
Investor Identity: The Ultimate Driver of Returns

An investor’s “identity”—sometimes referred as their “model”—is critical in setting asset allocation and implementing portfolio strategy.

By Ashby Monk, Dane Rook

1. Introduction

What’s the most important driver of long-term investment returns? It’s tempting to say that the answer lies in the act of portfolio construction, which involves both deciding which categories of assets to invest in (asset allocation) and selecting particular assets within those categories (portfolio implementation).¹ Indeed, Brinson et al. (1986) showed that 93.6% of the variability in a portfolio’s quarterly returns is a function of asset allocation.² That said, it’s also tempting to think that portfolio management might be the main driver of long-term returns, and that well-managed risk and liquidity are the chief engines of performance. However, portfolios aren’t constructed or managed in vacuums: proficient institutional investors use **organizational capabilities** as the basis for designing and running portfolios.³ These capabilities are crucial determinants of how portfolio construction and management occur in practice, such as whether a fund relies on consultants, engages external managers or invests directly.⁴

¹ Portfolio construction differs from portfolio management, although both include portfolio implementation. Specifically, portfolio management entails all the activities involved in running a portfolio once it’s been designed (i.e. following strategy selection and asset allocation). These activities include tasks such as managing risk and liquidity, rebalancing and tax-loss harvesting.

² Within the research community, the debate about what exactly drives long-term performance continues to rage (see Ibbotson, 2010). Yet surprisingly few studies focus on the organizational characteristics that underpin allocation and implementation decisions. The work by Clark and Urwin (2008) and Andonov et al. (2018) stand as rare exceptions: they closely examine linkages between organizational setups (i.e., investor “kitchens”) and investor performance.

³ We define institutional investors as investment organizations that are dedicated to invest on behalf of a specific client. For example, endowments are set up to grow the capital of universities and charities, and family offices are (usually) created to expand or preserve the wealth of particular people.

⁴For the remainder of this primer, the term “investor” will refer to institutional investors, unless otherwise noted.



In this primer, we refer to an investor’s organizational capabilities as its *identity*. An investor identity could be considered the suite of tools available to produce its investment returns. In this respect, an investor’s identity is akin to a sort-of “kitchen” in that it refers to the specific manner in which an investor “cooks up” its risk-adjusted net returns. In this regard, an investor’s identity reflects the foundations of its long-term performance: namely, how it organizes its capabilities in order to allocate assets and implement portfolio strategies.⁵ This primer articulates a framework to help investors understand their identity and develop best practices in running their kitchens.

Our investor identity framework is based on findings from our global fieldwork and case studies over the past decade working at Stanford University. We also partnered with Addepar Research to develop this framework because, as we’ll show below, technology is a necessary component of every investor’s identity. Addepar is a large invest-tech software company, which gives us an incisive view into the role of technology in identity—a view that allows our framework to be more comprehensive than others before it. As evidence of this comprehensiveness, we apply the framework to five traditional “role models” in institutional investing (including the Yale Model and Canadian Model) to underscore how organizational capabilities can undergird particular styles of asset allocation and portfolio implementation. Our aim is for these studies to motivate investors to refine their own kitchens, and improve long-term performance.

2. Key takeaways

Here are the key points you need to know about investor identities, which we explain in detail in the subsequent sections:

- *Producing returns*: All investors produce returns in the same general way: they take capital, people, processes and information as inputs and combine them to generate investment returns, which increases financial capital. These four inputs are fundamental to every identity. To improve these inputs, investors can use governance, culture and technology, which serve as *enablers* of the four investment inputs. Collectively, the inputs and enablers comprise an investor’s identity (i.e. they define its organizational capabilities or models), and thus determine how an investor is able to produce returns.

⁵ It’s helpful to note that an investor’s identity is inseparably linked to its *thumbprint*—that is, all the contextual factors that define how the investor operates (or could *potentially* operate). Thumbprints include constraints such as regulatory or budgetary restrictions, as well as advantages like beneficial geography (e.g. near Silicon Valley for privileged access to investment opportunities in startups or venture funds) or special insights into an asset class (one of our favorite examples is an Australian pension fund for the construction industry; unsurprisingly, that fund has unique expertise in infrastructure investing).



- *Identity before strategies*: It's best practice for an investor to have a deep understanding of its identity prior to making decisions on asset allocation and portfolio construction.
- *Factoring in thumbprint*: A person's thumbprint is an unchanging part of their identity. In the same way, every investor has permanent (or semi-permanent) characteristics, such as location, mission and resource limitations, which influence "who" they are and what they're capable of. Thumbprints entail constraints (e.g., pension funds must be able to pay obligations to retirees), but also advantages (for instance, a county-level pension fund in Silicon Valley may get special access to investment opportunities in startups). In analyzing an investor's identity and the opportunities that this identity supports, investors must factor in their thumbprints and the constraints and advantages thumbprints entail.
- *Intentional innovation*: Innovation is essential in any high-functioning investment organization. However, to be of long-term value, innovation cannot be ad hoc. Instead, it must be systematic, properly resourced and aligned with the present state of an investor's identity, so that the organization can more smoothly adapt as the world evolves—especially when that evolution is abrupt and far-reaching, as it is now.

3. Significance of identities

As researchers focus on the world of institutional investment, we know how difficult it can be to compare and contrast different institutional investment organizations. As the saying goes, "If you've met one pension fund...then you've met one pension fund." The implication here is that there's little about investment organizations that's generalizable, which hinders the ability to understand and service them. Similar things are said about family offices, sovereign wealth funds, foundations and endowments—largely because those organizations all have:

- Diverse sponsors (government, corporation, university)
- Different geographic locations (i.e. New York City, Juneau, Abu Dhabi, Oslo)
- Distinct resources (government funding, funding from managed assets)
- Variable capabilities (investment skills, technical skills, proficiencies in insourcing or outsourcing) and objectives (defined benefits, defined contributions)
- Unique histories (path dependencies)



In short, it seems impossible to identify a one-size-fits-all framework that's capable of describing every investor and how they invest. But, through years of blood, sweat, tears and therapy, we've managed to do just that.

While no two funds are identical, an identity framework allows universal analysis of organizational capabilities, and how those capabilities are (or could be) converted into investment returns. This universality comes from the fact that there's a fixed set of fundamental ingredients that are used in each and every approach to producing returns. How these ingredients are used differs from one investor to the next, but the general nature of the ingredients themselves remains the same. As Dane likes to say, "Every investor is its own snowflake, but all snowflakes are made of water.

Ashby prefers tasty cookies to crystalline structures, and thinks the following analogy goes further in explaining these essential ingredients of an identity (or kitchen). To make chocolate chip cookies, any would-be baker needs flour, baking soda, butter, eggs, sugar and chocolate chips. These are the six universal inputs to chocolate chip cookies. There's an almost infinite number of ways in which these six inputs can be prepped, combined and presented. Moreover, the particular quality of the ingredients, and how they're sourced, varies from one batch of cookies to the next.⁶ Nevertheless, regardless of these differences, the same six ingredients are always needed.

This cookie logic applies to investment organizations. The same fundamental ingredients are used by all investors to generate returns, but the individual nature of those ingredients and how they're combined varies substantially across organizations. These differences amount to specific "recipes" for producing returns, and these recipes are entirely based on the resources available within their identity. Among investors, there are a few famous recipes that have emerged over the years, such as the Canadian Model and the Yale Model. In the same way that the best recipes for cookies are reliable, and lead to happy kids, these famous models have reliably led to high performance for the organizations that pioneered them.

And yet, that's no guarantee that other organizations will succeed in applying them. Indeed, the transferability of these famous models hinges on the specific quality and abundance of ingredients an investor has in its kitchen, and its skill in mixing them. And, since no two investors have identical ingredients and skills, successfully replicating a famous model requires knowing how to modify it in precisely the right way. To do so, an investor must first deeply understand its organizational resources—its identity. Facilitating that understanding is the point of this primer.

⁶ Cookies are unlike snowflakes in this respect because any two molecules of water are essentially identical (to all the chemistry aficionados: let's ignore minor isotopic variants, shall we?).



4. The production of investment returns

Long before we started our collaboration at Stanford Long-Term Investor (SLTI) and Addepar, we (together with Rajiv Sharma and Gordon Clark) began studying the community of long-term investors and how they generate returns. We learned that all institutional investors combine the same set of *inputs* to deliver a target return. And, just as importantly, they all use the same *enablers* to improve the quality of these inputs or the manner in which they're combined. These inputs and enablers are the ingredients and appliances in investors' kitchens, i.e., the generalizable characteristics of an investor's identity. As such, these are the foundational components of our framework for analyzing how all investors produce returns. Let's explore them in detail.

Inputs to returns: All investors use the same four core ingredients (inputs) to produce investment returns: capital, people, processes and information.

- ***Capital:*** All professional investors need capital to invest. And the nature of an investor's capital is a critical input to its production of returns. Before an investor begins considering asset allocation or portfolio implementation, it should first: thoroughly understand the constraints and comparative advantages associated with its capital, and then identify any encumbrances and requirements that may limit the investment strategies it can pursue.

For example, an investor with no explicit liabilities, such as a sovereign fund or family office, can invest over very different time horizons than those investors who face well-defined or imminent liabilities (as insurance companies do). Similarly, a small investor has a different set of opportunities than a large one, since small funds may not have access to certain opportunities due to minimums at asset managers. Large investors may have capacity constraints that limit their ability or interest in investing in asset classes that don't scale—such was the case for large pension funds and venture capital funds (until recently). To accurately specify an investor's opportunity set, one must start by deeply understanding its capital.

- ***People:*** Investment performance is highly dependent on investment professionals, which is why financial services is one of the highest-paying industries globally. Today, investors



around the world rely on people to manage how returns are produced.⁷ Investors often rely on the knowledge, experience and networks of their people to fill critical information gaps.

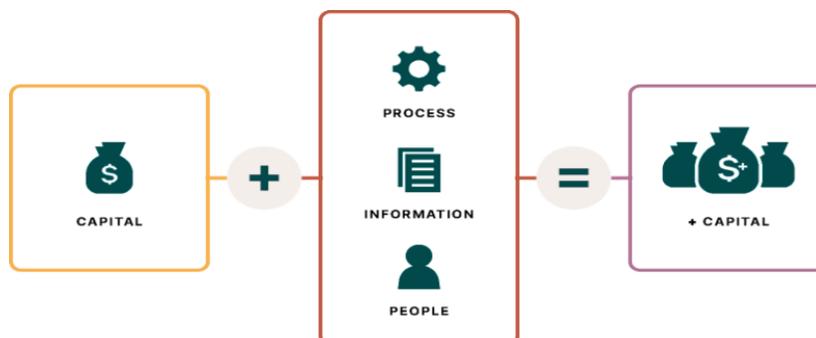
While people are a universal input, how they get integrated into the production of returns can vary substantially. Canadian and Dutch pension funds, for example, develop direct investment talent internally; these people are paid well, and they originate and select assets directly for their funds. University endowments often use reliable and smart internal people to pick high-performing external people (i.e. external asset managers). Smaller American pension funds regularly use consultants to help select external managers; for these funds, internal teams are more asset allocators and process managers than direct investors.

- ***Information:*** The investment management industry is essentially in the business of information processing. Today, the challenge of running a portfolio is largely one of information gathering and analysis.⁸ Investors gather information either through people (networks and relationships) or digital tools (data feeds). Some investors have overseas offices to reap local information in different regions, while others build close connections with external partners. Whatever the approach, higher quality information leads to higher quality decision-making. But it's not enough to simply possess information, whatever its quality; information must be analyzed before it's acted upon, and modern investors rely on a combination of people (expertise) and technology (analytic software) to do so. This leads to a two-part garbage-in-garbage-out effect: to make consistently good decisions, an investor must be proficient at both gathering and analyzing information. If it's weak at either, performance will suffer.
- ***Process:*** Organizations use processes to make and execute decisions. The various characteristics of these decision processes—speed, efficiency, reliability, creativity and so on—strongly influence *how* returns get produced. Notable processes include: risk management, delegation frameworks, due diligence checklists, rebalancing rules, risk budgeting, asset-liability matching, ESG integrations, benchmarking, valuation models, attribution analysis, and other mechanisms to coordinate capital, people and information. These processes are often complex, multilayered and subject to multi-stakeholder oversight.

⁷ In the future, this reliance will shift toward technology, although we doubt the human role will ever be eliminated (rather, it will be enhanced by technology).

⁸ In an upcoming ARB, we'll define data, information, knowledge and intelligence (see Monk and Rook, 2020) and how data is converted into intelligence through a hierarchy of insight.

These four production inputs are universal and atomic, which is why we think they're powerful.



These inputs are also interdependent. Smart people can create intelligent processes which, in turn, improve information flows that attract more flexible capital. Similarly, processes such as risk budgeting require reliable information and responsive people to be effective.

Continuing our earlier analogy, think of these four inputs as requisite ingredients of any investment cookie. Their specific quality and how they're combined with one another impacts performance—that is, it determines how successful an investor is at asset allocation and portfolio implementation. So, how does an investor go about improving these ingredients or alter how they get combined? The answer is: enablers.

Enablers for inputs: Clark and Monk (2019) undertook 20 case studies on leading institutional investment organizations, which focused on metrics of long-term success and investors' attempts to improve their performance. Collectively, these studies showed that all investment organizations use the same three enablers to improve their inputs: governance, culture and technology. The enablers interact with inputs in the following ways:

- **Governance:** The processes by which an organization manages its processes are typically referred to as “governance” (so, governance is *meta-process management*). Governance entails the formal and informal paths by which an organization steers itself in relation to its goals and constraints. There are many mechanisms through which governance can be administered, including boards, committees, councils (via trustees), individual governors or guardians (as they're dubbed in New Zealand). These groups/individuals provide oversight for management teams, and help guide the delegation of roles and responsibilities (*processes*). These entities also set rules for asset allocation and portfolio implementation



(*capital*), e.g. “no short-selling.” They also make decisions on hiring and remuneration (*people*), as well as spending on technology, data and other fuel (*information*) for decision-making.⁹

- **Culture**: The values, norms and non-formalized ways of doing things in an organization are what equate to its culture. As social creatures, humans are very much influenced by culture, so much so that an organization’s culture can be seen as a shadow form of governance. Although culture can arise organically, it’s usually more effective when it’s designed to align with an investor’s objectives and other resources (e.g. all else equal, an investor with strong governance should have a different culture from one with weak governance). Culture has a strong influence on employee motivation, retention, learning, creativity and fastidiousness (*people*). Moreover, culture affects the extent to which people adhere to the appropriate ways of doing things (*processes*), and aspire toward best practice. Likewise, culture is a major influence of both what and how people communicate, as well as how they interpret observations (*information*). Every culture has—or should have—designated priorities for improving its long-term returns. For example, a culture of knowledge-sharing can improve the flow of information and build trust between boards, leadership and staff. A culture that balances risk-taking with accountability can empower professionals to take on new investment opportunities, while linking their initiatives to the overarching purpose of the organization. And a “member-first” culture can ensure investment horizons are consistent with stakeholders’ interests (e.g. that a pension-fund with long-term obligations acts and thinks on multi-decadal scales).
- **Technology**: An organization’s digital resources—e.g. data and means for communicating, storing, accessing, processing and transforming that data—amount to its technology. Tech is a generative asset, in that it can: expand the frontiers of what an organization is capable of doing, enhance efficiency, clarify known unknowns, and help in converting uncertainties (outcomes that are hard to quantify or assign probabilities to) into concretely defined risks. Strong technology allows professionals to be more effective at what they do, and spend more time on high-value tasks (*people*), by automating repetitive tasks, along with some mission-critical ones (*process*). Tech also dictates how effective an investor is at: making use of signals about the economy and markets (*information*), and efficiently routing data, information and knowledge flows within the organization. Crucially, of all the ingredients

⁹ The best investment organizations now take a “budgetary” approach to both governance and risk. That is, in setting their risk budgets, they jointly account for what governance resources they have to manage their chosen risk allocation.



and enablers in an investor's kitchen, technology can be the easiest to change, and has the greatest payoffs from any adjustments, because, when properly executed, it can do a brilliant job of reinforcing (and even reshaping) governance and culture.

An indispensable takeaway from Clark and Monk's case-study project was the potency of these enablers in steering capital, people, information and processes toward best practice—and beyond—to establish *new* best practices. In short, to improve long-term performance, investors absolutely need to examine their governance, culture and technology, as well as ways in which these enablers can be better utilized to improve the quality and combination of their inputs.

As we've already implied (albeit indirectly), these three enablers can themselves be changed and augmented. For example: board members (part of governance) may receive supplemental training; culture can be guided, such as by adopting clear investment beliefs; and technology can always be freshened (as long as the budget permits). But sometimes both inputs and enablers need to be radically changed, as we now explain.

Innovation: The diagram below depicts the core components—the four inputs and three enablers—of every investor identity (kitchen). The smudge in the diagram's center represents the role played by an investor's *thumbprint*: the permanent or semipermanent characteristics that are a large part of defining "who" the organization is—for instance, a Midwestern family office, or an Ivy League endowment. There are many elements in a thumbprint, such as geography, mission and time horizons for investing. Some of these elements are explicit and easy to identify (for example, a sovereign wealth fund being obligated to invest a certain fraction of its portfolio domestically), whereas others can be harder to codify (e.g. a family office needing to ensure its portfolio doesn't conflict with particular religious beliefs held by clients). Like an investor's identity, its thumbprint is also a driver of returns.

Our favorite example of this is an Australian superannuation fund, CBUS, that serves the construction industry. It has leveraged its members' special expertise to set up a world-class capability in direct infrastructure investing. A thumbprint shouldn't be considered as part of a kitchen *per se*. Rather, it's a strong influencer of what goes into, and what goes on in, a kitchen. Together, an investor's inputs, enablers and thumbprint make up its identity. But it's really only the inputs and enablers that are the changeable part of the identity (at least when it comes to changes that are within the investor's own control).



However, sometimes improving a kitchen requires more than upgrading a refrigerator or putting a new herb in the spice rack; that is, there are circumstances in which a simple change to a couple inputs or enablers won't suffice to significantly alter how an investor generates its returns. Some examples of these situations include periods of market upheaval, when the risk-return profiles of many asset classes suddenly shift for the foreseeable future (gosh, that's pretty much the boat we're in now...). Those situations often call for kitchen *renovations*: finding altogether new ways of combining inputs and enablers. And renovation requires *innovation*.

Innovation isn't expressly represented in the above diagram for one very clear reason: it's not a thing that's separate from inputs and enablers. Instead, innovation is a direct function of how those seven elements work in conjunction. Innovation is vital for every identity, and increasingly so. The world is rapidly changing. We have driverless cars, novel-writing AI and helicopters on Mars. As the world transforms, investors must do likewise. Investors' technology, for example, will need to keep pace with the evolution of data analytics. And yet, most institutional investors are slow to change, often waiting for crises to catalyze innovation. And so, an identity or kitchen can get outdated. After all, the Yale Model, as originally forged, is now middle-aged, at 30+ years. Is it still fit for modern times? Does the size of Yale's endowment today necessitate a new model? What about when it reaches \$100 billion in assets? The need to undertake renovations in light of the inevitable obsolescence that any kitchen faces is why innovation matters so much.



It's crucial to note that innovation's importance is driven by more than just being able to redo the identity/kitchen to meet current needs; innovation also allows investors to preserve future flexibility, and thereby avoid drastic renovations going forward by making smaller, advantageous changes today. This tradeoff between flexibility and optimal fit at any point in time is important to the success of any investor, and it reflects the need for *intentionality* in innovation. Put differently, for innovation to be a long-term asset for an investor, it shouldn't be done sporadically and in an ad hoc manner. In the investment community, there's often a misconception that innovation is something that only occurs through creative inspiration - that it's not fully controllable. This depiction of innovation is utterly false. Innovation can be made programmatic, but it requires resources to do so.

In prior work (Monk and Rook 2021) we introduced the concept of innovation “spaces”: dedicated resources—such as time, incentives, learning programs and budgetary allocations—that help to drive systematic innovation in investment organizations.¹⁰ A benefit of these spaces is that they can be engineered to advance specific goals for innovation—goals built around anticipated future needs. For example, this might include developing data-science capabilities within an organization by giving people a certain fraction of their work week to learn new quantitative skills, and tying part of their compensation to nurturing those skills (e.g. by completing online courses). However, from what we've seen, these innovation spaces (and intentional innovation in general) only start to have material payoffs when they're properly integrated with the investment identity. That is, they must be configured in ways that mesh with inputs and enablers *today*, in order to guide them into the future.

Inputs, enablers, thumbprints and innovation are the key elements of our framework for analyzing investor identity. So how might an investor utilize this framework in practice, to improve its identity—to deliver a better kitchen? A condensed (bite-size) case study can help illustrate this. Recently, we met an institutional investor that wanted a very specific change to its asset allocation: it wanted to allocate more capital to illiquid assets. If faced with this same ambition, many other investors would've jumped straight to looking for particular illiquid assets that seemed to fit their existing portfolio. But this investor understood that identity must align with present and future asset allocations (let alone implementation). As such, the investor decided to inspect its organizational capabilities prior to thinking about allocation and implementation decisions. Upon

¹⁰ These spaces can also include physical spaces (e.g. the startup-style rooms with ping pong tables and kombucha fridges), but those aren't strictly necessary (like, fully unnecessary). We use the term “spaces” to highlight the notion that space must be created in the organization for innovation to flourish, because without dedicated resources, innovation tends to take a back seat to day-to-day, business-as-usual ways of doing things.



carefully examining its identity, this investor realized its information inputs weren't sufficient for upsized illiquidity risk. So it then assessed its enablers, to understand how to improve its information resources in ways that would support more illiquidity in its portfolio.

Ultimately, the investor tinkered with its governance, so that it could deploy and manage new technology that allowed for better clarity on its liquidity status (both present and forecasted). This enhanced information flow enabled a redesign of the investor's processes for overseeing liquidity risk. Only after these input and enabler modifications were handled did the investor start to seriously identify and analyze specific illiquid assets to add to its portfolio. Eventually, it shifted 10% of its portfolio from liquid to illiquid assets, and it forecasts that doing so will deliver significantly higher returns, after adjusting for costs and risks.

Clearly, the identity framework benefited this particular investor. But to what extent is the framework applicable to other organizations? Can it stretch across the broad, diverse universe of institutional investors, and do an equally good job at characterizing them all—shedding light on pathways for improvement? In the next sections, we show the answer to be affirmative.

5. Approach to generalizing “investor identity”

Now that we've toured the identity framework, it's time to put it through some road testing as evidence that it's: 1) Comprehensive enough to cover all investors; but still 2) Detailed enough to offer sharp insights. This one-two punch is lacking in most other classification frameworks. They're either over-generalized, and applicable to many investors, but short on insights they can provide; or overly narrow, and applicable solely to particular subsets of investors (e.g., pension funds only). We note upfront that it's impossible to verify that our framework works for *every* investor, because that would require applying it to *every* investor, which is something we lack time and energy to do (mostly because we're busy creating other tools to help investors!). A next-best approach is then to test the framework on a diverse assortment of investor types, which is what we do here.

For our analysis, we chose five “role model” institutional investors. These organizations are diverse: they're situated in different geographies, with different sources and constraints on their capital and distinct histories and ambitions. Indeed, they're sufficiently different from one another that they're a solid test of the comprehensiveness of the identity concept. However, diversity was not the only reason we chose this specific handful of funds. A second (but not secondary) reason was their prominence in the sphere of institutional investors. These organizations are all renowned for having



pioneered novel approaches to asset allocation and portfolio implementation, and many funds around the world now try to emulate them. By analyzing these five models of investors, we're therefore able to also show (at least indirectly) the applicability of our framework to the many close copies that they've spawned.

In addition, our aim in the next section is also to illustrate how our identity framework supports asset allocation and portfolio implementation. By choosing five organizations that have very different allocation and implementation approaches, we hope to shed light on this relationship from multiple angles. We think this will sharpen other investors' thinking on how to analyze their own identity, and tune their allocations and implementations accordingly.

6. Mini-cases

Here, we road test the identity framework on five marquee investment models: the Yale Model, the Canadian model, the Collaborative model, the Norway model and the Australian model. Each of these models encompasses a specific approach to asset allocation and portfolio implementation, and they are seen within the institutional investor community as exemplars of excellence—so much so that many organizations have tried to copy them, with varying degrees of success. What's rarely discussed (much less studied) about these models, however, is the organizational capabilities each of them requires—i.e. what inputs (capital, people, processes and information) and enablers (technology, governance and culture) are necessary to properly deploy them? If we can uncover a direct linkage between these models and their respective identities, then that is positive evidence for the validity of our framework.

We hasten to point out that we omit any comparison of returns across these five models. Each of the organizations (or groups of organizations) that pioneered these models has its own standards of risk, and ways for measuring them. Hence, gross returns are a poor reflection of “success” for these models, and trying for apples-to-apples comparisons of risk-adjusted returns is more complicated than is necessary for our purposes here.¹¹ All right, let's start the model parade!

Yale Model: This model, with its special approach to asset allocation, was extremely novel when it was developed in the 1980s. Also known as the “endowment model,” its key characteristic is an orientation toward highly illiquid, alternatives-heavy portfolios with significant exposures to equity

¹¹ All of these investors care about risks that go beyond volatility (as should every investor). Hence, looking at Sharpe ratios alone is an inadequate approach to comparing their risk-adjusted returns.



risk. Under this model, the investor seeks to build deep alignment with external partners who have unique, world-class capabilities in managing specific investment risks. These partners are then engaged to manage assets in which they have particular expertise (in Yale's case, this reliance on external managers is so strictly followed that the fund was known to reject co-investment opportunities).

Applying the identity framework to Yale University's own configuration of this model, we find the requisite *inputs* and *enablers* to be:

- *Capital*: Yale has a very long-term horizon, as the university intends to exist forever. This certainty of assets allows it to maximize its illiquidity risk. The small size of the fund, especially when this model was established, was also important: small allocations to top managers significantly moved the needle on fund performance. It's unclear to us if the Yale Model can work beyond \$75 billion in AUM.
- *People*: The endowment leverages university faculty and students (to work inside the endowment) and its alumni networks (to manage assets externally and collect information). Yale University is a key sous-chef in this kitchen, going so far as to use the university golf course for hosting manager and endowment-related events. The university's *culture* therefore extends into how the endowment is run and is a key driver in how the fund operates.
- *Process*: The CIO oversees all investment decisions with a highly expert internal team, (former members of which have gone on to successfully run other endowments). Specifically, the model's *governance* processes are led by highly expert board members, who underpin a high-quality and mission-driven in-house team of experts.
- *Information*: The Yale team invented a new financial model for forecasting liquidity and cash positions (see Takahashi and Alexander, 2002) in order to manage the model's highly illiquid asset allocation. While Yale was not known for its strong *technological* focus when it first enacted its model, the Takahashi approach to liquidity modeling is still being used around the world and has allowed Yale to lead its peer group in terms of the sophistication of its liquidity management program.

Canadian model: This model entails a distinctive approach to implementing strategic asset allocation. Its name refers to the preference among Canadian public pension funds—starting with the Ontario Teachers Pension Plan in the 1990s—to build internal investment teams and invest directly in assets. When done well, direct investing under this model tends to reduce asset management costs and increase alignment and performance (see Beath et al. 2021).



Our analysis identified the following identity elements in the Canadian Model:

- ***Capital:*** The capital managed by Canada's public pensions is long-term in nature, with distant liabilities that are often defined. For example, the Canada Pension Plan manages its assets over a 75-year time horizon, which it has leveraged to differentiate its capital. Moreover, many Canadian funds are very large—among the largest institutional investors in the world. This scale provides an opportunity to build sophisticated internal functions (e.g., quant investing teams) and own assets that other investors can't (e.g., large infrastructure projects).
- ***People:*** Thanks to sophisticated ***governance*** (resources drawn from the asset base rather than from government and nomination procedures that ensure board expertise), the Canadians are able to compensate their people far beyond what other pension funds worldwide do. The expert boards better understand the compensation levels needed to build investment organizations, especially those that compete with external managers.
- ***Process:*** The effective ***governance*** of these organizations leads to sophisticated delegation frameworks, risk budgeting and so on. This has driven a culture of risk tolerance that other institutional investors often lack.
- ***Information:*** The Canadians have recruited highly networked and sophisticated people, who bring experience and advanced degrees to the fund. They have established overseas offices to originate direct investments. They also invest heavily in ***technology***, allowing for sophisticated internal investment programs (e.g., overlays).

Collaborative model: This more recent model, adopted by the California State Teachers' Retirement System (CalSTRS) in 2018, prioritizes innovation. One of its key objectives is to use innovation to reduce the cost of expensive alternative investments, while increasing alignment of interests and performance. Collaboration with peer investors is the chief mechanism by which the requisite innovation is achieved—by means of experimentation with new assets, as well as combinations of people, processes and information. As an example, in 2021 CalSTRS collaborated with APG and the Abu Dhabi Investment Authority to acquire 100% of Arevon Energy, which is a renewable energy development company. Together, these three funds were able to collaborate to launch something entirely new and expand their programs' allocations to renewable infrastructure.

The Identity framework identifies the following inputs and enablers as integral to the Collaborative model:

- ***Capital:*** By partnering with peers, the effective capital base of the investment program is much larger than the fund itself. This allows the organizations to attempt more experiments thanks to the scale afforded by peers. Collaboration also makes innovation easier.



- *People*: By partnering with peers, CalSTRS is able to bring more skills and experience to its investment decisions. Moreover, by assembling peers around an innovative idea, the fund can be bolder in its **culture** of innovation. It isn't alone in doing something (a fact that can help alleviate fears of career risk and biases toward conservatism). Additionally, collaboration with external partners is a means of bypassing internal **governance** challenges around compensation and recruitment.
- *Process*: Because the resources needed to run an experiment are reduced, the reliance on existing **governance** and processes is also reduced. This is useful for most American pensions, which are often pressured by **boards** to reduce costs and run efficiently (which tends to shortchange innovation).
- *Information*: The Collaborative model is all about sharing information across peers, which is greatly facilitated by new project management and knowledge sharing **technology**.

Norway model: This model, which emerged in the late 2000s within Norway's sovereign wealth fund, is frequently cited as a role model for SWFs worldwide. The fund is run by Norway's central bank, with oversight from the Ministry of Finance. The Norwegian SWF is thus seen as a mechanism for building a well-governed sovereign fund that many others have sought to replicate. Further, it's also known for the manner in which it applies Norway's ethical requirements on a global basis. Chambers et al. (2012) describe the Norway model as "professional, low-cost, transparent, and socially responsible."

Under the Norway model, there's a unique identity with special inputs and enablers:

- *Capital*: Norway's SWF is one of the biggest funds in the world, exceeding \$1 trillion (US) in assets under management. This means that scale is a key criterion in all opportunities the fund considers. Many people see Norway's SWFs as one of the first "universal owners," as it owns roughly 1% of everything in the world (see Hawley and Williams, 2000). This need for scale largely prevents Norway from investing in illiquid, alternative strategies, which often come with capacity constraints and high fees.
- *People*: The fund has global offices with diverse staff, and it pays them quite well (thanks to the location of the fund within the Central Bank, which has a **governance** model that permits more generous compensation). The people are also motivated to work for this large fund because it has a uniquely large capital base (one for which no fundraising is needed) and **cultural** relevance (it has an ethical mandate that's unique in the world of investing).
- *Process*: The fund's decision-making is heavily influenced by various committees housed in the Ministry of Finance. These committees are noted for being highly deliberative on new opportunities (which some critics claim is a disadvantage that makes the fund slow to act).



The **governance** to which the committees are subjected (as components of the Ministry of Finance) therefore influences the de facto governance of the fund (for example, it transfers the Ministry's conservatism, which led to the fund avoiding illiquid assets altogether until recently). That said, ethical standards are also enforced by the committees' participation (and thereby shape the fund's **culture**). This has resulted in divestment from holdings that conflict with these inherited ethics.

- **Information:** The Norway model has significant investments in **technology**, as the fund runs a global, passive portfolio in-house with its own capital markets capabilities (which includes rebalancing and managing portfolio drift). Even passive investing requires significant investments in technology when it's undertaken directly at this scale.

Australian model: The superannuation industry in Australia is unique globally, both in terms of its pace of growth and its competitiveness. Funds in this industry are defined-contribution pensions, and regulation in Australia allows portability: individuals can move their savings from one fund to another. The result is a competitive landscape, where funds must vie with one another—not only for what capital they manage, but also for outright survival. This competition spurs the need for innovation, and it means that most Aussie funds are run more like businesses than conventional institutional investment organizations.

Under the Australian model, there's a unique Identity with special inputs and enablers:

- **Capital:** These are defined contribution plans that are in competition with one another for members *and* survival. This means capital is not secure; they can lose it if they don't meet the highest standards of performance. It's this competition that creates a highly **innovative** environment. Moreover, superfunds must be prepared for some members to leave and go to another superfund at any time, which imposes portfolio and **technological** challenges and further drives investments based on new information. At the same time, these funds are growing incredibly quickly as the contribution rules have created world-leading inflows. The inflows allow defined contribution (DC) funds to take high illiquidity risk, which is something missing from most DC plans.
- **People:** These organizations have a member-first **culture**, which means people see the members' long-term interests as the primary reason for their work. This social mission has helped attract remarkable people to work at these funds, even when the compensation is not as high as private sector jobs. Notwithstanding, the funds' **governance** is what we call "profit for member," which means they operate a bit more like U.S. endowments than U.S. public pension funds and can pay their staff more than the government.



- ***Process***: Powerful delegation frameworks developed in the past few years empower teams to be sophisticated players on a global scale. Some superfunds have been defined as “reliable partners” and “fast movers,” which is rare in the world of pensions.
- ***Information***: Major investments in **technology** mean solid digital information flows. Some superfunds have even co-founded technology companies to solve their unique needs, which allows these funds to further differentiate their asset allocation in the world of DC plans.

The foregoing demonstrates how the identity framework can be used to understand the emergence of investment role models. In all five case applications, we successfully demonstrated that it yields valuable insights on how the same seven factors (capital, people, processes, information, governance, culture, and technology) underpin each of the models in our analysis. This should give investors comfort in applying the identity framework to their own organizations, to investigate ways to improve their asset allocations and portfolio implementations—with the goal of increasing long-term returns.

7. Implementing identities

Our framework for organizational capabilities should help investors understand the key drivers of performance in their organization, and how those drivers can be improved and contribute to new allocation or implementation choices. To leverage this and improve risk-adjusted net returns, investors should:

- Make significant changes to their allocation or implementation strategies only after analyzing their identity (inputs, enablers and innovation capacities). This framework should guide an investor’s investments in itself, whether in its technology, people or partnerships.
- Evaluate where their inputs and enablers are better than their peers’, to drive meaningful competitive advantages—and thus reliable outperformance.
- Understand their organization’s weaknesses, and study ways in which enabling resources (culture, governance and technology) might be reconfigured to improve the quality of their inputs, and how they can be combined.
- Consider how to make innovation systematic in their organizations, by earmarking specific resources (innovation spaces) for it. Doing so empowers investors to make their identities more adaptive and better positioned to capitalize on new opportunities when market and economic climates change.



8. Final Thoughts

In both the practitioner and academic communities, there's an impression that the foremost drivers of long-term outperformance come from either how a portfolio is constructed (asset allocation and portfolio implementation) or managed (e.g. in terms of liquidity and risk management, rebalancing and so on). In this primer, we've made the case that the roots of strong performance actually lie deeper—in organizational capabilities themselves. Specifically, we've shown that capital, people, processes, information, governance, culture and technology all come together to shape long-term investment outcomes. Moreover, we demonstrated that it's best practice for exploration of those capabilities to precede allocation and implementation decisions (and therefore management decisions as well).

We've presented a framework for studying these capabilities, wherein we used the concept of a clearly defined investor identity to describe how organizational capabilities can be classed into inputs (capital, processes, people and information) and enablers (governance, culture and technology), and how inputs and enablers mutually influence one another, to produce superior returns. Additionally, we've shown the necessity of innovation in making inputs and enablers adaptive to shifting conditions.

To test our framework, we applied it to five models of investment, and found that it was able to offer insights into how those models are actually functions of organizational capabilities. These findings support the view that investors should have a firm grip on their organization's inputs and enablers for producing returns prior to pursuing new approaches in asset allocation or portfolio implementation.

At SLTI and Addepar Research, we are currently pursuing many extensions to our identity framework, and expect it to underpin research we release in the coming years. One area of focus for us is making identity analysis more accessible. The work behind this primer was fueled by our experience with research on organizational behavior and design, but that experience isn't available—or even necessary—for every investor to assess its own identity. In a forthcoming paper, we'll present a condensed scorecard to guide investors' self-appraisals of their organizational capabilities, as well as a map of new, future-facing capabilities they might pursue (such as ESG risk modeling, private credit investing, active alternatives management and more) based on the state of their identity.



References

- Andonov, A., Y. Hochberg and J. Rauh (2018) "Political representation and governance: evidence from the investment decisions of public pension funds." *The Journal of Finance*, 73(5): 2041-2086.
- Beath, A., S. Betermier, C. Flynn and Q. Spehner (2021). "The Canadian pension fund model: a quantitative portrait." *The Journal of Portfolio Management*, 47(5): 159-177.
- Brinson, G., L. R. Hood and G. Beebower. (1986). "Determinants of portfolio performance." *Financial Analysts Journal*, 42(4): 39-44.
- Chambers, D., E. Dimson and A. Ilmanen. (2012). "The Norway model." *The Journal of Portfolio Management*, 38(2): 67-81.
- Clark, G. and A. Monk, (2019). "Assessing long-term investor performance: principles, policies and metrics." Social Science Research Network. Available at: <https://ssrn.com/abstract=3321963>.
- Clark, G. and R. Urwin (2007). "Best-practice investment management: lessons for asset owners from the Oxford-Watson Wyatt Project on governance." Social Science Research Network. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1019212.
- Hawley, J. and Williams, A. (2000). "The emergence of universal owners: some implications of institutional equity ownership." *Challenge*, 43(4): 43-61.
- Ibbotson, R. (2010). "The importance of asset allocation." *The Financial Analysts Journal*, 66(2): 18-20.
- Monk, A., and D. Rook (2021) *The Technologized Investor: Innovation through Reorientation*. Princeton University Press.
- Takahashi, D. and S. Alexander (2002). "Illiquid alternative asset fund modeling." *The Journal of Portfolio Management*, 28(2):90-100.



Acknowledgements

The authors would like to thank three anonymous reviewers for the comments on a prior draft, as well as our academic colleagues, Gordon Clark and Rajiv Sharma, for their roles in co-developing many of the ideas that were precursors to the identity framework. The authors would also like to thank the affiliates of Stanford Long-Term Investor for supporting this research, especially Addepar which shared anonymized data to help validate the framework and concepts herein. None of the above should be held responsible for any errors or omissions.

Authors

Ashby Monk, Executive Director, SLTI. Head of Addepar Research (ashby.monk@addepar.com)

Dane Rook, Research Engineer, SLTI. Sr. Research Director, Addepar (dane.rook@addepar.com)



Notice and Disclaimers

All information provided by Addepar, Inc. or its subsidiaries (collectively, “Addepar”), including without limitation, all text, data, graphs and charts (collectively, the “Information”) is the property of Addepar and is provided for informational purposes only. The Information may not be modified, reverse-engineered, reproduced or re-disseminated in whole or in part without prior written permission from Addepar. All rights in the Information are reserved by Addepar.

The Information may not be used to create derivative works or to verify or correct other data or information without prior written permission from Addepar. For example (but without limitation), the Information may not be used to create indexes, databases, risk models, analytics, software or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other Addepar data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information.

Addepar makes no express or implied warranties or representations with respect to the information (or the results to be obtained, but rather the use thereof), and to the maximum extent permitted by applicable law, Addepar expressly disclaims all implied warranties (including, without limitation, any implied warranties of originality, accuracy, timeliness, non-infringement, completeness, merchantability and fitness for a particular purpose) with respect to any of the information.

Information containing any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

The Information should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. All Information is impersonal and not tailored to the needs of any person, entity or group of persons.

None of the Information constitutes an offer to sell (or a solicitation of an offer to buy), any security, financial product or other investment vehicle or any trading strategy.

Addepar does not recommend, endorse, approve or otherwise express any opinion regarding any issuer, securities, financial products or instruments or trading strategies and Addepar’s research products or services are not intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such.

Addepar, Investment Sentiment Index and other Addepar brands and product names are the trademarks, service marks or registered marks of Addepar or its subsidiaries in the United States and other jurisdictions.

© 2023 Addepar. All rights reserved.