Yet Analytics Blog

By Shelly Blake-Plock • March 9, 2017

The EIDCC, the Experience Graph and the Future of Human Capital Analytics

big data , design , data , human capital , analytics

Those of you who have followed Yet Analytics will know that to date, we've concentrated on xAPI.

We've done so for two reasons. The first being the clear differentiators provided by xAPI as regards data interoperability in matters of learning and human capital data. The second is the ability xAPI provides in helping to capture granular data on-the-ground. We've released the Yet xAPI LRS and see xAPI as core to part of our strategy to revolutionize human capital analytics.

But it is only one part of that strategy.

Whereas we could describe the xAPI on-the-ground approach as a microcosmic strategy, it perhaps becomes more clear what our aims are as regards human capital data when we take a look at Yet's developments on the macro side of the table. Earlier this year, I was invited to speak at the Education World Forum in London. On stage, I debuted the collaborative work we have done with our partners at HP, Inc. The short transcript below describes that work and how we came to build the HP Education Data Command Center powered by Yet's new EIDCC platform.

And with the development of the EIDCC — a platform which can take data

of any variety and provide the power of machine learning and neural networks to derive insight from it — Yet Analytics is rolling out a total data solution for human capital analytics, particularly as it concerns human development and the factors that investment and activity have on it.

Part of this involves xAPI. But xAPI is one of many factors. And where xAPI is used, it should be done so in the most intelligent and applicable manner. The broader reality is that the Experience API is something that should not be applied just for its own sake as the next big thing, but rather that the power of xAPI should be applied where applicable in the record of human behavior and performance — alongside any other data source — in the development of Experience Intelligence.

In other words — xAPI is a vital piece of the emerging human capital analytics ecosystem. But a meaningful solution in the space must look at the fullness of that very ecosystem in order to leverage it to produce insight. Macro level data — whether we're looking at the impact of social investment on a country's GDP or the relation between investment in employee experience and a Fortune 500 corporation's bottom line — is equally a key part of this understanding. Yet's goal is increasingly to bring these aspects — micro and macro — together and to make the insight of their mingling available on a single platform.

We can not imagine the modern learning experience without xAPI. And we can not imagine the future of human capital analytics without the ability to power AI and derive meaning across the diverse and divergent data assets of the Web. Those two things are not mutually exclusive. Rather, they are complementary values in the build out of the new architecture of human capital analytics. They are complimentary and necessary in the build out of the Experience Graph.

The Experience Graph is exactly that — it's a graph of experience. And just as experience is unlimited, the tools we use to leverage experience should be built to leverage it in all its unlimited and contextual facets. That means capturing it — and the macro context that surrounds it — through a matrix of strategies. Yet Analytics is deploying the tools necessary to meet the needs inherent in that project — xAPI databases and analytics engines, automated and interactive experience visualization tools and now a data platform leveraging AI to distill insights across contexts. We are dedicated to this work because as the Experience Graph grows, so too does the ability of organizations and employees to use data to improve their outcomes both in human capital development and in the impact that development has on organizational culture, economics and growth. This is something that improves people's lives.

By bringing together the on-the-ground nature of granular activity data collection about human engagement and learning behaviors with macro econometric data and the predictive capabilities of artificial intelligence, Yet Analytics is turning human capital data into a key piece of business and strategy intelligence. The following transcript describes how Yet and HP have begun applying these practices to the evaluation and forecasting of human capital investment at nation-state scale, beginning by solving problems for ministers of education across the globe. I think that you will quickly realize how this approach to a problem in the global education space as described below may provide a template for human capital investment and development solutions for any company or large organization.

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Prepared Remarks from the Education World Forum 2017

For too long, countries have been mass proliferators of educational laptops and tablets with no real proof of their impact. But increasingly, government leaders are being held accountable for responsible spending. As the transformation and automation of work means that the best jobs will be skilled labor fully immersed in ICT, how can governments demonstrate the

return on investment of their human capital technology spending both in fiscal and social-economic terms?

In the economic sphere, Dr. Eric Hanushek has been something of the godfather of education data. He is responsible for establishing the quantitative connection between cognitive skills and long-term economic growth. It is in continuing that path of study that Yet Analytics and HP, Inc. have worked together to develop an artificial brain capable of identifying these economic and cognitive ROI connections at scale and in real-time.

The synapses of our artificial brain leverage machine learning and are programmed to fire based on the ingestion and querying of big data comprising information on learning, economic and social factors and outcomes gathered by the World Bank, the World Economic Forum, the United Nations and elsewhere. The outcome is the ability to predict multi-year return on investment on a great variety of learning, economic and social measures.

We knew that variables including adolescent fertility rates, infant mortality rates and the balance of trade goods all had significant relationships with GDP per capita. The artificial brain now recognizes the trends in these factors alongside educational and cognitive trends and can forecast the effect of such

educational, economic and social factors on GDP. For example, the machine computes the trends and finds that in a given country investment in the math literacy of females as measured by PISA when combined with educational gender parity and a sustained level of internet access will yield a significant percentage outcome in the future growth of GDP per capita. The same factors in a different context may result in a different forecast. Perhaps most importantly, the artificial brain also forecasts the timetable of such investment and provides objective guidance by weighting value in the context of dozens of concurrent social and economic factors.

Beginning with, but advancing beyond methods of automated multilinear regression analysis, the artificial brain is comprised of neural networks, each trained to identify trends and relationships within and among key variables. Individual data records are treated as observations which together comprise layers of information. Training data is passed through these networks thousands, even hundreds of thousands of times, in order to learn the trend and relationship between the presented patterns and the individual country's GDP per capita. The neural networks learn the differences in variable values year to year in order to forecast GDP.

The result is an artificial brain purpose-built to assist in the identification and forecasting of return on investment in learning, economic, and social

endeavors. Expressly built to take into account the temporality of data, the artificial brain and its neural networks can be trained for each and every country — meaning that countries themselves may add their own data in order to attain even more precise and relevant forecasts.

Yet Analytics' EIDCC artificial brain powers the HP Education Data Command Center.

The interactive analytics and data visualizations provide:

- A real-time comparison of thousands of data points customizable by country
- The ability to identify and choose key variables to drill down into micro-components of the time series such as relationship between technology spending, social trends, and education strategies
- Hypothesis testing on past and future events
- Real-time computation and visualization of multi-year strategic ROI including social and cognitive measures

For government leaders, this means the ability to demonstrate the responsible and strategic fiscal rigor of a government; the visionary education reform leadership of government and educational leaders; and the prediction of future payback and time horizons for economic and social outcomes. It makes a clear case for investing in human capital from early childhood through tertiary education. Drawing from a number of sources and data streams ranging from the internationally comparable to the hyper local, it renders complex data and statistics as elegant and accessible data

visualizations. And it proves to international financing organizations that development ROI will be measured and met.

The HP Education Data Command Center, powered by Yet Analytics' EIDCC artificial brain, provides cross-modal quantitative evidence of return-on-investment of technology spending in education as well as predictive insights to maximize a country's economic and social outcomes as a result of investments in human capital.

Case Study

You can read more about our case study and learn about the capabilities of the HP Education Data Command Center and Yet's EIDCC in our case study e-book. Feel free to reach out to learn how to apply the capabilities of the EIDCC to your challenges in human capital data.

Download the Case Study

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