

Impact of Human Resource Factors on AI Investment: AI in the Human Resource Market

Case 2 in a 4-part series

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Introduction: New Consumer Claims Brought by AIGC

This case will explore the implications that AIGC trends have on the development of the Chinese Human Resource (HR) market.

While previous generation internet products were based on common needs and provided standardized products, the development of large AI models has opened doors to personalized custom products and services. Take AI applications in online education as an example: AI education models are developing to tailor to individual needs, since almost everything is not only digitalised but also based on dynamic database analysis for each user, including traffic distribution, sales conversion and service evaluation.

This creates the foundation for personalized education models and applications for every individual. Although we are still a distance away from AI Agents evolving into Super AGI, AI often successfully meets the following essential factors for potential landing scenarios:

- **Sustained and Essential Demand:** AI products meet ongoing and urgent needs, such as AI-assisted education and AI Agents for recruitment. These scenarios are highly related for individual ability and fall under the category of "investment-driven consumer products and services." Applications in these areas with high stickiness and essential demand often lead to disruptive innovation. This is because traditional businesses adopting these kinds of services and applications are often transforming their own customer relationships and business models.
- **2P New Model:** Customers' willingness to pay must at least cover the corresponding computational costs. This business model is more focused on 2P—professional customers such as designers. Representative projects include MidJourney and its derivative companies. By empowering more professionals, including products that enhance business capabilities and other supportive products, each "P" client can become an independent studio or a Soho-type business. The sustainability of these companies depends on whether their clients are willing to pay for the additional computational costs. Typically, the business model is based on integrating algorithms into computing resources for optimized resource allocation. Therefore, algorithms are not the core; rather, the key is the scale and customer stickiness (repurchase rate).
- **Digital Natives and Digital "Nomads":** AIGC products in the gaming sector target Generation Z, the digital-native generation, who are more willing to pay for digital products. Many of these products are based on the innovative combination of AIGC and Web3. The derivative consumer products of Microsoft's AIGC digital products are also becoming a growing trend.

The transformation of the AI industry is predicted to lead to a decrease in the existing talent market whilst causing the emergence of incremental markets. For example, the existing market that relies on manual services will shrink, while technology-driven human resource management incremental markets will emerge. The application of AI in the HR field is relatively high in landing relevance, because AIGC itself is leading the change in human work forms. Compared with companionship and entertainment, HR-related recruitment is a serious scene of sustained demand, and it matches the changes and innovations in the talent market corresponding to macro cycles and industry transformations.

1 Human Resource Factors: AI Investment Opportunities Arising from Structural Changes in the Talent Market

1.1 Current Situation of the Talent Market in China

Currently, China's total employed population is approximately 747 million, among which, high-end talents account for 110 million, with an average annual salary of 240,000 yuan, and the recruitment budget accounts for about 5%. The current market size of the talent market exceeds 13 trillion yuan, and AI empowerment can further expand and double the market size.

The Chinese economy has been undergoing major structural adjustments, from supply-side structural reforms, to the gradual clearance of excess capacity in industries such as real estate and construction. Under the dual pressures of the epidemic and the macroeconomic structural transformation, there is widespread structural unemployment pressure in the Chinese talent market: the youth structural unemployment rate has reached 20.4%, with a large number of talents facing unemployment upon graduation. Thus, major internet companies are experiencing sluggish growth, meanwhile, the epidemic and the China US trade war is causing foreign capital to withdraw. Consequently, the entire market is facing a storm of layoffs, with an estimated 30 million people currently being laid off in China.

Meanwhile in the new technological cycle, the demand for talent in the AI industry has significantly increased, resulting in an imbalance in supply and demand. The talent supply-demand ratio in the internet industry as a whole has been gradually increasing, from 0.45 in 2021 to 2.34 in 2023. However, AI-related positions in the industry remain scarce, with intense competition for talent in operational positions. Algorithm researchers rank first in talent scarcity with a talent supply-demand ratio of 0.47, with an average of 2 companies competing for 1 talent. The explosion of AI technology has also driven the recruitment demand for talents in AI directions such as AI engineers, natural language processing, and deep learning. The talent supply-demand ratios for these three positions are 0.61, 0.66, and 0.73 respectively, with the supply of talent being less than demand.¹

In China, AI has brought about structural changes in various aspects, such as in organizational relationships, organizational size, organizational capacity building, and talent assessment standards of organizations. New AI-native companies are becoming smaller in scale, such as Midjourney with only 11 employees, and Magnific AI with only 4. Under the wave of AIGC, the evaluation of talents by organizations is also changing, moving from traditional hexagonal theory to new demands. Under the AI “geek culture” (shared interests, values and behaviours among people who are enthusiastic about AI and related topics), emerging forms such as open source, Dao organizations, community and social culture, and digital nomads are rising, and flexible employment has become a disruptive emerging model.

1.2 AI-Assisted Efficient Resource Allocation in HR Market

Currently, the efficiency of resource allocation in the talent market is extremely low, with low digitalization, low penetration rate of internet services, market fragmentation, and huge potential value. Especially for innovative positions with unclear talent profiles, enterprises lack stable talent channels and effective talent information, often dealing with duplicate resumes, difficult job evaluations, and time-consuming resume

¹ Data source: Interviews with management teams of innovative companies and internal data.

screening. Meanwhile, from the perspective of job seekers, over 60% lack experience in choosing and negotiating in the job market, and over 50% lack career planning and job awareness during the job search process. Inefficiency at both ends leads to talent mismatches and high transaction costs. However, AIGC's large models are driving the process of industry renewal, since AIGC applied to talent business can provide higher recruitment efficiency, more accurate talent matching, and higher job and talent utilization efficiency.

Table 1 Comparison between Traditional Recruitment Model and AI Recruitment Model

Traditional Recruitment Platform Model	AI Recruitment Platform Model
▪ Online resume platform ▪ Only provide recruitment information ▪ Few information dimensions, low matching accuracy	▪ Multi-channel unstructured data for 360-degree modelling of supply and demand sides ▪ Provide personalized professional services to both parties ▪ Complex models for information input, reasoning, and matching of the best candidates

The entire talent market is divided into three stages: information, service, and matching, forming a complete talent recruitment operation. In this whole process, the transformation of the industry by the previous generation of internet technology mainly focuses on the structured data part, namely the information part. Therefore, giants like Liepin and Boss Zhipin have emerged, mainly focusing on resume information, with a resume costing about 40 yuan, and the core business model is information payment. However, for the recruitment service and matching part, the process involves a large amount of unstructured data, so the transaction closed-loop of recruitment transformation still mainly belongs to the headhunting market. Because the operation process of the headhunting market is non-standardized, the penetration rate of internet services is relatively low, except for first-tier cities such as Beijing, Shanghai, Guangzhou, and Shenzhen, and the market in second- and third-tier cities with relatively low labour costs is relatively fragmented, with potential value.

1.3 New Market Advocacy:

- **Areas where traditional markets have not been adequately served:** Currently, professional headhunting services are a common demand for most job seekers and companies. However, the service penetration is limited, and essentially only high-value talents are catered to, while a large number of mid-level and other markets have not been adequately served.
- **New market structured demand:** AI fosters globalization opportunities for Chinese recruitment platforms. Nearly 60% of companies going global have increased their recruitment revenue, with 7% experiencing growth of over 50% and 25% increasing by over 30%. Because most companies are still in the early stages, the biggest deficiency lies in the difficulty and duration of providing human resources support for overseas talent landing in target markets. Given cultural adaptation issues and varying fee structures, currently, no recruitment service company has achieved global business development. AI-based real-time translation, agent assistance, and remote work empowerment could further promote domestic talent enterprises in providing offshore services.

- **Emerging market innovation opportunities:** AI specialists and flexible labour. With the explosion of the AI market itself, the demand for related AI professional talents has grown by over 35%, mainly concentrated in AI professionals such as AI maintenance experts, machine learning engineers, as well as emerging occupations spawned by this, which are more reflective of the geek culture. Therefore, distributed work and flexible labour have greatly emerged, further segmenting labour services, with the global flexible labour market expected to grow at an annual rate of over 50% in the next 5 years.

1.4 New Value Propositions:

When AI assists in achieving closed-loop business processes, human-machine collaboration can achieve a tenfold increase in human efficiency. The value creation aided by AI mainly manifests in two aspects:

- **Network effects:** In the past, due to the lack of information circulation, there were many suitable candidates who were not recommended. Through systematic empowerment by AI, the recommendation rate of candidates can be improved, thereby increasing the conversion rate by up to 100%. On the other hand, due to inaccurate matching between people and positions, the conversion rate from interview to obtaining an offer is only about one-ninth. Through AI agents, both ends can be further matched, and systematic empowerment can increase the conversion rate by 100%. In summary, under the assistance of AI, better utilization of network benefits can increase output by approximately 400%.
- **Cost reduction through AI tool process:** The entire operation process includes Leads AOL, talent recommendation measurement, and AQL Deal. Among them, AGL is defined as Agent Qualified Leads, which is the smallest effective business node, indicating that the client has actually started interviewing for the position, proving the existence of the position. The Leads AOL part accounts for 40% of the current business flow time, and AI tools can reduce it by 75%; in the AQL Deal part, which accounts for about 60% of the operation time, the enterprise side can reduce one-sixth of the time input, and the candidate side can reduce five-sevenths of the time input. Overall, AI tools can reduce the time input of the entire operation flow by 63%. Overall, AI's role in the labour market can increase efficiency by more than 10 times, and this effect will further expand with the further maturity of AI technology and the continuous improvement of industry digitization.

1.5 Estimation of Cost Reduction and Efficiency Improvement in the Talent Market by AI

	Stage First Stage (2-3 years)	Second Stage (3-5 years)	Third Stage (5-10 years)
Efficiency Improvement	2-5 times	10 times	100 times
Core Performance	Combination of Traditional Market Natural Growth and AI Growth Acceleration AI Operations Cold Start Penetration Rate in Emerging Markets	Upgrade of Network Scale Benefits to Traditional Market AI + ACN (Agent Cooperate Network) New Market Penetration Speed Growth Flywheel	AI Agent covering the entire process, reshaping the traditional market industry value chain Emerging Market Share Cross-Industry Ecological Possibilities

Stage (including rate)	Positioning human	Traditional operation mode, with the assistance of AI large models and AI efficiency tools, human rate 80%	Traditional operation + AI platform (AI Agent and toolset), human rate 50%	AI platform + AI ecosystem, human rate: 10%
Charging Mode		Traditional talent market service fee model	Traditional talent market service fee + platform transaction fee model	Traditional talent market service fee + platform transaction fee model + AI scheduling fee

2 Case Analysis of AI + Talent Market:

Currently, AI has several modes of entry and exploration in the HR field, which can be classified according to the degree of disruption to the original industry:

	Representative Enterprise	Integration of Mode and AI	Advantages	Disadvantages/Risks
Traditional Information Mode High market share in traditional mature markets	Liepin	Combination of traditional business with AI, portal information, AIGC Doris digital interview assistant	Significant scale effect of leading companies	Innovation dilemma, difficult to change existing work habits and match user demands; Information fees do not form a closed-loop transaction
Headhunting Service Mode Potential part not yet served in mature markets Increase market share and penetration rate through new technology	TTC	Headhunting business, AI Agent and workflow empowerment, progressive innovation, horizontal platform strategy	Headhunting business forms a complete closed-loop business, obvious advantages of AI in new industry areas	Present fees are still in the traditional headhunting model, with AI only playing an empowering role; From traditional self-operated business to platform model, scale verification is needed
AI Agent Mode Cutting-edge emerging markets, currently relatively niche	METAgent	Disruptive innovation, recruiting AI Agent, digital talents/flexible employment among geek communities	Leading-edge model, can do business that traditional leading companies cannot land, i.e., "self-revolutionary business", small scale with low cost	Cold start is difficult, weak barriers for demand side; Does not involve closed-loop transactions, high demand for product added value

Case 1: AI Innovation in Traditional Leading Enterprises: Liepin + Doris²

Company Background

Liepin Company, HK:06100, is positioned as a global high-tech human resources supply chain platform, namely a traditional recruitment platform. The company primarily provides talent services to individual users through its website liepin.com, mobile application Liepin Tongdao, and WeChat public account. The company offers free basic services (such as personal career profiles, personalized positions, and recommendations from headhunting companies, social networking, and employment services) as well as paid value-added services (such as advanced membership subscriptions and supervision consultations). Established in 2011, listed on the Hong Kong Stock Exchange in 2018, the current market value is 1.682 billion (opening on May 13, 2024), representing a leading enterprise in the Chinese human resources market.

AI Product: Multi-faceted Doris

Multi-faceted Doris is an HR digital assistant designed to serve as a digital interviewer and assist companies in organizational diagnostic officers. It will also provide various functions in the future, such as coaching and employee self-service partners.

The product technology is mainly based on the "1 model 3 questions 2 evaluations 1 defense" framework, achieving accurate screening in four steps. According to customer feedback, its accuracy rate is consistent with that of senior interviewers, exceeding 90%. The "1 model" is based on David McClelland's iceberg model and competency model theory, including seven levels of the iceberg model, over 100 evaluation dimensions, over 300 evaluation criteria, and over 5000 typical behavioural performances for scientific screening. Liepin has transformed consulting services worth hundreds of thousands into an online service. Based on specific company needs, users can reduce the inspection dimensions based on the iceberg model to select talents more suitable for their company. The "3 questions" refer to multi-model questioning based on competency models, intelligent questioning based on resume parsing, and intelligent follow-up questioning. Doris has been recommended to over 400 companies, with its cost being one-fifth to one-eighth of traditional human resource services.

Strengths and Weaknesses Analysis

A strength of Liepin's AI products is reliance on the data barrier of leading enterprises, with data from over 6500 companies and over 400,000 interview practice data from candidates. This is an advantage in the AI+HR product field, as the company began strategic reserves for AI product development in 2019, with substantial resource barriers. However, the disadvantage lies in the difficulty of scaling up application landing despite the product's leading capabilities. Not only are customers often unwilling to pay extra for AI products, but breaking existing work habits also constitutes disruptive innovation. Additionally, the current largest business still belongs to scaled information services, and the level of digitization of closed-loop transactions in the recruitment business backend has not reached the level of scaled application.

Capital Market Expectations

From the perspective of capital market stock price performance, the concept of AI products is not reflected as expected by investors. Looking at the stock price performance of AI companies in the US and Hong

² Data source: Interviews with management teams and public market information.

Kong, although AI has brought some business growth, investors are not buying it compared to the investment in AI research and development. Therefore, for Liepin, its AI strategy includes the following aspects: self-research and strategic innovation; external investment; and incubation layout of the second curve. From the perspective of investment and incubation, its industrial resources and data barriers, as well as landing scenarios, are of great strategic significance for AI product-oriented start-up companies.

Case 2: Progressive Innovation in Traditional Business Scenes: TTC³

Company Background

TTC is an internet human resources company with AI and professional services as its core, incubated by Xiao Mafeng during his tenure at CGL, with CGL initially holding a 10% stake. With the support of Zhang Yiming and other first-level relationships, the company has grown rapidly and has a team of top internet talents, including senior talents from ByteDance and young talents from Nankai University's Department of Physics.

Business Model and Market Conditions

TTC mainly provides headhunting services to millions of active companies and has served over 70,000 companies using head-hunters. In the human resources market, especially in the connection between the labour market and the talent market, TTC has improved recruitment efficiency and accuracy through AI technologies such as voice conference summaries and resume parsing tools. The company currently has approximately 400,000 registered users and a volume of 1 million orders, demonstrating the breadth and depth of its business.

Technology and Innovation

TTC's core competitiveness lies in its AI Agent technology, which not only helps companies with professional services but also provides multiple job opportunities for talents, achieving precise job matching. Additionally, the company can effectively process large amounts of data and information through AI-assisted tools, improving work efficiency and accuracy.

Economic Benefits

In the past year, TTC has served over 500 clients, successfully completing orders for over 200 companies and handling 700 projects, with an average value of 130,000 yuan per project. The company's total revenue last year was over 95 million yuan, confirmed revenue was over 60 million yuan, and net profit was over 5 million yuan. These data indicate TTC's commercial success and profitability in the human resources industry.

Financing History

TTC's growth has also been recognized by the capital market, with the latest round of financing valuing the company at 500 million yuan, raising 50 million yuan. Previously, the company had raised funds through several rounds of financing, including injections of 120 million and 233 million yuan. Investors include top institutions such as Source Code Capital and Innovation Works, which further strengthen the company's

³ Data source: Interviews with management teams.

market position and business expansion.

Strategic Analysis of Strengths and Weaknesses

TTC enters the headhunting market, empowering the unstructured data operation part of the traditional market through AI Agent to improve efficiency. It can engage in the entire transaction loop of data flow, capital flow, and information flow in the entire process. The company's strategy is to become an AI-driven headhunting platform, similar to the AI-driven "Shell" model, where more head-hunters can share resources between supply and demand on the platform. Currently, the company mainly operates in a self-owned model, with rational investment in the AI end.

Case 3: Disruptive Innovation: METAgent - Novel Work Recruitment Agency for Digital Nomads⁴

Company Introduction

METAgent is positioned as an AI-driven distributed flexible labour platform targeting "digital nomads". The project primarily focuses on geek populations concentrated in the digital field, exclusively handling overseas business and distributed flexible labour. From the traffic end, it attracts and precipitates candidate traffic in the form of offline coffee communities to form a brand culture. From a product perspective, it further disrupts traditional recruitment models. For example, while Boss Zhipin involves "direct communication between candidates and employers", METAgent's product involves direct communication between candidates and AI, similar to a vertical application version of Character.AI - company agent interviewers.

Innovation Proposition

- **New Market:** Digitalization and flexible labour new markets.
- **New Organizations and Personnel:** Changes in the organizational form of native digital enterprises, namely small teams + large open source community models, somewhat similar to Web 3.0's DAO organizations.
- **New Value:** In the field of innovation, the decomposition of talents and tasks is vague. AI Agents can assist in task analysis, quantification, and matching.

Company Products

- **Online Product Model:** Aigent Product. Simple interface, all interactions are completed by the Agent, helping users quickly establish Agents, publish, and find positions.
- **Offline Geek Community:** Aigent Cafe. Sales and User Activity: Sells 926,000 cups of coffee per month, with 2,400,000 monthly active users. Customer Acquisition: Accumulates customer groups through low-cost and high-quality coffee drinks to reduce customer acquisition costs. Community Activities: Conducts community activities through Space to increase user stickiness and conversion rates.

⁴ Data source: Interviews with management teams.

Business Stage and Analysis

Currently, the project is still in the early stage, with the core being the cold start barrier - the launch of the demand side. Emerging markets already have players such as:

- **Toptal:** Focused on connecting top freelancers with businesses, with a rigorous screening process.
- **Upwork:** Provides a wide range of functional categories and a global talent pool but faces quality fluctuations and high competition.
- **Fiverr bot:** Task porter.

METAgent's opportunity lies in further optimizing the allocation of human resources by bridging the gap between demand and supply across time and space. For example, work tasks from major Silicon Valley companies can be distributed to globally located, cost-effective, and high-efficiency distributed workers at a lower price. METAgent combines an online AI-driven talent matching platform with offline community activities, creating an innovative model to connect talent and work demands. However, challenges such as cold-start issues and product closure remain. If METAgent can solve demand-side channel problems in bulk, it will have a significant strategic advantage. This is why it has formed strategic partnerships with traditional companies like Liepin. With these collaborations, METAgent is expected to promote its technology and services globally, achieving rapid business growth and market expansion, while simultaneously providing a second growth curve for companies like Liepin.

Conclusion

From the above case studies, it is clear that the human resource factor is one of the key variables driving innovative investment opportunities under the broader AI trend. Its impact is first felt through the structural innovation opportunities in the talent market itself. These opportunities specifically manifest in:

- The trend of talent demand in globalized and digitalized work;
- The differentiated talent matching opportunities brought about by industrial restructuring;
- The new job opportunities created by emerging technologies.

To capitalize on these opportunities, the key lies in combining AI trends with human resource innovations, which can lead to new talent claims, value propositions, and market propositions.

The core consideration of human resource factors in AI-driven investments is based on three key areas:

- Cost reduction and efficiency improvement in existing markets.
- Sustainability and potential of new markets.
- The alignment of AI talent with organizational models and whether it can create a positive feedback loop.

The three cases discussed above represent innovative ways in which companies combine the human resource market's status at different stages with AI trends. From an investment return perspective, these three innovation paradigms are influenced by the expected return periods—short-term, medium-term, and long-term. In the short term, the investment market's response to AI's impact on human resources is relatively less pronounced, while the medium and long-term outcomes are the opposite. This further

confirms the alignment of venture capital (VC) investment strategies with AI and human resource factors.