer and adaptable capacity differs from one whose returns require a particular scarcity to last. A supplier selling indispensable integration differs from one earning a margin on access customers can now obtain elsewhere.

For firms close to a real workflow, cheaper usable intelligence is an invitation to revisit work previously too costly to automate or assist. The first move is to recalculate that work's economics and test the limiting task. Buying computation before identifying the customer problem reverses the sequence.

Some recalculations will disappoint. If permissions, poor records or a customer's refusal to change processes dominate the expense, a cheaper model may leave the difficult part of the bill almost untouched.

The other January announcement

On 6 January 2025, before R1's release, NVIDIA announced Cosmos, a world foundation model platform aimed at physical AI development. [4]

Cosmos preceded the DeepSeek market shock. Read the two announcements together and a different connection emerges: they addressed different obstacles to putting intelligence to work.

One brought renewed attention to the efficiency and accessibility of models. The other addressed the difficulty of developing systems that need to understand and operate in physical environments. A robot still needs appropriate data, competent integration, reliable operation and a customer whose work it can do.

Companies can compete on models, supply tools for physical systems or integrate available capabilities into a service. Governments can invest in infrastructure and skills that support several of these businesses.

EPAI helps locate those choices without forcing them into a contest over a single winning layer. That is especially useful for readers outside the few companies able to finance frontier-scale research. The whole economy does not have to own the frontier in order to benefit from its movement.

Reopen any investment thesis whose return depends on permanently expensive intelligence. Identify the business whose usefulness survives cheaper models, then ask whether competition allows it to retain the value it creates. Price, customer access and switching costs matter as much as technical possibility.

A lower model cost is good news for a customer only if it reaches the service the customer buys. A supplier can use it to improve margins, cut prices, offer more work, or fund reliability. Which path it chooses will help determine who captures the next wave of value.

It is time to give that intelligence a smaller, less forgiving task.

Let it run a shop.

Sources

1. Reuters, DeepSeek market selloff, 27 January 2025.
2. DeepSeek-V3 Technical Report, submitted December 2024; the cost account covers the official training run, excluding earlier research and experimentation.
3. DeepSeek-R1 paper and project repository.
4. NVIDIA, Cosmos launch, 6 January 2025.

PART III

Intelligence Goes to Work

CHAPTER 6

The AI That Ran the Shop

B2AGI · EPAI 2027



B2AGI ART / 06

The order outlives the conversation.



EPAI 2027 · The AI That Ran the Shop

CHAPTER 06 · PART 3 · III / INTELLIGENCE GOES TO WORK

6. The AI That Ran the Shop

The shopkeeper offered an employee discount. Almost everyone who could buy from the shop was an employee.
In 2025, Anthropic and Andon Labs put a modified Claude model in charge of a small office shop in San Francisco. Claudius could research stock, set prices and respond to customers. People handled the physical work around a refrigerator, baskets and a checkout device. It was a modest enterprise for an intelligence with such an extensive education. [1]
Customers found that education useful. One requested a tungsten cube. More metal orders followed. Claudius sometimes offered prices before checking acquisition costs and sold below cost. It also offered a 25 per cent employee discount. Challenged about a customer base consisting almost entirely of employees, it agreed to simplify pricing, then resumed discounts within days. [1]
An AI had entered retail and encountered people who wanted a bargain.
It also encountered confusion about its own job. On April 1, Claudius claimed it would deliver purchases in person, wearing a blue blazer and red tie. Its customers had to point out a practical obstacle: it was a language model. [1]
The joke is immediately recognizable. It is also more revealing than a wrong answer on a test. A wrong answer can sit on a screen. A price can persuade somebody to order, commit somebody else to obtain stock, and leave a third person to explain the loss. The sentence has acquired a supply chain.

The order outlives the conversation

Suppose you run the same kind of shop. A customer asks whether you can obtain an unusual item. You find a supplier. Now the customer has to agree to a price that covers obtaining and supplying it.
The customer can ask and never order, order and never pay, or pay and still be waiting for the goods. A shopkeeper has to keep track of which has happened and who is left holding the stock if the customer changes their mind. A fluent conversation can leave all of this unsettled.
Nor does acknowledging a mistake reverse it. A newly sensible explanation cannot recover the margin on an item already sold. Improvement has to survive the next customer who asks nicely.
The agent is interacting with people whose immediate purpose differs from the purpose assigned to it. A customer may quite reasonably prefer a lower price. The business must decide which requests it can afford to grant. Being useful to one participant can impose a cost on another.
Nothing here requires the customer to be malicious. Ordinary bargaining is enough.
An assessment based on the quality of each exchange could miss the accumulated effect. A business record has to connect the exchange to the purchase, the payment and what remains owed. The unit of judgment is growing from an answer into a transaction, and from a transaction into a continuing relationship.

The shop gets a boss

The December follow-up brought better results and a larger organization. Claudius had newer models, revised instructions and tools that exposed acquisition costs and tracked orders. Payment links let it collect money before ordering. Human approval remained necessary for purchases. The follow-up tested this revised arrangement as a whole. [2]
There was also a chief executive: another agent, Seymour Cash. Discounts fell by about 80 per cent after its introduction, but refunds tripled and store credits doubled. Anthropic did not conclude that the CEO deserved credit for the improved business. [2]

The two agents could also spend the night congratulating one another in increasingly extravagant exchanges. The refrigerator had acquired the rhetoric of an empire. [2]
Imagine the report a conventional management dashboard could have produced. Discounting is down. The instruction has reached the shopkeeper. The intervention appears to be working.
Now ask the person keeping the accounts how much money remains after refunds and credits. A refund can reverse a transaction; a credit can create an obligation to supply something later. A defective product deserves a remedy. A customer who has simply found another way to obtain a concession presents a different problem.
A second agent can disagree with the first while relying on the same incomplete records. Its value as a supervisor depends on what it can see, check and correct.
The improved shop points to a practical source of progress: the arrangement around the model. Remembering a purchase price, tracking an order and collecting payment sooner are unglamorous abilities. A business needs them every day.

Who may spend the money?

The customer buying a purchasing agent has two decisions to make: what the agent can know, and what it can commit the business to do.
Give the agent useful access to supplier information, stock records and order preparation where that saves work. Keep authority over exceptional prices, refunds and new spending commitments narrower until the organization can reconcile their consequences. Let routine execution expand where the evidence supports it. Do not buy an additional managerial agent as a substitute for a reliable transaction record.
That choice gives up some apparent autonomy. It also gives the customer something more valuable than an autonomous conversation: a way to know what the system has committed the business to do.
A supplier proposing broad authority should therefore demonstrate the full transaction, including exceptions. What happens when an order changes after a price is agreed? When payment arrives twice? When a customer claims the delivery never came? The best answer may involve a person. The person must have the records and authority to settle the matter, and the cost of that work belongs in the price.
Requiring a person to approve every ordinary purchase can erase the benefit. Expand authority where repeated operation shows reliable reconciliation and manageable intervention costs. Keep consequential exceptions visible. The customer's need is a transaction that can be completed or corrected, with enough information to settle a disagreement. That may be worth more than another feature on a model comparison chart.

Where the next business sits

Consider a firm already maintaining purchasing software for local retailers. It knows which records are reliable, which suppliers change terms unexpectedly and which owner must approve an exception. That knowledge may give it a better entry into agent services than developing a model of its own.
Its first offer should concern an expensive recurring job its customers already recognize. It might prepare replenishment orders and reconcile acknowledgments, leaving unusual commitments for approval. It might identify discrepancies between agreed prices and invoices. These are different services with different buyers and different failure costs. Calling all of them an AI employee conceals the choices the customer needs to make.
Choose the offer whose completed work can be demonstrated and whose customer will pay for the improvement. Include maintenance and correction in the economics. An existing software platform may already perform it adequately; in that case, adding a model can create cost without a business. Where scattered records and costly exceptions remain unresolved, integration and operating knowledge may support a durable service.
Better records can enable more authority to be delegated safely. More useful delegated work can produce evidence that improves the next decision. But if exceptions multiply faster than the work saved, expansion makes

the service worse. The supplier must watch both movements, not celebrate only the volume passing through the agent.

EPAI brings the whole arrangement into view. Agentic capability initiates work. People and equipment fulfil it. Prices and payments determine whether it can continue. Permissions determine which promises may be made. Records let the participants discover when those promises have come apart.

The office shop contains all these relationships without containing a humanoid. Intelligence can reach the physical economy through an order and a person carrying a box. It does not have to grow hands first.

The next chapter takes us to machines that do have bodies, and to audiences ready to applaud them. The question from the shop follows us there: what happened between the impressive action and the result someone could depend on?

Sources

1. Anthropic, Project Vend: Can Claude run a small shop?, 27 June 2025. Experimenters' account of setup, pricing and discounts. The subsequent purchasing examples are hypothetical.
2. Anthropic, Project Vend: Phase two, 18 December 2025. Tools, human purchase approval and the discount/refund/store-credit comparison. Models and operating arrangements changed together, so their separate effects cannot be isolated from these results.

B2AGI EPAI 2027

CHAPTER 7

After the Applause

B2AGI · EPAI 2027



B2AGI ART / 07

First to finish.
Not first by the rules.



EPAI 2027

7. After the Applause

In Beijing in April 2026, the robot that crossed the finish line first did not win.

Honor's remotely controlled machine finished the half-marathon in 48 minutes and 19 seconds. Another Honor robot, navigating autonomously, took 50 minutes and 26 seconds. Weighted scoring awarded the championship to the autonomous machine. A year earlier, the winning robot had needed more than two hours and forty minutes. [3]

The times made the technological progress memorable. The result made something else visible: even a race needs to decide what counts as success.

Two clocks would have been enough to establish which machine arrived first. They could not establish which achievement the organizers intended to reward. For that, the audience needed to know how the machines were controlled and how the rules treated the difference.

What the audience could see

The previous year had provided another kind of stage. On 28 January 2025, sixteen Unitree H1 robots joined human performers at China's Spring Festival Gala. In the yangge routine, red handkerchiefs and coordinated movement brought traditional dance into a robotics demonstration. [4]

The routine displayed coordination, balance and control in a choreographed performance. For a factory buyer, the relevant performance is handling changing inventory on a night shift.

Another event exposed how easily viewers could fill in what they had not been shown. Bloomberg reported human control of some Optimus functions at Tesla's October 2024 event, alongside autonomous walking. [5]

Agency can be distributed across a machine and people elsewhere. A viewer may see one body and imagine one independent actor. The buyer is purchasing that arrangement, including the people who keep it working.

Each demonstration reveals something different: coordinated movement, balance at speed, or navigation through a changing course. A purchaser needs to know which achievement bears on the work being bought.

Three questions take the excitement into a purchasing conversation. Which part of the work did the machine perform without assistance? How many attempts stand behind the reported result? Under what conditions was it achieved?

A supplier may disclose a demonstration honestly while still being years from a viable product for this buyer. Equally, a less spectacular machine may already solve an expensive problem reliably. It deserves a hearing even if nobody forwards its video.

Tuesday arrives

A robot that performs well on a stage has accomplished something. The audience can see it. The engineer knows how many difficulties had to be solved before the movement looked effortless.

The purchaser has a less photogenic question. What happens on Tuesday?

Tuesday contains the awkward item, the new employee, the worn component and the delivery that did not arrive. It also contains the ordinary work that repeats long after the demonstration has ceased to be interesting. A business has to serve Tuesday.

A customer puts the machine to work

In November 2025, Figure reported results from an eleven-month Figure 02 deployment at BMW's Spartanburg plant. The company said the robot had handled more than 90,000 components and contributed to production of more than 30,000 vehicles. Its account described over 1,250 operating hours and learning that informed a later

robot generation. [1]

BMW subsequently described Figure 02's contribution to production and the experience gained from integrating humanoid robots into an existing manufacturing environment. [2]

The accounts identify a task, a customer and a period of work: loading components into an existing production process. The buyer's cost calculation includes installation, support and labour as well as the machine. What did BMW and Figure have to put around the machine to keep that task running?

The cost outside the body

A machine arrives with a purchase price. A working installation acquires other costs: preparation, integration, supervision, maintenance and the work needed when something unusual occurs. Some are visible on the supplier's invoice. Others appear in the customer's overtime or in a manager's day.

Suppose a robot reduces handling time but creates interruptions that require a scarce technician. The labour saving and the technician's time belong in the same account. Suppose instead that it takes over a demanding repetitive task, improves consistency and releases a person for work that was previously neglected. Those consequences deserve to be counted too.

A supplier that knows how to reduce installation time, support operators and resolve recurring exceptions may create more customer value than one that adds another impressive movement. The supplier might be the robot maker. It might be a regional integrator or service company working with several makers.

Find a repeated task for which customers already pay and where the surrounding work can be standardized enough to support a service. Build the evidence with the operator who will live with it. Price the whole arrangement, including recovery, rather than winning an equipment sale whose unpriced obligations later consume the margin.

For an industrial buyer, my recommendation is to authorize a defined production application when its task, support and economics are credible. Refuse a site-wide purchase justified primarily by a general demonstration. The recommendation can change quickly. A relevant operating history across comparable conditions, a competent support arrangement and convincing economics may justify expansion. Conversely, a successful first installation can fail to support replication if it depended on extraordinary attention from the supplier's best engineers.

Who learns from the exception?

There is another asset in the work: learning.

An operator notices which items cause difficulty. A technician finds that a recurring failure depends on how a work area is arranged. The supplier learns which component needs redesign. These contributions can improve the next installation.

Where the learning goes matters commercially. If the customer cannot access its own operating history, replacing a supplier may mean losing part of its accumulated knowledge. If a supplier cannot reuse generalized improvements, every deployment may remain a bespoke engineering project. Agreements have to support both continuity for the customer and a sustainable learning business for the supplier.

For policymakers funding robotics, the purchase also buys an opportunity for local firms to learn installation, maintenance and improvement, then sell that expertise. A subsidy can buy equipment. A capable industry needs people and enterprises that can keep acquiring useful knowledge.

Require usable operating records, training and a practical exit arrangement while negotiating the first installation. Do not wait until a dispute to discover what the customer is permitted to know about its own production.

Several bodies, one purpose

The human form has strong appeal. Workplaces have been built around people, and a machine that can use familiar spaces and tools offers an ambitious route to generality. But the purchaser should begin with the service required, not the shape most likely to appear in a photograph.

A specialized machine, a software agent and a person may jointly provide a better arrangement for a particular task. Another task may justify a humanoid's flexibility. The ecosystem has room for both conclusions.

EPAI follows how these different capabilities become useful outcomes. The shopkeeper in the previous chapter needed people to perform physical work. The factory robot needs a larger operating environment. A medical delivery system will make the same point with an aircraft that resembles no person at all.

Its destination is a health facility in Ghana. The cargo is two bags of fluid. There is no audience waiting to applaud.

Sources

1. Figure, production at BMW, 19 November 2025. Supplier-reported production activity; independent ROI remains outside this account.
2. BMW Group, humanoid robots in production, 2026. Each activity figure retains its own reporting period.
3. Associated Press, Beijing robot half-marathon, 19 April 2026. AP attributes times and autonomy information to organizers and the weighted-result account to Global Times. The race account concerns the 2026 event.
4. CGTN, Spring Festival Gala, 29 January 2025; Unitree company chronology, 28 January performance.
5. Bloomberg reporting carried by the Los Angeles Times, 15 October 2024. Human assistance with some functions alongside autonomous walking.

B2AGI EPAI 2027

CHAPTER 8

Two Bags of Fluid

B2AGI · EPAI 2027

B2AGI ART / 08

The result is at the receiving end.



Requested

Received

Available





EPAI 2027 · Two Bags of Fluid

CHAPTER 08 · PART 3 · III / INTELLIGENCE GOES TO WORK

8. Two Bags of Fluid

On 19 April 2024, an aircraft called Zip 856 carried two bags of intravenous fluid from Zipline's distribution centre in Ghana's Western North Region to a local health facility. It was the company's millionth commercial delivery across its worldwide network. [1]

A million was the company's milestone. Two was the facility's delivery.

The network's size matters because it can keep doing this for other facilities.

A history outside the chat window

Zipline had begun daily blood deliveries to two hospitals in Rwanda in October 2016, six years before ChatGPT's public release. The company's retrospective describes early launches that required hours of debugging and a service that became more dependable through sustained work with hospitals. [1]

A reader following only frontier-model announcements could miss how African medical needs and the institutions trying to meet them were already shaping an operating service.

The need helped make the undertaking worth building.

What arrives with a delivery

A drone carries a product between locations. A health service must connect much more.

Someone has to know the product is needed. It must be available at the dispatch point. A request must reach the operator in time. The receiving facility must be able to accept and use it. The arrangement must work again tomorrow.

Consider the alternatives available to a health manager. Hold more stock locally and risk waste or tied-up resources. Deliver on a schedule and accept the gaps between visits. Arrange an urgent road journey. Use air delivery where its advantages justify its cost. The sensible answer may combine all of these.

The aircraft creates an option. The health manager creates a service by choosing where the option belongs.

That work is easy to overlook if we classify the entire undertaking as a robotics deployment. It is equally easy to overlook the technical achievement if we see only a procurement contract. EPAI retains both, then asks how their relationship affects what a person can depend on.

The ordinary result

IDinsight's 2022 evaluation in Ghana found improvements in the availability of medical products, alongside limits to the measured effects. It found no significant overall change in patient referrals caused by medical stockouts. The study also identified room to improve uptake and information flow. [2]

Those findings point toward a richer account than a delivery total. A service can be technically available without every facility knowing how to use it well. It can improve stock availability without producing every expected downstream effect. Work remains between introducing an option and making it useful.

For a public purchaser, I would start expansion decisions with the unmet service need. Identify where existing transport and stockholding leave a serious gap in service. Compare the ways of closing it, including arrangements that use the aircraft alongside other methods. Fund the arrangement with the best supported service case.

This approach can favour drones. It can also favour a better ordering process or a modest improvement to an existing route. The purpose is to buy access to care, and the choice should remain open until the actual problem makes it narrower.

For a local enterprise, there may be a valuable role in that narrowing. A supplier that already understands clinics, replenishment and local transport can help connect a new capability to everyday use. It brings trust and practical knowledge accumulated while serving customers nobody in a distant development team has met.

I would pursue that role where a purchaser can commission and fund a measurable improvement. I would not buy a fleet on the assumption that the health system must eventually find money because the need is obvious. Need and purchasing power are related through institutions; they do not coincide automatically.

The place left for the reader

The story opens a route into EPAI for countries and companies that do not manufacture advanced chips or lead model benchmarks. They can identify a difficult need, assemble available capabilities, organize dependable operation and contribute what the system learns in practice.

Local teams can learn how the service behaves in their conditions, which ordering arrangements work and what training reduces avoidable errors. They can identify demands better served another way. That knowledge gives them something to contribute to the next deployment.

The commercial terms determine whether that possibility survives. Local teams need access to relevant records and a way to carry their learning forward. Suppliers need a business that pays for continued improvement. Public institutions need a service that remains affordable and accountable. None of those interests disappears because the cargo is important.

We will return to Ghana after following the money. The delivery will still be a useful achievement. Its price and continuity will look more complicated.

Sources

1. Zipline, Why a million deliveries is only the beginning, 19 April 2024. Milestone and early history are the company's account.
2. IDinsight, impact evaluation in Ghana, 6 June 2022. Specific findings and the payment question return in Chapter 11.



CHAPTER 9

The EPAI Prism: One Contract, Five Readings

B2AGI · EPAI 2027

B2AGI ART / 09

One clause. Five readings.

Engineering

Does it pass?

Operations

Does it work here?

Accounting

Which obligation?

Finance

When does cash move?

Public requirements

Is this evidence enough?

Acceptance

Test

Cash calendar

EPAI 2027 · The EPAI Prism

CHAPTER 09 · PART 3 · III / INTELLIGENCE GOES TO WORK

9. The EPAI Prism: One Contract, Five Readings

A retailer can help a robotics company win its next customer. It can also have a financial interest in what happens when that customer signs.

Both possibilities were present in a transaction announced in January 2025. Walmart was selling its Advanced Systems and Robotics business to Symbotic, a supplier already automating its distribution network.

Accompanying the sale was an agreement to develop systems for picking and delivering online orders at stores. Walmart committed to 400 systems if they met defined performance requirements, with an option for another 200. The initial agreement ran for twelve years. [1]

Read that as a technology story and the attraction is straightforward. A specialist gains a robotics business and a large potential deployment. Read it as a customer's story and another attraction appears: Walmart can help develop the equipment it needs without keeping that whole development business inside the retailer.

Then a prospective customer outside the arrangement turns the page.

The filing describes circumstances in which commercialization of substantially similar systems or their software could entitle Walmart to a royalty. It also describes restrictions involving a specified company and a quantitative limit, without enough public detail to reconstruct their full reach. [1]

That customer's purchase could sit inside a bargain negotiated before it entered the room.

The first customer travels with the product

An anchor customer can provide the problem, technical requirements, funding and operating site that make development possible. In return, it can negotiate a share of future sales. A supplier may exchange part of its future freedom for a business it could not otherwise build.

But these are two different things to value: the technology's ability to serve another customer, and the supplier's ability to sell it to that customer on attractive terms.

A demonstration settles neither question for the other.

Imagine being the procurement director of a second retailer. You have seen a system perform the work you need. Your next question used to be whether the supplier could deliver it at a competitive price. Now there is an earlier question: can it offer this configuration to your company, and on what terms?

The published summary leaves some restricted counterparties and the royalty schedule undisclosed. The second retailer needs the terms applicable to its own purchase before it can compare offers.

A royalty pays for an earlier contribution. The buyer needs to know how it affects the price, access, support and supplier incentives attached to this purchase. A buyer might accept it readily. Another might ask for a different configuration. A third might discover that it needs a different supplier.

All three can understand the same ecosystem and reach different conclusions.

One clause crosses the table

Symbotic's later proxy statement supplies a detail that makes the bargain more interesting. Implementation pricing combines costs with a specified profit amount, and in some circumstances the costs are capped. [2]

The pricing formula still leaves qualifying costs, applicable caps and remaining obligations to determine the economics. A specified profit amount cannot be read as a guaranteed percentage margin.

Then follow the first system to acceptance. Under the disclosed arrangement, that milestone would require Symbotic to pay Walmart $175 million. A further $175 million would be payable if Walmart exercised its option for another 200 systems. [3]

The customer has helped finance development. Successful acceptance now sends money back in the other direction. An engineer preparing a test and a treasurer preparing a cash forecast need to be discussing the same date.

Follow that date through the work of the people involved. For an engineer, it is a performance milestone: can the system pass the agreed test? For the operating buyer, the test must establish that an installation can do the required work in its store. Their agreement on success now also sets a cash obligation in motion.

The accounting team has to separate development work, system delivery and continuing services. Each may carry a different obligation. The acceptance clause tells the treasurer when a payment becomes due; it does not by itself tell the accountant how much revenue to recognize. That judgment depends on the relevant obligations and the work completed. [3]

Now move beyond the first customer. A financier examining expansion has to distinguish a system that can work elsewhere from a business free to sell it elsewhere on attractive terms. The commercialization clauses follow the engineering result into the market model. A prospective second buyer has a reason to investigate eligibility before commissioning an elaborate performance comparison.

There is one more boundary. A public authority or standards specialist may require evidence that the private acceptance test never set out to provide. Commercial acceptance cannot authorize operation in another jurisdiction. A finding that helps the buyer release one decision may leave the evaluator's decision open.

Engineering puts an event on the cash calendar. The contract changes which technically possible sales belong in a forecast. The public evaluator needs evidence for the proposed jurisdiction and use, beyond the buyer's acceptance test. Each reading changes what another participant must examine.

A different investment question

An investment presentation might begin with a familiar multiplication: potential sites times revenue per site. There is a place for that calculation. It describes the size of an opportunity if its assumptions hold.

Change the valuation model before changing the sales forecast. Give the anchor deployment and sales beyond it separate columns. The questions in each column are different.

What the investor needs to estimate	Anchor deployment	Another customer's deployment
What turns interest into an order?	The disclosed commitment depends on performance requirements	A separate buyer must be eligible, willing and able to contract
What determines the supplier's earnings?	Applicable pricing, qualifying costs, caps and remaining obligations	Negotiated price, delivery and support costs, and any applicable royalty or other rights
When can cash be used?	The actual development and deployment payment schedule	The new customer's own payment terms, which the anchor agreement does not establish

An applicable royalty changes what the supplier retains. A restriction may remove a buyer or configuration from the accessible market. To price each proposed sale, the commercial team needs its applicable rights, restrictions and charges, including terms withheld from the public summary.

The result is a different investment model even before anyone chooses a new growth rate. The original multiplication counted possible sites. The revised account asks which sites can become this supplier's business, on what economics and payment schedule. Do not use the first customer's commitment to answer all three questions for the next one.

Do not value outside-customer expansion as unrestricted replication of the anchor arrangement. Revise that assumption before deciding whether the business is attractive.

The next task belongs to the commercial and investment teams together. Establish which products and buyers are covered, which payments apply, and what support the supplier owes. If the restrictions are narrow, the economics attractive and unrelated customers willing to buy, the expansion case becomes stronger. Those findings can reverse the initial caution.

A supplier without the anchor deal might have no product to sell at all. The bargain purchases a route into existence as well as surrendering some freedom. Both belong in the comparison.
Negotiate the second market while negotiating the first customer. A company can price an exclusive field of use, define a period, reserve other applications, agree thresholds or retain general engineering improvements. The appropriate instrument depends on what the customer actually funds. A customer paying for a modest trial should not casually acquire the economic equivalent of financing the whole platform.
And a customer underwriting a major development programme will reasonably expect something more than gratitude.
The bargain should leave both sides with more to gain from the next successful deployment.

What EPAI adds

Our starting point was a robotics sale. The connected account contains development finance, physical performance, software obligations, market access and authority to recognize a result. Each connection can alter a decision in another field.
Applying the EPAI Prism changes my advice to three readers. The buyer should establish eligibility before commissioning a performance comparison. The investor should value the anchor and outside markets separately. The supplier should negotiate future commercialization in the first agreement.
Keep the path from each clause to the decision it changes. Another reader can follow it through a different contract.

A Page to Use on Your Own Project

§9.1 State the decision. Name the decision-maker, action, scope and date. Buying equipment, financing its supplier and recognizing a test result are different decisions.
§9.2 Write the initial verdicts. Record the conclusions of the perspectives the decision needs. Engineering, operations, accounting, finance and public authority are useful here; another project may need different participants.
§9.3 Move one consequential finding. Carry a fact or objection into another perspective. Keep its source, conditions and original meaning. Here, the commercialization clauses move from the contract into the investor's market model and the next buyer's procurement inquiry.
§9.4 Develop the changed option. Specify what would change in the design, bargain, sequence or participants. Separate a verified existing right from a right you propose negotiating.
§9.5 Decide again. Record the recommendation, decisive reason, next action and reversal condition. Keep justified disagreement. Commercial approval cannot vote a safety requirement out of existence.
§9.6 Test the contribution. Complete this sentence: because we connected these two accounts, we discovered this relationship and changed this option or judgment. If the sentence stays empty, you may have assembled perspectives without using them.
Keep the first version of the page. When new evidence arrives, the earlier assumptions are part of the evidence too.
Walmart has appeared here as the customer whose rights may travel beyond its own installations. In the next chapter, we follow another journey: how money from a customer can enter a supplier long before the supplier has finished the work.

Sources

1. Symbotic Form 8-K, transaction dated 27 January 2025, Item 1.01. Some terms are redacted. The agreement has a twelve-year initial term; individual obligations may follow different schedules.
2. Symbotic 2026 proxy statement, pp. 54–56, especially the separately headed 2025 Walmart MAA. It expressly identifies cost caps in certain cases. Pricing and restrictions are not interchangeable with those of earlier agreements.
3. Symbotic FY2025 Form 10-K, 2025 Walmart MAA commitments and revenue-recognition policy (US GAAP). The cited milestones specify when payments become due. Payment completion is outside the evidence cited here.

The five professional readings and three revised recommendations are the author's application of EPAI to the disclosed contract. They illustrate decisions for investors, buyers, suppliers and evaluators.

PART IV

The EPAI Economy





B2AGI · EPAI 2027

CHAPTER 10

The Customer Who Is Also the Bank

B2AGI · EPAI 2027



B2AGI ART / 10

Cash arrives before completion.



EPAI 2027 · The Customer Who Is Also the Bank

CHAPTER 10 · PART 4 · IV / THE EPAI ECONOMY

10. The Customer Who Is Also the Bank

In fiscal 2025, Symbotic lost about $91 million. Its reported free cash flow was positive $788 million. [3]
The pairing leads back to the relationship introduced in Chapter 9. Walmart was more than a prospective buyer: it had sold Symbotic a robotics business and was helping fund systems it expected to purchase.
Under the January 2025 agreement, Walmart would provide $520 million associated with development, including $230 million paid at closing. If specified performance criteria were met, Walmart committed to purchase and deploy systems for 400 accelerated pickup and delivery facilities at stores over several years. [1]
Walmart was also an existing shareholder. Its January 2026 proxy listed beneficial ownership of about 12.7 per cent of combined common stock. [4] Development payments supported work on future installations; the shareholding gave Walmart a stake in the supplier's wider fortunes.

The money makes a return journey

At closing, Symbotic paid Walmart $200 million for the transaction. Of that payment, the accounts treated $45 million as consideration paid to Walmart in its role as a customer under the accompanying agreement. Even the money paid to buy the business belonged partly to the relationship through which Symbotic would sell its work. [2]
Add the later acceptance payment from Chapter 9. The customer helps finance development; the supplier completes a technical milestone; money then travels back to the customer. The announcement's picture of a seller and a buyer has become a schedule of obligations in both directions.
Reconcile those movements before judging how much finance the supplier needs. Keep each payment in its proper period and accounting category. The task is to follow each dollar once.
The customer's name appears on both sides of the schedule. That is the feature an ordinary list of suppliers, customers and shareholders would conceal.

Cash arrives before completion

Put two calendars beside the cash balance. One records when customers pay. The other records when the supplier must spend to fulfil what those payments bought.
Symbotic's annual operating cash-flow reconciliation included a positive movement of about $606 million in deferred revenue. [2] Translate that category into time: money has arrived while obligations remain. The supplier has room to order parts, employ engineers and complete installations before the corresponding revenue is earned. This helps explain how a company can report a loss and still receive substantial cash.
Now test the calendars. New advances arrive more slowly, but existing installations still require parts and people. Or an acceptance date moves, changing when a payment falls due. These are stress cases for the investment model. They show why the balance in the account must be read alongside the work it still has to fund.
The question becomes: how much of the cash is needed for promises already made, and what happens if the next customer's cheque arrives later? An answer can change the amount or timing of finance while leaving the assessment of the robot's technical ability untouched.
For a supplier with a credible delivery record, this is also a route to growth. Negotiate payments against progress the customer can inspect. A well-designed sequence can reduce the need to sell more equity before the product earns its way.

A route around the waiting room

Early industrial companies encounter a familiar circle. Customers want evidence before committing. Investors want customers before funding. Developing the evidence requires money.
An anchor customer can break that circle. It can supply a real operating problem, access to a site, development support and a path toward purchases. The supplier can turn that work into a capability it hopes to sell more widely.
The benefits are substantial. So is the possibility that one relationship begins to determine the shape of the entire company.
Symbotic's fiscal 2025 annual report said Walmart accounted for approximately 85 per cent of revenue. It reported $22.5 billion of backlog and separately identified $11.6 billion associated with GreenBox, a venture owned 35 per cent by Symbotic and 65 per cent by SoftBank. [2]
GreenBox makes the picture more interesting than a seller waiting for unrelated buyers. A company partly owned by the supplier is also an important route to future demand. That can open a market: customers may use an automated network without purchasing every system themselves. It also means that the funding and deployment of the venture belong inside the assessment of the supplier's future business.
The filing also describes a significant majority of backlog as attributable to Walmart. Its relationship to the GreenBox amount is unclear. [2] Treat these as two descriptions of commitments, not separate customer slices to add together. A few relationships carry a very large order book.
Do not price that concentration as diversification. Examine who can turn those commitments into installations and what fulfilling them will cost. A demanding anchor can support development that scattered small orders cannot. Can the supplier use what it has developed to repeat deployments, sustain support and serve other customers on workable terms?

The continuing bill

The spending calendar continues after installation. In Symbotic's fiscal 2025 operation-services category, each dollar of revenue cost about $1.07 to deliver, before other corporate expenses. The reported category therefore made a gross loss of roughly 7 per cent of revenue. [3]
Recurring revenue has an appealing sound. Recurring work sends invoices in the opposite direction.
The report gives the category result; individual contract costs and the causes of the loss remain undisclosed. Will more installations spread shared costs, or add support work faster than revenue? A forecast of recurring sales needs an operating answer.
The buyer should ask it too. A support arrangement must remain viable for the provider if it is to remain dependable for the customer. A low initial service price can be attractive and still leave an uncomfortable renewal negotiation later.

A negotiation worth having

For a smaller industrial supplier, a customer prepared to share development work is worth seeking. Bring a defined problem and a staged proposal. Identify what the customer gains at each stage, what the supplier retains for future sales, and what happens if the next technical condition is not met.
Do not trade away every future route to market merely to obtain the first cheque. Equally, do not expect a customer to finance development while accepting unlimited uncertainty about delivery. A sustainable bargain allocates both the learning and the risk.
The customer may reasonably protect confidential operating data. The supplier may need to reuse general engineering improvements. An agreement that fails to distinguish the two can produce either an unreasonable demand for secrecy or an unreasonable demand for access.

The principal reason to decline an anchor arrangement is that fulfilling it would make the supplier incapable of serving anyone else profitably. That can happen through excessive customization, restrictive rights or a price that fails to fund support. A large customer can create a business and consume it. The contract and the operating record decide which story is developing.

In Ghana, we will meet a purchaser paying to keep a medical delivery service ready. The patient receiving medical supplies does not control a development budget. The health facility placing an order may not control the payment either.

Sources

1. Symbotic, acquisition completion and commercial agreement, 28 January 2025; transaction presentation filed with the SEC. Acquisition completion and purchases conditional on performance criteria.
2. Symbotic FY2025 Form 10-K, year ended 27 September 2025; Note 8 for acquisition consideration and its allocation. US GAAP reporting. Gross loss is calculated from disclosed category revenue and cost. Causes and individual contract results remain undisclosed.
3. Symbotic FY2025 results, 24 November 2025. Net loss is GAAP; free cash flow is the company's reconciled non-GAAP measure. Rounded figures in the opening refer to the full fiscal year.
4. Symbotic 2026 proxy statement, beneficial ownership table. The percentage measures combined common-stock beneficial ownership. Voting rights and acquisition consideration are separate measures.

Accounting detail: The preliminary acquisition allocation treated $45 million of the $200 million closing payment as consideration paid to Walmart as a customer, reducing the commercial agreement's transaction price and offsetting short-term deferred revenue (10-K, Note 8). Operating cash flow of $866.9 million less $79.0 million of capital expenditure and capitalized internal-use software produced reported free cash flow of $787.9 million. The $606.4 million movement in deferred revenue is one item in the operating reconciliation, not a standalone measure of earnings or cash available without obligations. Acquisition, customer and contingent payments must not be netted or deducted again indiscriminately. Operation-services revenue of $98.452 million and cost of revenue of $105.304 million imply a $6.852 million gross loss and approximately $1.07 cost per revenue dollar. These are category figures, not a diagnosis of individual contracts or a security-specific recommendation. The customer-as-bank title describes a financing function of commercial arrangements, not a bank loan.

B2AGI EPAI 2027

CHAPTER 11

The Flight Has Landed. Who Pays?

B2AGI · EPAI 2027

B2AGI ART / 11

One fee. Two readings.





Monthly fee

Readiness

What is kept available?

Affordability

Can the service continue?



Capacity



Use



Payment

CHAPTER 11 · PART 4 · IV / THE EPAI ECONOMY

11. The Flight Has Landed. Who Pays?

Before the first deliveries in Ghana, there was already an argument about the bill.

In December 2018, Vice-President Mahamudu Bawumia defended a planned $12.5 million medical drone service. Citi Newsroom reported his explanation that corporate social responsibility support would fund it, rather than the government budget. Parliament had approved the international transaction amid opposition to its cost and suitability. [6]

The debate put two necessary questions beside each other. Could this improve access to medical supplies? Who would keep paying for it? A positive answer to the first could make the second more urgent without making it easier.

Operations began in Ghana in 2019. By April 2024, the two bags of fluid we followed in Chapter 8 marked Zipline's millionth commercial delivery worldwide. The operating history had become substantial. So had the importance of the institutions sustaining it.

By December 2025, Ghana's health minister was telling a different story about the same service.

At a government press conference, Kwabena Mintah Akandoh said the state was obliged to pay $88,000 a month per distribution centre. Across six centres, that meant more than half a million dollars every month. He described the arrangement as take-or-pay: the obligation did not disappear simply because the government made less use of the service. He wanted better value for the money. [2]

The arithmetic was easy: $528,000 a month at those stated rates. The argument was harder.

What, exactly, was Ghana buying?

A flight? A delivery? A network waiting for the next emergency? Fewer empty shelves? More people receiving treatment?

Put each answer at the top of a spreadsheet and the same service begins to look like a different purchase.

That is where a functioning technology becomes a difficult business. A machine can finish its task while the people paying for it are still arguing about what the task was worth.

The Subscription with Two Readings

Most of us have paid for a subscription we barely used. The bill arrives with remarkable consistency. Our enthusiasm does not.

A medical delivery network raises a much more serious version of that familiar question. Why keep paying when fewer deliveries are required? Because being ready may be part of the service. The operator still needs people, facilities, working aircraft and the capacity to respond. An emergency cannot wait for those resources to be assembled after the order arrives.

But readiness is also a convenient word behind which an oversized purchase can hide. A public buyer has to establish how much is needed, where it is needed and what response it is purchasing. A monthly fee can finance useful preparedness. It can also preserve an expensive mistake.

Seven months before the minister's press conference, Zipline had presented the fixed fee as an advantage.

In a statement published in May 2025, the company said Ghana was using its existing delivery network to carry additional medical supplies after disruption to USAID-supported supply chains. It described a flat monthly government fee covering unlimited deliveries and said the added activity required no increase in government spending. Supplies could be channelled through capacity already paid for. [3]

In May, the company was saying: use more of the network and the existing payment goes further. In December, the minister was asking whether that payment was buying enough of the right service.

Both positions can make sense. A fixed bill makes additional useful activity attractive while also exposing the buyer when useful activity falls short. The question is who can organize the demand, which needs should take priority, and whether the resulting service justifies the commitment.

The purchaser can order more deliveries without increasing the flat fee. The operator still has to cover the cost of those extra flights.

For the buyer, spare capacity may be an opportunity. For the supplier, a promise of unlimited use requires a very good understanding of what customers will actually ask it to do.

Before either side orders another aircraft, those two calculations should meet.

The Wrong Denominator

Take the minister's reported $88,000 monthly fee as a worksheet number. Hold it constant for a thirty-day month. At one hundred deliveries a day, the fee works out at roughly $29 per delivery. At twenty a day, it is about $147.

Nothing about the aircraft changed. The allocated fee per delivery rose fivefold.

The delivery volumes in this worksheet are assumed, and the calculation allocates only the fixed fee. It explains why a financier cares so much about use—and how that concern can become the wrong instruction.

If the only target is a lower average fee per delivery, the obvious instruction is to fly more. Carry something. Keep the number moving.

Yet a cheap delivery that was unnecessary does not become a public benefit because it improves a chart. Equally, an expensive flight carrying an urgently needed product may justify the cost. A monthly average cannot distinguish the two.

The health minister's criticism went beyond the bill. In December, he said only 12 per cent of activities served hard-to-reach areas and 4 per cent involved emergencies. Those were the government's reported classifications. They challenged whether the service was doing the job the government thought it had purchased. [2]

But emergency deliveries are not the only way to improve health. Routine replenishment can prevent a shortage from becoming an emergency. A programme that succeeds in prevention should not have to manufacture a crisis to demonstrate its value.

This is why the categories matter. If the purpose is emergency response, measure response and the cost of maintaining it. If the purpose is a more dependable supply chain, examine shortages, replenishment, waste and the alternatives. A service should not be sold under one purpose and quietly assessed under another.

Evidence of practical benefit existed before the payment dispute. IDinsight's 2022 evaluation found that participating facilities had fewer days without medical products. Across the eighteen products studied, the reduction was five days over the preceding three months, against forty-five days in the comparison group. It did not find a significant overall effect on patient referrals caused by medical stockouts. [4]

The measured improvement gives the purchaser a benefit to value against the price and the available alternatives. The next comparison must be with the best workable alternative. Scheduled road delivery may be the right answer for predictable demand. Local stock may cover some emergencies. A drone may become valuable where those arrangements leave a costly gap. A serious assessment needs the costs and consequences of that gap, including the delay borne by patients and staff.

Ask whether the service is worth its price. Then make sure the price and the benefit describe the same job.

The Work Left on the Ground

The aircraft is the easiest part of this business to photograph. Much of the work that determines its usefulness happens elsewhere.

A health worker has to know what can be ordered. A facility needs a way to recognize a shortage soon enough to act. Someone must distinguish an urgent request from an item that can wait for scheduled transport. The warehouse needs the product. The receiving facility needs to accept and use it.

None of these tasks becomes automatic because the middle of the journey is autonomous.

IDinsight's evaluation also found room for greater use. Most facility heads answering the relevant question thought their facilities could use Zipline more. The researchers recommended clearer information, feedback and fewer barriers to using the service. [4]

Here is an opening for a business that will never manufacture a drone.

A local supplier already serving clinics may know which products repeatedly run short, which deliveries are predictable and where an emergency trip consumes a day. A software company may know how to connect ordering with stock records. A logistics operator may have the road network needed to complement air delivery. Their opportunity is to make the whole service more useful to a purchaser, not to attach another AI label to a flight.

The first customer for that work should be an institution that can authorize it and pay for the benefit. Start with an existing service area. Establish which unmet needs could be served by capacity already available, what additional work that would require, and what other transport it would replace or support. Sell a defined improvement in that service before proposing a larger network.

The tempting shortcut is to assume that social need will eventually produce a budget. Ghana's experience should end that assumption.

A patient can need something desperately without controlling any purchasing power. A clinic can request a delivery without being the institution that pays the bill. A ministry can recognize a benefit while still struggling to release the money. These are different positions in the same service, and a business has to connect them.

That connection is worth building. It does not become viable just because everyone in the room agrees the work is important.

The Other Delivery Route

By July 2026, the dispute had reached Parliament again. A Ghana News Agency report carried on Modern Ghana said the government owed about GH¢175 million and that three distribution centres had closed. Akandoh told Parliament that some payments had been made but arrears remained, and that the ministry was working to clear them. [5]

The minister linked interrupted service to outstanding payment. His reported balance leaves the parties with a concrete task: match each invoice against the service accepted and the payments made.

For an investor, this changes what counts as technical diligence. The aircraft's ability to reach a facility is only one route to examine. The other runs from an authorized purchase through service records, approval of an invoice and the eventual release of cash. A blockage there can reach the operating site as surely as a missing spare part.

For the public buyer, the consequence is equally uncomfortable. A service can become woven into routine work before the institution has secured the arrangements that keep it available. When provision is interrupted, staff have to find alternatives under pressure. The people who depend on the service cannot wait for a procurement argument to be resolved.

This is where I would refuse a reassuring answer often given to financiers: the state is the customer.

That identifies the counterparty. It does not identify when cash arrives, what must happen before it can be released, or how much interruption the supplier can survive. Financing has to be built around those conditions. A long contract with an important customer can still produce a short supply of cash.

There are ways to improve that position. A public purchaser can establish an explicit budget and payment schedule. The parties can define acceptable evidence of service and a process for resolving disputed amounts. A

lender can examine payment protection and working-capital needs before advancing money. A continuity plan can identify how essential deliveries will be covered during an interruption.

Each arrangement costs something and needs the appropriate authority. Calling a reserve account or a guarantee into existence on a slide does not fund it. The work is to obtain a commitment that survives beyond the meeting. For suppliers, that work belongs inside the product. Customers are buying the ability to depend on the service next month as well as admire it today.

Through the EPAI Prism

The delivery milestone makes expansion attractive. Put the payment dispute and the evaluation beside it, and a different purchase comes into view: better use of the capacity already available. The health workers saw room to use the service more; the evaluation found benefits worth preserving. Zipline's account of absorbing additional demand suggests that some of that work could fit within an existing commitment. The arrears expose the condition that better use alone cannot supply: dependable payment.

The buyer now has to distinguish a shortage of aircraft capacity from failures of ordering, coordination or funding. Each requires different work and a different budget. EPAI brings the flight, the clinic and the payment office into the same decision, with the next patient's delivery at stake.

The records must connect too. A completed flight, an accepted delivery, an invoice due and a payment received describe four different events. Agree on how to identify and relate them. An aircraft's safety approval cannot answer whether an invoice is payable; a payment record cannot establish clinical benefit. This is the practical work behind connecting standards and institutional criteria: preserve what each piece of evidence means while making it usable across the boundary.

The next useful innovation may therefore sit between the technologies already installed. Better ordering, shared service records and a dependable payment process can give an existing network a stronger reason to operate. None requires Ghana to invent the aircraft again.

My Call

For a public purchaser facing the conditions described here, NO-GO on expanding a fixed-fee network before establishing the purpose, use and payment basis of the capacity already contracted. Successful flights alone do not justify another fixed commitment.

The next move is a joint operating and funding plan for existing coverage. Health-service leaders, procurement and finance must work from the same record: which facilities need which service, what delay or shortage it addresses, what capacity is available, and what authorized funds will sustain it. Identify essential deliveries and their fallback first. Do not let a review of the contract turn into an accidental withdrawal of care.

The strongest objection to waiting is real. A district outside the network may face a serious unmet need, and delaying expansion may carry a greater cost than starting it. I would change the recommendation where that need is demonstrated, cannot be served adequately by current capacity or a better alternative, and has credible funding for continued operation. An urgent, funded exception deserves its own decision. It should not be used to approve an unevidenced national rollout.

For a local supplier already serving clinics, GO on developing a replenishment service around existing delivery capacity before investing in an aircraft fleet. Take one service area to a purchaser able to commission the work. Show where stocks repeatedly run short, which deliveries should remain on the road, and which could use available air capacity. Price the ordering, coordination and records needed to make that combination reliable. Seek a paid service agreement for that defined area; expand when its results and collections justify doing so.

The strongest reason to reject this opportunity is that the buyer may lack either the budget or the authority to change the service. Another is that current staff and suppliers can make the improvement without a new

intermediary. If either holds, do not build a company around the diagram. Find a different customer or a different contribution.

A health worker should be able to request the next delivery without having to wonder whether the business behind it will still exist.

Sources

1. Zipline, 19 April 2024. Why a million deliveries is only the beginning.
2. Ghana News Agency, 1 December 2025. Zipline contract: government spending over half a million dollars on drone services per month. Reporting of the health minister's press conference, including the fee, six centres and activity classifications. These are attributed official statements, not an independent contract audit. The two percentages are not added together: their categories may overlap.
3. Zipline, published 6 May 2025, statement dated 23 April. Ghana supply-chain resilience amid USAID disruption. Company's account of a flat fee, unlimited deliveries and added use within the existing government payment. The claim concerns the purchaser's bill; the operator still bears the cost of additional flights. Savings are company-reported.
4. IDinsight, 6 June 2022. Measuring Zipline's impact on health access, availability and supply chain in Ghana; April 2022 evaluation brief, printed p. 7. Both summaries pair 86 per cent with 77 of 93 facility heads. Those figures do not reconcile as a simple proportion. The evaluation supports the finding of room for greater use, but leaves its precise percentage unresolved.
5. Godwill Arthur-Mensah, Ghana News Agency, 30 July 2026, republished by Modern Ghana. Health minister assures Parliament of plans to settle Zipline debts. Used for attributed arrears and closure reporting. The original GNA URL was inaccessible during this research. No exact shutdown date is asserted here because the later report's chronology differs from contemporaneous November 2025 accounts. The July report is not treated as proof of centre status on 25 October.
6. Citi Newsroom, December 2018. We'll fund $12.5m drone deal from CSR support - Bawumia clarifies. Reporting of Bawumia's explanation of the planned service's funding.

Arithmetic: $88,000 × 6 = $528,000 monthly at the minister's stated rates. In the illustrative thirty-day examples, $88,000 ÷ 3,000 = $29.33 and $88,000 ÷ 600 = $146.67 per delivery. These allocate a reported fee; they are neither observed volumes nor total service costs.

Contract access: The operative contract and amendments have not been examined. Contract descriptions are attributed to the public accounts cited above.

B2AGI EPAI 2027



CHAPTER 12

Beyond the Photograph

B2AGI · EPAI 2027

Ownership and collaboration diverge.



12. Beyond the Photograph

The chicken was the easy part to understand.

On 30 October 2025, Jensen Huang met Samsung Electronics' Lee Jae-yong and Hyundai Motor Group's Euisun Chung for fried chicken and beer in Seoul. The gathering gave a complicated industrial relationship a scene almost anyone could recognize. Three executives whose companies could commit enormous resources were doing something ordinary enough to have its own Korean abbreviation: chimaek. [1]

The associated APEC announcements described plans for more than 260,000 GPUs across Korean government and corporate projects. The restaurant photograph could not show what those machines would enable, who would operate them or which businesses would collect the eventual revenue. [2]

For that, follow Chung out of the picture. Then go back almost five years.

Eighteen days before the dance

On 29 December 2020, Boston Dynamics released a video in which Atlas, Spot and Handle danced to the Contours' Do You Love Me? Bodies with two legs, four legs and wheels moved through a routine that made their engineering look playful. The company's greeting marked the end of an unhappy year with an unexpectedly cheerful performance. [3]

Eighteen days earlier, Hyundai Motor Group and SoftBank had announced an agreement for the Korean group and Chung to acquire approximately 80 per cent of Boston Dynamics. The transaction valued the robotics company at $1.1 billion. SoftBank would retain the rest. Hyundai Motor, Hyundai Mobis, Hyundai Glovis and Chung participated in the purchase, completed in June 2021. [4]

The dance and the deal belonged to different kinds of attention. Millions could enjoy the first without asking how the second would ever pay. The purchasers could not avoid that question indefinitely.

The buyers had committed before the dance appeared. They also brought something a video cannot supply: a place in an industrial organization. A vehicle maker, a component maker and a logistics business were participating in the purchase. Each occupied a different position around the machine. Parts would have to be made, systems installed and work organized before the purchase could yield the industrial gains the group sought.

To the public, Boston Dynamics was a company that made extraordinary robots. To an industrial owner, it could also become a development operation, a future customer for parts, a supplier to factories and an expensive commitment to capabilities that had not yet reached their intended scale.

Those are different reasons to own the same company.

The body changes hands

Boston Dynamics had entered Google's robotics portfolio in 2013. In 2017, SoftBank announced its acquisition from Alphabet. By June 2020, under SoftBank, Spot was being offered for commercial sale following an earlier-access programme. A robot familiar from demonstrations was becoming equipment that customers could order and use. [5]

The business had a clock, too. In 2016, reporting on Google's proposed sale described tensions over how soon the robotics work could generate revenue. [12]

A machine can become more capable while its owner's willingness to wait runs down. The engineering clock measures what the next version can do. The financial clock measures how long the organization can support the work before it must earn its keep. Both clocks belong to the same robot.

By the time Spot went on commercial sale in 2020, Boston Dynamics had crossed one visible threshold: a customer could order a product. The next thresholds would belong to customers themselves. Could they put it to useful work? Would they buy again? Who would pay for the adaptations between the machine that arrived and the job that needed doing?

Hyundai then put an industrial customer inside the ownership structure. The group could offer places to investigate those questions as well as money to keep asking them. It would also inherit the cost of waiting for satisfactory answers.

The development bill continued under Hyundai. Hyundai Glovis's audited 2025 accounts reported a net loss of roughly 528 billion won for Boston Dynamics. [6] The owner was funding an enterprise whose future was larger than its current earnings.

Can Hyundai turn its factories, component businesses and logistics operations into an advantage for Boston Dynamics worth the cost of sustaining it?

A factory can be a first customer. It can also be the place where engineers discover that the product needs redesign. A parts affiliate can bring manufacturing knowledge. It can also acquire a difficult new customer with immature volumes. Ownership makes coordination possible; it does not make the coordination free.

A former owner returns through another door

At CES in January 2026, Boston Dynamics announced a partnership with Google DeepMind alongside a production version of electric Atlas. The company said its 2026 Atlas deployments were already committed to Hyundai's Robotics Metaplant Application Center and DeepMind, with additional customers planned for 2027. [7]

Google had returned through an AI research partnership.

Toyota Research Institute had already entered a related space. Its October 2024 agreement with Boston Dynamics combined research on large behaviour models with the Atlas platform. Toyota's research organization could contribute to a robot company controlled by another vehicle group. [8]

This is where a national scoreboard begins to lose the plot. An American robotics company, a Korean industrial owner, an American AI research organization inside a former owner's group, and a Japanese carmaker's research institute do not fit neatly into rival flags. They have different relationships to the body, its intelligence and the work it may perform.

A model developer contributes learning capabilities; a chip supplier provides computation; a component maker supplies parts; a factory operator supplies work and operating conditions. The public partnership announcements leave detailed data and intellectual-property rights to the agreements behind them.

Who finances the interval before a repeatable business exists? Who can use the improvements elsewhere?

At CES, Hyundai presented a plan to establish capacity for 30,000 robots annually by 2028, with Atlas parts-sequencing work targeted for 2028 and component assembly for 2030. Its account assigned roles to manufacturing operations, components and logistics as well as AI partners. [9]

The calendar now stretches from the acquisition announced in 2020 to assembly work targeted for 2030. Across that interval, the owner is paying to connect research, components, manufacturing and first use. The capacity target concerns how many machines can be built; the application targets concern the work those machines are intended to do.

This is the kind of capital an impressive demonstration hides: money that must remain committed while several other capabilities catch up. Buying a promising machine and financing that interval are different investments.

The customer who sold, and the customer who bought

Now place Walmart beside Hyundai.

Walmart had worked with Alert Innovation since 2016. In late 2019, a store in Salem, New Hampshire, became the pilot site for a fulfilment system using Alert's robots. In October 2022, Walmart announced it would buy the developer. Bringing the expertise inside the retailer was supposed to accelerate deployment. Its annual report recorded a $400 million acquisition. [13, 14]

Then came another turn. In January 2025, Walmart agreed to sell its Advanced Systems and Robotics business to Symbotic. Through development funding, conditional purchases and commercial rights, the retailer retained influence over the next stage of development. [10]

The customer had tried partnership, internal ownership and a new external development bargain. Selling did not mean ceasing to shape the product. It changed the instruments through which Walmart would do so.

Hyundai travelled in the other direction, acquiring control of Boston Dynamics while inviting outside research partners into the work. Both customers were rearranging where development sat relative to their own operations.

The comparison turns on what each company gained and gave up by moving development across that boundary.

An acquisition is only one way to obtain influence over a technology. A development agreement, purchase commitment, equity interest, licence or jointly operated site may secure a different portion of the same opportunity. None is a perfect substitute for the others.

Consider a manufacturer whose factories could help train a new system. Buying the developer would give it stronger corporate control, but also bring salaries, development choices and financing needs onto its side of the relationship. A partnership might preserve access to several developers while giving it less control over priorities. A purchase could be simpler still, if a mature product already exists and the factory has no reason to fund invention.

The right choice depends on which capability the company needs to control and which obligations it can carry. Owning a business because its product is strategically important is not enough. Many strategically important things are bought from suppliers.

The ownership history also changes how an acquisition should be priced. A buyer may acquire a robotics company and still need a separate agreement for a model, a computing service or access to a customer's factory. The company's shares, its employees' knowledge and its partners' permissions travel under different arrangements.

Follow one indispensable task through those arrangements. Who can change the model? Who may use the operating records to improve it? Who can authorize a restart? Which of those capabilities would survive the end of a partnership? The public announcements identify participants; the investment decision needs the rights that let them work together.

I would pay an acquisition premium for control that the intended work genuinely needs and that a workable partnership cannot provide. Then I would budget for the people and infrastructure required to exercise it. A cheap acquisition can become an expensive permission slip if the decisive capability remains in somebody else's hands.

A smaller firm can win a durable place by supplying a capability the larger partners need, with terms that reward continued improvement. The next customer still has to find it useful.

Who buys a robot before it has a job?

Across the sea, Wang Xingxing's Unitree, **宇树科技**, offers another view of the early customer.

The Beijing News' March 2026 account of its prospectus reported that research and education represented 73.6 per cent of humanoid revenue in the first nine months of 2025. Industrial applications accounted for about 9 per cent. Both are broad categories: research and education covers work beyond AI training, while industrial applications extend beyond repetitive production-line labour. [11]

Set that beside Boston Dynamics' announced Atlas destinations. The Chinese company and the American company under Korean control have very different ownership and commercial histories. Yet both accounts reveal demand from people still developing what robots will do.

Laboratories, universities and developers buy tools to discover what a robot can do. Their purchasing cycle can begin years before the same platform is ready for regular factory work.

The distinction matters to a component maker. Research buyers may value flexibility, accessible interfaces and small orders they can modify. A production buyer may care more about repeatability, delivery assurance and service over many years. A company able to serve research buyers should not wait for the production market to mature before seeking orders. It should also not build a mass-production plant because a few research programmes placed enthusiastic orders.

The next move is commercial, not philosophical. Identify actual buyers, required specifications, purchasing authority and repeat demand. Quote for a capability you can supply profitably. Research demand can be a legitimate starting point, with its own economics.

For a factory buyer, the direction is different. Reject a labour-saving purchase case supported only by a maker's research sales. Those sales establish customers for a platform; they do not measure the hours saved in your process. Evidence from comparable industrial work can change that conclusion. A useful research partnership may be worth approving even while a large labour-replacement order is not.

These buyers are purchasing tools to develop future work. An investor forecasting production revenue needs to identify the next buyers: operators paying for work the machines can already perform.

Back to the table

The Seoul photograph now contains more than three famous men.

Behind Chung is an ownership history and a network of factories, suppliers and research partners. Behind Huang is a platform whose market grows as more organizations develop and deploy intelligent systems. Behind Samsung is a business that can supply critical components and buy computation for its own operations. Their roles cross the usual supplier-customer boundary.

The dinner did not create those relationships from nothing. It made them memorable. EPAI lets us keep the image while following what the image cannot show.

For a country watching from outside, the opportunity lies in a contribution this group still needs: a component, an application, an operating site or a dependable service. Its value depends on who needs it and what can be negotiated around it.

Some of the most promising participants will never appear in a celebrity photograph. They are already inside factories, maintaining systems and learning why a particular process fails. To find them, we leave the restaurant and visit an industrial operation in Chile.

Sources

1. Reuters video, Seoul dinner, 30 October 2025.
2. NVIDIA, South Korea AI infrastructure. The newsroom date and Korean public-announcement date differ by time zone. The dinner accompanied the announcements.
3. Boston Dynamics, Do You Love Me?, 29 December 2020. Video.
4. SoftBank, acquisition agreement, 11 December 2020; Hyundai, completion, 21 June 2021. Ownership percentages refer to this transaction.
5. SoftBank, acquisition from Alphabet, 9 June 2017; Boston Dynamics, commercial Spot sales, 16 June 2020. Leasing and early-access programmes preceded commercial sales.
6. Hyundai Glovis, audited consolidated financial statements for 2025, posted 18 March 2026, Note 12.3, printed p. 68 (PDF p. 69). The summary financial information reports Boston Dynamics, Inc.'s net loss as KRW 528,448,126 thousand, approximately KRW 528.45 billion. This is the investee's reported net result, not Hyundai Glovis's

B2AGI EPAI 2027

equity-method loss, operating loss, product-level margin or cash burn. Asia Today, commercialization and losses, dated 24 August 2026 on the article page, provided the earlier secondary account.

7. Boston Dynamics, new Atlas and deployment plans, 5 January 2026. Announced allocation for future deployments; revenue recognition and completed installations are separate milestones.
8. Boston Dynamics and Toyota Research Institute, 16 October 2024. Research partnership.
9. Hyundai Motor Group, CES 2026 strategy, 6 January KST. Capacity and deployment dates are company targets.
10. Symbotic filings cited in Chapters 9–10. Walmart's equity holding preceded the January 2025 transaction.
11. The Beijing News, Unitree prospectus analysis, 21 March 2026, reporting January–September 2025 customer categories. Latest prospectus reconciliation remains open; these historical categories are not a 2026 market-share estimate. The SSE listing announcement separately records the August 2026 listing.
12. The Guardian, reporting on the proposed Google sale, 18 March 2016, drawing on Bloomberg's reporting. The account of internal discussions comes through that reporting; the minutes were unavailable for direct examination.
13. Walmart, Alert Innovation acquisition announcement, 6 October 2022. It dates collaboration to 2016 and the Salem pilot to late 2019. Faster deployment was Walmart's stated aim for the acquisition.
14. Walmart FY2023 Form 10-K, acquisition disclosure. Alert had previously been consolidated as a variable-interest entity; the transaction made Walmart its sole owner. The later ASR sale is not treated as a like-for-like resale of identical assets for purposes of calculating a gain or loss.

CHAPTER 13

The Next AI Business Is Already Running

B2AGI · EPAI 2027



B2AGI ART / 13

The service is already there



EPAI 2027

CHAPTER 13 · PART 4 · IV / THE EPAI ECONOMY

13. The Next AI Business Is Already Running

The next AI customer may already be paying someone to answer the telephone when the plant has a problem. That company knows the site. It knows which system has been modified, which records need caution and which apparently minor alarm worries the operator. It may not appear in an AI market map. It could hold several of the things an AI supplier most needs.

An October 2026 announcement brought this possibility into focus. Schneider Electric, NVIDIA and HPE described a collaboration on physical AI for process industries, including industrial agents at the edge. The release identified CMPC Chile, a pulp, paper and packaging producer, as an existing user of Schneider's operational technology monitoring system for roughly three years. It presented that monitoring history as a foundation for the future introduction of agents. [1]

Three years of monitoring came before the proposed agent. The industrial customer already had a system, a supplier and a history to work from. The announcement offered a next step; the agent's own operating results still lay ahead.

The customer before the model

An established industrial supplier begins with a customer already paying to keep an operation working. Monitoring may reveal a condition; an agent might retrieve its history, propose an investigation or prepare a maintenance task. The buyer can compare each contribution with the current service. Giving the agent authority to change a running process would be a further purchase and a further decision.

The existing records need interpretation too. A repeated workaround may be a clue to a design problem or a response that should never be repeated. The people who know the difference belong in the development work. A supplier that omits them may automate a mistake more efficiently than its customer's old process.

An outsider can supply the model. It cannot instantly reproduce years of responsible work at the site.

Selling the missing result

Suppose the specialist begins each visit by reconstructing an incident from scattered records. The supplier could offer to prepare that account before the visit, with the agent gathering evidence and the specialist assessing it. The operator would retain authority over changes to the running process. The customer would be buying a shorter investigation, with a result it could compare against previous visits.

Sell the investigation improvement where the customer can compare it with existing work. If records are inaccessible, preparation costs consume the saving, or current tools already do the job more cheaply, stop or narrow the offer. The unit on the invoice should correspond to something the customer wants improved.

This offer could begin while a larger equipment replacement is still being planned. The proposed work uses records and the specialist's time while leaving the production line unchanged. The first result could then inform the larger purchase. Waiting for a new generation of machines might mean overlooking work the customer already needs done.

The economics of being useful

A service company can capture value in several ways. It might charge for a defined investigation, continuing readiness or improved management of specified assets. Each arrangement requires a different cost model. Recurring fees also pay for recurring work.

If every new site requires the best engineer to rebuild the system, expansion may consume the margin. If the firm can develop reusable connectors, procedures and training while preserving site-specific judgment, later work may become easier.

The first engagement should separate reusable work from what each new site must authorize or teach again. That distinction belongs in the cost of the next contract.

A financier can follow the service from one paying customer to the next: how much work did each contract take, and could a second team deliver the improvement? A service business can be attractive without resembling a pure software subscription. It should be valued for its own economics.

A different place on the world map

Chile enters this story through an operating industrial customer. Ghana entered through a medical need and a delivery system. Korea entered through manufacturing, components and computation. Each contributes knowledge and demand from a different place in the work.

EPAI makes these positions easier to see because it does not stop its industry map at the model developer or robot manufacturer. It follows the work into the places where a system has to earn continued use.

An installation can leave the customer more capable, or more dependent on a service it cannot understand or replace. Training, records and practical authority influence which result develops. Local participation should be evaluated by what local organizations can actually do, not only by the number of logos on a partnership slide.

The agent therefore returns to the story through a different entrance from the office shop. Claudius began with a new assignment. The industrial agent arrives in work that already has equipment, records, responsibilities and a provider. An established service firm should examine those customers first: it may already know the costly episode a distant model developer has yet to discover.

Consider one such episode: a robot stops, and the people responsible must agree what happened before they can safely get the work moving again.

Sources

1. Schneider Electric, collaboration with NVIDIA and HPE, 21 October 2026. Company account of existing OT monitoring at CMPC and plans to introduce agents. The reported operating history belongs to the monitoring system.

B2AGI EPAI 2027

PART V

The Power to Act







CHAPTER 14

When the Robot Stopped

B2AGI · EPAI 2027

B2AGI ART / 14

A green light is not permission.



EPAI 2027 · When the Robot Stopped

CHAPTER 14 · PART 5 · V / THE POWER TO ACT

14. When the Robot Stopped

At Walmart, an acceptance test connected performance to a payment. Take that lesson into the distributor's imagined warehouse, halfway through a shift. The robot stops. Now the decision concerns the next movement. Orders are waiting. A supervisor calls the equipment supplier. The supplier can see that the machine received a stop instruction. The software provider can see that its agent completed the assigned task. The network team reports that communication is available. Everyone has a green light somewhere.

The robot is still not moving.

A customer who bought an operating system is now purchasing explanations of its parts, one telephone call at a time.

The second instruction

The first question is why it stopped. The second is more consequential: who can authorize it to start again?

A stop could be a correct response to a dangerous condition. It could follow a fault, a mistaken instruction or interference. Restoring movement without distinguishing those possibilities may turn an interruption into an accident.

The supervisor's pressure is real. Delays have costs. Yet the person closest to the loss may not possess the evidence or authority needed for a safe restart. The system has brought together capabilities faster than the organization has settled their boundaries.

Chapter 9 showed how a contract can change the meaning of technical success. Here the relationship is tested under pressure: who can reconstruct the incident and authorize the return to work? A recovery service must solve that problem. Answering the telephone is only the beginning.

The participants need a coherent account. Which command was issued? Under whose authority? What did the system observe? Which version of the relevant software was running? What changed before the stop? Which parts of the record are missing? Two logs can be individually accurate and still refer to different moments or different tasks.

The account should preserve those differences. A missing observation does not become a fact because an AI can write a plausible explanation around it.

Who is allowed to do what?

Identity is not enough. A legitimate agent may be authorized to arrange work without being authorized to restart machinery. A legitimate technician may be competent to diagnose a fault without holding the site's permission to resume production.

Authorization standards help systems express and manage parts of this distinction. IETF RFC 9396, for example, defines a structured way to request detailed authorization. W3C PROV-O provides a vocabulary for representing how records relate to activities and responsible agents. [1, 2]

They address different needs. Permission concerns what may be done. Provenance concerns how a record came to exist. A traceable record can be false. A technically valid authorization can still be inappropriate if the surrounding policy or operating conditions are wrong.

For the distributor, the relevant achievement is practical. The recovery team should be able to connect the incident record to a qualified assessment and an authorized next step. The work may end in a restart, a repair, a manual fallback or continued shutdown. Successful recovery is not defined as getting the robot to move at any price.

The service nobody bought

The original suppliers may each have fulfilled their contracts. One sold equipment. Another supplied software. Another provided connectivity. The missing work lies in coordinating the incident across them and obtaining the judgment needed to proceed.

A provider could sell that coordination, bringing technical competence and negotiated access to the records. Escalation agreements and a defined scope of authority would give it a route from diagnosis to action. The customer would be paying for a diagnosis it can act on, including findings that a supplier may dispute.

An integrator already responsible for an installed system may be well placed to provide it. An independent specialist may be preferable where conflicting interests make diagnosis difficult. The customer should decide who owns the coordinating role before the interruption, when negotiating terms is easier than finding a willing person at short notice.

Buy recovery coordination where that gap is demonstrable and the provider can secure the necessary cooperation. Reject a restoration guarantee that leaves essential records and safety authority outside the agreement. When the phone rings, the promised service must have the means to do its work.

The bill will include readiness during quiet months. Compare that cost with existing support and the consequences of waiting for a coordinator after an incident. Choose a service level the operation can sustain.

A memory the next shift can use

When the incident is resolved, the records should not disappear into separate ticketing systems. The next shift needs the explanation, the change made and the conditions under which the equipment was returned to service. If the explanation later proves wrong, the correction should remain connected to it.

A decision record preserves what was claimed, the evidence used, the action taken and the reason for revision. The next person responsible can recover the account and see what changed. Access follows that person's role and the work they need to do.

The business benefits can compound. A repeated incident may reveal a training need, a design defect or a poorly divided responsibility. The account can support a better service and a different investment. The record of an interruption becomes material for discovery.

The recovery agreement should specify the incident records the provider may access and when that access ends. Workers and operators need to know what the investigation can examine.

In Hangzhou, connectivity and interoperability raised questions about how different systems could work together. The stopped robot makes the human consequence tangible. The owner needs the participating institutions to carry explanations, refusals and permissions across their boundaries as reliably as the machines carry commands.

Sometimes, however, the decisive boundary is farther away. The service provider itself may be unable to restore access. The switch is held somewhere else.

Sources

1. IETF RFC 9396, OAuth 2.0 Rich Authorization Requests, May 2023.
2. W3C PROV-O, 30 April 2013.

The distributor incident continues the book's hypothetical case.

CHAPTER 15

The Switch Was Somewhere Else

B2AGI · EPAI 2027

B2AGI ART / 15

Two logos. One dependency.

Trace the route behind the name.



EPAI 2027 · The Switch Was Somewhere Else

15. The Switch Was Somewhere Else

On Friday, 17 November 2023, OpenAI announced that Sam Altman was leaving. The board had removed the chief executive most closely associated with ChatGPT's arrival in the world. Chief technology officer Mira Murati would lead the company temporarily. The board said it had lost confidence in Altman. [2]

The announcement also explained something less familiar than the man it dismissed. A nonprofit board governed the organization. Its responsibility concerned a mission, not simply the value of shareholders' investments. The commercial success of ChatGPT had not abolished that structure. [2]

Here was a form of authority that a product comparison could not show. The model could answer the same questions while the institution behind it changed its leadership.

The partner offers another home

Microsoft's public statements changed with the crisis. Its November 17 statement affirmed the partnership and support for Murati's team. A subsequent statement, archived under November 19, announced that Altman, Greg Brockman and colleagues would join Microsoft to lead a new AI research team. Microsoft also expressed willingness to work with OpenAI's new leadership. [5]

The partner was preparing for two relationships at once. It could continue working with the company, and it could offer resources to the people leaving it. Money, employment and institutional authority no longer fitted into a simple picture of one company buying access to another company's technology.

For a buyer, that distinction matters. A supplier's capabilities depend on an organization that keeps people and resources working together. The right to dismiss a chief executive and the capacity to preserve a research operation are different forms of power. An organization may possess the first while depending on other participants for the second.

The next update changed the destination again. Microsoft's November 21 post carried Altman's statement that he looked forward to returning to OpenAI with a new board and Nadella's support. Nadella welcomed the governance changes. [5]

By November 29, OpenAI's formal return announcement named Altman as CEO and Murati as CTO. Bret Taylor would chair an initial board with Larry Summers and Adam D'Angelo. Microsoft would receive a non-voting observer position. In his accompanying message, Altman said the company had lost neither an employee nor a customer during the crisis. [3]

Altman was back. The arrangement around him was not simply back where it had started.

In March 2024, OpenAI published the summary of its commissioned WilmerHale review. It attributed the removal to a breakdown in trust between the former board and Altman, rather than concerns about product safety, development speed or finances. It found that the board acted within its broad discretion, but had not anticipated destabilizing the company. [4]

The company's explanation exposes a problem larger than the dispute: an institution can possess the authority to make a decision while misjudging what that decision will do to the institution.

What the customer had bought

Imagine assessing a critical supplier a week before the November 2023 crisis. Its model performs well. Its technical documentation is extensive. The price is acceptable. None of those findings tells you how research, staff, commercial commitments and oversight would hold together in a serious internal dispute.

A board must be able to disagree. The buyer's concern is which obligations survive the disagreement: access to records, support for existing work, the ability to move an essential process, and the people authorized to communicate and act during disruption.

For a nonessential writing assistant, a leadership dispute may require little more than attention. For a service on which others must rely, continuity belongs in the evaluation before the organization becomes difficult to move. Confidence in a celebrated founder is not a substitute for that work. Neither is confidence in a prestigious board. Altman's return announcement reported customer continuity through the crisis. The buyer still had reason to examine the relationships that made that continuity possible.

The investment comes with a place to spend it

The US Federal Trade Commission examined another route by which financial relationships shape technical choices. Its January 2025 account of partnerships involving Microsoft, Amazon, Google, OpenAI and Anthropic described equity and revenue-sharing arrangements, cloud-spending commitments, and certain consultation, control and exclusivity rights. It also identified potential switching costs and access to sensitive business and technical information. [6]

Read that package from the developer's desk. Funding can make a larger model possible. A commitment to buy computing services can help secure capacity. The same arrangement can shape where the developer trains, how it distributes products and what moving elsewhere would cost. The investment announcement and the infrastructure decision belong in the same analysis.

For a customer, two apparently competing applications might draw on overlapping infrastructure. A financier's investment thesis may depend on the terms of a service agreement. A public authority assessing national capability has to account for relationships negotiated between companies.

A cheque can redraw the architecture of an industry. To judge the bargain, put the money, spending commitments and decision rights on one page. Approve a partnership when the capability it unlocks justifies the obligations it creates. Where essential work would become difficult to move, negotiate the necessary access and transition arrangements while the parties still have a reason to agree. A financing round is an excellent time to secure them.

When authority reaches the login screen

In June 2026, a different provider's customers found their access subject to a government decision. According to Anthropic's account, US export controls imposed on June 12 required restrictions on foreign nationals' access to Fable 5 and Mythos 5. Unable to verify nationality immediately, the company suspended both models for everyone. The controls were lifted on June 30. Fable returned globally on Anthropic's own services on July 1; restoration through cloud partners followed a separate process. Mythos access remained more limited, with selected US organizations restored earlier under government approval. [1]

A customer waiting through a cloud partner could face a different timetable from one using Anthropic's own service. Its route back to work depended on the model, provider and applicable approval.

From the customer's desk, the problem is painfully simple. Yesterday's workflow used a capability that today's workflow cannot reach. The customer has not changed. The boundary around the service has.

The country inside the subscription

A cloud service can make geography almost invisible. The screen looks similar in different countries. Documentation is available online. Payment may take only a few minutes. Behind that convenience, the provider's infrastructure, contracts, personnel and permissions sit within particular jurisdictions. The customer may have obligations in another jurisdiction. Some of these relationships remain inconspicuous until a restriction, dispute or emergency makes them decisive.

We encountered an earlier form of this problem in the semiconductor controls discussed in Chapter 4. A powerful chip could exist and still be unavailable to a particular buyer. With an online model, the dependency can reach into a service already being used.
The terms of continuity belong in the international purchase.
Consider two firms using the same model. One drafts proposals with it. The other has built a time-critical approval process around it. Identical subscription access produces very different exposure. The first can tolerate slower work. The second may have created an obligation it cannot meet without a decision made elsewhere.
Counting how many foreign suppliers each firm uses would reveal little of this difference. Following what must continue reveals a great deal.

A second logo is not a second route

The immediate response is often to buy a backup. That can help. But two products may depend on the same underlying provider, cloud infrastructure, identity service or approval process. The invoices are separate while the interruption is shared.
Even genuinely different models may not be interchangeable inside a workflow. An alternative can produce a plausible answer and still fail the organization's required checks. A tool connection, an unusual document format or a permission boundary may be enough to prevent useful substitution.
Run the actual workflow on the backup: retrieve the records, use the tools and complete the required checks. That establishes which work can continue.
For an essential service, fund a working fallback before expanding dependence on a single external model. It may be a second provider, a smaller locally operated model, a manual process or a combination. Choose the least costly arrangement that preserves the essential obligation for the required interruption period.
A hospital does not need an emergency process to produce elegant prose. It needs the relevant people to obtain the information and authority required to continue care. A factory may need a safe stop and a workable production schedule before it needs its most sophisticated planning assistant.
Continuity costs money. For an ordinary writing tool, the existing manual process may be enough; an expensive second system would buy little. For an essential operation, an untested alternative may buy even less. Spend according to the obligation that must survive. Paying twice for the same exposure is a poor form of reassurance.

Sovereignty with a job description

The same distinction belongs in national policy.
Domestic development can give local institutions more control when they hold the rights and capability to operate and adapt the model. That still requires electricity, hardware, software maintenance, specialist staff and data. Countries using international models can retain control over essential work through local operations, transferable records and tested alternatives.
The useful question is specific: which capability must remain available, under which disruption, and who can maintain it?
That question gives a government something it can buy, build or negotiate. A declaration of independence from every external supplier gives it a slogan and an enormous shopping list.
There is a commercial opening here for firms that understand both the customer's work and its dependencies. They can build migration paths, evaluate substitutes, preserve usable records and rehearse continuity. The work requires knowledge of the operation, not merely a catalogue of models.
Enter through one service whose interruption has an identifiable cost and an accountable buyer. Offer a demonstrated route through a defined disruption. The customer should be able to name the work that continues when the primary provider becomes unavailable.

What must cross the boundary

When the primary service returns, a final problem remains. Work has continued somewhere else. Records may have been created by a different model or a person. Decisions may have been deferred. The organization has to reconnect these histories without pretending nothing happened.
Continuity includes the return journey.
This brings us back to the stopped robot. The machine needed a defensible account of what happened and permission to proceed. The organization whose model disappeared needs the same kind of account at a larger scale: what was interrupted, what substituted for it, what remains unresolved and which decisions can now resume.
EPAI keeps those questions in the same field of view. The model's capability, the operator's obligation, the provider's authority and the state's intervention belong to one working system even when they appear in different reports.
The next difficulty is older than AI. Once records, permissions and results cross borders, who will accept them?

Sources

1. Anthropic, Redeploying Fable 5, 30 June 2026, updated 1 July. Company's chronology of restrictions and restoration. The continuity recommendations are the author's analysis of the resulting dependence.
2. OpenAI, leadership transition, 17 November 2023. The reasons announced by that board are attributed to it.
3. OpenAI, Altman's return and initial board, 29 November 2023. Microsoft's observer position at the time of Altman's return.
4. OpenAI, review completed, 8 March 2024. OpenAI's published summary of the review it commissioned from WilmerHale. Altman's November 2023 return statement reports customer continuity through the crisis.
5. Microsoft, statements from Satya Nadella and Sam Altman, dated statements archived on a page updated November 21, 2023. Dates follow Microsoft's archived labels, including November 19. The announced move to Microsoft was superseded by Altman's return to OpenAI.
6. FTC, Behind the FTC's 6(b) Report on Large AI Partnerships & Investments, January 2025. The agency describes findings across the partnerships studied and potential competitive effects. The investment and procurement judgments in this chapter are the author's analysis.

CHAPTER 16

Across Borders, Across Standards



B2AGI ART / 16

Four meanings of done.

Each decision needs its own evidence.

Arrival

☑

ARRIVAL RECORD

Acceptance

☐

INSPECTION RECORD

Invoice

☐

INVOICE

Payment

☐

BANK CONFIRMATION

EPAI 2027 · Across Borders, Across Standards

CHAPTER 16 · PART 5 · V / THE POWER TO ACT

16. Across Borders, Across Standards

The flight in Ghana gave us four events to distinguish: a completed journey, an accepted delivery, an invoice due and a payment received. At Symbotic, a specified acceptance milestone would send money back to the customer. The word complete had acquired consequences far beyond a successful movement.

Take that distinction into the distributor's constructed case. Its shipment has arrived, the customer has not accepted it, and the dispatch system marks the task complete. The argument has moved from three large AI labels to a small word: done.

To the dispatch system, done means that the assigned journey ended. To the warehouse, it may mean that goods were received in usable condition. To the commercial team, it means that a promise to the customer has been fulfilled. Each use has a sensible local meaning. Trouble begins when one system passes its answer to another as though the question had remained the same.

The disagreement can survive a perfectly successful exchange of data. Every system receives the message. Each department believes it means something different.

A receipt is asked to do too much

Imagine a refrigerated consignment arriving at a regional warehouse. The delivery record contains a time, a location and a recipient's name. The transport team records arrival. The warehouse compares the goods with the order and evaluates their condition. The buyer may dispute part of the order. The finance team must apply the relevant contract and accounting requirements.

Follow the arrival record. It reports that the consignment reached its destination. The buyer asks whether the required temperature was maintained during the journey. Looking harder at the timestamp will not answer that question.

The buyer now searches for the temperature history. If another system holds it, the buyer can compare it with the agreed limits. If it is missing, the parties must use other acceptable evidence or follow the agreed exception process. Buying a more elaborate location tracker would leave this dispute exactly where it was.

There is a second question. Who made the record, through which activity, and what happened to it afterward? W3C's PROV-O provides a vocabulary for representing those relationships. [5] Those relationships identify who is recorded as producing or changing the report.

The customer then evaluates acceptance under the applicable terms. Finance examines what the evidence means for the promises in the contract. IFRS 15, where applicable, connects revenue recognition to fulfilment of performance obligations through transfer of promised goods or services. [1] The same arrival can therefore close the dispatch task while leaving acceptance and revenue recognition pending.

One record has travelled through several questions without becoming the answer to all of them. A good connection carries the limit of the evidence along with the evidence.

A connection the reader can inspect

A missing observation can now be traced to disputed acceptance and a delayed payment. The supplier knows which evidence could release the next decision. The buyer can commission a specific correction instead of paying for more data in general.

Several established references answer different questions here. RFC 9396 structures detailed authorization requests; PROV-O represents provenance; IFRS 15 addresses revenue from customer contracts. [1, 4, 5] ISO/IEC 22989 supplies AI concepts and terminology, while ITU-T F.748.66 addresses requirements and a framework for embodied AI systems. [2, 3] The chapter-end table maps RFC 9396, PROV-O and IFRS 15 beside the distributor's contract and operating criteria.

In a working crosswalk, each requirement points to a record and its version, with a named person responsible for the decision. The receiving institution can then see which evidence it can use and where a new test is required.

When evidence travels

Cross-border projects add another question. Even if a test was competently performed, will the receiving institution accept it for the proposed use?

Suppose equipment was tested in one operating environment and will be installed in another. A receiving evaluator may be able to reuse some results. Other results may depend on changed conditions, a modified configuration or a different requirement. Repeating everything wastes money. Accepting everything can leave important differences unexamined.

The comparison begins with four questions: which requirement, which evidence, which gap, and who can decide? Formal recognition remains with the responsible authorities and arrangements. ISO's account of conformity assessment distinguishes the activities used to demonstrate fulfilment of requirements. [6] The parties can commission the missing tests while retaining results the evaluator can reuse.

Before authorizing a broad cross-border rollout, require a claim-by-claim evidence plan. Reuse what the responsible evaluator can justify; commission work for conditions the evidence does not cover. A prestigious standards logo cannot settle the missing comparison.

For a standards body or testing institution, the opportunity is a jointly examined case with a real receiving user. Choose a transaction where duplicated tests or unrecognized records are blocking useful cooperation. Publish the mapped requirements, the preserved distinctions and the unresolved gaps. One usable demonstration will teach more than a grand assertion of universal compatibility.

The chip has a financial history

A shipment also leaves records in another institutional world. On 6 November 2023, FinCEN and the US Bureau of Industry and Security issued a joint notice on suspected evasion of US export controls beyond the Russia-related alerts already in place. The announcement connected financial institutions' suspicious activity reports with export enforcement and identified advanced semiconductors among the technologies receiving investigative attention. [7]

The earlier deals explain why a list of payments is an incomplete account of this industry. In Chapter 10, Walmart financed development while Symbotic paid for the acquisition and would owe more on acceptance. In the partnerships examined by the FTC, investment came with commitments to buy cloud services. Money travelling in both directions could finance new capability while binding its developer to an important customer or infrastructure provider. Reading the contract alongside the payment reveals what the money purchases.

Now consider a constructed purchase of computing equipment by an industrial integrator. Its foreign parent will pay. The sales file describes use by the integrator's engineering team, while a proposed service agreement offers an outside developer access to the same capacity. Group financing and shared capacity could both be legitimate. The immediate problem is that the purchase has been presented as one use while its proposed revenue depends on another.

Bring that service agreement into the purchase review. The lender now has a proposed customer contract to examine rather than an unexplained revenue forecast. The supplier has an intended user and workload to assess against applicable controls. The integrator can price the access it intends to sell, including any conditions on providing it. If the records do not resolve the discrepancy, defer the delivery commitment.

A financial intelligence unit may examine the transaction where reporting and its mandate bring it within scope. It has a different task from the lender or the export authority. Its analysis cannot grant an export licence; an export licence cannot establish creditworthiness. [7]

The AI industry belongs on the financial-intelligence map. Following the money can reveal a participant missing from the technical plan. Following the work can explain why money returns to a customer or an investor. EPAI connects those accounts so that each institution can ask a better question of the same transaction.

The size of the first promise

Start with a transaction and its receiving institution. Map the evidence already available, identify what the next decision requires, and record how the gap is resolved. Practical cases can then extend the annual reference's mappings and methods.

A company that helps evidence travel can reduce the cost of entering a market. A country that can evaluate imported claims can negotiate with greater competence. A financier that understands what has been established can distinguish technical uncertainty from a missing document or an unfulfilled promise.

My initial surprise concerned people who did not recognize one another's terms. Here the same concern has grown into a question about whose evidence can support whose decision.

And once a country can read that larger system, it can stop asking whether it must build every part of it.

Reference: Following the Delivery Record

Proposed evidence mapping for the distributor example.

Shared event	Relevant question	Reference contribution	What remains unresolved
An agent requests a delivery	What action is being requested, within what authority?	RFC 9396 can structure fine-grained authorization details	Whether the request should be permitted under the actual policy and conditions
The system records arrival	Which activity and actors produced this record?	PROV-O can represent provenance relationships	Whether the reported observation is accurate and sufficient
A customer evaluates delivery	Did the goods and service meet the agreed conditions?	The contract and applicable operational criteria define the test	Missing temperature evidence, disputed quantities or other unmet terms
Finance evaluates fulfilment	What promised goods or services transferred, and when?	IFRS 15 provides the relevant revenue framework where applicable	The professional application to the actual contract and evidence

Sources

1. IFRS Foundation, IFRS 15 public overview.
2. ISO/IEC 22989:2022, public scope.
3. ITU-T F.748.66, December 2025, official summary.
4. IETF RFC 9396.
5. W3C PROV-O, Recommendation of 30 April 2013, sections 3.1 and 4.1: entities, activities, agents, generation and association. Provenance relationships support tracing a claim; they do not independently establish its truth or contractual sufficiency.
6. ISO, Conformity assessment.
7. FinCEN and BIS, joint notice and reporting term for global export-control evasion, 6 November 2023. The notice is a historical example of financial intelligence and technology-trade enforcement working together. The integrator transaction is constructed, not a reported investigation or a finding about any company. Applicable obligations depend on the actual parties, equipment, jurisdictions and use. The preceding Walmart and cloud-investment examples refer to the filings in Chapters 9–10 and the FTC report in Chapter 15; neither is presented as an export-evasion case.

The consignment is hypothetical. The crosswalk proposes how evidence could support the decisions in that case; formal recognition rests with the responsible institutions.

PART VI

Beyond: What We Make Possible



CHAPTER 17

A Country Does Not Need to Build Everything

B2AGI · EPAI 2027



B2AGI ART / 17

A contribution worth building.



EPAI 2027 • A Country Does Not Need to Build Everything

CHAPTER 17 · PART 6 · VI / BEYOND: WHAT WE MAKE POSSIBLE

17. A Country Does Not Need to Build Everything

In 1987, a new semiconductor company organized its business around manufacturing products designed by its customers. TSMC's pure-play foundry model made the separation itself commercially important. A company could design a chip without owning the factory that made it. [1]

The division of work became a business. That is a useful place for an AI strategy to begin: what can local firms make possible for other participants?

A nation can acquire considerable influence by performing a necessary role exceptionally well. It can also spend considerable money trying to perform every role badly.

The missing country in the diagram

A map containing only chips, models, robots and their largest producers gives many countries little to look for beyond a missing domestic company. Follow the work we have encountered instead. The Chilean customer brings an operating system and years of history. The medical network needs local replenishment and a purchaser. A cross-border deployment needs an evaluator whose judgment the receiving institution can use.

These contributions change what the technology can become. Some support modest local businesses; others may give their providers influence across an industry. A national strategy needs to discover which are needed and what it would take to perform them well.

Korea's floor

In October 2026, Deputy Prime Minister Bae Kyung-hoon met the Physical AI Alliance at COEX. The ministry's account described work on domestic technical capabilities, connections between technology providers and industrial users, and standards and international cooperation. It placed greater emphasis on moving development into field demonstration and business use. [2]

Those workstreams can reinforce one another. They can also compete for attention and money. A national strategy has to decide what constrains the next useful deployment, not simply fund every box in a technology diagram equally.

Hyundai's relationships make the division of work tangible. The Korean owner brings factories and a robotics company; outside researchers bring AI capabilities. Each party's position depends on what it contributes, retains and improves.

A production floor contains more than data waiting to be collected. It contains knowledge of tolerances, rejected parts, inconvenient exceptions and the reasons people override the formal process. Making that knowledge useful to a developer may require expensive preparation and patient cooperation. The factory is a potential partner, not a free recording studio.

Its bargaining power is nevertheless conditional. Other sites may offer comparable work. Data may be fragmented, difficult to share or already governed by supplier agreements. A large installed base does not guarantee clean records or a scarce training opportunity. The asset becomes valuable when it answers a problem a partner needs to solve.

The host has a development cost too

Suppose a small manufacturer joins a publicly supported demonstration. Engineers need access to its line. Operators explain exceptions. Production staff accommodate tests. The developer improves its system, then moves to another customer.

The host may have received excellent value. It may also have supplied costly learning without obtaining the ability to use the improvement. The difference belongs in the agreement before the work begins.

For near-term deployment funding, prioritize the connection between a credible industrial need and a supplier capable of answering it. Include the host's preparation, integration, supervision and safety work in the budget. A programme that pays for equipment while treating everything around it as free will systematically favour the wrong price.

Put a small menu of rights on the negotiating table. The host may need access to operating records, a licence to use agreed improvements, training, continuity arrangements or compensation for a substantial contribution. Revenue participation or joint rights may fit some developments. They should not be mandatory rewards for every site visit. Existing intellectual property, privacy, security and the value of each contribution still govern what can reasonably be shared.

Walmart negotiated rights around the resources it committed. A smaller host should price its own contribution and seek terms proportionate to it. Ghana adds a further question: will the provider and purchaser value the continuing service in the same way? Agree what success will be counted as, who benefits and who continues paying.

Fund industrial partnerships that leave demonstrable operating capability with the host and a viable product or service with the supplier. Ask both parties what they will be able to do afterward that they cannot do now, and how they will show it.

Keep the negotiation proportionate. A small trial should not wait for a treaty governing every future use. But the team returning to the factory after the visiting engineers leave needs to know which records, tools and permissions it will have. Delaying that conversation can make a fast installation a slow route to capability.

This priority should change where the binding constraint is a missing model, component or secure domestic capability. National resilience and long-horizon research can justify investments before near-term deployment revenue exists. They need an explicit strategic case and review milestones of their own. The country should not force those investments to pretend they are short-term factory projects, or force every factory project to finance an entire national technology stack.

Buying the second project

The first imported installation can leave a country with working equipment and little ability to repeat the achievement. Every change requires an overseas specialist. Operating records remain inaccessible. Local staff learn to follow instructions but cannot diagnose an unfamiliar problem. The project works until something outside the original arrangement changes.

A different agreement can leave technicians able to maintain it, evaluators able to examine its claims and firms able to provide adjacent services. The next project begins with greater local capability.

These outcomes should not be left to a ceremonial promise of technology transfer. What will local participants be able to do at the end? Which tasks will they demonstrate without the original team's intervention? What records and tools will they need? Which activities remain restricted, and why?

Specify the learning as work with an owner, resources and a test. Pay for it where it has value. Suppliers should not be expected to hand over every commercial secret, but purchasers should not accept a photograph of a training session as proof of operational independence.

Where continuity requires local operating capability, purchase it with the system and test it before the original team leaves. For a small deployment, dependable access to an outside specialist may be the better bargain. The procurement should settle that choice instead of leaving the next breakdown to settle it.

Choose a place to become useful

A country with strong industrial customers can begin by organizing demand. Several buyers may need similar evaluations or integrations but be too small to fund them alone. A shared testing facility or a common evidence requirement can make a market easier to enter without selecting a single permanent winner.

A country with skilled field technicians can develop integration and recovery services. A country with distinctive terrain, crops or operating conditions may contribute the knowledge needed to make imported systems useful there. These are candidate positions, not automatic comparative advantages. They become advantages when competence meets recurring demand on terms the provider can sustain.

For a near-term commercial programme, identify the buyer and the unresolved problem before choosing the subsidy. Support the obstacle local firms can overcome: a first test, training, coordination among purchasers or a requirement no firm can establish alone. A missing domestic logo is insufficient reason to build another company around it.

Cooperation that changes the next negotiation

International cooperation is often described by the size of an agreement. A more revealing measure is whether it improves the position of the participants in their next agreement.

Can the local operator evaluate a new offer? Can the supplier adapt more quickly because it learned from the first deployment? Can a regulator identify which foreign evidence is useful? Can a domestic firm bid for work it could not previously perform?

These gains can be shared. A foreign supplier may benefit from competent local partners rather than having to send its own team to every incident. The local partner gains a repeatable service. The customer gains continuity. A recurring fault found by the local team can lead the supplier to improve its design. The team may then offer what it learned as a service to another customer. Cooperation becomes durable when the arrangement gives each participant a reason to keep improving it.

The supplier may prefer exclusivity and the buyer portability. The government seeks local capability while the financier needs predictable repayment. EPAI puts those interests on the same page so the parties can negotiate the trade-offs.

Financial intelligence offers an institutional example. In its July 2026 Baku statement, the Egmont Group supported more structured cross-border public-private collaboration through established FIU channels. Privacy, confidentiality, lawful use and human judgment were part of that commitment, along with resources and measures of results. [3] An institution needs to know what it may send, to whom and for which purpose before a faster connection becomes useful.

The industrial host faces a related negotiation. Return to the manufacturer whose operators helped a developer improve its system. Suppose the developer now seeks records for an overseas customer's evaluation. The host's production history includes information about workers and other customers. A demand for unrestricted access could end a useful partnership; a blanket refusal could prevent the next sale.

I would first ask the receiving evaluator which observation is needed to decide. Perhaps the disputed claim concerns recovery after a particular fault. The parties could arrange a witnessed test at the host site and seek agreement on a report recording the conditions, assistance and result. That is a proposed bargain: it works only if the evaluator accepts the evidence and the necessary permissions can be secured. Where the decision genuinely requires underlying records, the parties must negotiate that access or accept that this route will not open the market.

Specify who can receive the report, what it can be used for and whether it may be passed on. Budget for the host's work and for correcting an erroneous record. These terms determine whether the evidence can travel again when a second customer asks the same question. Paying for a connection while leaving its permitted use unsettled buys an argument at higher speed.

The interests remain different. The developer wants a sale without surrendering its method. The host wants paid work without exposing its customers. The importing country wants evidence it can examine; the exporting country may restrict what can leave. A workable agreement gives each a reason to participate while leaving each responsible for its own decision. Judge it by whether the next evaluation becomes possible at a sustainable cost.

A country can build influence by making difficult cooperation work. Reliable evaluation, capable operators and usable evidence can earn repeat business and improve its firms' bargaining position. That opportunity rewards countries able to understand several parties' constraints and deliver something they need together.

That is a better starting point than deciding that one country owns embodiment, another physical action and another agency. Those names can describe fields of work. They cannot tell a nation where its opportunity ends.

The country need not build everything. It needs to know which contribution is worth building, what it will cost to become good at it and who will carry the risk before the contribution pays.

Sources

1. TSMC, Company profile, founding and pure-play foundry model. The national participation recommendations are the author's analysis.
2. Ministry of Science and ICT release, reproduced by BioIN, 13 October 2026. Policy announcement. Project contracts, data rights and implementation records require separate sources.
3. Egmont Group, Advancing the Future of Public-Private Partnerships in Combating Money Laundering and Terrorist Financing, Baku, 9 July 2026. The industrial cooperation application is the author’s analysis; the statement itself concerns FIU-led financial-intelligence partnerships.

CHAPTER 18

Who Takes the First Risk?

B2AGI · EPAI 2027



B2AGI ART / 18

One promise releases another.



Who carries the continuing bill?

EPAI 2027 · Who Takes the First Risk?

18. Who Takes the First Risk?

The offer was worth up to $150 million. It needed another promise before the money could be released.

In November 2025, Zipline announced an arrangement with the US Department of State to expand delivery infrastructure in Africa. According to the company's account, participating governments first had to sign expansion contracts and commit to paying for ongoing logistics services. American support would address upfront infrastructure; African customers would pay for use. [1]

A government considering the offer therefore faced two decisions. Did it want the network? Could it carry the continuing service bill? Ghana had already shown why answering the first question enthusiastically could not dispose of the second.

The money that needed another promise

In February 2026, Zipline announced Rwanda's expansion agreement as the first milestone under the arrangement. The plans included nationwide coverage, urban delivery and a testing centre. [2] The signature was a step in the funding sequence; the announced services still had to be delivered.

Follow the sequence backward. A financier wants a dependable customer. The customer wants a working service. That service needs infrastructure, and the infrastructure needs finance. Each participant can be reasonable while the project goes nowhere.

The arrangement attempts to break the circle by making one commitment release another. Its value depends on the promises surviving after the announcement: construction on one side, continuing payment on the other.

Uncertainty has an address

There are several different reasons a project may fail. The equipment may not perform the required task. Customers may use the service less than expected. A public purchaser may pay late. An exchange-rate movement may increase costs. A needed permission may not arrive. Each problem has different information, different possible remedies and different parties able to influence it.

Describing all of them as innovation risk makes the negotiation less intelligent.

A supplier is generally better placed to improve its equipment than to control a government's payment process. A purchaser can organize demand more effectively than a distant lender. A public authority can clarify an approval path more effectively than a small engineering firm. None can remove every uncertainty. They can agree on who owns a particular task and what happens when its result falls short.

In Chapter 10, the anchor customer used development payments to help create the capacity it wanted to buy. Demand entered the financing before the product was ready.

The subsidy that buys a beginning

Public or philanthropic money can fund a necessary first step that private participants cannot justify alone. The test is what becomes possible because of it.

If support pays for a shared evaluation that several buyers can reuse, it may reduce the cost of subsequent deals. If it helps establish an operating network that customers can sustain, it may enable a service with a future beyond the grant. If it simply covers an ongoing shortfall without a credible public-service justification or financing plan, its end may leave users with a dependency they cannot afford.

Put the receiving government's next budget beside the grant. Staff, maintenance, supplies and continuing service charges will need a payer after the construction money has been spent. Approve the infrastructure commitment only with a credible plan for that continuing work. The plan may be publicly funded; it still needs an accountable purchaser, affordable obligations and a way to revise capacity when use changes.

The supplier can make the first commitment easier to defend by separating what builds the service from what keeps it available and what each additional use costs. That gives a purchaser something it can compare with its need and budget. It also makes a disagreement about utilization easier to resolve before it becomes a dispute about the whole technology.

The guarantee is someone else's exposure

A guarantee lets a lender or supplier transfer a defined exposure to another institution. A development financier may, for example, cover one payment risk while leaving technical failure or ordinary commercial loss with other parties. The scope, limits and conditions determine whether that transfer allows the deal to proceed.

The useful negotiation therefore asks what precise uncertainty prevents a viable transaction and whether a particular instrument can address it. The unhelpful negotiation asks for a guarantee because everyone would prefer to be paid under every circumstance.

The same care applies to an emergency public service. Low utilization may be compatible with valuable readiness. A public body can choose to pay for that readiness. It should name the choice, specify the coverage and fund it. Hiding a public obligation inside optimistic commercial forecasts makes both public scrutiny and private participation harder.

When speed is the responsible choice

An interrupted medical service may need restoration before a durable arrangement can be negotiated. Waiting can impose its own unacceptable cost.

Fund the defined emergency task with clear limits and an identified payer. Use that period to establish terms for continuation. The urgency of a month's need should not silently authorize years of unexamined obligations; nor should an unfinished long-term model prevent justified help now.

The first risk should be taken by a party equipped to understand and carry it, in an arrangement that gives the next participant a reason to join.

Sources

1. Zipline, US State Department agreement, 25 November 2025. Announced award and funding conditions; the announcement is separate from the disbursement record.
2. Zipline, Rwanda expansion agreement, statement dated 4 February 2026, published 5 February. Agreement and planned expansion.

B2AGI

CHAPTER 19

What We Find Together



B2AGI ART / 19

An archive opens a new question.



EPAI 2027 · What We Find Together

19. What We Find Together

The prize was for chemistry.

In October 2024, the Nobel Prize in Chemistry went half to David Baker for computational protein design and half jointly to Demis Hassabis and John Jumper for protein structure prediction. Work associated with artificial intelligence had entered one of science's most familiar ceremonies through a problem in the physical world. [1]

It is easy to read the event as another victory for an exceptionally capable model. That reading catches an important achievement and misses much of the story that made it possible.

The US National Science Foundation pointed to the Protein Data Bank, a repository it had supported for nearly five decades. The accumulated structures supplied a training library for AlphaFold and a knowledge base for Baker's work. [2] EMBL-EBI described another part of the chain: experimental data had helped make the model possible; its partnership with DeepMind then made AlphaFold 2 predictions openly accessible through a maintained scientific database. [1] Researchers could test and challenge those predictions and use them to choose what to investigate next. [1, 2]

The news photograph could hold only a few people. To find more of the people behind it, go back to a database small enough to count on your fingers.

Seven structures

The Protein Data Bank began at Brookhaven National Laboratory in 1971 under Walter Hamilton. It held seven structures. After Hamilton's death, Tom Koetzle led it; Joel Sussman later took over. In 1998, the Research Collaboratory for Structural Bioinformatics, led by Helen Berman, became responsible for managing it. In 2003, an international organization, the Worldwide Protein Data Bank, formed around maintaining a single freely available archive. [3]

The continuity is as important as the beginnings. Different people and institutions carried the resource forward. Structures could outlast the laboratory project that produced them and become useful to someone pursuing a different question.

By 2024, the NSF could point to that accumulated work as part of the foundation beneath the Nobel-winning achievements. A resource begun more than half a century earlier had entered an AI story. The people who started it did not have to predict AlphaFold for their contribution to matter. [2]

Somebody has to maintain the shared resource while the most celebrated work moves elsewhere. The next discovery may depend on a record whose original contributor is no longer there to explain it.

What a prediction makes possible

A useful prediction changes which experiment a researcher might attempt. It can narrow a search, expose an unexpected relationship or make an old question newly tractable. Scientists must then test the structure, investigate its function and establish whether it can support a treatment.

Computation has made more promising questions available. Answering them creates work for laboratories, instruments and further models.

The scientific archive belongs in EPAI because these exchanges can change the research itself. A prediction may prompt an experiment the original assignment never envisaged; its result can give researchers and model developers a new problem to pursue.

The invisible maintenance of knowledge

Databases can look like settled possessions. Someone has the data; someone else builds the model. In practice, a useful knowledge resource requires people to decide what a record means, preserve its conditions, correct errors and make it available in a form others can use.

The most exciting new result can depend on this unexciting continuity. If the record loses its origin or its limits, the next user may misunderstand it. If access disappears, a scientific or industrial community may lose the ability to inspect an important claim.

This connects the scientific story to the evidence questions in Chapter 16. A record becomes more useful when it travels with enough context to support a new judgment. It becomes dangerous when travel strips away the conditions under which it was valid.

Fund the maintenance and usability of shared evidence alongside access to new models. A model subscription without the means to test, record and reuse its outputs can produce activity without durable knowledge. The balance depends on the field. In this history, however, the unglamorous work survived for decades before entering the Nobel story.

For an industrial firm, the equivalent decision is to preserve useful observations from operations and give qualified people a way to investigate them. The records of failure, exception and disagreement may contain more original commercial knowledge than another polished summary of standard procedure.

A question nobody ordered

Consider a maintenance team using an AI system to examine recurring interruptions. The initial assignment is to identify likely causes faster. During the work, an experienced technician notices that the proposed causes do not fit a pattern she remembers from a different site. The discrepancy leads the team to compare records it had previously kept apart.

The technician contributes contextual judgment; the system helps search and organize evidence. Specialists can now test a pattern that neither the original assignment nor the separate records had exposed. It may disappear under examination. If it holds, the finding could change a service, a design or a training programme.

An organization devoted only to reducing the time spent on the original assignment could miss that opportunity. It might treat the technician's interruption as inefficiency and the unresolved discrepancy as a defect in the report.

Give consequential surprises an owner and a limited investigation budget. Ordinary work can continue while a separate inquiry tests the finding. Record the result so the next team can use it.

Who gets to continue?

Collaboration can create value without distributing the ability to build on it. A local team may supply the observations while a remote provider alone receives the improved system. Researchers may contribute work to an infrastructure they cannot later inspect. A customer may pay for operational learning and remain unable to use its own history with another supplier.

These are matters for agreement, not assumptions that cooperation will resolve by goodwill.

Before committing valuable knowledge to a shared effort, establish what participants can inspect, retain, correct and continue using. Respect legitimate privacy, security and intellectual-property limits. Within those limits, negotiate rights that match the contribution and the future responsibility. The participant expected to maintain a service must not lose the knowledge needed to maintain it.

Access costs money and can affect the incentive to invest. Sustainable terms may need compensation, protected material and limits on use. The agreement must nevertheless leave the people responsible for evaluating and continuing essential work enough access to do it.

A system whose claims can only be assessed by its owner asks the rest of the ecosystem to depend on an authority it cannot adequately question.

More than substitution

Human and non-human intelligence can be discussed entirely in terms of replacement: which task, which worker, which cost. Those questions matter. They are incomplete.

The chemistry prize points toward a larger possibility. Computational work can become part of an expanding practice in which people formulate questions, machines contribute capabilities, experiments resist mistaken answers and shared records make further inquiry possible. No single participant needs to contain the whole achievement.

B2AGI's interest in coexistence reaches this possibility. We should ask what forms of cooperation enlarge the questions we can pursue and the lives we can improve. Greater capacity to act is valuable partly because it may open things we did not yet know how to attempt.

That still leaves a question no model performance chart can answer: whose possibilities should count?

Sources

1. EMBL-EBI, Computational protein design and protein structure prediction win Nobel Prize in Chemistry, 9 October 2024.
2. US National Science Foundation, Congratulations to the 2024 chemistry laureates, 9 October 2024.
3. RCSB PDB, history of the Protein Data Bank, institutional chronology. Experimental structures and computed predictions are identified separately throughout the chapter.

B2AGI EPAI 2027

CHAPTER 20

What the Numbers Cannot Decide

B2AGI · EPAI 2027



B2AGI ART / 20

A life beyond the calculation



EPAI 2027

20. What the Numbers Cannot Decide

A remote clinic may be an expensive place to deliver a small package. It may also be the only place where a particular person can receive treatment.

The delivery cost is a fact worth establishing. Whether that person should be served is a decision the cost cannot make for us.

The two bags of fluid gave us a reason to follow the delivery. The bill made us examine how the service could continue. Now consider the person waiting at the next clinic, where the journey costs more. The additional expense belongs in the budget. The person's place in our concern cannot depend solely on making the route profitable.

No one should have to win a contest of intelligence to earn a place in the world.

That is the commitment I bring to these decisions. Evidence can establish what a choice costs, who benefits and which institutions would have to act. A person's dignity remains more than the marketable value of their abilities.

The worker outside the comparison

An employer comparing a machine with a worker may have a legitimate productivity question. The organization has obligations to customers and must remain viable. Better equipment can reduce dangerous or exhausting work. Refusing every improvement would protect neither prosperity nor human freedom.

Yet the worker does not exist only inside the employer's calculation. The loss of a role can affect income, identity, bargaining power and the ability to make future choices. An efficiency gain can be real while its distribution remains a political and institutional question.

Return to the technician in the preceding chapter's example. Her knowledge of exceptions helps improve a system. The company can count the hours the improved system saves. Her own question may be what happens to her work after she has helped make that saving possible.

A training course is one answer on a budget sheet. Time to attend it without losing income, a position in which the learning can be used, and a say in how the new work is organized are different commitments. None follows automatically from recording her contribution as data. The same project can create valuable knowledge and leave its contributor with fewer choices.

Design the transition alongside the improvement, while the people concerned can still influence the terms. Approve a deployment for the benefit it can actually deliver. Then decide openly how the transition will be handled. Fund training that leads to identifiable work, pay for the time people need to learn, and provide for those whose roles disappear. Do not count a vague promise of future opportunities as though the people affected have already received them.

That recommendation has a cost. It can reduce the immediate financial return. The alternative is not a costless transition; it is a transition whose costs fall elsewhere, often on people with less power to negotiate them.

An institution may decide that the benefit warrants proceeding. It should then account for the costs borne by workers and commit resources to the transition.

The right to interrupt

The system in Chapter 14 needed an authorized restart. The people around it also needed the ability to stop unsafe work, challenge a mistaken record and bring an objection to someone who could change the outcome.

A complaints form is little use if a complaint arrives too late to change a decision or nobody has the authority to reconsider it. People need a response while it can still make a difference.

This principle belongs in the design of AI-assisted decisions as much as in the design of machinery. Where a consequential action affects someone's livelihood or access to a service, the organization should identify who can review the evidence, correct an error and alter the decision. It should also state where review is unavailable and why. Hidden finality is a poor foundation for trust.

Withhold approval for an important deployment whose operators cannot explain how a material error will be challenged and corrected. Design the review around the consequence: an accessible route, someone able to act, and a response early enough to matter. Cost and misuse need to be addressed without making the remedy unusable by the people it exists to protect.

The minds we do not yet understand

The long-term question extends beyond the status of current systems. We do not have a settled account of which future non-human systems might have experiences or interests of moral significance. Fluent language alone does not resolve it. Neither does the convenience of assuming that no unfamiliar form of intelligence could ever matter.

Questions about experience deserve inquiry and revisable principles. Authority over a robot, money or a medical decision has its own tests: competence, safeguards and responsibility. A system's permission to act must be justified through those tests.

But we can refuse a different shortcut now: turning differences in capability into a final hierarchy of worth.

A future society may learn things about non-human experience that we cannot presently establish. It should be able to revise our conclusions without first dismantling institutions built on the claim that our ignorance was permanent knowledge. Leaving that possibility open does not diminish our obligation to protect people in the present.

A future larger than the balance sheet

The same openness applies to lives that never appear as direct purchasers of an AI service. Communities may bear the consequences of infrastructure. Future generations will inherit some of the environmental and institutional choices made now. A narrow account can omit these consequences while remaining internally accurate.

EPAI should help expose those omissions. It cannot turn them all into an objective price. Where values conflict, the decision needs public reasoning and legitimate authority, not an invented precision that conceals the choice.

B2AGI's role is to investigate, interpret and recommend, with reasons readers can examine. Those affected by a decision must be able to challenge the values behind it as well as the calculation.

The reader may reject our recommendation. A later reader may improve the framework. A future intelligence may find an assumption that this edition never noticed. The record should make that correction easier.

What we owe the next reader

A judgment that turns out badly deserves more than a disclaimer about uncertainty. We should return to the evidence and ask what failed. Was an available signal missed? Did an assumption become false? Was the recommended action itself poorly designed? Did the analysis confuse a promise with an achieved result?

The Calls Register at the end of this book preserves our principal recommendations and the conditions that would change them. Future editions should revisit those judgments, including the ones we would prefer to forget.

A recommendation that succeeds belongs first to the people who carried out the difficult work. A recommendation that fails should begin an examination of our own reasoning.

This is the relationship I want B2AGI to have with its readers: useful enough to be consulted, clear enough to be challenged, and capable of learning without erasing the history of its mistakes.

Capability is an attribute of intelligence. Coexistence is an achievement among intelligences.

It includes restraint, but it also includes creation. Different experiences and abilities can make questions possible that no participant would have found alone. Respect gives that difference room to work. Responsibility keeps the resulting power answerable to the lives it changes.


CHAPTER 21
The World Through EPAI
B2AGI · EPAI 2027

The buyer has something to offer.

Site as equipment buyer

Equipment supplier

Payment

Equipment

Same industrial site

Site access + operating knowledge

Service payment

Site as development host

Developer

Data rights?

First recommendation

Revised option

CHAPTER 21 · PART 6 · VI / BEYOND: WHAT WE MAKE POSSIBLE

21. The World Through EPAI

The meeting was held in a bank.

On 22 September 2026, representatives of three Korean provinces joined government officials, policy-finance institutions, regional banks and technology companies at the Korea Development Bank in Seoul. They were there to support regional hubs for physical AI. Jeonbuk, Gyeongbuk and Gyeongnam would bring their industrial bases to the effort. A cooperation memorandum joined the institutions around that ambition. [1]

The participants could agree on the ambition and still disagree about the first cheque. What should the institutions put their money behind?

To examine that choice, consider an equipment-led proposal: choose a robot, a model and the computation to run it, find a building, then invite companies to apply. The equipment has a price; the customers are still to come. Before choosing the equipment, look at the factory expected to receive it. We have spent this book following sellers and their products. There may be a customer facing the other way.

The buyer changes sides

A factory manager is usually approached as a buyer. A supplier wants to sell equipment that will do part of the manager's work. The manager asks about price, reliability and savings.

The research and education customers in Unitree's reported sales, and the announced allocation of Atlas to Hyundai's application centre and DeepMind, change the question. Some early buyers were acquiring means to develop capabilities. [2] A factory approached as a future user of that technology might also provide something its developers need now. The factory may have something to sell.

Opening its gates would not be enough. Someone must prepare interfaces, identify permitted tasks and explain what operating records mean. Workers must have time to show the exceptions that a clean demonstration omits. Production cannot stop whenever a research team wants another attempt. The knowledge we encountered in Chile is valuable partly because it belongs to an operation with a history. [2, 3]

My proposal for a deployment programme begins with paid access to a prepared industrial site, with a named developer, a willing host and a concrete development need. The first commercial question is whether an independent developer will pay for that access. Research sales and internal partnerships give us a reason to ask; a paid agreement would establish a buyer for this service.

Put the two parties together before buying shared equipment. Ask what the developer cannot obtain more effectively in simulation or its own facility, and what providing it would cost the host. If those answers do not meet, stop this proposal. A country does not acquire an industry by building a place where a customer ought to arrive.

The first agreement should purchase defined work: preparation for an agreed task, supervised access and a usable record of the result. Name what the developer needs to learn and what the host must protect. Before committing to a continuing facility, establish whether either party has a reason to return and how the next engagement would be paid for.

If those conditions are met, the direction of payment can change. The company selling the machine may buy a service from the country receiving it.

Where suitable machines are available but usable access is scarce, fund site preparation and operators' time before buying more machines. Reverse that priority if equipment is the actual constraint, existing supply cannot meet a security requirement, or proven demand exceeds capacity. Choosing a first cheque means delaying another one. The programme should be able to name the work that delay makes possible.

The robot is only one possible participant. Chapter 13's industrial agents suggest another use of the same inquiry. A developer might need to test whether an agent can prepare a useful investigation from a site's records before anyone grants it permission to alter a process. The host would supply interpretation and controlled access; the developer would have to demonstrate what improved over the existing service. The useful trial could leave every machine in place. [3]

Whichever capability is being developed, the host faces a further question: what will remain when the developer leaves?

What stays after the visit

Walmart's agreements brought the second customer into the first negotiation. Apply that lesson to the host's first useful improvement: what may the developer take elsewhere, and what benefit stays with the operation that helped produce it? Chapter 17's terms matter here because the first agreement should make a second engagement worth accepting. [5]

Ghana supplies the question between visits: who pays for readiness when no developer is on site? A public research budget may purchase spare capability. A commercial loan needs a repayment source. The funding proposal must say which arrangement it offers. [4]

At the next review, the developer should be able to present a result with its conditions and assistance intact, and the host should be able to show what it can now do. Those records give the evaluator and the bank something more useful than photographs of equipment.

Approve the first agreement where the need, preparation, rights and continuing payer are credible. Do not approve a permanent facility merely because the technology is fashionable. Before releasing expansion funds, establish whether the developer obtained something useful, whether the host would participate again, and who supports the next period of readiness. If an existing service or simulation does the job better, use it. If a proven production deployment deserves priority, do not make it wait for this experiment.

This choice gives up the immediate visibility of a new building. It buys an earlier answer about whether a useful relationship exists.

The border runs through the deal

Suppose the site's first customer is an overseas developer. It wants to reuse what it learns; the host needs production to continue if that relationship ends. The bank's equipment valuation answers neither concern.

Bring a revised proposal to the bank: paid site preparation, agreed reuse of the development results and a tested return to the host's existing operation. Price the transition work before increasing the equipment order. If the developer needs broader access, negotiate and pay for it. If the host cannot resume essential work, defer the installation until that dependency is resolved.

Following those relationships through EPAI has changed what the first cheque buys. Financing, operating control and international cooperation now shape the same proposal. The host can earn revenue and retain the ability to operate; the developer can obtain useful learning on terms it can afford. If those terms fail to meet, the programme has learned something before building a permanent facility.

A different room, a different answer

Move from the bank to a research institution.

A proposal to maintain shared scientific records may have no developer ready to purchase next month's access. Applying the industrial site's commercial test mechanically could make the proposal look weak. There may be no invoice at all.

Then remember the seven structures with which the Protein Data Bank began in 1971. The archive persisted across people and institutions. Decades later, experimental knowledge helped enable computational

achievements, and predictions returned through maintained resources to further scientific work. The eventual value did not arrive as a purchase order from a customer the original contributors could have named. [6]

The appropriate judgment changes. Public research funding can support records whose future uses are unknown, provided there is a serious purpose, capable stewardship and a way to examine what the resource enables.

Insisting on immediate commercial repayment would select against the very kind of continuity that made the later achievement possible.

The question is still who carries the work and who can build on it. But the person paying need not be the eventual beneficiary, and the interval may extend beyond a firm's investment horizon.

The funding review should ask whether the records are usable, whether independent researchers can inspect and improve them, and what would be lost if maintenance stopped. A new model subscription and a maintained scientific archive provide different capabilities. The budget should identify which one the institution needs.

The same EPAI view that made us reject an unfunded commercial facility can make us defend an unglamorous public maintenance budget. The difference is the purpose and the relationship, not a softer standard for evidence.

Now move to the clinic.

A delivery may cost more because the community is remote. That does not decide whether the community should receive care. It gives the purchaser a problem to solve: which arrangement can meet the obligation, what readiness is worth, and how to fund it without disguising tomorrow's bill. The patient is not required to become an attractive commercial customer before the public purpose counts.

The bank, the laboratory and the clinic cannot be governed by one profitability test. They can be understood in one ecosystem.

The world we had divided

This is the world Embodied Physical Agentic Intelligence asks us to read together. China is present through capabilities and customers shaping development, Chile through operating knowledge, Korea through a proposed industrial contribution. The American contracts, the African service and the scientific archive expose different arrangements for carrying work forward. They give us comparisons to use, not national roles to assign forever.

The ecosystem locates those participants. The framework supplies common questions without forcing identical purposes. The Prism moves a consequential finding between accounts and tests whether a choice changes.

The gain is not that everyone finally agrees. The investor may decline what the researcher should pursue. A government may fund a service a private buyer would not purchase. A standards specialist may refuse a claim that an enthusiastic customer would accept. A worker may expose a cost missing from all four reports.

The useful achievement is that they can show one another what changes the answer.

Your place in the next event

The next opportunity may arrive disguised as someone else's problem.

A model developer needs a setting in which to learn. A manufacturer knows that setting but has never priced the work of making it accessible. A researcher has a promising prediction but needs evidence from another discipline. A local service company knows how to keep an operation running while a distant supplier is still learning where it fails.

Each relationship asks for its own judgment. A commercial service needs a buyer; a public capability needs a mandate and continuing resources. A discovery may deserve room before its use is clear.

For the next decision on your desk, bring the existing recommendation and ask which absent participant could change it. The answer may be the person who will maintain the system, the customer who holds a commercial right, the authority that can interrupt access, or the community expected to carry an unpriced burden. Find the relevant evidence and make the choice again.

Keep the first recommendation beside the revised one. Record which finding changed the decision—or why the original judgment held.

A reader can find something this edition did not see.

Two people who did not recognize a word

B2AGI began for me with a question about a possible customer. If non-human intelligences became substantial participants in economic life, what would I have to offer them? Business to AGI gave that question a direction. An answer would require understanding what such participants could do, what they might need, and how they could transact with others.

Claudius brought part of that question into an ordinary shop. An agent could make a commitment while people still had to supply goods, authorize payments and resolve what went wrong. The business opportunity reaches into those relationships, and those who build them shape whose interests they serve.

In China, I was surprised that another expert did not recognize Physical AI. Then I remembered my own first encounter with **具身智能**, embodied intelligence. Neither of us needed to abandon what we knew. We needed to see what it connected to.

The old story of people encountering different parts of an elephant usually ends with incomplete knowledge. Our situation adds a responsibility. We also decide where these technologies will be used, what will be built around them and who will be allowed to participate. Partial knowledge can become somebody else's debt, working conditions, dependence or opportunity.

A wider view should leave more people able to participate. Workers should have a meaningful voice in changes to their work. Communities should be able to question burdens imposed on them. Knowledge created through one relationship should, on fair terms, make another achievement possible.

The possibilities also extend beyond the categories of intelligence we know today. Human and non-human intelligences may develop questions none could reach alone. Economic usefulness cannot be the sole condition for having a place in that future.

We will still need specialists. We will still disagree. Decisions will arrive before every uncertainty has gone away. We can meet them with more of the world in view, give a clear answer and keep a record honest enough to improve it.

One ecosystem. Across borders. In your language.

The Reference Behind the Decision.

Sources and application

1. Financial Services Commission, regional physical AI hub forum, 23 September 2026, describing the event of September 22. The prepared-site agreement and funding conditions are the author's proposal prompted by this event.
2. Chapter 12, reported Unitree customer categories and announced Atlas allocation. These examples motivate the proposed independent host service, whose first paying customer remains to be found.
3. Chapter 13, Schneider Electric and CMPC. Existing operating knowledge is distinguished from newly announced agent capabilities.
4. Chapters 8, 11 and 18, Zipline delivery, payment controversy and development support. Ghana's operative contract remains unavailable for examination; the discussion follows the attributed public accounts.
5. Chapters 9–10, Symbotic agreements and financial statements. Each host's leverage depends on its own contribution and negotiated rights.
6. Chapter 19 and its RCSB PDB, NSF and EMBL-EBI sources. Experimental records, computational predictions and subsequent applications remain distinct. The public-research recommendation extends C20.

C22 covers the proposed industrial host service; C07, C11–C12, C19–C21 cover the service, funding and value commitments used in the wider comparison. The bank, laboratory and clinic decisions are applications of those

recommendations.

B2AGI EPAI 2027

CALLS REGISTER

Calls Register

EPAI 2027, v1.6. Judgment baseline: 25 October 2026; prose revised 27 October 2026. The register records the author's principles, recommendations and questions for subsequent review. Cite each identifier with its edition. C22 addresses the proposed industrial host service; the research and public-service decisions in Chapter 21 follow their respective purposes and funding commitments.

I. Principles

ID	Reusable principle	Where it operates
P01	Compare work, dependencies and exclusions before comparing labels.	1–3
P02	Carry evidence with its conditions; a demonstration establishes neither universal capability nor every kind of approval.	7, 9, 16
P03	Separate a capability, a right to use or sell it, and authority to approve its use.	9, 12, 14–16
P04	Read cash timing, profit and remaining obligations together. Recurring invoices may bring recurring costs.	10–11, 18
P05	Preserve justified disagreement. Common understanding does not require a common verdict.	3, 9, 20
P06	Economic usefulness is not the sole basis of dignity or participation; consequential decisions need a proportionate route to correction.	19–21

Assess these principles by the decisions they help explain, the limits of their application and the counterexamples readers bring.

II. Current Recommendations

Each recommendation names its reader, the action proposed and the conditions that would change it. Identifiers remain stable across editions.

C01. Compare the work before buying the package

Chapters 1-2 | Buyer receiving overlapping AI proposals | NO-GO on the unmapped combined purchase.
Require suppliers to identify work, dependencies, handovers and exclusions against the same service purpose. Labels do not establish whether purchases overlap or fit together. The objection is additional procurement effort; keep the exercise proportionate. Proceed when responsibilities and the basis of comparison are sufficiently clear. If they already are, do not add bureaucracy for its own sake.

C02. Apply EPAI to a live decision

Chapter 3 | Institutional reader | GO on one concrete application.
Use the framework to identify a consequential relationship missed by the original comparison. The next action is a changed question, not a terminology committee. The objection is that good existing practice may already do the work. Retain the method only where it adds usable understanding; record when it fails to help.

C03. Enter infrastructure through a demonstrated bottleneck

Chapter 4 | Established infrastructure supplier | GO on contracted, deliverable work; NO-GO on demand-by-headline.
Start with the customer's actual schedule, power position and operating requirement. Large early commitments can be justified by scarce sites and long lead times. Reverse the preference for smaller contracted work when credible demand, approvals and finance support the larger exposure; do not substitute a global forecast for those conditions.

C04. Reopen the expensive-intelligence thesis

Chapter 5 | Investment committee or workflow supplier | GO on reassessment.
Identify which cost or scarcity assumption a technical advance changes. Recalculate the economics of a paying workflow and the supplier's ability to retain value. Efficiency may stimulate demand rather than destroy it. Retain an investment thesis if its return survives the changed assumptions; abandon a new opportunity if model cost was never its limiting factor.

C05. Delegate bounded transactions before departments

Chapter 6 | Enterprise buyer and workflow provider | GO on defined, paid work; NO-GO on broad authority justified by a demonstration.
Include supervision, concessions and repair work in the economics. Test the most consequential failure and how it is contained. A larger platform may commoditize the function. Expand authority when transaction evidence supports it; stop where corrections cost more than the work saved or no durable customer value remains.
Prefer usable transaction records and reconciliation over buying another managerial agent as a substitute for them. Distinguish routine execution from exceptional spending, prices, refunds and credits. Wider delegation becomes reasonable when evidence supports it; an agent hierarchy alone is not independent oversight.

C06. Buy a production application with its support

Chapter 7 | Industrial buyer | GO where relevant operation, support and economics are credible.
Refuse a site-wide order based chiefly on a stage demonstration. Negotiate records, training and recovery alongside equipment. A small deployment may understate the benefits of scale. Expand when comparable operating evidence and support justify it; reconsider replication that depends on extraordinary supplier attention.

C07. Purchase the missing service

Chapter 8 | Public-service purchaser | GO on the best supported way to close an identified gap.
Compare air, road, stockholding and ordering arrangements around the need. Technology visibility must not determine the answer. Readiness can justify apparently high unit cost; it still needs an explicit service case and funding. Change the mode or scope when another arrangement better meets the obligation.

C08. Separate the anchor market from the outside market

Chapter 9 | Investor or prospective buyer of an anchor-funded system | NO-GO on assuming unrestricted, identical economics for later customers.
Read commercialization rights alongside the technical proposition. For the Symbotic APD example, clarify applicable restrictions, royalties, pricing and support before relying on expansion assumptions or eligibility to purchase. The strongest objection is that the anchor made development possible. Include that benefit rather than rejecting the arrangement automatically. Reverse the caution when relevant terms and customer evidence establish workable access and economics. A royalty is not itself a reason to decline.
Cost-plus-a-specified-profit-amount does not imply guaranteed percentage margin or unlimited reimbursement.

C09. Do not price concentration as diversification

Chapter 10 | Investment committee | NO-GO on that valuation argument.
Examine counterparties, conditions and costs behind commitments; reconcile customer schedules before making an additive backlog chart. Model the timing of customer payments and remaining delivery costs separately.
Anchor concentration can support useful development. The objection therefore changes the diligence, not automatically the investment verdict. Revise the market interpretation when independent customers and repeatable economics establish a wider business.
Reconcile acquisition consideration, customer funding and contingent payments back to the customer in one schedule while preserving accounting classifications. Follow each cash movement once; do not double-count payments already reflected in a reported cash-flow measure.

C10. Seek a constructive anchor customer

Chapter 10 | Industrial supplier | GO on staged customer-supported development.
Negotiate deliverables, tests, payment stages, support obligations and reuse rights. Decline terms that make profitable work for others impractical. Customization may be necessary to obtain valuable operating knowledge. Continue where that knowledge and capability can support later work on sustainable terms; reject dependence that consumes the supplier's future.

C11. Stabilize the service before unfunded expansion

Chapter 11 | Public buyer facing the described capacity and payment concerns | NO-GO on wider fixed commitments without an operating and funding basis.
Protect essential coverage and agree what existing capacity should accomplish. The strongest objection is urgent unmet need outside that capacity. Approve a bounded exception where need, lack of a better alternative and credible continuing funds justify it. The call does not authorize withdrawal of existing care.

C12. Sell useful replenishment before buying aircraft

Chapter 11 | Local supplier serving clinics | GO on a paid, defined service using suitable existing capacity.
Take an identified service area to a purchaser with authority and funds. Establish unmet needs, transport choices and the coordination work required. Reject the proposition where no buyer can commission it or existing providers can deliver the improvement more economically. Expansion follows results and collections.

C13. Do not buy labour savings with evidence of research sales

Chapter 12 | Manufacturer evaluating humanoids | NO-GO on a large labour-saving order supported only by research sales or another company's target.
Identify the task's actual operating evidence and support costs. A research partnership can be approved for learning without claiming a production return. Relevant comparable production results and credible local economics can reverse the purchase decision; another demonstration cannot. Research and education is not synonymous with AI training, and two firms do not establish the whole market's composition.

C14. Begin with the customers already served

Chapter 13 | Operating or maintenance firm | GO on a defined improvement to a recurring costly episode.
Secure records, competent review and a paying buyer. Price the delivered work, including support. Existing customer access is no guarantee of competence. Stop or narrow the offer if records are unusable, rights are unavailable, or existing tools provide the result more cheaply.

C15. Fund accountable recovery

Chapter 14 | Operator and recovery provider | GO on bounded coordination with the means to perform it.
Obtain supplier cooperation, relevant evidence and a qualified route to restart authority. Reject restoration guarantees unsupported by access or control. Readiness has a cost even without incidents. Change the service level where the cost exceeds the justified need; never redefine success as restarting at any price.

C16. Test continuity against the essential work

Chapter 15 | Essential-service operator | GO on a workable fallback before deeper single-provider dependence.
Test the actual workflow, including return from fallback. Multiple suppliers may share a dependency.
Redundancy adds cost; an adequate existing manual route may be enough. Reverse costly duplication where interruption is tolerable or the proposed backup does not remove the relevant exposure.
Map contractual operating rights, infrastructure dependencies and transition costs alongside the provider list. A backup must remove the dependency that threatens the essential work.

C17. Map claims before recognizing results

Chapter 16 | Purchaser, standards or testing institution | GO on a receiving-use evidence plan; NO-GO on recognition by logo.
Reuse justified evidence and test uncovered conditions. A shared standard does not make all test contexts equivalent. Excessive retesting can block useful trade. Reduce it when the responsible evaluator can establish reuse; retain additional testing where the intended use changes what must be demonstrated.
For cross-border technology transactions, establish who pays, who receives access and what work they will perform. Reconcile material differences between the sales account and the proposed use before committing to delivery. Keep the lender's, financial-intelligence unit's and export authority's decisions distinct, and route relevant findings through authorized channels.

C18. Build a contribution that improves the next project

Chapter 17 | Policymaker or public purchaser | GO on demonstrated local operating capability and a demand-linked development programme.
For near-term Korean regional deployment programmes, fund host preparation, integration, safety work and supplier-user partnerships alongside equipment. Offer proportionate choices of data access, improvement licences, training, continuity and, where justified, shared economic rights. Do not mandate revenue sharing in every trial. Long-term strategic research and domestic resilience can justify different priorities; state their purpose and milestones. Change the deployment priority if a missing component or secure domestic capability is the binding constraint. Judge retained capability by work local participants can demonstrate, not training attendance.
Choose a cooperation outcome that can be demonstrated in the next project. Agree with the receiving evaluator what evidence it needs, then secure permission for the required access, use and onward sharing. Pay for the host's contribution. Where a bounded test report can satisfy the decision, fund that work before seeking unrestricted records; where it cannot, resolve the additional access or choose another route.

C19. Separate initial finance from the continuing bill

Chapter 18 | Development institution, government and supplier | GO where both obligations have credible owners.
Support infrastructure with an affordable service plan and explicit allocation of uncertainty. A guarantee transfers exposure; specify what it covers. Urgency can justify temporary funded action. Authorize that separately rather than letting it silently create long-term obligations. Decline continuation when the supposed purchaser cannot sustain it.

C20. Fund knowledge people can continue using

Chapter 19 | Research institution or industrial knowledge partnership | GO on usable evidence, inquiry and qualified independent evaluation.
Maintain records and reserve bounded effort for consequential surprises. Agree access, correction and continuation rights before committing valuable knowledge. Investment incentives can justify restrictions. Negotiate sustainable terms that preserve necessary scrutiny and operation; change access where privacy, security or legitimate rights require it.

C21. Make consequential decisions answerable

Chapter 20 | Institution deploying AI-assisted decisions | NO-GO without a proportionate route to challenge and correct material error.
Name the reviewer and the action review can change. Fund real transition arrangements for affected workers instead of treating hoped-for opportunities as delivered benefits. Review has costs and can be misused; design proportionate limits rather than eliminating recourse. This call rests on the book's commitment to accountable decisions and meaningful recourse.

C22. Test a paid industrial development service before building capacity

Chapter 21 | Regional industrial programme, applied to the September 2026 Korean hub initiative | GO on a bounded prepared-site agreement with a named developer and willing host; NO-GO on speculative shared capacity without a continuing payer.
First establish the specific need for real-site access, preparation costs, permitted work, reuse rights and recovery authority. Fund only the agreed preparation and initial delivery before considering expansion. Use existing facilities and adequate assessments. At the next funding release, test whether the developer obtained useful access more effectively than available alternatives, whether the host received value or payment sufficient to participate again, and who pays for subsequent readiness. Public research capacity can proceed under an explicit mandate with budget, milestones and a stop point; it is not commercial demand for lending purposes.
Where suitable equipment is already available but usable industrial access is scarce, prepare host sites before purchasing more shared machines. Reverse that allocation priority when equipment availability, justified security requirements or proven capacity constraints are the actual obstacle. Assess those conditions for each participating province before allocating funds.
Reverse or redirect this recommendation if simulation or existing facilities meet the need better, unique preparation makes the service uneconomic, no customer or authorized public purchaser supports readiness, or a different industrial constraint deserves the funds. Accelerate a separately proven deployment rather than making it wait for this service. This proposed contract model needs its first paying engagement. Subsequent reviews should distinguish offers declined, offers still untested and agreements whose execution fell short.

C23. Enter the tools market on its own economics

Chapter 12 | Component or specialist supplier | GO on investigating and quoting for research demand now.
Find buyers, specifications, buy-versus-make choices and repeat demand for components or services you can supply profitably. Do not wait for universal labour substitution to investigate customers. Do not build speculative mass capacity on research enthusiasm alone. Small orders can be costly; proceed only where pricing and delivery support a sustainable offer. Reconsider if demand disappears, customers internalize supply or a better use of the capability emerges.

C24. Price the control before buying the company

Chapter 12 | Board considering acquisition of a technology supplier | NO-GO on acquisition justified only by the product's strategic importance.
Identify an indispensable right or capability that a feasible contract cannot secure, then compare ownership with partnerships and procurement including development losses and management capacity. Ownership may be warranted when that control is necessary and affordable. Reverse a proposed acquisition if the missing right can be obtained more effectively otherwise. An acquisition decision is not settled merely by knowing who owns factories.
Separate equity ownership from model access, operating-data rights, update authority and permission to restart. Price the indispensable capability and the cost of exercising it before assigning an acquisition premium.

C25. Negotiate the second customer in the first contract

Chapters 9–10 | Supplier negotiating anchor-funded development | GO on explicitly pricing and bounding future-market rights.
Consider fields of use, duration, thresholds, reuse rights and support obligations in proportion to what the anchor contributes. Do not categorically refuse every restriction: some bargains create the product itself. Decline terms that eliminate a viable future without adequate compensation or strategic justification. Reassess when the anchor funds more of the risk or alternative customers become available.

III. Outlooks and Future Checks

The four entries below track a market question, a company milestone, a public programme and a service dispute. Each names the evidence needed for its next review.

ID / status	Baseline and question	Evidence and review point	What would change
O01 / monitored market question	Unitree research/education was reported as 73.6% of humanoid revenue in Jan–Sep 2025. Does the same category remain largest in a comparable full-year disclosure?	Reconcile the final prospectus and next annual customer-category disclosure; review at the 2027 evidence cutoff. If definitions change or no split is published, unresolved.	Industrial deployment evidence would weaken research sales as the leading observed example, but would not alone establish a particular buyer's ROI. This is not an industry-wide forecast.
O02 / company milestone	Hyundai's January 2026 announcement targeted robot production capacity and initial Atlas parts sequencing in 2028.	Track subsequent company amendments; final assessment after 31 December 2028, using disclosed capacity and actual deployment separately. A 2028 edition published before the deadline can only report progress.	Repeated paid work and operating measures can change deployment recommendations. Capacity, units produced and demonstrated economics are distinct outcomes.
O03 / programme follow-through	The September 2026 Korean forum announced regional cooperation. Which funded projects disclose users, operating evidence, retained capability and continuing finance?	Public awards, project records and authorized participant evidence available by the 2027 review cutoff. Non-disclosure means not established, not no work done.	Credible outcomes justify faster deployment; changed constraints justify redirecting funds. An MOU alone is not a completed outcome.
O04 / service and contract follow-through	Ghana's reported 2025–26 payment and service controversy remains unresolved in the evidence used here.	Seek operative agreements, amendments, payment records, provider responses and dated site status for the next edition. Do not presume an unverified expiry date or fixed centre count.	Updated funding, use and alternatives can change C11–C12. Record improvements as well as failures.

How to Revisit These Calls

Preserve the original entry when a judgment changes. Add the new date, new evidence and revised action. Distinguish an error in the original reasoning from a material change in conditions. A favourable outcome does not prove every premise; an unfavourable one does not automatically mean the analysis was wrong. Review both against the record available at the time.

For each review, record whether the recommendation was adopted, what happened, what evidence is missing, whether conditions changed and whether the original reasoning was sound. A recommendation never acted upon has no observed execution result. Assess each company milestone against the company's stated target.
Independent forecasts, if later issued, must identify their own rationale, event, baseline and deadline before the outcome.
The next annual edition should report what these calls got right, what they missed and which remain unresolved.
Keep the original judgment beside the new evidence so readers can follow the change.

I take responsibility for the judgments in this book.

HENRY CHAN JUNG · BUILDER, B2AGI

Seoul, 27 October 2026

EPAI 2027

EMBODIED PHYSICAL AGENTIC INTELLIGENCE

Edition v1.6 · 27 October 2026

Cite this edition as: Henry Chan Jung, EPAI 2027, v1.6, 27 October 2026, Chapter [number] or section [number].

B2AGI.COM



B2AGI

EPAI · CAPITAL · SECURITY · GLOBAL COOPERATION