SMARTHIRE

The Future of Recruitment on the Blockchain

Sergey Kalnish, October 31, 2017

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Summary

Recruitment is an essential part of the Human Resources (HR) function of any company. Indeed, a company would not exist if it wasn't for it's ability to attract, hire and retain qualified employees. Today, the professional recruitment industry is estimated to be a 400 billion dollar plus market.

This critical industry is experiencing critical challenges in today's rapidly changing socio-economic climate. [The McKinsey Global Institute estimates](#) that there will be a shortfall of some **95 million qualified workers by 2020** and according to a [recent PWC report](#), an overwhelming **93% of surveyed CEO's** "say that they recognize the need to change their strategy for attracting and retaining talent.

The evolution of the recruitment industry over time can be largely attributed to changes in modern technology (fax machines, personal computers, internet, e-mail and the smart phone) and it is the purpose of this paper to propose that a new, emerging technology has the capability to disrupt the recruitment industry to a degree not seen since the mass adoption of the internet.

That technology is [The Blockchain](#), and the [Ethereum](#) platform that allows companies like SmartHire to build decentralized, secure and   trustworthy applications.

Vision

SmartHire is an open-source, decentralized, peer-to-peer Recruitment Platform built on the Ethereum Blockchain that is a gateway to a new digital economy that is transparent and fair to all of its participants.

SmartCoin is an Ethereum (ERC20) based utility token designed as the exclusive medium of exchange for the SmartHire Recruitment Platform that stores value and provides incentive for the participants in the the new digital SmartCoin economy.

Mission

To help create fair and transparent workplaces by building a decentralized, peer-to-peer recruitment platform that uses the SmartCoin cryptocurrency.

Blockchain and Cryptocurrency

This paper is aimed at an audience that is familiar with the Blockchain technology and cryptocurrencies such as Bitcoin and Ethereum, therefore we will provide a very high level overview and links to additional credible resources where you can learn more.

The Blockchain:

The Blockchain is the foundational technology that allows for the security and transparency of cryptocurrencies like Bitcoin and Ethereum.

At it's core, The Blockchain is a distributed ledger where computers work together to verify, process, store and secure a series of transactions. Advanced cryptography combined with built-in incentives for all participants to maintain the security and integrity of the data make it possible for a decentralized exchange of value to occur without the need for trusted third-parties like banks and credit card companies to get involved.

Additional resources:
https://en.wikipedia.org/wiki/Blockchain
https://blockgeeks.com/guides/what-is-blockchain-technology/
https://blockgeeks.com/guides/what-is-cryptoeconomics/

Cryptocurrency:

Cryptocurrency is a digital asset designed to work as a medium of exchange using cryptography to secure the transactions and to control the creation of additional units of the currency.

Although there are over a thousand cryptocurrencies that exist in the world today, the most popular ones are Bitcoin and Ethereum, their popularity undoubtedly aided by the astronomical rise in their value in recent years.

When we combine Cryptocurrency and the Blockchain, what we have is a completely new way of securely storing and exchanging real value in a decentralized, transparent and fair environment.

Ethereum and the ERC20 Token

Many consider Ethereum an evolution of the Blockchain technology that Bitcoin was built on, mainly because of it's ability to create what's known as Smart Contracts which are basically computer programs that allow for the automatic execution and enforcement of a contract between parties.

A good way to think of Ethereum is as a distributed computer platform, which can execute scripts (or Smart Contracts) using a network of computers (or Nodes). In order to provide incentive for this distributed computer network to execute and enforce the Smart Contracts, Ethereum also provides its own cryptocurrency called "ether" which is transferred between accounts to compensate participant nodes for computations performed.

The real utility of the Ethereum platform is that it allows for new applications to be built using it's underlying blockchain technology instead of developers having to build an entirely new blockchain.

These new applications in turn create their own, unique digital utility tokens that are used to store value and as mediums of exchange within the community using the new application. The newly created utility tokens uses Ether as "gas" to power the Smart Contracts running in the application, thus strengthening the Ethereum ecosystem by driving demand for ether.

Since there was an overwhelming rush to create new utility tokens on top of the Ethereum platform, a set of standards was created by the founders of Ethereum with the help of the open source community called ERC20.

The ERC20 tokens all share a specific set of functions which developers must use in their tokens to make them compliant. That innovation allowed for various tokens to have seamless interactions with other Ethereal applications, token exchanges and smart contracts without any issues.

Some of the best examples of new Ethereum ERC20 utility tokens that are being created today are Golem and Kin.

Additional resources:
https://en.wikipedia.org/wiki/Ethereum
https://en.wikipedia.org/wiki/Smart_contract
https://blog.coinbase.com/a-beginners-guide-to-ethereum-tokens-fbd5611fe30b
http://www.investopedia.com/news/what-erc20-and-what-does-it-mean-ethereum/
https://medium.com/@james_3093/ethereum-erc20-tokens-explained-9f7f304055df

SmartCoin

SmartCoin is an Ethereum (ERC20) based utility token designed to store value and provide incentive for the participants in the SmartHire Recruitment Platform, as well as to spur the future growth of the SmartCoin digital economy.

There are two critical elements that we need to further unpack are **value** and **incentive**:

Value:

Cryptocurrencies have value because of the same reason that money has value, trust. When people trust a commodity and start using it as a medium of exchange, it becomes an established currency.

When any commodity is given value, the value changes in accordance with one of the oldest rules in economics, called Supply and Demand. (https://blockgeeks.com/guides/ethereum-token/)

The initial value of SmartCoins will be established by the companies that will exchange fiat currency (CAD and USD) to buy SmartCoins in order to participate in the SmartHire Recruitment Platform which will exclusively accept SmartCoins as a method of payment.

It will further grow when highly in-demand candidates accept and spend SmartCoins to participate in the SmartHire Recruitment Platform.

The value of SmartCoins will grow the more companies and candidates use the Cryptocurrency, providing an advantage to early adopters who will have earned more of the cryptocurrency earlier when it had less value and saw it's value grow with the adoption of the platform.

Eventually, a SmartCoin Marketplace will emerge where companies and individuals will be able to exchange their SmartCoin for goods and services offered by other participants in the digital ecosystem, as well as exchange their SmartCoin for fiat currency like USD and CAD.

Incentive:

The fundamental value of SmartCoins will be to use the cryptocurrency as an incentive for the various participants in the SmartHire Recruitment Platform and the SmartCoins Digital Marketplace.

SmartHire users will be able to earn SmartCoin by providing value to other members of the SmartHire community, such as conducting screening interviews, peer skills assessments and making referrals just to name a few.

Companies and individuals will also be able to earn SmartCoin by selling goods and services on the SmartCoin marketplace. As the value of SmartCoins grows, it will become a further incentive for other people to seek out ways to add value to the community, such as developers who can earn SmartCoins by building applications that other members of the community will find useful and pay for.

Supply and Demand:

There is a fixed number of SmartCoin Digital Tokens that will be issued in the first place, and there will never be any more tokens created, which will ensure a limited supply and a growing value of the tokens as greater adoption occurs.

Each and every SmartCoin will be accounted for by recording the transactions in the open ledger on the Ethereum network, which will ensure transparency and the trust that any currency needs to grow in value.

So, now that we have taken care of the supply, what about demand? Like with any good or service that is being offered on the market, the demand for SmartCoins will depend on a lot of factors, like the quality of the SmartHire Recruitment Platform, the amount and quality of companies and candidates that use it and perhaps most importantly, will the SmartHire Recruitment Platform provide a better overall solution than the alternatives that exist today for both companies and candidates.

If the demand for SmartCoins is sufficiently high and the supply remains the same, the value of SmartCoins will grow.

SmartHire Recruitment Platform:

If we are to describe the Future of Recruitment as we see it, it only makes sense to start with an overview of the evolution of the recruitment industry and it's current state.

Recruitment Industry Overview:
Recruitment is an essential part of the Human Resources (HR) function of any company. Indeed, a company would not exist if it wasn't for it's ability to attract, hire and retain qualified employees. Today, the professional recruitment industry is estimated to be a 400 billion dollar plus market.

The birth of the modern recruiting industry can be traced back to the 1940's and WWII. Employment agencies began advertising for workers in an effort to fill the void in the workplace left by those who were called to duty (http://recruitingdaily.com/the-history-of-the-recruitment-industry/)

Over the last 70+ years, the evolution of the recruitment industry can be largely attributed to the evolution of technology. The fax machine, personal computers, internet, e-mail and the smart phone have all shaped the way companies and candidates go about finding one another.

The recruitment industry is highly influenced by the underlying socio-economic conditions of the markets that it serves, and the current global market conditions lead us to believe that the need for innovation in the recruitment space now is greater than ever. The McKinsey Institute estimates that there will be a shortfall of some 95 million qualified workers by 2020 (http://www.businessinsider.com/high-skilled-worker-shortage-2012-6) and according to PwC research "nearly two-thirds (63 percent) of global CEOs worry about not being able to find employees with the necessary skills and innovative mindset to fill their open positions." (http://www.pwc.com/gx/en/hr-management-services/publications/assets/ceosurvey-talent-challenge.pdf)

Industry Challenges:

Talent Shortage:

As already indicated above, there is a global talent shortage which is already putting a great strain on the recruitment functions of growing companies.

The gap between the supply and demand of qualified workers is only likely to get bigger in the coming years with the evolution of technologies like autonomous vehicles, machine learning, artificial intelligence and the internet of things (IoT).

The increasing demand for highly technical workers will make it increasingly difficult for companies to compete for talent and for candidates to find the best opportunity for them due to the overwhelming number of alternatives competing for their attention.

Data security and privacy:

Some of our most private and sensitive data can be found on a resume and discovered throughout the interview process. Things like our e-mails, phone numbers, home address, work history and salary details. All this information is currently being stored in countless companies databases which presents an ongoing security and privacy risk. (http://blog.marketresearch.com/global-recruitment-industry-outlook-for-2017)

Quality of Recruiting services:

Although recruiting is a fundamental building block of any company, recruiters are currently not required to have a specific education, certification, designation, or training to better prepare them for the challenges that the field presents.

Since the barrier to entry is so low, and the potential rewards of being a successful recruiter are high, it is understandable why recruiting has a reputation problem, especially within talent communities that are in high demand.

And the industry is not showing any signs of slowing down. According to the American Staffing Association, there are over 20,000 staffing and recruitment agencies in the US alone (and the UK saw more than 4,000 new recruitment agencies started in 2016.

Talent Sourcing and Evaluation:

Currently, the majority of companies take a reactive approach to Talent Acquisition which inherently leads to a subpar pool of qualified candidates being available for any given job opening. The current reactive methods for talent sourcing and evaluation are not scalable and cannot respond to the growing demand for highly skilled workers and the lack of supply of such skilled workers.

Simply put, unless companies take a more strategic approach to talent acquisition and embrace new technology, they will lose the best talent to companies that do.

Additional resources:
https://ahoyemploy.ca/disruption-recruitment-industry-race-zero/
https://americanstaffing.net/staffing-industry/staffing-industry-facts-data/
https://www.recruitment-international.co.uk/blog/2017/01/over-4000-new-recruitment-businesses-registered-in-2016

The Future:

According to a recent PWC report, an overwhelming 93% of surveyed CEO's "say that they recognize the need to change their strategy for attracting and retaining talent. But an enormous 61% haven't yet taken the first step. CEOs are well aware that something needs to be done, but are less sure of exactly what that is."

In the same survey of the same CEO's, Technology was picked by 81% as one of the five biggest global trends that will transform their business the most over the next five years.

We believe that the Talent Acquisition and Recruitment Industry is ripe for disruption and that there is a lot of market share to be taken away from established market leaders including job boards, multi-national recruitment agencies, as well as regional and local solution providers.

SmartHire Functional Overview:

SmartHire is a decentralized, Peer-to-Peer recruitment platform where candidates are evaluated and ranked by their technical peers before being matched with fitting job opportunities by a data-driven matching algorithm.

Each candidate will have a public and private profile, with all contact information (Full name, E-mail, Phone number, Address, etc.) being initially withheld from any third parties. The public profile will display a summary of their skills, experience and education as well as any other relevant information that the candidate chooses to share with the public.

Candidates will then be matched with a technical peer (someone of similar or greater level of experience in the industry and skill category of the candidate) that will conduct a Techical Peer Review (TPR) to take place over a phone or video call, where they will ask the candidate questions to evaluate and rate the candidate's skills and select from a variety of recommended open positions that they believe the candidate would be a good fit for.

In return, the candidate will also evaluate and give feedback to the Technical Peer on their performance during the peer review, which will serve as a reputation builder for the technical peer (more on that to follow).

Both the candidate and the technical peer will receive SmartCoins for investing their time and providing value to the ecosystem, with more incentives to come should the interaction lead to a positive outcome in the future (more on that to follow).

If the said candidate is interested in exploring the opportunities that he or she was matched with, they can show their interest to the companies by applying to those jobs. If they are not currently looking, they can hit the "snooze" button on the matched opportunities, and the matching algorithm will automatically notify them of similar positions that become available at their selected interval of time (1 month, 3 months, 6 months, 12 months).

If at any point in time the candidate wants to "refresh" their skills evaluation (perhaps they have gained valuable experience with a new technology, or worked on a side project that exposed them to a new industry), they can always request an additional Techical Peer Review (TPR) only this time they would have to spend some of their

SmartCoin to compensate the Technical Peer for their time (Each candidate will receive one FREE review when they join the platform).

Once the candidate is ready to explore new opportunities, they will be able to further explore the jobs and companies of their choice. Several possible use cases emerge to help them do that:

a. They can simply indicate that they are interested in the role to the employer by flipping the "interested" switch on the job, and wait to see if the employer will request further information based on their profile.

b. If the employer wants to see their resume, they will have the option to offer the candidate SmartCoin for sharing it (candidates will be able to set their preferences including the cost of sharing their information, doing phone and in-person interviews, and technical assessments, etc.)

c. If the employer wants to schedule a phone interview based on the resume, they will have the option to offer the candidate SmartCoin for agreeing to the interview.

d. If the employer wants to schedule a follow-up in person interview, they will have the option to offer the candidate SmartCoin for coming to the interview.

e. If the employer wants the candidate to do a technical assessment, they will have the option to offer the candidate SmartCoin for taking it.

f. If the employer wants to offer the candidate a job, they will have the option to offer a SmartCoin signing bonus to the employee for agreeing to join their company.

The system off course isn't perfect, and not every candidate will be matched with the opportunities and companies that they would like to explore. SmartCoin provides several interesting use cases here also:

g. The candidate can browse the jobs and companies of their choice and request an information interview with the companies they like, offering to pay in SmartCoin for gaining a deeper insight into the company and seeing

if it's the right fit for them (Companies can control the cost or availability of information interviews in their settings)

h. The candidate can select to complete any of the available "challenges" that a company offers to interested candidates in order to better assess their skills. (Companies can setup these challenges in their settings as part of their talent acquisition strategy)

i. The candidate can apply to complete some freelance work for their company of choice (Companies can setup some redundant or especially difficult problems as part of their talent acquisition strategy)

Once each step of the interview process is completed, companies will be required to provide feedback to candidates, for which they will be compensated in SmartCoin.

When the company has made their decision to hire the candidate, they will generate a Smart Contract which will transfer a selected amount of SmartCoin to the candidate upon their acceptance of the offer of employment (which can be completed offline).

Along with the candidate, the company will also pay SmartCoins to all the technical peers who have done a Techical Peer Review, and a special referral SmartCoin bonus to the Peer who recommended the candidate for this particular opportunity.

SmartHire Execution Strategy:

Our execution strategy will include three separate stages:

1) **SmartHire Closed Private Beta:**
   1) An initial supply of one billion (1,000,000,000) SmartCoin ERC20 tokens will be created.

   2) We will sell 100,000 SmartCoins per company to 15 selected companies in Toronto for $1,000 CAD (setting an effective initial SmartCoin value at .01 CAD per SmartCoin) so that they can test out the SmartHire Private Beta.

3) We will generate a list of the 3 most challenging positions that these companies are hiring for, create a list of 50 - 100 of the top candidates in the Greater Toronto Area for each position and, after approval from the said companies, we will reach out and invite these candidates to participate in the SmartHire Closed Private Beta offering them a 1,000 SmartCoin bonus for signing up, another 2,000 SmartCoins for completing their profile preferences, an additional 1,000 SmartCoins for every job that they review and apply to.

2) SmartHire Open Public Beta:

1) We will sell 10,000 SmartCoins per company to any company in Toronto for $1,000 CAD (setting an effective SmartCoin value at . 10 CAD per SmartCoin) so that they can further test out the SmartHire Public Beta.

2) We will generate a list of the 1-2 most challenging positions that these companies are hiring for, and create a social media campaign to attract candidates that fit into these skillsets in the Greater Toronto Area to sign up for the SmartHire Open Public Beta. We will offer these candidates a 500 SmartCoin bonus for signing up, another 500 SmartCoins for completing their profile preferences, and an additional 250 SmartCoins for every job that they review and apply to.

3) SmartHire - ICO:

1) We will open 10% or 100,000,000 into a public Initial Coin Offering (ICO) at a valuation of .1 CAD per SmartCoin raising $10,000,000 (CAD).

2) We will set aside 30% of the SmartCoin supply into a company fund to be used to grow the business, and as incentive for future employees.

3) The remaining 60% of the SmartCoin supply will be assigned to a special incentive fund to be used in the continued growth of the SmartHire Platform and SmartCoin Marketplace.
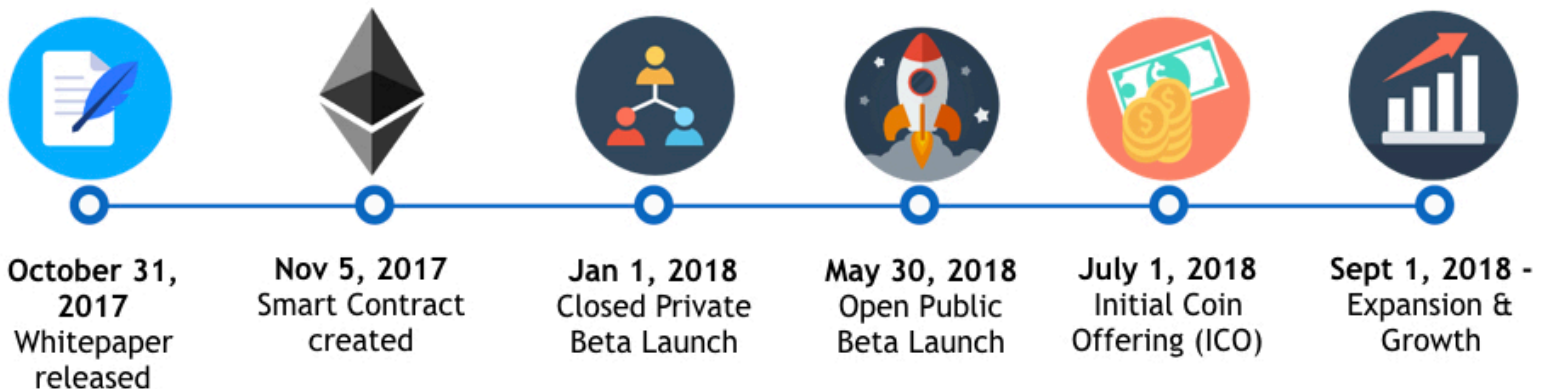
SmartCoin Digital Marketplace

The second phase of the SmartHire project is the development of the SmartCoin Digital Marketplace, where eventually anyone can buy, sell or trade goods and services using SmartCoins.

Initially, we will integrate our existing SmartHire clients to allow them to start offering their goods and services in exchange for SmartCoins from the SmartHire community. Think of a company like WealthSimple offering a subscription to their investment software directly to consumers in the community in exchange for SmartCoin, or a company like League offering their benefits solutions to other companies in exchange for SmartCoin.

Slowly, as the adoption of SmartCoins grows and more companies and candidates join the SmartHire Recruitment Platform, we will see software developers and entrepreneurs start to build solutions that cater to this growing community and offer them on the SmartCoin Marketplace. Eventually, we envision the marketplace community becoming a lucrative sales channel for growing startups with innovative digital products and services both B2C and B2B.

Execution timeline

October 31, 2017 Whitepaper released	Nov 5, 2017 Smart Contract created	Jan 1, 2018 Closed Private Beta Launch	May 30, 2018 Open Public Beta Launch	July 1, 2018 Initial Coin Offering (ICO)	Sept 1, 2018 - Expansion & Growth

SmartHire Team

Sergey Kalnish, Founder and CEO

Sergey spent the last 4 years in the professional recruitment industry and became increasingly frustrated with the inefficiency of traditional recruitment methods and launched SmartHire in November of 2016 to disrupt the professional recruitment industry.

Experience highlights:
• 10 years of Business Development and Sales
• 4+ years of Professional Recruiting Experience
**Strengths:** Leadership, Sales, Team Building.

Alvin Jin, Big Data & Machine Learning

Alvin is currently the Data Platform Technical Lead at Ethoca, a FinTech company that allows credit card issuers and merchants to connect and work cooperatively outside the payment network. Alvin joined SmartHire as a Technology and Machine Learning advisor in 2017.

Experience highlights:
• Waterloo grad – CS / Distributed Systems
• Previously with PayTM Labs, Research Now.
**Strengths:** Technology, Big Data, Machine Learning
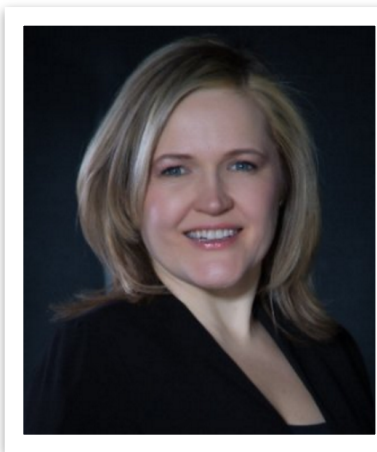
Natalya Domina, Data Science and Analytics

Natalya is currently a Senior Strategist at Bond Brand Loyalty and has 8+ years of experience in Retail, Loyalty, and Financial Services with Expert knowledge of behavioural science and hands-on experience in qualitative and quantitative research methods.

Experience highlights:
• Ph.D. in Industrial-Organizational Psychology
• Previous experience at Canadian Tire and The World Bank (US)
Strengths: Predictive Analytics, Psychometrics.
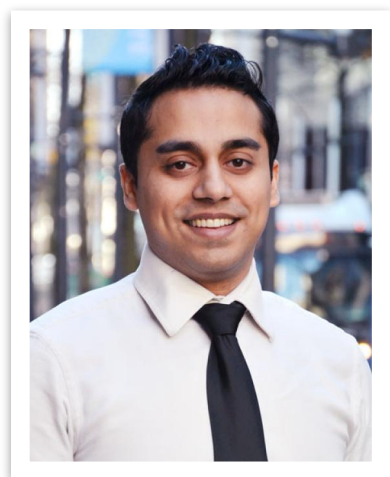
Maney Grewal, Finance and Operations

Maney is a business professional in Finance & Accounting, Business Operations, Strategy, and Investing. He is passionate about the recruitment industry and joined SmartHire as an advisor in 2017.

Experience highlights:
• Senior Associate at KPMG
• Advisor and Investor to various startups in Silicon Valley and Canada.

Strengths: Finance, Accounting, Operations.

Scott Peacock, Web,Blockchain Development

Scott has a unique blend of experience, having spent several years in the technology recruitment space, he later transitioned into a career as a Web Developer and founded Stratosphere Group, a Toronto based Web Development agency. A Cryptocurrency enthusiast, Scott joined SmartHire as an advisor in 2017.

Experience highlights:
• Javascript, HTML5/ CSS3
• Node.JS, Bootstrap, React.JS

Strengths: Web Development, Cryptocurrency.

Bela Campello, UI/UX & Blockchain

Bella is the Creative Director at Stratosphere Group and focuses on User Experience and UI Design for web, mobile and blockchain applications. A Cryptocurrency and blockchain enthusiast, Bella joined SmartHire as an advisor in 2017.

Experience highlights:
• Website design, Mobile Applications.
• Photography, Videography

Strengths: Web Design UI/UX, Blockchain

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1) Andy Greenberg (20 April 2011). "Crypto Currency". Forbes.com. Retrieved 8 August 2014.
2) Cryptocurrencies: A Brief Thematic Review. Social Science Research Network. Date accessed 28 august 2017.
3) https://www.forbes.com/sites/joshbersin/2017/05/26/google-for-jobs-potential-to-disrupt-the-200-billion-recruiting-industry/2/#6037e43a4e47
4) https://www.socialtalent.com/blog/technology-2/evolution-technology-recruitment-industry-infographic
5) McKinsey Quarterly (November 2012) "Talent tensions ahead: A CEO briefing" - By Richard Dobbs, Susan Lund, and Anu Madgavkar https://www.mckinsey.com/global-themes/employment-and-growth/talent-tensions-ahead-a-ceo-briefing