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Ask just about anyone these days what skill is most critical to success in today's economy and chances are that near or at the top of the list of answers will be coding or some other related attribute of the modern-day computer whiz.

Nowhere perhaps is this more evident than in the increasingly data-driven investment industry where computer modelling and machine learning algorithms are fast becoming table stakes in the pursuit of generating better portfolio returns.

But as money managers of various styles and disciplines load up on talent and resources familiar with programming languages like Python, they must also strive to integrate these capabilities within a robust investment process to harness the true potential of their workforce.

While this may sound obvious to some, it's a fact that even the most data-dependent investors can often take for granted. In part, that's because the quantity of information now available to them has exploded in recent years and is much more sophisticated and varied than in the past.

Twenty or 30 years ago, for example, there were very few readily-available data sets to work from and what data there was often lacked in quality. As such, the eclectic group of rocket scientists, physicists and mathematicians that were early pioneers in quantitative investing spent most of their time developing data sets from scratch and then programming models that could exploit pricing inefficiencies in the market.

These early quants also known as "code breakers" didn't necessarily have investment backgrounds or know the ins and outs of the markets, but their ability to process information more efficiently and find opportunities well before most others was usually enough to give them an edge.

While these efforts often proved lucrative, this competitive edge persisted because the broader investment community was initially slow to adapt. More traditional shops tended to scoff at the idea and those who were interested in its potential, often relegated any focus on data and quantitative modelling to auxiliary areas of the firm such as risk management.

Nowadays, however, data sets and algorithms are common place and the practitioners who create them are ubiquitous across the industry. So much so, that some of the largest asset managers in the world are trying to rebrand themselves as tech companies in order to compete for top candidates with Silicon Valley and other industries wanting to create a more digital footprint.

Potential benefits may be lost, however, if coding and programming capabilities aren't complemented by the skill and expertise needed to process data within an overarching investment process.

At the same time, third party providers such as WorldQuant, Quantopian and FactSet continue to gain prominence with fundamental managers who want assistance with optimizing their data requirements, as well as those quants who see increasing value in outsourcing some of their needs.

This shift is particularly evident when it comes to "staples" like financial statements and economic statistics, but



also more regularly encompasses alternative sources of information such as satellite images, earnings transcripts and tweets that are becoming more prevalent.

In this evolving environment, investors are, to varying degrees, both consumers and manufacturers of data sets and the models that are built from them. Either way, investment teams who have in-house coding and/or programming experience in their ranks are at a marked advantage to peers who don't.

At the very least, this type of know-how can help determine the right external data source from the wrong one and better ensures the accuracy and timeliness of the information being mined. Even better, it gives money managers the option to source and build their own data sets and algorithms as a way to differentiate from the crowd.

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By creating a framework for working with data more effectively, money managers are also in a better position to incorporate new ways of discerning vast swaths of information, including those associated with continuing advances in Artificial Intelligence (AI).

As factor-based investors, for example, we have a framework for developing investment strategies that starts with a global database of both fundamental and alternative sources of information and ends up with the implementation of a portfolio that is optimized based on pre-determined constraints and desired exposures.

Central to the approach is our code library, which processes raw data via a collection of well-defined, prewritten and tested codes and supports traditional and advanced machine-learning techniques to discover factors. This results in efficiently standardizing large volumes of data while developing customized alpha and risk factors not available by third party sources.

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This doesn't mean striving to have the most sophisticated model or optimizer on the street. Instead, it's more about having the ability to process data quickly enough to adapt to changing market conditions so that opportunities can be seized earlier and more often as they arise.

In the end, there is no getting around the importance that data now plays in the everyday decisions made by investors. Asset managers who do not adapt and lack proficiency in coding and building models and algorithms will be left behind. Those who complement these essential capabilities with sound investment processes will stay ahead.

## Evolution of the money manager



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## For more information, please visit AGF.com.



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