ECON MANAGEMENT VISION

经管视野

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同济大学创新创业创投（三创）研究中心成立

汇集多方智慧研发全球首个“三创”指数

THE RESEARCH CENTER FOR INNOVATION, ENTREPRENEURSHIP AND VENTURE CAPITAL FOUNDED IN TONGJI UNIVERSITY

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On the “GEEP” Quality of Professional Managers

经管视野
ECON MANAGEMENT VISION

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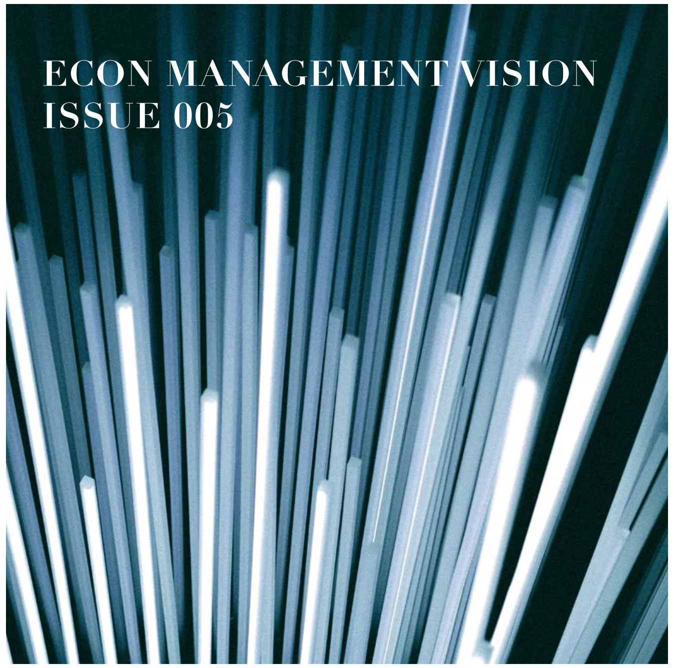

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FT TOP 20 BUSINESS SCHOOLS IN ASIS-PACIFIC

Rank 2017	*Business School*	*Country*
1	*Shanghai Jiao Tong University: Antai*	*China*
2	*Ceibs*	*China*
3	*NUS Business School*	*Singapore*
4	*IIm Ahmedabad*	*India*
5	*HKUST Business School*	*China*
6	*IIm Bangalore*	*India*
7	*Nanyang Business School*	*Singapore*
8	***Tongji University SEM***	***China***
9	*CUHK Business School*	*China*
10	*University of Hong Kong*	*China*

同济经管
TONGJI SEM

同济大学管理学硕士（MiM）位列全球第 36
同济－曼海姆 EMBA 项目首次参评，名列全球第 46

近年来，同济经管除了获得 AACSB、EQUIS、AMBA 和 CAMEA 等国内外权威认证外，在国内外的排名也屡获佳绩，各项名次不断提升，标志着学院人才培养和学科建设整体实力以及国际影响力不断提升。未来，同济经管将继续以立德树人为根本，以双一流建设为目标，以人才培养为核心，通过协同创新发展，全面优化教学内容和方式、探索新兴学科方向，为社会培养和输出具有创新能力和市场竞争力的精英人才。

同济大学创新创业创投（三创）研究中心成立

汇集多方智慧研发全球首个“三创”指数

李垣
同济大学特聘教授
同济大学经济与管理学院院长、管理高等研究院院长

2017 年 11 月 19 日，同济大学创新创业创投（简称“三创”）研究中心正式成立。作为全球首个“三创”指数发布机构，同济大学“三创”研究中心由同济大学经济与管理学院、管理高等研究院以及创东方投资有限公司共同发起设立。研究将围绕“三创”领域的理论及应用问题展开，于 2018 年 4、5 月间，配合同期召开的创新创业国际博览会，首次向全球发布 “三创”指数。

为贯彻落实党的十九大报告中提出的“人才强国战略、创新驱动发展战略”，同济大学“三创”研究中心将以“扎根中国三创实践，构建中国三创理论，服务国家创新体系建设”为使命，开展“三创”理论研究、建设“三创”基础数据库、发布“三创指数”，聚合大学、政府、企业、个人的创新创业创投平台资源，形成教育生态与产业生态共建共治共享的新机制，助力加快创新型国家建设。

目前，全球范围内已有的有关创新、创业、创投的指数多为单一指数，无法体现三者之间的协同联动关系，而这些单一指数也不能简单合并，并不能对政策和市场起到应有的指导作用。同济大学创新、创业、创投指数，将打造一个“三创”生态系统，该系统是各条件的综合，并共同塑造“三创”活动的外部环境；指标体系将综合体现国家制度与宏观经济基础、科技创新资源与实力、经济成熟活跃度、金融市场与创投成熟活跃度、社会环境等，通过多维度数据源和算法模型得出；为政策制定者、实践者、学者、教育工作者们提供全国范围内关于创新创业创投本质的多维特征。

“三创”中心的成立本身是国际性的，中心将结合中国的问题，整合全球的力量来献计献策，联系全世界关于创新创业创投的知名学者以及他们所属的机构，以国际视野和资源，助力解决中国问题。首批特聘专家中包含了多位国际知名专家学者，以及 12 位在该领域研究最出众的中国学者。

“三创”指数的构建将融合经济管理、信息技术、人文社科等多学科的研究成果，将建立相关创新、创业、创投基础数据的大数据中心。数据来源包括国家发布的数据、相关行业研究的数据、同济大学研究队伍自身研究的数据，再加上“三创”中心来自全国各地及全球各地专家的研究和判断，并运用数据挖掘等信息技术进行包括非结构化数据的广泛搜集及深度推衍。“三创”研究中心瞄准中国目前存在的问题来编定“三创”指数，将深入研究创新创业如何与金融结合，如何通过虚拟经济和实体经济的有效结合来促进地方经济的发展，并采用多种研究方法构造数字平台。除了指数本身，指数背后所带动的研究成果将为政府、产业、企业及个人的创新发展和创业提供支持。未来，研究还将辐射到“一带一路”国家的“三创”问题，打造研究、教学、产业互动的新型模式。

THE RESEARCH CENTER FOR INNOVATION, ENTREPRENEURSHIP AND VENTURE CAPITAL FOUNDED IN TONGJI UNIVERSITY

WORLD'S FIRST INDEX OF INNOVATION, ENTREPRENEURSHIP AND VENTURE CAPITAL TO BE RELEASED

LI Yuan
Ph.D, Distinguished Professor of Tongji University
Dean of Tongji SEM

On November 19, 2017, the Research Center for Innovation, Entrepreneurship and Venture Capital (or IEVC for short) was founded in Tongji University. The research center, co-sponsored and founded by the School of Management (Tongji SEM), the Advanced Institute of Business Research (AIBR) as well as CDF-Capital, will focus on the theories and application issues in the field of Innovation, Entrepreneurship and Venture Capital. In April or May 2018, it is going to release the world's first index of Innovation, Entrepreneurship and Venture Capital, along with the concurrent International Exhibition of Innovation and Entrepreneurship.

In order to implement the "great-power stratagem through talents and the innovation-driven development strategy" put forward in the 19th CPC National Congress report, the research center has established its mission "to take root in the domestic practice of Innovation, Entrepreneurship and Venture Capital, build a Chinese theory of IEVC, and serve the construction of a national innovation system". It will carry out theoretical research on IEVC, build a IECV basic database, release the IEVC index, aggregate IEVC platform resources from universities, authorities, enterprises and individuals, and form a new mechanism for the educational and industrial ecosystems featuring co-construction, co-governance and share sharing, in order to help accelerate the building of an innovation-oriented country.

So far, the indexes worldwide concerning Innovation, Entrepreneurship or Venture Capital are mostly single indexes, failing to embody the correlation between the three. As a result, these single indexes cannot provide due guidance to the policy and the market, for the reason that they cannot be simply combined. Tongji University's index of IEVC is going to build an eco-system of IEVC, which is a combination of all factors and is going to form the external environment for IEVC activities. The indicator system, derived from a multi-dimensional date source and algorithm model, is planned to offer a comprehensive reflection of the state institution and macro-economic foundation, resources and strength of technological innovation, social environment, the maturity and activity of economy, financial markets and venture capital. Moreover, the index will provide policy-makers, practitioners, scholars and educators with nationwide multidimensional features of IEVC nature.

The founding of the research center is international. The center will integrate powers and suggestions around the globe, invite well-known scholars in this field as well as their institutes, in order to help solve domestic problems with international perspective and resources. The first batch of specially-invited experts includes several prestigious experts and scholars abroad as well as 12 Chinese scholars who are most outstanding in this field.

The construction of the IEVC index is going to build a big center of basic data in the field of IEVC with an integration of research results from various disciplines such as economics and management, information technology as well as humanities and social sciences. Data sources include the government release, researches of relevant industries, and the research team of Tongji University. Another part of the data comes from researches and judgements from the center's experts both at home and abroad who use information technology like data mining to conduct extensive collection and in-depth derivation, including unstructured data. The center, targeted at existing problems in China, is to study in depth on the integration of innovation, entrepreneurship and finance and to research on the promotion of local economies by the effective combination of virtual and real economies. Moreover, it is going to build a digital platform using various research methods. Apart from the index itself, the research results it brings about is sure to provide support for the innovative development and venture capital of authorities, industries, enterprises and individuals. In the future, the research is planned to reach out to countries involved in the Belt and Road initiative that face IEVC issues, and to create a new model of research, teaching and interaction between industries.

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什么是战略决策?

战略内涵三要素

纵观公司的各种战略，我们会发现，不管是目标导向型，还是问题导向型，一个完整的战略包含三个最基本的要素，它们是“发展目标”、“发展问题”和解决发展问题的“总体方略”，缺少其中任何一个要素都不能构成一个完整的战略，战略决策是关于这三个要素的整体决策。

我们来看一下中国革命早期毛泽东主席和朱德总司令的军事战略思想。

1927 年 10 月，毛主席率领秋收起义的剩余部队几百人来到井冈山（罗霄山脉中间地区），在敌强我弱的情况下，毛主席等提出了带领敌人转圈的方法，等敌人累了、暴露出弱点时就抓准狠打。1928 年 1 月，江西国民党第 27 师对井冈山发动了第一次围剿，在遂川会议上，毛主席等提出了“敌来我去，敌驻我扰，敌退我追”的游击战方针，将转圈子的战术提高到战略思想的层面。在随后的战斗中，毛主席从敌大我小的基本特点出发，利用有利形势，避实就虚，夺取了反围剿的胜利，建立了根据地。在总结红军游击战经验的基础上，毛主席和朱德将游击战的思想概括为“敌进我退，敌驻我扰，敌疲我打，敌退我追”的十六字方针。这是朴素的游击战的基本原则，它把进与退、走与打、防御与进攻有机地结合在一起，是在敌我力量对比悬殊情况下，消灭敌人，保存和发展自己的有效方法。

我们将毛主席和朱德总司令的游击战略思想体系按三要素展示如下:

战略问题：敌强我弱
战略目标：消灭敌人、积极防御、保存和发展自己
战略思想（战略途径、或总体方略）：敌进我退、敌驻我扰、敌疲我打、敌退我追

我们可以看到，三要素有机地组合在一起，没有“积极防御”的目标，没有对“敌强我弱”形势的正确判断，也就不会有十六字方针的游击战思想，这是在战斗中慢慢总结凝练和提升得到的。

战略一词最早来源于战争，如国家 A 想要扩张领土，于是要征服国家 B（一般为比较弱的邻国），希望占有该国的土地。为了取得成功，A 国需要一个战略。这个战略是目标导向型的，即由目标的存在而导致了对战略的需求。B 国受到威胁，为了抗击 A 国的侵略，也需要一个战略，这个战略是问题导向型的，即 B 国由于受到了威胁，而产生了对战略的需求。因此，战略从起源上来讲，是服务于长远目标、或遇到的关键问题。

很多情况下，公司需要一个战略是因为发展中遇到了大的问题或状况，希望用战略来解决，这种战略是问题导向型的。当公司发展过程中出现机会，且公司决策层看到机会并希望把握住机会时，公司就有了新的发展目标，这个发展目标，通常表现为是公司决策者的雄心或对企业未来发展的期望，为了实现这个目标（通常比较长远），公司需要一个战略，这种有目标而产生的战略称为目标导向型战略。

《战略概念重塑》 俞秀宝著
清华大学出版社

不管是军事战争还是商业竞争战略，一个战略都应该包含三个基本的要素，它们相辅相成，有机地组成在一起，缺失其中任何一个要素的战略是不完整的战略。因此，从三要素出发，我们可以给战略下个定义，**战略是拟在为解决实现组织发展目标道路上遇到的重大问题而制定的、对战术（策略）具有指导意义的总体方略（或基本思想或基本原则）**。战略决策是对公司发展目标、遇到的重大问题和解决重大问题总体方略的整合决策。

战略的三大决策

公司未来如何发展？公司将往哪里走？战略的重要任务之一是对公司未来的发展方向进行决策，确定公司的长远目标（也称为战略目标、或发展目标）。

战略目标是战略决策不可缺少的核心内容，是企业愿景在某一发展阶段的反映，是企业在一定阶段内所要达成的结果，它具有统筹性、长期性、可分性和挑战性等特点。需要一提的是，对长远目标的决策，通常需要对时间范围作出决定，即在多长时间内（比如 5 年，8 年，还是 10 年，甚至 20 年内）要达到的目标。

公司发展的道路上将存在什么样的关键困难、问题或障碍？公司战略决策的另外一个重要任务是辨识公司战略目标实现过程中面临的重大问题。

公司发展中的重大问题是指实现公司确定的长远目标道路上遇到的关键障碍及挑战，这些问题也可以被称为战略问题。战略决策中，公司决策者需要很好地识别它们并将问题和障碍概念化。概念化是指将具体及零碎的信息总结提炼出能够反映实际情况的精髓性的语言，如毛泽东主席对中国工农红军在土地革命战争时期初期遇到的战略问题概括为“敌强我弱”，以表示共产党与国民党军事力量的悬殊。

战略决策的第三个重要任务是对公司发展道路上遇到的重大问题提出解决的总体方略，这个方略也可以被称为战略途径。

战略问题如果得不到解决，公司的战略目标就无法实现，因此在对公司发展道路上（可能）遇到的重大问题进行辨识后，公司高层管理者需要从一个较高的高度，提出解决问题的思路，或提出统筹性的方案来引领问题的解决，这个统筹性的方案可以是一个“总体方略”，主要以基本思想或原则呈现出来。战略途径（或总体方略）与我们普通意义上所讲的途径不同，它具有引领和指导作用，是决策者思想的体现。

因此一个完整的战略需要从整体上回答下面三个问题——

- 发展目标（确定企业发展方向）：我们要去哪里?
- 发展问题（识别面临的重大问题及挑战）：实现发展目标路途中我们遇到的最大障碍和挑战是什么?
- 战略途径（选择解决发展问题的总体方略）：我们以一个怎样的总体思路（或指导思想）来解决发展中面临的重大问题?

一个战略涉及的三个问题的决策，彼此密切相连，只有将三个决策有机整合才能使公司的战略免于茫然和过度抽象。

结束语

公司战略决策需要把握公司发展的方向，需要预估发展中面临的关键问题，需要提出解决关键问题的总体思路和方案，因此具有相当的难度，其中任何一个决策的失误，都将导致战略决策的偏向，甚至错误。也就是说，一个完整的战略并不就是一个完美的战略。比如一辆汽车，即使拥有全部的必须部件，顾客有可能不喜欢它的颜色或设计，因而可能滞销。因此，进行一个好的战略决策，决策者不仅需要同时做出三个大的决策，还需要对企业内外部情况进行正确判断，需要对三个决策进行有机的高度整合。公司战略关乎公司未来的发展、关乎大量资金的投入、关乎市场中竞争的输赢。战略决策有别于公司日常的运营决策，具有统筹性、全局性和纲领性的特点，其复杂性和难度显而易见，因而这也恰是很多高管为之感到头疼的原因。

值得注意的是，一个战略是否能够取得成功，还取决于战术的智慧。实际上，没有战术的战略是不能实施的，而战略直接作用正是对具体战术方案的形成提供指导，确保战术的正确性，使公司发展道路上遇到的重大问题或障碍得到解决，公司因此得到发展。

WHAT IS A STRATEGIC DESICION?

Vicky YU
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The term "strategy" originated from war. For example, Country A and B are at war. A wants to conquer B (usually weaker than A) for territory. In order to win, A needs a strategy, which is goal-oriented, that it, a strategy required because of the existence of the goal. As for B, it also needs a strategy to fight against A, which is problem-oriented, for the strategy is needed because of the threat. Therefore, in terms of origin, "strategy" is developed for a long-term goal or a key problem.
In many cases, the strategy that a company needs is problem-oriented, for the company encounters some big problems and hopes to solve it with a strategy. In the process of a company's development, when the decision-makers notice an opportunity and want to seize it, a new development goal comes into being. The goal is often a manifestation of the ambition or expectation of the organization. In order to achieve this goal (usually takes a long time), the company needs a goal-oriented strategy.

Three Elements of a Strategy

No matter which kind, a complete strategy consists of three basic and indispensable elements—development goal(s), development problem(s) and a guiding ideology to deal with the problem(s).

Let us look at the military strategies of Mao Zedong and Chu The, the Commander in Chief in the early days of China's revolution.

In October 1927, Chairman Mao led the remaining forces of the Autumn Harvest Uprising including hundreds of men to Jinggang Mountain. Faced with a strong enemy, Mao, along with others, proposed to lure the enemy into going around in circles, and strike out whenever the enemy exposed a weakness. In January 1928, the 27th division of the Kuomintang army in Jiangxi Province launched the first "encirclement and suppression" assault to Jinggang Mountain. Then on Suichuan meeting, Mao, along with other leaders, put forward the Guerrilla Warfare policy, which is to "retreat against the enemy's front attack, assault once the enemy are stationed, and follow up a victory with hot pursuit", raising the tactic of circling around to the level of a strategy. In the following battles, with a full understanding of asymmetrical nature of the confrontation, Mao took advantage of the favorable terrain, kept away from the enemy's main force and stroke at their weak points. The strategy proved effective. Mao's army won the anti-siege victory and finally established a base area. On the basis of summarizing experiences in the war, Mao Zedong and Chu The generalized the ideology of Guerrilla Warfare into a sixteen-character strategy: "The enemy advances, we retreat; the enemy camps, we harass; the enemy tires, we attack; the enemy retreats, we pursue". This is the basic principle of an unsophisticated type of Guerrilla Warfare. It organically combined advance with retreat, escape with strike, defense with attack, thus is an effective way to destroy the enemy and to safely develop itself under the great disparity of military power.

The following is a demonstration of Mao and Chu's strategy from the angle of the three elements.

Strategic Problem: Against a stronger enemy.

Strategic Goal: To destroy the enemy, to defend actively, and to preserve and develop themselves.

Strategic Thinking (Strategic Approach or General ideology): The enemy advances, we retreat; the enemy camps, we harass; the enemy tires, we attack; the enemy retreats, we pursue.

As can be seen, the three elements are integrated together. The sixteen-character guidelines was gradually formed during the war and would never come into being without a goal of active defense or an accurate judgement of the strategic problem.

Whether it be of a military war or of a business competition, the strategy should include three indispensable basic elements, which are complementary and together form an organic whole.

Thus strategy can be defined as the following

"A general ideology (basic idea or principle) developed to guide tactic plan and solve major problems on the organization's road to realize its development goal."

For a company, a strategic decision is an integrated decision concerning a company's development goal, the major problem and the general guiding ideology to solve the problem.

Three Decisions of a Strategy

Where will the company go? What is its future? One important task of a strategy is to make decisions on the company's direction of development and to set a long-term goal (also known as strategic goal or development goal).

Strategic goal is an indispensable core element of a strategic decision. It is a reflection of the company's vision during a certain period of time and a desired result the company would like to achieve at a certain stage. It is characterized by being overall, long-term, separable and challenging. What needs to be mentioned is that decisions on long-term goals usually require a time range, that is, how long should the goal be achieved (e.g. within 5 years, 8 years, 10 years or 20 years).

What are the key difficulties, problems or obstacles in the development? Another significant task of a company's strategic decision is to identify the major problems the company faces in achieving its strategic goal.

Major problems (also called strategic problems) in a company's development includes the key obstacles and challenges it encounters in realizing its long-term goal. In making the decision, the decision-makers of the company need to recognize these problems and conceptualize them. Conceptualization is a process of summarizing specific and fragmentary information into a refined expression that is able to reflect the essential situation. For example, in order to underline the disparity of military strength between the Communist Party and the Kuomintang, Mao Zedong summarized the strategic problem that the Chinese Red Army encountered in the early stage of the Agrarian Revolutionary War as "against a stronger enemy".

The third major task of a strategy is to formulate a general ideology for tactic plan that will be adopted for resolving development problems occurred in the development of the company.

A company's strategic goal can never be achieved without solving the strategic problem. Therefore, after recognizing the major problem already occurred or may occur in the company's development, the executives of the company need to come up with a solution or an overall plan for solving the problem from a high-level perspective. The proposed overall solution could be a "general guideline", presented in the form of a basic idea or principle. Different from the ordinary sense, a strategic approach acts as a guidance as well as a reflection of decision-makers' thinking.

A complete strategy needs to answer the following three questions:

The development goal (setting the direction of development): Where are we going?

The development problem (recognizing major problems or challenges): What is the biggest obstacle or challenge on the road to achieve the development goal?

Strategic Approach (making a general guideline to solve the development problem): What is the general thinking or guiding ideology to solve the major problem?

The answers to the above three questions are closely related. Only by integrating the decisions related with the three elements, can the company's strategy be free from blankly and excessive abstraction.

Conclusion

Making a strategic decision is rather difficult. Any mistake in the process can lead to a deviation or even a fatal error. It needs a grasp of the company's direction of development, a prediction of major problems that might occur and a general idea or plan to solve the problem. A complete strategy is not necessarily a perfect one. Take cars as an example. Even if a car consists of all the necessary parts, it can still be unsalable because of its unpopular color or design. That is to say, in order to make an effective strategic decision, the decision-makers have to not only make the three decisions simultaneously, but also correctly grasp the external and internal situations of the company. Moreover, a high-level integration of the three decisions is required. As it concerns the future of the company, the investment of a hefty sum of money and the result in the market competition, a strategic decision is integrated, overall and programmatic, and different from a decision of a company's daily operation. Because of its obvious complexity and difficulty, many top managers often have a headache over it.

What's noteworthy is that the success of a strategy depends on the tactics. In real life, a strategy without tactics is not enforceable, because the direct effect of a strategy is to guide the formation of concrete tactic plans and to ensure their correctness.

未来20年 全球性航空枢纽的趋势与启示

未来 20 年，国际航空枢纽的角色形象将更加智能，更加全面，更加丰富。上海国际航空枢纽建设将以智能化的空港为核心，强化物流与供应链产业，发展内涵丰富的一体化临空经济，以多层次互联的客运交通、多方式整合的货运物流为基础，营造世界文化相交融的创新生活氛围，实现“一座机场，一个城市”的战略目标。

（一） 智能化的空港核心

作为国际航空枢纽的建设核心，空港将转型为以旅客为中心、服务为导向的综合性航空服务提供者。相辅相成的人工智能与数据科学，将帮助机场结构化自身的海量信息，实现互联互通的智慧物联网络，并基于此从全局角度统筹决策，动态优化机场的资源配置，实时调整，提高人力物力运作效率，同时为旅客提供更加广泛、便利的个性化自助服务。

1、 智慧物联网络

智慧物联网络使机场成为一个有机整体，采集多维度信息，以人流监控为例：基于机场的监控网络所收集的实时影像信息，利用机器视觉、模式识别技术，对视频中的旅客进行识别与动态定位、追踪。电子监控系统将具备辅助警报能力，对于行为路径可疑的旅客，在显示系统中标识可疑对象，为安保人员提供参考。

旅客的追踪信息将帮助预测机场人流聚集情况，对可能出现的旅客滞留、拥堵提前预警，保证机场有较为充分的应对时间，从而采取最优策略。由机场各种监控终端采集的视频数据经过图像识别所得到的旅客路径信息，可以被实时应用在多个方面。

此外，瞳孔识别、人脸识别等人工智能技术也将被更加充分地利用在辅助安全检查的各项环节，实现人力成本的进一步压缩，提高安全检查效率。

2、 优化资源配置

构建国际航空枢纽必将面对更加错综复杂的航班网络，更高要求的航班吞吐率和客货吞吐率。与此同时，为了保证机场服务的国际竞争力，需要进一步缩短航班过站时间，提高航班正常率，除机场扩建与格局调整，登机门（停机位）的有效分配将变得更加关键。传统的纯人工决策必将退出历史舞台，计算机决策支持系统将帮助机场综合考虑旅客效用、机场航班流量等实际因素，实现登机门的自动优化分配。

更短的安检时间对于以旅客为中心的服务型机场而言价值显著，因此，机场将会更加充分地利用可获得的数据信息，根据实时的流量监测及未来一定时间内的流量预测情况，调整安检通道的开设，并通过实时的电子显示终端、信息发布平台，对旅客进行引导。

无纸化的电子登机牌、自助值机、自助行李托运、自助登机通道等多种环节的简化将有效地节省旅客的时间，因此而闲置的机场服务人员也将被派遣岗位，提高相应岗位的人工服务质量，全面优化旅客在机场的消费体验。

3、高效公共设施布置与维护

基于机场人流变动的历史数据，针对室内区域功能规划与公共设施布置定期或不定期的变动，机场将作相应评估，广告位、店铺租位的定价将进一步量化，休息区、饮水处的设置将更加合理。

基于机场人流变动的实时数据，洗手间的清扫，免费物资的补充等事件的发生频率将对应做出调整，使得公共设施的使用、损耗程度与维护密度成正相关。

梁哲
同济大学经济与管理学院教授、博士生导师

4、 实时服务与网络交互

以机场的智慧物联网络所提供的应用数据为基础，以手机、pad 等移动终端为媒介，旅客的信息需求将得到最大程度的满足。利用终端和现场的电子显示设备，航班动态、电子登机牌、登机门信息、安检通道流量等信息将被旅客实时获取。借助网络终端与自动化设施，值机与行李托运都可以由旅客自助完成，登机口同样可以自动化检测电子登机牌。

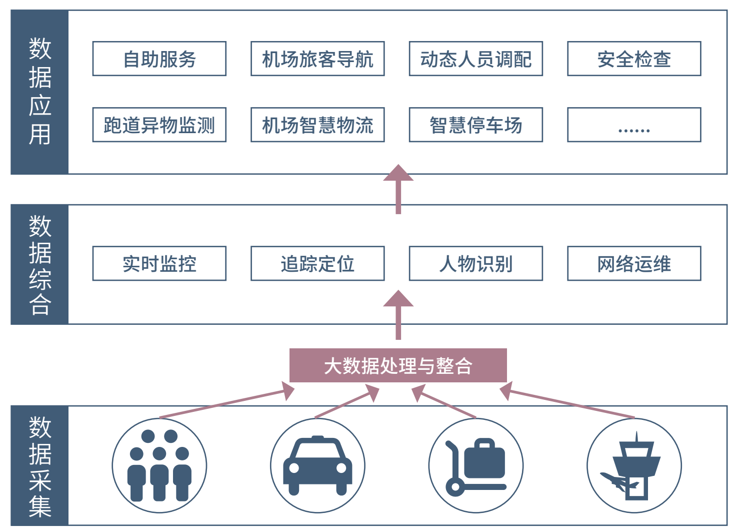
智慧物联网络的终端在收集旅客的实时位置与动作信息的同时，将为每位旅客提供更加个性化的导航服务，包括地面的电子导航标识与相对应的语音提示。此外，旅客的私人移动终端也将同步收到提示信息，并根据旅客喜好推荐机场的餐饮、购物项目。更加大规模、更加精细化的数据科学应用决定了机场将提供更加精准的服务。

（二） 一体化的临空经济

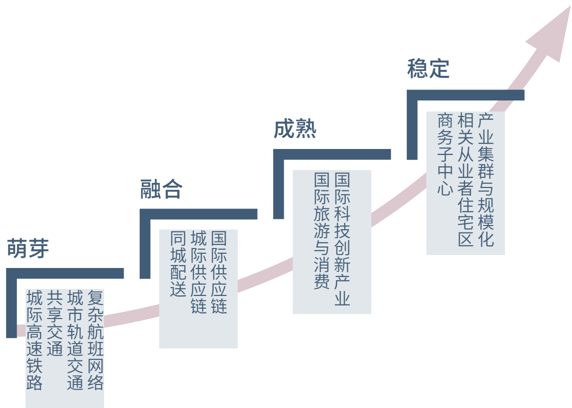
今年 8 月，复旦大学国际空港城市研究中心主任王学东在第二届长江发展论坛上发布了《2017 中国空港经济区（空港城市）发展报告》和《2017 长江经济带空港经济区（空港城市）发展指数研究报告》，通过公开资料和采样评估进行打分，对全国 27 个空港经济区和长江经济带 9 个空港经济区排座次。报告显示，2016 年空港经济区综合竞争力前三甲依次为：上海空港经济区、北京空港经济区、广州空港经济区。

枢纽机场是空港经济发展的核心区域，也是空港经济区发展的载体；综合交通体系是空港发展的重要依托条件；临空产业体现机场周边地区受机场吸引和辐射的产业发育情况；腹地经济主要体现为城市经济、商务活动、旅游活动、外贸发展等为机场提供了丰富的客货源。由此可见，上海空港经济区的综合竞争力占有相当可观的优势。

临空经济可追溯到 1959 年爱尔兰的香农国际航空港自由贸易区，其基于全球视野，进行顶层设计的做法对上海航空枢



智慧空港架构图



纽建设具有一定借鉴意义。以服务为导向的空港将大幅提高中转率、降低不正常航班比例，健壮航班网络；物流与供应链、高新技术制造等空港相关产业，将逐步融合，形成产业集群。丰沃的客、货流为临空服务产业提供了良好的生成环境。结合上海的海港货运优势，以海、空双港为支撑的临空经济所带来的区域辐射力将格外强劲，逐步形成稳定的一体化临空经济区。

1、萌芽：完善基础交通运输功能

据中国民用航空局发布的《民航机场生产统计公报》显示，2010 年至 2016 年间，北京、上海和广州三大城市机场客货吞吐量占全部境内总吞吐量的近一半。由中国民用航空局今年发布的《2016 年民航机场生产统计公报》显示，上海民航机场客货吞吐量居全国首位。近五年，上海民航机场客货吞吐量稳中有增；浦东机场旅客吞吐量在全国民航机场中的排名逐年上升，货邮吞吐量稳居全国第一。

构建全球城市视野下的上海航空枢纽必将以浦东 - 虹桥双机场为优势，建立相互呼应的主、副双中心的临空经济圈。那么，切实提高空港客货吞吐量并维持良好的增长态势是前提。围绕智能化的双空港核心，紧凑地铁规划，提高城市内部交通效率，加强与周边卫星城市联系，整合城际高速铁路与城市轨道交通，形成层次丰富的多维交通网络。浦东与虹桥将成为上海市内交通、国内铁路交通、国际空中交通三个不同维度交通网络的交汇枢纽。

2、融合：组合物流配送产业

空港物流具有速度快，空间跨度大，通达便利，商品的鲜活度高，准确、方便、安全等特点。上海港水陆交通便利，集疏运渠道畅通，通过高速公路和国道、铁路干线及沿海运输网，可辐射到全国，对外接近世界环球航线，处在世界海上航线边缘。

空港物流与海运物流相配合，物流行业将规范化、集约化、高度信息化、过程可视化，凭借智慧物流大数据的体系支撑，港区物流业转型升级将在实现规模经济的基础上，充分利用时间效率的优势，实现速度经济。

3、成熟：培养创新服务行业

随着空港规模的增加、运作效率的提高，旅客有了更多的自由时间，机场的室内规划将更多地实现购物休闲功能。航空、高铁、地铁相融合的综合枢纽将为第三产业提供大规模的有效客流、营造绝佳的生存环境。

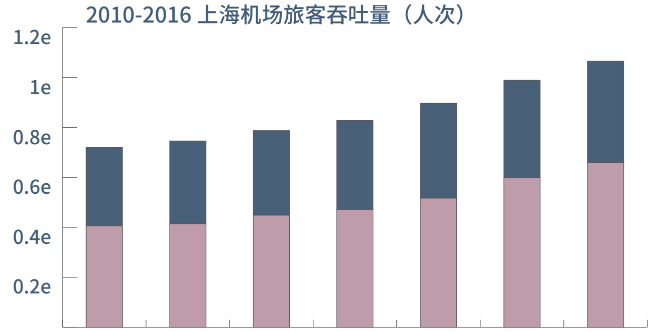
此外，空港周围 6-20 公里范围内、与空港形成联动发展的临空产业作为一个综合性开放系统，依托空港的航线网络，连接国内外重要城市，富集资本、信息、技术、人才等经济要素，快速融入全球经济网络，带动经济系统的整体循环，促进全球市场的互联互通。作为国际航空枢纽的自由贸易功能将逐步凸显，快速响应旅客对于全球中高端商品的消费需求。

4、稳定：可持续辐射带动区域经济

目前，上海已拥有规划总面积为 5.14 平方公里的虹桥临空经济园区：位于上海长宁区西侧，毗邻世界最大的虹桥综合交通枢纽。坚持高起点的“园林式、高科技、总部型”的发展目标，凭借世界最大的综合交通枢纽——虹桥的交通优势，已经成为连接泛长三角地区及长江流域地区最具活力和辐射力的现代服务业集聚区。

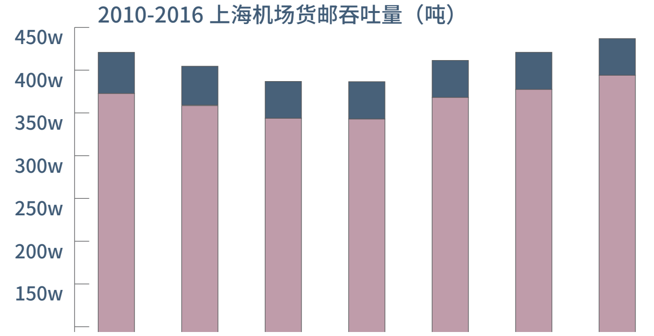
虹桥临空经济园区是卓越全球城市视野下的上海航空枢纽建设的良好开端，浦东 - 虹桥的双港核心，上海港 - 浦东 - 虹桥的三港鼎立，将实现更喜人的经济效益与区域辐射力。规划并建立相应的物流与供应产业园区、高新制造产业基地、综合保税园区、高端商务区、购物休闲区等，形成物流配送、物流中转、保税仓储、国际采购、加工出口以及相关产业集群，带动三次产业协同发展，形成具有可持续辐射能力的一体化临空经济区。

2010-2016 上海机场旅客吞吐量（人次）



	2010	2011	2012	2013	2014	2015	2016
虹桥	31298812	33112442	33828726	35599643	37971135	39090865	40460135
浦东	40578621	41447730	44880164	47189849	51687894	60098073	66002414

2010-2016 上海机场货邮吞吐量（吨）



	2010	2011	2012	2013	2014	2015	2016
虹桥	480438	454069	429813	435115	432176	433600	428907
浦东	3228080	3085267	2938156	2928527	3181654	3275231	3440279

（三） 全球化的机场城市

根据香港国际机场发布的 2016 财年中期报告，特许经营权、零售许可证和广告收入、其他终端商业收入三项非航运业务的收入总和占到了该报告期收入的 64.1%。由此可见，附属于空港的经济效益是非常可观的。

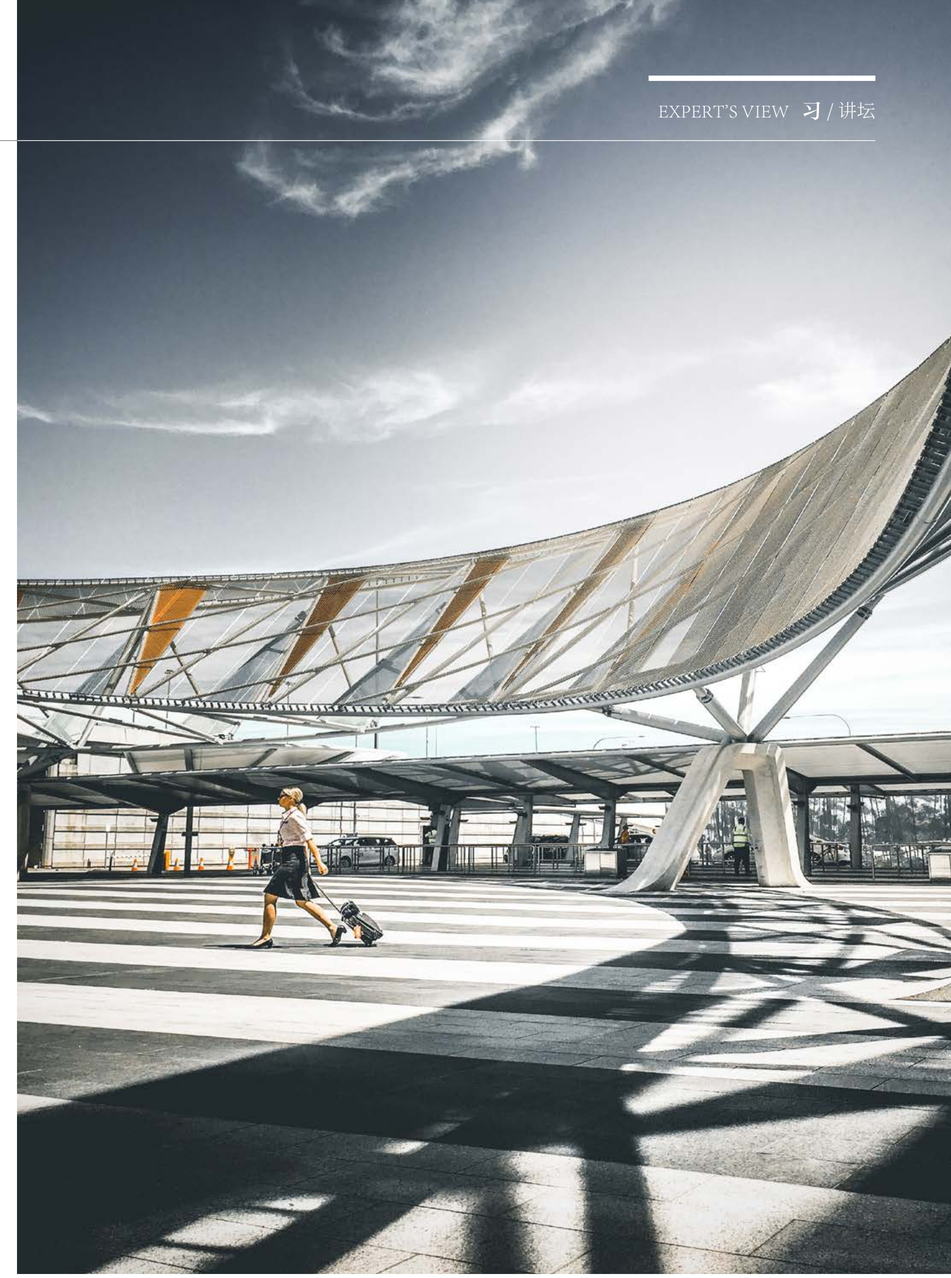
中国民用航空局、国家发展和改革委员会、交通运输部 2017 年 2 月联合发布的《中国民用航空发展第十三个五年规划》提出，十三五期间，我国将新建以及续建 74 个机场，建成机场超过 50 个，到 2020 年，我国民用运输机场数量将由 2015 年的 207 个发展到 260 个以上。换言之，我国的航空业将继续扩充，由上海两大航空枢纽打造成的机场城市将捕捉更多的经济效益与社会效益。

按照上海市城市发展规划，未来的二十年将是上海站在更高起点迈向全球城市的历史阶段，构筑与全球城市地位相匹配的“低碳、畅达”的综合交通体系，是城市综合交通的发展目标。“十三五”期间，依托“大虹桥战略”和“大浦东战略”，上海将形成西虹桥、东浦东的双引擎城市格局。在多层次客运交通互联共通、多方式货运物流相互整合的背景下，凭借区位优势和经济要素富集功能，机场周边将汇聚大量临空产业，并在产业共生效应的作用下，逐步演化成具有和谐良好的经济、社会生态的机场城市空间。

1、 多层次互联的交通运输

以卓越的全球城市视野宏观来看，综合交通网络对于作为国际特大城市的上海而言，重要性显而易见。功能强大的机场、港口将承载城市与全球经济贸易的频繁互动；效率高、覆盖广的高速铁路和高速公路网络，将支撑起城市在区域城市群中的核心地位；网络密布和环境舒适的城市轨道交通、公共交通、道路网络、慢行交通网络，将肩负城市居民日常社交、工作的基本保障任务。

更进一步地，全球城市视野下，要求空港是更加智能、全面、内涵丰富的，对于空港交通更是如此。国际航空网络、国内铁路网络、城际高速铁路网、城市轨道网络以及市内慢行网络汇聚在空港，进行客、货流的转接交换。自动化运行的多层次互联交通网络汇聚性，将成为全球性机场城市的基本特征。



2、 多方式整合的供应链体系

多层次互联交通网络以机场城市的空港为汇聚中心，为建立成熟物流供应链体系、打造空港物流园区夯实基础。空港物流园区将涵盖物流服务业的各个环节：流通加工、包装、中转、配送、仓储、运输；空港附近的高新科技园区将汇集航空航天相关的高端制造业、轻薄加工业等；空港周边的高新产业基地将为依托于空运的微电子和计算机等研发制造，营造良好的生存空间。物流配送与高端制造业紧密围绕在空港周围的产业聚集区，以实现与国际供应链的无缝对接，提高服务响应水平。

3、 多文化交融的创新生活

以空港为核心、以临空指向型产业为背景，机场城市将定义一种创新的生活方式：多层次的互联交通网络，全球性的大型购物中心，国际化的综合商务模块，高效客货流通所带来的多种文化碰撞、融合……过硬的基础设施，完美的软件配套，围绕上海航空枢纽打造的机场城市将提供品质卓越的城市体验感。在规范化的基础设施之上，上海对全球文化的兼容并蓄也将体现在其机场城市的城市风格中。

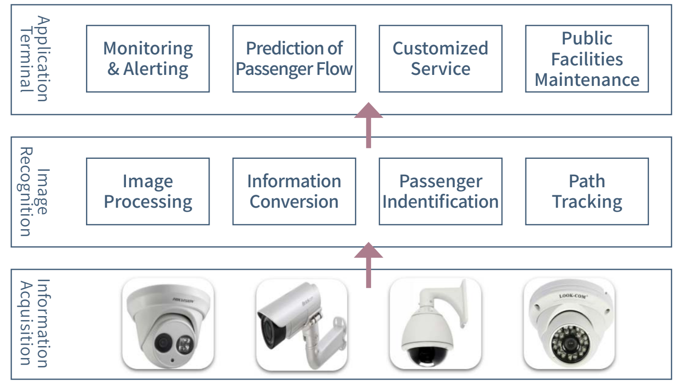
THE TREND OF GLOBAL AVIATION HUBS IN NEXT 20 YEARS AND ITS IMPLICATIONS

In the next 20 years, the role of the international aviation hub will be more intelligent, more comprehensive and more enriched. The construction of Shanghai international aviation hub focuses on the intelligence of airport, aims at improving the industry of logistics and supply chain, developing an integrated airport economy with a rich connotation. The basis of the construction is a multilevel passenger transport system and a multimode logistics and freight system. It is to create an innovative life atmosphere with interactions of different cultures worldwide and achieve the strategic goal of "One Airport, One City".

LIANG Zhe
Professor of Tongji SEM, Doctoral Supervisor

1. Core: An Intelligent Airport

As the core of constructing an international aviation hub, an airport is transforming into an integrated air service provider that focuses on passengers and services. The joint efforts of Artificial Intelligence and Data Science are going to help the airport structure its massive information, and build an interconnected smart Internet of Things (IoT). On this basis, the airport will make comprehensive decisions from a macro perspective, dynamically optimize the allocation of its resources, make timely adjustments and improve operational efficiency of all resources. At the same time, it will be able to provide a broader and more convenient personalized self-service.



Video Recognition and Applications of Passengers' Route Information

1.1 Smart Internet of Things (IoT)

A smart IoT integrates all parts of the airport into an organic whole. For example, based on real-time image information collected by the monitoring network, passenger flow monitor is going to identify, dynamically position and track passengers in the video. The electronic monitoring system will have an auxiliary alarm system to identify suspects and notice security guards when necessary.

Such system will help predict flows in the airport, and in turn trigger an advance alert for possible stranding or crowding situation, so as to ensure sufficient response time for optimal strategies. Passengers' route information obtained through image recognition techniques can be applied in various aspects in real time.

Moreover, pupil and face recognition as well as other AI technologies will be fully used in each step of the auxiliary safety inspection, further compressing labor costs and improving the efficiency of safety check.

1.2 Optimized Allocation of Resources

In order to build an international aviation hub, the construction team is bound to face a more complicated flight flow network as well as a higher demand for throughput of flights, passengers and cargo. Meanwhile, the hub would have to ensure its international competitiveness of services, which requires an even shorter flight connection time and a higher on-time performance rate. In order to achieve the above, the team needs to expand the airport and make layout adjustments, and more importantly, develop a more efficient plan for the allocation of gates and parking stands. The new computer decision support system, different from the old manual one, is going to help the airport fully consider practical factors like passenger utility and flight flow so as to automatically optimize the gate allocation.

A dominant value for passenger-centered and service-oriented airports is a faster security check. For this reason, the airport will have to make better use of attainable data, adjust the opening of security channels on the basis of flow monitoring and forecasting, and send instructional message to passengers through real-time electronic display terminals and information release platforms.

To save passengers' time, methods will be used to simplify the boarding procedure, examples being e-boarding pass, self-service check-in, self-service baggage check-in and self-service boarding tunnels. Standby airport service workers will be dispatched to other positions, improving the service quality and fully optimizing consumers' experience.

1.3 Efficient Layout and Maintenance of Public Facilities

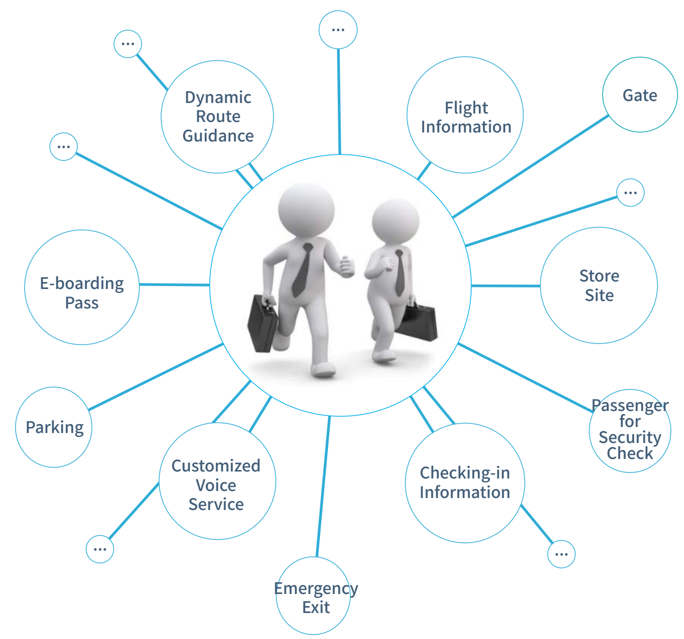
Based on the historical data of passenger flow changes, the airport has to evaluate regular or irregular changes in function plan of interior areas and public facility layout. Rentals for shops and advertisements will be further quantified, and rest areas and water fountains will be better located.

Based on the real-time data analysis of passenger flows, adjustments will be made in frequency of toilet cleaning and replenishment of free supplies, so as to achieve a positive correlation between the usage, damage of public facilities and the maintenance frequency.

1.4 Real-time Service and Network Interaction

Based on the application data provided by the smart IoT, passengers' needs for information will be satisfied to the greatest extent through their mobile terminals as well as electronic display devices in the airport. Information that they will obtain in real time includes flight status, e-boarding pass, gate number, and passenger flow in the security check. Moreover, with such technology, passengers could check in, register their luggage and even board through self-service.

Terminals of the smart IoT will not only collect information about passengers' real-time position and movement, but also provide more personalized navigation services, including electronic navigation marks on the ground and corresponding voice prompts in their ears. Additionally, synchronous prompt messages on passengers' private mobile terminals would recommend dinning and shopping activities based on their preferences. The larger but more refined application of data science will help the airport to provide a more punctual and high-quality service.



2. An Integrated Airport Economy

On the second Yangtze River Development Forum in this August, Wang Xuedong, Director of International Aerotropolis Research Center of Fudan University, released the Development Report of China's Airport Economic Zone (Aerotropolis) and the Development Index Report of the Airport Economic Zone (Aerotropolis) Among the Yangtze River Economic Belt. According to public information and sample assessment, the reports scored and ranked 27 airport economic zones in the country as well as 9 airport economic zones among the Yangtze River economic belt. The top three in comprehensive competitive power are the airport economic zones of Shanghai, Beijing and Guangzhou.

For the development of an airport economic zone, the hub airport is the core and carrier, while the comprehensive transportation system being an important support. The development of industries in surrounding areas attracted to and radiated by the airport is reflected by the airport economy. The hinterland economy is mainly shown by the abundant sources of passengers and cargo provided by city economy, business economy, tourism economy, foreign trade development and so on. As can be seen, the comprehensive competitive power of Shanghai Airport Economic Zone has an absolute advantage.

The development of airport economy can be traced back to Ireland's Shannon International Airport Free Trade Zone in 1959, of which the practice of top-level design from a global perspective provides reference for the construction of Shanghai's aviation hub. A service-oriented airport has the power to significantly improve the transfer rate, reduce the proportion of irregular flights and strengthen the flight flow network. Logistic and supply chain, high-tech manufacturing and other airport-related industries will gradually integrate to finally form an industrial cluster. Abundant supply of passengers and cargo provides a healthy environment for the development of airport service industry. With the support of abundant seaport freight and the airport, Shanghai's airport economy will surely bring an extremely strong regional radiation power, and thus help bring forth a stable and integrated airport economic zone.

Evaluation of Comprehensive Competitive Power of Airport Economic Zones

Airport Economic Zone	Aviation Hub	Comprehensive Transportation System	Economic Hinterland	Airport Industry	Total
Shanghai	30.00	10.00	27.53	23.88	**91.41**
Beijing	22.48	7.00	25.38	20.50	**75.36**
Guangzhou	16.90	7.00	16.30	24.50	**64.70**
Chongqing	9.16	7.00	10.52	20.38	**51.89**
Chengdu	11.78	7.00	10.52	20.38	**49.68**
Zhengzhou	7.73	8.00	7.34	25.25	**48.32**
Tianjin	6.47	8.00	14.26	17.00	**45.73**
Shenzhen	12.77	7.00	13.50	11.03	**45.30**
Wuhan	6.95	5.00	10.69	17.65	**42.29**
Hangzhou	9.47	7.00	9.41	18.40	**42.28**

2.1 Early Stage: Improving Basic Transportation Functions

According to the Statistical Communique on Development of Civil Aviation Airports released by Civil Aviation Administration of China, from the year 2010 to 2016, the combined passenger and cargo throughput of airports in Beijing, Shanghai and Guangzhou accounted for nearly half of the total throughput within China. The above statistical communique of the year 2016 shows that the passenger and cargo throughput of civil aviation airports in Shanghai ranked first in the country and had been steadily increasing in the recent five years. The ranking of passenger throughput of Pudong Airport among domestic civil aviation airports had been climbing year by year, with its cargo and mail throughput ranking first in China.

Shanghai aviation hub is constructed from the perspective of global cities. With the advantage of the two airports, Pudong and Hongqiao, it aims to form an airport economic circle with two reciprocal centers. In this case, the premise would be to efficiently improve and steadily increase the airports' throughput of both passenger and cargo. Centered on the intelligent two-airport core areas, authorities need to make compact plans of metro, improve the traffic efficiency within the city, strengthen Shanghai's connection with its satellite cities, integrate intercity high-speed railway with urban rail transit, therefore forming a multidimensional traffic network. Pudong and Hongqiao will become two intersectional hubs of three kinds of traffic networks from different dimensions, namely, urban transport, nationwide rail traffic and international air traffic.

Milestones in the Development of Hongqiao Linkong Business Park

2.2 Fusion Stage: A Combinatorial Logistics Distribution Industry

Airport logistics is characterized by its fast speed, large-span delivery area, easy access, freshness of goods, accuracy, convenience and high security. Located near the global route and at the edge of the global sea route, the port of Shanghai has a convenient land and water transportation as well as an unobstructed channel for consolidation and distribution. It is able to access the whole country through the expressways, national highways, rail lines and costal shipping network.

The comprehensive industry of both airport and maritime logistics will go through a phase of planning, intensification, highly informatization and process visualization. With the support of the big data system of smart logistics, the transformation and upgrading of the logistic industry is going to achieve an economy of scale, and then an economy of velocity with the advantage of time efficiency.

2.3 Maturing Stage: The Generation of Innovative Service Industries

With a scaled-up airport area and a higher operational efficiency, passengers would have more free time for shopping and leisure, requiring a better indoor planning. The integrated hub of aviation, high-speed rail and metro will provide a large number of effective potential customers and an excellent living environment for the tertiary industry.

Further on, the airport industry within 6-20km of the airport will form a comprehensive open system connected to major cities worldwide through the global route network. The system is going to be abundant in all kinds of economic factors like funds, information, technology and talents. Therefore, it would be able to quickly integrate into the global economic network, to speed up the circulation of the economic system and to promote the interconnection of global markets. As an international aviation hub, Shanghai hub is going to gradually reveal its free trade function, promptly responding to consumer demand for medium to high-end goods around the world.

2.4 Stable Stage: A Sustainable Boost for the Regional Economy

Up to now, Shanghai has already constructed the Hongqiao Linkong Business Park, its planned area being 5.14km^2. It is located in the west of Changning District, adjacent to the world's largest Hongqiao Integrated Transport Hub. With a development goal of being high-profile, "garden-style, high-tech and headquarters-type", coupled with the advantage in transportation, the business park has become the most dynamic and influential modern service industry cluster connecting the Pan-Yangtze River Delta and the Yangtze River Basin.

Hongqiao Linkong Business Park is a good start of the construction of Shanghai aviation hub from the perspective of global city of excellence. Better economic benefits and regional radiation power will be achieved by Pudong-Hongqiao dual-airport center and the coexistence of three ports--the port of Shanghai, Pudong and Hongqiao airports. What are to be planned and constructed in the park include logistics and supply industry park, high-tech manufacturing industry base, comprehensive bonded zone, high-end business zone, shopping and leisure area. On this basis, industry clusters would be formed such as logistics distribution, logistics transfer, bonded warehousing, international procurement, process and export, in order to promote coordinated development of three industries and thus form an integrated airport economic area with sustainable radiation capability.

3. A Globalized Aerotropolis

According to the Fiscal Year 2016 Interim Report issued by Hong Kong International Airport, the incomes of three businesses other than shipping, namely, franchises, retail licenses and advertising, and business revenues of other terminals accounted for 64.1% of the total revenue during the reporting period. This shows that the economic benefits of businesses attached to the airport are quite impressive.

In February 2017, Civil Aviation Administration of China, National Development and Reform Commission and the Ministry of Transport jointly issued The 13th Five-Year Plan for the Development of China's Civil Aviation. It was proposed in the report that, during the 13th FYP period, China will build and continue to build 74 new airports in total, with the completion of 50 airports. By 2020, the number of civil transport airports in China will have grown to more than 260 from 207 in 2015. In other words, China's aviation industry will continue to expand. More economic and social benefits will be achieved by Shanghai - the aerotropolis housing two major aviation hubs.

According to Shanghai's urban development planning, the next two decades will be the historical stage for Shanghai to join the global cities from a higher starting point. The development goal of urban comprehensive transport is to build a "low carbon, accessible" comprehensive transport system. In the 13th FYP period, relying on "Big Hongqiao Strategy" and "Big Pudong Strategy", Shanghai is going to form an urban pattern of dual engines -- Hongqiao in the west and Pudong in the east. Under the background of an interconnected multilevel passenger transport and an integrated multimode freight logistics, a large amount of airport industries will gather around the airport with their advantage of location and enrichment function of economic elements. An aerotropolis space with harmonious economic and social sociology will in turn come into being under the symbiosis effect of these airport industries.

3.1 A Multilevel and Interconnected Transportation

From the macroscopic view of major global cities, it is significant for Shanghai, an international mega-city, to have a comprehensive transportation network. Powerful airports and ports will be responsible for frequent interactions of economy and trade between the city and the world. A highly efficient and wide-coverage network of high-speed railway and expressway is going to help establish the city's core status in the regional city group. A dense and comfortable urban transportation network is to shoulder the responsibility of ensuring citizens' everyday social life and work.

Furthermore, from the perspective of global cities, airports, especially their transportation, have to be more intelligent, comprehensive, and connotative. The networks of international aviation, domestic railway, inter-city high-speed railway, urban rail and urban non-motorized traffic all gathered at the airport in order to transfer and transit passengers and cargo. In the future, the basic characteristic of a global aerotropolis will be the concentration ability of an automated multilevel and interconnected transportation network.

3.2 A Multimode Supply Chain System

A multilevel and interconnected transportation network, with its gathering core being the airport, aims to build a solid foundation for the establishment of a mature logistics supply chain system and an airport logistics park. The airport logistics park is going to cover all aspects of the logistics service industry: distribution and processing, packaging, transit, distribution, warehousing and transportation. High-tech industry parks near the airport are going to bring together aerospace-related industries like high-end manufacturing and light processing. High-tech industrial bases around the airport will provide a good living space for the development and manufacturing of microelectronics and computers which rely heavily on air transport. Industries of logistics distribution and high-end manufacturing gather closely around industry clusters near the airport, so as to achieve seamless connection with the international supply chain and to improve their service response level.

3.3 An Innovative Multicultural Life

With the airport being the core, and the airport-oriented industry as the background, the aerotropolis is going to define an innovative lifestyle: a multilevel and interconnected transportation network, a global shopping mall, international integrated business modules, cultural collision and integration brought about by high-efficient flow of passengers and cargo. An aerotropolis, created on the basis of Shanghai aviation hubs, will surly deliver a high-quality urban experience with excellent infrastructure and perfect software. Moreover, apart from standardized infrastructure, Shanghai's inclusiveness of different cultures worldwide will be reflected in its urban style as an aerotropolis.

愤怒还是害怕？离散的负面情绪与员工信息安全违章行为之间的关系

内部员工被认为是组织重要的安全威胁。大多数的研究强调威慑的重要性，但缺乏对员工内在动机的研究。基于认知倾向框架（Appraisal Tendency Framework），我们实证验证了员工在工作中的情绪如何影响他们的信息安全违章行为。我们对比了两种负面情绪，愤怒和害怕，对员工感知的正式和非正式惩罚，以及信息安全违章行为的影响。

随着企业日常工作对信息技术的依赖度越来越大，企业内部员工在完成工作的同时，往往会发生一些信息安全违章行为，比如内部人员可能会未经授权访问企业内部数据，将敏感的、受保护的企业数据披露给他人。来自企业内部员工的信息安全违章行为会对组织带来极大的危害。据 PwC 报道，2016 年有 40% 以上的安全问题是由内部人员引起的，内部人员被认为是组织最严重的威胁之一。2016 年 Ponemon 的全球安全报告显示，内部人员的恶意行为平均每年耗费费用为 167,890 美元。因而，防范和减轻内部威胁成为组织信息安全管理的重要研究问题。

在信息系统 (IS) 安全研究领域，大多数研究基于理性选择假设，认为个人根据成本与效益分析来决定自己的行为。威慑控制一度被认为可以有效地减少组织中信息安全违章行为的发生。威慑理论认为，个人会基于感知到的正式或非正式惩罚的确定性和严重性进而决定自己的安全行为。比如，正式惩罚包括个人感知到被抓的风险以及被抓后惩罚的严重程度。非正式惩罚包括个人失去他人尊重和认可的可能性和严重程度。然而，最近的研究得出不一致的结果，比如研究发现，过于严格的信息安全政策反而会增加计算机滥用行为的发生。而且，对于表达性犯罪，威慑并不起作用。因此，为了进一步推动对于员工信息安全行为的研究，需要分析内部员工发生信息安全违章行为的内在动机。此研究，我们关注了表达性犯罪动机，也就是情绪，对员工信息安全违章行为的影响。

组织行为的研究表明，工作场所的情绪会影响员工的认知和工作行为，而情绪的产生取决于对事件的认知评估，比如对负面事件的评估会导致负面情绪的产生，负面情绪会引起工作场所偏离行为的发生。在 IS 领域，Beaudry 和 Pinsonneault 将负面情绪分为失去的情绪，比如愤怒，以及威慑的情绪，比如害怕。愤怒和害怕，虽然都是负面情绪，在认知评估的确定性和控制维度上却不同，对于个人的认知和行为决策有着不同的作用。在 IS 安全领域，愤怒和害怕已经被认为会对员工安全行为产生影响，然而目前缺乏实证研究。因此，基于认知倾向框架（ATF），我们分析了愤怒和害怕对信息安全违章行为的直接作用以及通过感知惩罚的间接作用。

ATF 认为不同的认知评估维度会导致产生不同的情绪，情绪会引发评估倾向，进而对未来的事件或环境进行评估。该理论认为，情绪对未来事件或环境的评估取决于诱发情绪产生的评估维度。另外，该理论认为情绪的评估倾向不仅会影响到情绪诱发的事件，而且会导致对不相关事件的认知和行为变化。不同的离散情绪由于评估维度的不同，对未来事件的认知判断和选择具有独特的影响。

害怕是对失控和不确定性的情绪反应，评估倾向导致害怕的个人对未来的事件或环境感知到高度的不确定性和失控，产生较高的风险感知，进而采取风险厌恶行为。在 IS 安全的情境下，害怕会让个人感知到较高的犯罪成本，进而减少犯罪行为的发生。同时，害怕也会让个人感知到较高的失去他人尊重和认可的成本。因此，我们认为害怕的个人会对执行信息安全违章行为感知到较高的正式或非正式的惩罚，进而减少信息安全违章行为。愤怒是对个人控制和确定性的情绪反应，评估倾向导致愤怒的个人对新的事件或环境感受到高度的确定性和个人控制，产生较低的风险感知，并倾向于采取风险偏好行为。在 IS 安全的情境下，愤怒会让个人感知到较低的犯罪成本，增加犯罪的可能性。同时，愤怒会让个人感知到较低的失去他人尊重和认可的风险和成本。因此，我们认为愤怒的个人会对执行信息安全违章行为感知到较低的正式或非正式的惩罚，进而增加信息安全违章行为的发生。

我们通过第三方市场研究公司，给全职的企业使用计算机的人员发放问卷。研究公司一共向 2,327 名成员发送电子邮件邀请，以创建多样化的样本人口。作为回报参与，受访者获得积分奖励。在参加问卷调查之前，向与会者通知了本研究的目的。据统计，525 位成员接受了邀请，并通过接受同意协议参加了调查。在 525 名受访者中，由于数据不完整和不可靠的答案（例如答案全部为 7 或 6，或在很短的时间内完成的答案），140 份问卷被取消。最后，数据分析中一共包含了 385 个有效样本。

我们的结果发现，正式和非正式惩罚对信息安全违章行为产生了显著的负面影响，这一结果与威慑理论的基本假设相一致，并得到 ATF 理论的支持，因为感知惩罚可能性和严重性程度较高的个人更有可能采取风险厌恶行为。而感知惩罚可能性和严重性低的个人更有可能采取风险偏好行为。另外，我们发现害怕和愤怒与感知正式或非正式惩罚，以及与计算机相关的偏离行为具有相反的作用。具体来看，害怕会增加对正式和非正式惩罚的感知，而愤怒会减少对正式或非正式惩罚的感知。因此，害怕和愤怒情绪不仅对于信息安全违章行为有直接影响，也通过感知惩罚间接影响信息安全违章行为。这一结果表明，情绪与认知都会影响员工的信息安全行为。未来研究需要更多关注情绪与认知的共同作用，考虑非理性和理性的双重视角。

我们的研究成果对于企业管理者有着重要的意义。第一，由于情绪会影响员工的安全行为，愤怒和害怕的情绪分别对信息安全违章行为产生影响，因此，考虑表达性动机的作用，对于组织的威慑控制可能会更有效。例如，害怕会导致企业内部员工更认真的考虑，增加对惩罚的感知成本。组织应该更加努力地提高潜在内部风险人员的害怕情绪，以增加其感知成本。例如，提醒企业内部员工，公司会使用电子监控对员工的日常行为进行监督，可能会增加内部员工感知到的害怕情绪，进而减少信息安全违章行为。第二，由于愤怒和害怕情绪对信息安全违章行为会产生相反的影响，因此，除了增加威慑控制中导致员工害怕情绪的因素外，组织应该更加注意愤怒情绪对信息安全违章行为的影响。比如，组织应努力减少安全防御措施实施不公平导致的员工愤怒情绪，进而减少对企业安全的负面影响。

今后的研究可以考虑其他更多离散情绪（如内疚，焦虑和开心等）以及其他安全行为（如角色外的安全行为）之间的关系。

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ANGER or FEAR?

THE RELATIONSHIP BETWEEN DISCRETE NEGATIVE EMOTIONS AND EMPLOYEES' COMPUTER-RELATED DEVIANT BEHAVIORS

Carol HSU

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Internal employees are considered a great security threat to the organization. Most relevant researches have emphasized the importance of deterrence but overlooked the intrinsic motivation of employees. Based on the Appraisal Tendency Framework (ATF), we have demonstrated empirically how employees' emotions at work affect their computer-related deviant behaviors. We compared the influences of two types of negative emotions, anger and fear, on the formal and informal sanctions that employees perceive as well as their computer-related deviant behaviors.

As a company relies increasingly on information technology, its internal employees often develop some computer-related deviant behaviors when they work. For example, they may access the internal data of the company without authorization, and disclose sensitive protected business data to others. The damage by internal employees' computer-related deviant behaviors can be devastating to the company. It was reported by PwC that more than 40% of the security problems in 2016 were caused by insiders. The 2016 global security report by Ponemon also shows that, the average annual cost caused by malicious acts of internal employees is $ 167,890. Therefore, preventing and mitigating a company's internal threats has become an important research issue of information security management.

In the research field of information system (IS) security, most studies are based on the assumption of rational choice theory and thus believe that individual behaviors are determined by an analysis of cost and benefit. Deterrence control was once considered effective in reducing the occurrence of computer-related deviant behaviors in organizations. Deterrence theory deems that individuals decide their own safety behaviors based on the certainty and severity that they perceive of possible formal or informal sanctions. For example, formal sanctions include individuals' perception of the risk of being caught and the severity of the penalty that follows. Informal sanctions include the possibility and severity of an individual's loss of respect and recognition by others. However, recent studies have proved otherwise. A study found that overly strict IS policies would actually increase the incidence of computer abuse. Moreover, deterrence does not work for expressive crimes.

Therefore, in order to advance the research on the information security behaviors of employees, it is necessary to analyze the intrinsic motives of their computer-related deviant behaviors. In this research, we are paying close attention to the motive of expressive crimes, that is, the impact of emotions on employees' computer-related deviant behaviors.

Studies of organizational behavior have shown that workplace emotions affect employees' cognition as well as work behaviors. Such emotions arise from their cognitive appraisal of events. For instance, the assessment of a negative event leads to negative emotions, and thereby incurs deviant behaviors at workplace. In the field of IS, Beaudry and Pinsonneault have divided negative emotions into "loss emotions" like anger, and "deterrence emotions", such as fear. However, anger and fear, both negative emotions, differ in the certainty and control dimensions in cognitive assessment, and in turn have different effects on individuals' cognitive and behavioral decisions. In the field of IS security, anger and fear have been assumed to have an impact on employees' safety behaviors, yet it has not been validated by empirical researches. Under such circumstances, we have analyzed what were the direct effects and, by perceiving penalty, the indirect effects of anger and fear on computer-related deviant behaviors, based on the Appraisal-Tendency Framework (ATF).

The theory of ATF believes that different emotions brought about by various dimensions of cognitive appraisal will generate different tendencies in assessing future events or environments. It suggests that such kind of assessment is dependent on assessment dimensions that induce emotions. The theory also holds that the appraisal tendency of emotions not only affects incidents induced by emotions, but also brings about changes in one's cognition and behavior about unrelated events. Different discrete emotions, due to the variety of evaluative dimensions, exert their distinct influences on one's cognitive judgement and choice of future events.

Fear is an emotional response to loss of control and uncertainty. The corresponding appraisal tendency causes the person in fear to feel a high degree of uncertainty and loss of control over future events or environments, and therefore encourages the person to perceive a high risk, resulting in risk-averse behaviors. With a safe IS, fear generates in individuals a sense of high crime cost, thereby reducing the incidence of crime. At the same time, fear also brings about a feeling of losing respect and recognition from others. For this reason, we believe individuals with fear perceive a higher rate of formal or informal sanction, and in turn reducing such deviant behaviors. Anger is an emotion in response to being in control and high certainty. A corresponding appraisal tendency then encourages the person in anger to adopt risk preference behaviors in a perception of lower risk towards new events or environments. With a safe IS, anger brings out in the individual a perception of rather low crime cost and therefore increase the incidence of crime. Meanwhile, anger generates in people a rather low cost of losing others' respect and recognition. Hence, we believe that angry individuals tend to have deviant behaviors under a perception of lower risk of sanction, whether formal or informal.

We distributed questionnaires to full-time employees who use computers at workplace through a third-party market research firm. In total, 2,327 employees received an e-mail invitation by the firm and, together, they formed a diversified demographic sample. Those who responded were well-informed of the purpose of our research and would be rewarded with bonus points. According to our statistics, 525 employees participated in the research, and 140 questionnaires were invalid because of incomplete or unreliable answers, characterized by uniform choices and submitting too fast. The ultimate sample group included 385 valid samples.

The results show that sanction, whether formal or informal, has a significant negative impact on computer-related deviant behaviors, a finding consistent with the basic assumption of deterrence theory. It is also supported by the theory of ATF, for individuals who perceive a higher risk and severity of sanction are more likely to avoid risks and those who perceive a lower risk and severity tend to take risks. Another finding is that the two emotions, fear and anger, have different impact on employees' perception of sanction and in turn on their computer-related deviant behaviors. To be specific, fear generates in them a perception of higher risk of sanction and anger has the adverse impact. As a result, fear and anger not only influence computer-related deviant behaviors in a direct way, but also exert an indirect impact on such behaviors through their influence on people's perception of sanction. What can be learned from this finding is that employees' emotion and cognition both affect their IS behaviors. It is suggested that future researches pay more attention to the combined effects of emotion and cognition from perspectives of both rationality and irrationality.

The results of our research are of great significance to business managers. First, when using deterrence control, it is more effective for companies to consider the impact of expressive motives, because employees' emotions, like anger and fear, affect their security behaviors, specifically, computer-related deviant behaviors. For instance, internal employees, out of fear, tend to perceive a higher risk and cost of sanction, which is why the organization should work on arousing the emotion of fear in internal employees who are potential risk-takers. One way to achieve this goal is reminding them of the existence of an electronic monitor system supervising their daily work, which might arouse their fear and thus dissuade them from computer-related deviant behaviors. Second, since anger, contrary to fear, has a negative impact on computer-related deviant behaviors, organizations are suggested to keep an eye on employees' emotion of anger. One approach is to ensure fair implementation of preventive measures, in order to mitigate the negative effects on the company's information security.

Future researches are suggested to consider the relationship between more discrete emotions (guilt, anxiety and happiness, etc.) and security behaviors other than computer-related deviant behaviors, such as extra-role security behaviors.

城市轨道交通建设高歌猛进的冷思考

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2015年至2016年，我国用于城市轨道交通建设的专项资金累计达2010亿元。2020年，全国城市轨道交通运营里程将达到6000公里。在“十三五”期间，国家仍将城市轨道交通建设视为城市基础设施建设的重点。中国堪称世界第一大规模的城市轨道交通建设工地，另外，中国的工程建设、装备制造、运营管理已开始走出国门迈向世界，并参与相关国际标准的研究和制定工作。以国产化装备为主导的城市轨道交通装备制造体系和城市轨道交通产业，在国际上已具有影响力。这些都说明城市轨道交通在城市发展中起到了重要作用。

但是，由于城市轨道交通建设投资具有成本高、收益低的特性，筹集资金成为建设的难点。加大投资的同时，地方政府需要审视自身的地方财政，谨防融资风险。虽然投资对于地方的GDP增长很重要，但不能过头，不能走回过去强刺激的老路，要警惕地铁建设过热。

近年来，城市轨道交通建设一路高歌猛进。从2016年地方两会期间，各省市亮出的数万亿基建投资清单来看，轨道交通投资占比最高。一方面，地方经济发展需要新的投资支撑，轨道交通作为投资巨大的项目，是地方拉动GDP增长的重要路径。另外，城市轨道交通的项目审批权不断下放，项目审批进度加快，项目前期工作节奏明显提速。

> 截至2017年上半年，中国内地已有31个城市开通运营城市轨道交通，运营总里程共3965公里，11个城市已开通运营现代有轨电车，运营里程共233公里；已开工建设轨道交通的有53个城市，规划建设规模超过9000公里，在建规模约5770公里。2017年底还将新增厦门、贵阳两个开通运营轨道交通的城市，全年将新增运营里程699公里。此外，今年北京、上海的城市轨道交通双双突破500公里规模，这两个城市的城市轨道交通所分担的公共交通客运总量也都突破了50%，加上广州，内地已有3个城市的轨道交通承担公共交通客运比例超过了50%。城市轨道交通俨然成为城市交通的骨干力量。

然而，轨道交通的高投入以及高运营成本，也给地方财力带来了负担。近几年，一些城市以地铁运营亏损为缘由，晒亏损清单和增涨票价。以北京为例，公开数据显示，2007-2013年，北京政府补贴北京地铁公司各类财政资金共计221亿元，其中2013年财政补贴基本运营亏损26亿元，更新改造支出近20亿元。

在中部省份，轨道交通运营投入占财政支出的比重较大。目前，内地各线路的运营模式不一，大家都在探路阶段，暂时没有看到很成功的运营模式。中西部地区、人口密度低、财政困难的地方要量力而行，如果政府资金充裕尚可，有些城市大笔举债建地铁，成本利息加运营成本，很难坚持可持续发展。各城市应根据自身经济和交通需求状况，不要盲目攀比。随着征地拆迁费用、人工费以及物价的增涨，地铁建设费用快速上涨。各城市应根据自身经济、财政实力和城市公共交通发展做出正确的决定。随着各城市轨道交通网络的形成，运营补贴费用逐年增加，地方政府和城市在规划时要特别关注项目的财务可持续性，从项目全生命周期角度选择合适的公交系统和制式。

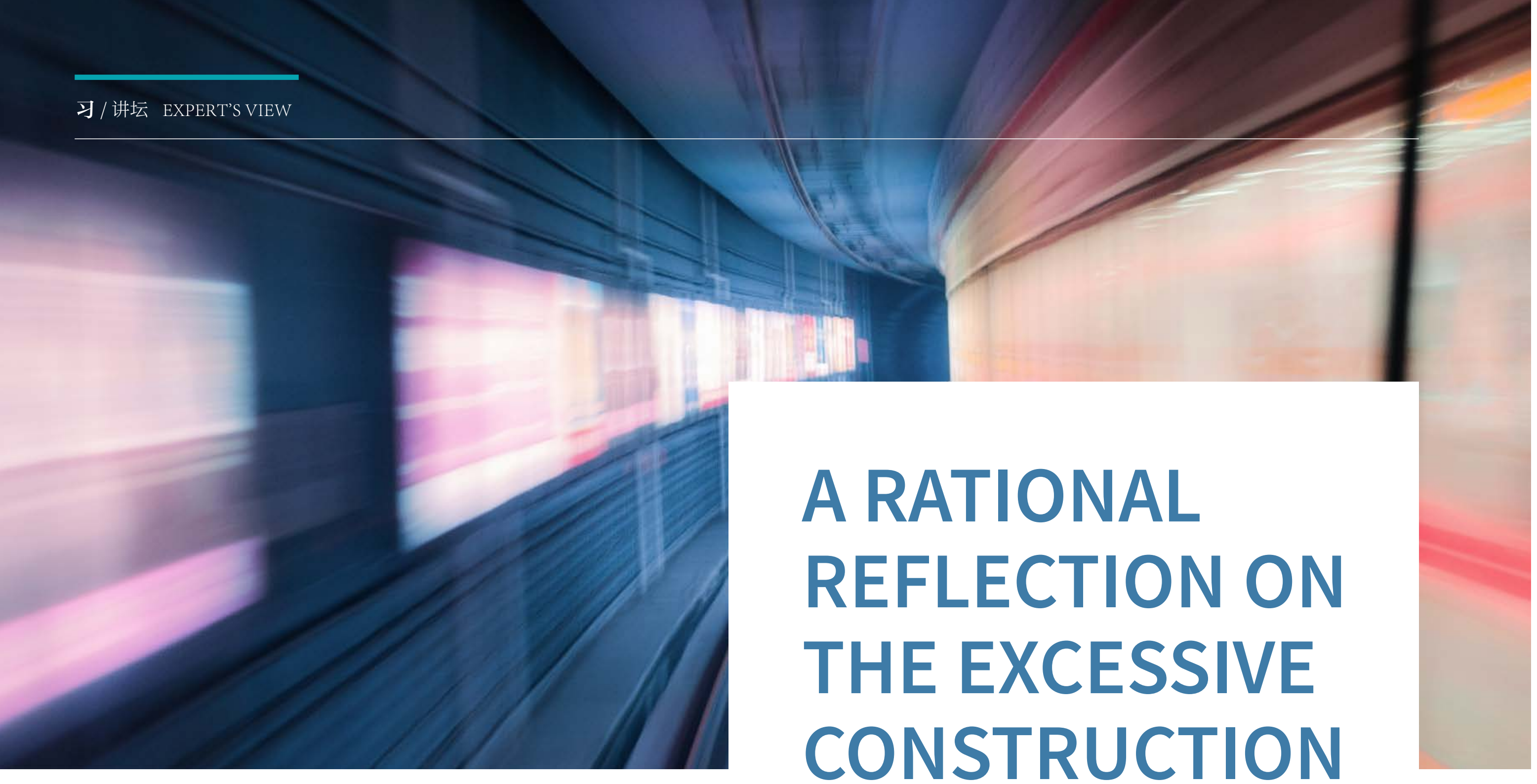
国务院办公厅2003年公布的《国务院办公厅关于加强城市快速轨道交通建设管理的通知》规定，“申报发展地铁的城市应达到下述基本条件：地方财政一般预算收入在100亿元以上，国内生产总值达到1000亿元以上，城区人口在300万人以上，规划线路的客流规模达到单向高峰小时3万人以上；申报建设轻轨的城市应达到下述基本条件：地方财政一般预算收入在60亿元以上，国内生产总值达到600亿元以上，城区人口在150万人以上，规划线路客流规模达到单向高峰小时1万人以上。对经济条件较好，交通拥堵问题比较严重的特大城市，其城轨交通项目予以优先支持。”

近15年来，国内经济快速发展，加之通货膨胀和物价上涨因素，上述经济指标已经不能有效地约束我国城市轨道交通的建设标准。建成的地铁线路绝大多数都没有满足单向高峰小时3万人以上的流量要求。因为流量只有在地铁开通后才可以测得，在地铁的申报建设和规划阶段很难作为硬指标加以约束。因此，唯一约束地铁申报的只有人口指标，而有些城市把郊区人口也统计到城区人口当中。这些都导致许多不需要地铁或其他城市轨交的城市盲目攀比，盲目建设，增加了不必要的地方债务负担。

2012年以来，同济大学张小宁教授的课题组综合考虑交通需求、财务平衡、社会效益、可持续发展，建立了申请建设轨道交通判断标准及判断流程；建立了包括以城市人口规模、城市GDP总量、地方财政一般预算收入、单位长度客流量、城市建成区面积、高峰小时流量为基础条件的判断标准；并在此基础上，建立包含轨道交通申请建设、首次申请建设轨道交通、非首次申请建设轨道交通三个模块的轨道交通申请建设判断流程。该判断流程不但能够有效甄别可建设轨道交通的城市，而且可以促进城市轨道交通的理性发展。得出的结论为，申报发展地铁的城市应达到下述基本条件：地方财政一般预算收入在350亿元以上，国内生产总值达到2200亿元以上，城市常住人口在750万人以上，规划线路的客流规模达到单向高峰小时3万人次以上，建成区面积达到200平方公里；当城市建成区形状接近狭长形时，其建城区面积为150平方公里。申报建设轻轨的城市应达到下述基本条件：地方财政一般预算收入在150亿元以上，国内生产总值达到1100亿元以上，城市常住人口在350万人以上，规划线路客流规模达到单向高峰小时1万人次以上，建成区面积达到100平方公里。以上成果来自张小宁的博士生尚斌的学位论文《城市轨道交通建设需求研究》（2014年）。

近日，内蒙古多条地铁项目均被叫停，其中包括已经进入建设期的包头地铁项目。据财新消息，目前国家发改委基础司正在修订国务院2003年下发的《关于加强城市快速轨道交通建设管理的通知》，将提升对轨道交通项目审批的把控。2016年8月，在国内一系列基建项目集中批复开工的背景下，包头市1、2号线正式获得国务院批准，总投资估算306.89亿元。但据公开资料显示，2016年，包头常住人口数量不达300万人。据财新报道，由于包头地铁建设所需的巨额资金与该市财政收入能力不匹配，2017年8月初引起中央关注，建议停止地铁工程，提议把更多地方投资用到支持企业发展和民生改善等更紧迫的任务上。

其他被叫停的轨道交通项目还包括，呼和浩特的3、4号线地铁一期工程，S27呼和浩特到鄂尔多斯高速公路项目和呼和浩特新机场项目，其中每项投资都超过200亿元，而呼和浩特2016年的公共预算收入为269.7亿元。除了内蒙古，近期咸阳市政府也宣布地铁建设规划尚未取得国家发改委批复，咸阳地铁项目年内取得批复难度较大。武汉市发改委今年11月透露，今年初上报的武汉轨道交通项目尚未得到发改委受理。以上情况均印证了作者对于地铁建设过热的担心，也从侧面证明了作者研究结论的正确性。



A RATIONAL REFLECTION ON THE EXCESSIVE CONSTRUCTION OF URBAN RAIL TRANSIT

From 2015 to 2016, the total amount of special funds for the construction of urban rail transit in China reached ¥201bn. In 2020, the total mileage of rail transit in Chinese cities is going to reach 6,000km. During the 13th Five-Year Plan period, urban rail transit is still the focus of urban infrastructure construction. China, the world's largest urban rail transit site, is not only witnessing the internationalization of its engineering construction, equipment manufacturing and operations management, but also participating in the research and establishment of international standards in this field. The manufacturing system and industry of urban rail transit, dominated by localized equipment, have gained international influence. All of these prove the significance of urban rail transit in the development of cities.

However, fund raising has become a difficulty due to the high cost and low profit of urban rail transit construction. While increasing investment, local governments need to keep an eye on their own finance in order to guard against financing risks. Although investment is an important drive for GDP, there should be limits since the old stimulus policy does not apply now. China should beware of excessive metro construction.

For the past few years, the construction of urban rail transit has been triumphing all the way. During the 2016 local Two Sessions, provinces and cities revealed their trillion-worth infrastructure investment lists, of which the highest proportion goes to rail transit. New investments are needed for the development of local economies, and rail transit, as a huge investment project, is an effective way for local governments to boost the growth of GDP. In addition, with the delegation of the approval power, the approval process as well as the preliminary work of the rail transit projects have been accelerated significantly.

However, the high investment as well as high operating cost of rail transit have put a burden on local financial resources. In recent years, many cities have posted deficit bills and have therefore increased ticket prices as a result of the deficit in metro operation. Take Beijing as an example. According to public data, from 2007 to 2013, Beijing Government subsidized Beijing Metro Company with all kinds of financial funds, totaling ¥22.1bn. In 2013 alone, the financial subsidy covered a basic operating loss of ¥2.6bn as well as the renewal and reconstruction expense of almost ¥2bn.

ZHANG Xiaoning
Professor of Tongji SEM

For central provinces, the operating cost of rail transit takes up a large proportion of their financial expenditures. So far, there has not been any successful operating model and metro lines in inland cities are still in their exploratory phases. Cities with financial difficulty and low population density in China's central and western regions are advised to make decisions within their capabilities. In the cases of better-funded places, some local governments found it hard to stay on the path to sustainable development when they faced a long bill

As recently as the first half of 2017, urban rail transit has covered as many as 31 cities in mainland China, with the operating mileage being 3,965km. 11 cities have put into service modern trolley buses, overall operating mileage being 233km. 53 urban railway systems are in construction, with a planned track length of over 9,000km and 5,770km already in progress. By the end of this year, Xiamen and Guiyang are going to place into use their urban rail transit systems, adding 699km to the total operating mileage in the mainland. Besides, both the lengths of urban rail tracks in Beijing and Shanghai have exceeded 500km. Urban railway systems in these two cities have undertaken over half of their respective public transport passenger volumes. There are in total 3 cities in the mainland, Beijing, Shanghai and Guangzhou, whose urban rail transits are carrying over 50% of the passengers in their own public transportation. As can be seen, urban rail transit has become the backbone of urban transport.

of building costs, interests and operating costs after borrowing to build metros. It is then advisable for local governments to refrain from competing against each other with adherence to its economic conditions and transport demands. With the increasing cost of land acquisition, labor and building materials, there has been a surge in the expenditure of metro construction. Under such circumstances, local governments are suggested to make the right decision according to their own economic and financial strength as well as the demand of their urban public transports. As a result of the expansion of urban rail transit network, local governments in China provide an increasing amount of operating subsides year by year, which should bring local governments' special attention to the financial sustainability of the project in order for them to choose the appropriate public transport systems and modes from the perspective of project life cycle.

In 2003, the General Office of the State Council promulgated the Notice of the General Office of State Council on Strengthening Construction Management of Urban Rail Transit Network. In the notice, it was stated that "Cities applying for metro projects should meet the following standards: general budget revenue of the local government exceeding ¥10bn, GDP above ¥100bn, downtown population over 3m, one-way passenger flow volume of planned routes in peak hours reaching 30 thousand per hour. Cities applying for light rail projects should meet the following standards: general budget revenue of the local government exceeding ¥6bn, GDP above ¥60bn, downtown population over 1.5m, one-way passenger flow volume of planned routes in peak hours reaching 10 thousand per hour. Light rail projects in megalopolis with good economic conditions are preferentially supported to mitigate their problem of traffic congestion."

In the past 15 years, however, the above economic indicators have no longer been effective in restraining the application standards of urban rail transit projects in China because of the rapid development of economy, accompanied with inflation and the rising prices. What's more, due to the infeasibility to set the passenger flow volume as a hard indicator in the application and construction period, the majority of those completed metro lines have not met the required passenger flow volume for it can only be measured after a line is opened. Therefore, the only true indicator is population, which can also be deceptive since some cities simply counted in the suburban population to make up the numbers. All of these led to the pointless competition between cities that actually do not need metros or other urban rail transit systems. The unchecked construction has increased their own debt burden.

Since 2012, the research group of Professor Zhang Xiaoning of Tongji University had looked into various factors, including traffic demand, financial balance, social benefit and the ability of sustainable development, and therefore suggested the criteria and process for assessing the applications of rail transit project. The basic factors of the criteria are urban population scale, GDP, general budget revenue of the local government, passenger flow volume per unit length, urban built-up area, and peak-hour volume. Based on this, the team came up with an assessment process of three modules, namely, application for rail transit construction, first application of rail transit construction and non-first time application of rail transit construction. The suggested process is believed to be not only efficient in identifying qualified applications, but also able to promote a rational development of urban rail transit in China. Results of this research can be referred to in A Study on the Demand of Urban Rail Transit Construction (2014), the doctoral dissertation of Shang Bin, a PhD candidate supervised by Professor Zhang. The content of the proposed criteria is listed below: Cities applying for metro projects should meet the following standards: general budget revenue of the local government exceeding ¥35bn, GDP above ¥220bn, city population over 7.5m, one-way passenger flow volume of planned routes in peak hours reaching 30 thousand person-times per hour, and urban built-up area reaching 200km² (150km² if similar to a belt-shape). Cities applying for light rail projects should meet the following standards: general budget revenue of the local government exceeding ¥15bn, GDP above ¥110bn, city population over 3.5m, one-way passenger flow volume of planned routes in peak hours reaching 10 thousand person-times per hour, and urban built-up area reaching 100km².

Recently, multiple metro projects in Inner Mongolia have been closed down, including the project in Baotou which was already in construction phase. According to Caixin, a Chinese media, Primary Industries Division of NDRC is working on revising the Notice of the General Office of State Council on Strengthening Construction Management of Urban Rail Transit Network, which was promulgated in 2003, aiming at tightening the approval rate of rail transit projects. In August 2016, the estimated ¥30.689bn investment of Metro Line 1 and 2 in Baotou was officially approved by the State Council against the backdrop of the frequent approvals of Chinese infrastructure projects in a row. However, according to public information, the permanent population in Baotou never reached 3 million. It was reported by Caixin that, in August 2017, the project, due to the mismatch between the huge fund it needs and the fiscal revenue ability of the local government, had raised attention in the central government, and was then called off and suggested to devote local investments to more urgent areas such as business development and people's livelihood.

Other halted projects include the first-stage metro project of Line 3 and 4 in Hohhot, the S27 expressway project from Hohhot to Ordos and the new airport project in Hohhot. The investment volume of each project above is over ¥20bn, while the revenue in Hohhot's general public budgets totaled only ¥26.97bn in 2016. Apart from Inner Mongolia, the government of Xianyang recently declared that its metro project had not been approved by NDRC and would probably stay this way until the end of this year. The same thing happened to Wuhan, as it was disclosed by Wuhan Municipal Development and Reform Commission that its rail transit project declared earlier this year had not yet been handled. All of the above not only confirm my concern about the excessiveness of metro construction, but also prove the result of this research.

EXPERT'S VIEW 习 / 讲坛

消费为什么是**不可逆**的

转自《上海证券报》

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传统经济学强调人是理性的，可对长期消费和投资做出合理计划安排。行为经济学的观点刚好相反，认为个人的消费和投资不仅取决于收入水平，还取决于长期形成的习惯和抵御短期诱惑的能力等因素，因而消费是不可逆的，长期计划往往难以实现。

经济学是研究人的经济决策行为的实用科学，照理应该能为普通大众的消费和投资行为提供有益的指导和帮助。但长期以来，传统主流经济学在理性预期、风险回避、追求效用或利益最大化等假设前提上，把决定消费行为的众多因素抽象为收入、价格和边际效应，把决定投资行为的众多因素抽象为资本边际收益和利息率等常规经济变量，设计出消费自由和投资自由框架下，个人的理性决策行为规则或选择方法。这使经济学在理论上变得高大上，但因脱离了百姓的日常生活和经济现实，反而失去了应有的解释力和实际应用价值。

好在一些经济学家认识到了主流经济学理性人等假定的缺陷，以及个人消费和投资行为不仅没有完全的自由而且会受到自身心理、习惯和许多社会因素的影响，因而难以采取正确的决策求得自身利益最大化。为此，他们转向了接地气的研究，探究有限理性、社会偏好以及自我控制缺失的真实人的经济行为，进而促进了行为经济学的产生与发展。由于能比较合理地解释个人非理性消费和投资产生的原因及其弥补办法，能帮助非理性决策者克服自身的弱点做出最符合预期的决策，行为经济学越来越受到社会各界和主流经济学的青睐。

行为经济学认为，世人做出糟糕经济抉择的原因之一是存在心理账户并喜欢计较沉没成本。“心理账户”由今年的诺贝尔经济学奖得主理查德·塞勒（Richard Thaler）提出，指的是人们在心理上对经济结果的编码、分类和估价过程。具体地说，人们在心里无意识地把财富划归不同的账户，并按照不同的记账方式和心理运算规则单独计算与管理，而不是把所有的损失和收益放在一起计算。这样做，结果往往会以非预期的方式影响着人们的决策，以致不能实现理性认知范畴中的“效用最大化”，而只是情感层面上的“满意最大化”。例如，大部分人去看电影时，如果在路上发现价值 50 元的电影票丢了会放弃看电影，但发现丢了 50 元公交卡后还会按原计划去看电影。虽然财富损失的金额相同，但将“电影账户”和“公交账户”分开计算给人带来的损失感受不一样，由此产生不同的决策行为。又如，股价上涨会使投资者觉得投资账户上的财富增加了（如果股票没有卖掉并转出资金只是“纸上富贵”）而增加消费（消费账户提前消费）。相反，股价下跌会给投资者带来负面的财富心理，进而减少实际消费。同时，投资者常常在潜意识里认为，股票投资盈利是赚来的。他们在处理这些盈利资金时，其谨慎程度比工资等劳动收入低，再投资和消费的意愿比较强。

“沉没成本”是指已经发生、不可收回的时间、金钱、精力等支出。传统经济学认为“沉没成本不是成本”，不应该影响人们的进一步选择。但如果存在心理账户，沉没成本就会严重制约人们的进一步选择行为。上例中电影票丢失相当于“电影账户”遭受损失（沉没成本），再买票人看电影相当于“超支”，导致大多数人选择放弃看电影。

运用心理账户以及禀赋效应和损失厌恶心理，还可解释和防范消费和投资的错误行为。禀赋效应指个人一旦拥有某商品，对该商品价值的评价要高于没有拥有它之前的估价；一旦拥有了某物，就很难再放弃它。损失厌恶是指人们面对同样数量的收益和损失时，损失带来的负效用高于收益带来的正效用。这使得在消费和投资决策过程中，人们对避害的重视要远大于趋利。例如，许多人不愿购买趁大雨天涨价的雨伞，就是因为损失厌恶心理而拒绝“有利自己”但不公平的交易机会。这与传统经济学供求决定价格的思想不一致。在股票投资中，有的人能接受账面亏损但厌恶实际损失，加上禀赋效应，常常在股价刚刚上涨时卖掉获利，而对套牢的股票难以“割肉”离场，最终获利小，亏损越来越大。有的人刚好相反，禀赋效应加上能接受实际亏损但厌恶账面损失，喜欢死捂获利很大的股票，卖出亏损巨大的股票，最终获得的是“过山车”的刺激，而在最低价清空了股票。实际上，决定是否继续持有某个股票，跟它是否值这个价有关系，与自己盈亏多少没有关系。因而，正确的投资策略是，选择价值被低估的个股做长线投资时，要根据市场状况高抛低吸，尤其要在股价高企时获利了结。对于错选的股票则要果断卖出止损。价值投资大师巴菲特就是这样操作的。

传统经济学强调人是理性的，可对长期消费和投资作出合理的计划安排，消费是可逆的，个人消费水平可以依据收入变动而调整。行为经济学的观点刚好相反，认为个人消费和投资不仅取决于收入，还取决于长期形成的习惯和抵御短期诱惑的能力等因素，因而消费不可逆，长期计划往往难以实现。事实上，人们在收入提高时容易增加消费，但在收入降低时难以减少消费。这种“由俭入奢易，由奢入俭难”的现象又被称为消费的“棘轮效应”。

WHY IS CONSUMPTION IRREVERSIBLE

Source: *Shanghai Securities News*

Traditional economics emphasizes that people are rational enough to make reasonable plans for long-term consumption and investment. Behavioral economics, on the contrary, holds that one's consumption and investment depend not only on his income level, but on his ingrained habits as well as his ability to resist short-term temptation, and therefore consumption is irreversible and long-term plans often end up in trashcan.

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Economics is a practical science that studies human behavior of economic decisions, and thus should be able to guide and help the general public's consumption and investment behavior. However, on the assumption of rational expectation, rick avoidance and the pursuit of maximized utility or profit, traditional main-stream economics has long since abstracted various factors that influence consumer behavior into income, price, marginal effects and generalized factors that determine investment behavior as conventional economic variables including capital marginal revenue and interest rates. In this way, certain behavior rules or selection methods for individuals to make rational decisions have been designed in the framework of free consumption and investment. Under such circumstances, economics became much advanced when it comes to theory, but lost its due explanatory power and practical values because of its disengagement from common people's daily life and the economic reality.

The good news is that some economists have realized the defectiveness of mainstream economic hypotheses, like "rational man", as well as the fact that individual consumption and investment behavior is not entirely free and thus can be influenced by one's mindset, habits and many social factors, contributing to the difficulties for one to make appropriate decisions in favor of his own maximum interests. For this reason, they turned to more down-to-earth research, studying the economic behaviors of realistic people with bounded rationality, social preferences and lack of self-control. Such transformation of research has contributed to the emergence and development of behavioral economics. This branch of research has gradually gained popularity not only in all circles of the society but in main-stream economics because of its ability to offer reasonable causes and remedies for one's irrational consumption and investment, as well as to help irrational decision-makers to overcome their weaknesses in order to make the most appropriate decisions based on their expectations.

According to behavioral economics, one explanation for people's poor economic decisions is mental accounting, accompanied with the focus on sunk costs. The term "mental accounting",coined by Richard Thaler, winner of the 2017 Noble Prize in Economics, describes the psychological process whereby people code, categorize and evaluate economic outcomes. To be specific, instead of putting together all the losses and gains, people tend to unconsciously categorize their wealth into different accounts, which they would calculate and manage separately according to different accounting methods and psychological algorithms. Such behaviors often have unexpected influences on people's decision-making, and as a result, what has been maximized is their psychological satisfaction instead of the utility in the realm of rational cognition. For example, most people would drop the plan when they lost a 50-yuan ticket on their way to a movie, but would probably still go when they lost a RMB50 bus card. Although the amounts of loss are both 50 yuan, the feelings of loss are different according to respective calculations of the "movie account" and the "public transit account", and would thus generate opposite decisions. For another example, a rise in stock price would make the investors assume an increase in the amount of wealth in their investment account (only illusory because their stocks have not been sold and funds not yet transferred) and thus increase consumption (advance spending with the consumption account). Contrarily, a fall in stock price tends to bring about a negative psychological effect which causes the investors to reduce actual consumption. Moreover, in investors' subconscious, profits made by stock investment are not hard-earned. So, these funds are handled with less caution compared with their labor income such as salaries and are more likely to be used in reinvestment as well as consumption.

"Sunk cost" refers to the cost that has already been incurred and cannot be recovered, such as time, money and energy. According to traditional economics, "a sunk cost is a type of irrelevant cost" and therefore should not affect people's further choices. However, if there exists a mental account, sunk costs can seriously restrict people's further choices. In the above example, to many people, the loss of the movie ticket equals to a loss in the "movie account" (a sunk cost), and buying another ticket means overspending, which is why they would choose to drop the plan.

The theories of mental account, endowment effect and loss aversion can explain and help guard against mistakes in consumption and investment. Endowment effect is the hypothesis that, after owning a product, people ascribe more value to it and are less likely to get rid of it than before. Loss aversion refers to people's tendency to get more affected by losses than gains even though they are equal in amount. In this mind state, when making decisions about consumption and investment, people prefer avoiding losses to pursuing interests. For instance, because of loss aversion, many people are reluctant to buy those umbrellas with higher price on rainy days as a refusal to make "self-beneficial" but unfair deals. This mindset is different from the traditional economic idea of supply and demand determining price. In stock investment, with a tolerance of book losses and an aversion to actual losses, accompanied with endowment effect, some people often sell their profit with an early increase in stock price, but are unwilling to "cut the flesh" and give up the trapped stocks. On the contrary, with a tolerance of actual losses and aversion to book losses, under the same effect, other people prefer to keep those highly profitable stocks while rush to sell greatly defective stocks. They end up emptying the stock at the lowest price with their only gain being the thrill of a roller-coaster ride. In fact, people make decisions about whether or not to hold a particular stock based on the judgment of its real value, rather than their personal profit or loss. Therefore, the correct investment strategy is, when making long-term investment on those undervalued individual stocks, one should buy low and sell high according to market conditions, in particular, taking the profit at a rather high stock price. In order to stop losses, one needs to sell the wrongly-picked stocks in a decisive manner. This is how Warren Buffett trades his stocks.

Traditional economics emphasizes that people are rational enough to make reasonable plans for long-term consumption and investment. Consumption is reversible and one's consumption level can be adjusted according to income changes. Behavioral economics holds the opposite view that one's consumption and investment depend not only on his income, but on his ingrained habits as well as his ability to resist short-term temptation, and therefore consumption is irreversible and long-term plans are often hard to implement. In reality, people can easily increase consumption as their income rises, but find it difficult to reduce with a falling income. This phenomenon, that is, "easy to go to extravagance from frugality but difficult to go backwards", is also called the "ratcheting effect" of consumption.

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陈劲 教授
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打造世界级创新企业

各个发达经济体都意识到，只有创新才能不断刺激新的经济增长点；而发展中国家也都在通过创新推动产业结构的不断升级，提高国家竞争力。美国拥有“富可敌国”的创新性企业，苹果、谷歌、FACEBOOK、亚马逊等市值超千亿美元的企业不断产生。

如何促进企业的创新建设？一、增强企业对创新的重视程度，据波士顿咨询2014年调查，有76%的CEO将创新作为前三优先工作，其中40%的将创新作为最高优先任务；二、提升对创新的战略管理，创新的四层次模型可分为运营创新、技术创新、战略与商业模式创新、管理创新；三、建设创新的生态体系，涉及组织治理的问题，要有战略体系支撑；四、建设强有力的创新团队，促进技术、长期战略、研发、市场等方面的创新和改进。体现企业综合创新能力的显著标志是企业新产品、新工艺、新服务的收入占企业总销售收入的比例不断上升；体现企业科技创新能力的重要标志是知识产权的收入、产业标准的制订能力和极高的品牌价值。

吴晓波 教授
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范式的转变：超越追赶的创新战略

自三次产业革命以来，随着需求和供应结构的变化和创新资源（人力、科技投资资源）的投入，新老范式在更迭转变，中国也一直在追赶前驱者的步伐。什么是范式？它是指从事某一类活动所必须遵循的公认的“模式”，它包括共有的观念、理论、范例、方法、手段、标准等。新时代之新范式，抓住范式即能铸就成功。O2O（线上到线下）可成为互联网＋各个传统行业的突破口，把硬件变成服务，把功能变成体验，把用户变成粉丝。这是一场由价值链到价值网络／商业生态系统的质变。如何超越追赶？在技术、管理、价值体系范式内持续创新，通过开发性学习、忘却性学习和创造性学习，经由范式内的改进、范式间的转换以及创建新范式，可以达到技术创新和商业模式创新。

徐二明 教授
汕头大学商学院院长

设计思维与服务创新

设计思维最有价值的地方在于，一旦你意识到自己可以实现某个目标，你就有动力实现下一个目标。换言之，它将拥有“取得成就的习惯”。诺贝尔经济学奖获得者西蒙曾说：“任何设计都是内部环境适应外部环境的结果”。每位管理者都需要设计，离开了设计，企业的成长就是无源之水。设计思维有哪些用处？它可以协助管理者通过探索需求、定义问题、设想可能的解决方案、制定行动方案和模型等，历经试验获得反馈。拒绝惯性思维，融会设计思维，以全新的角度看待世界，以创新的方式改善世界。在以客户需求为导向的新时代，可以将设计思维用于服务创新，结合使用者的需求、技术可能性、商业可行性，探索创新突破。

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中国科技金融促进会理事长

“三创”：挑战性问题与选题方向

在三创的分析过程中，要用经济学理论作为主要的阐释和分析工具，有三个问题值得讨论。第一，中国经济持续增长是否与技术进步有关？第二，在“创新驱动发展”和“创新型国家”等语境下，是否意味着应全面摆脱过去至少从增长角度看是成功的路径而进入一种新的战略选择？第三，面对全球经济新趋势和国内结构调整的多重压力，科技与经济结合到底有哪些问题选项，不应追求一个全面和无所不包的政策清单，而是如何抓住主要矛盾：主角是企业家、联结者是金融？

由此，需要重点研究的方面有：

1、创新型国家的指标体系；
2、产业创新链的构建；
3、企业主体；
4、中间组织的作用；
5、作为知识供给源的大学与研究院所作用；
6、金融工具与资本市场；
7、政府作用；
8、方法上的创新。

刘琦岩 研究员
中国科学技术信息
研究所副所长

对双创环境及相关服务建设发展的思考

一、创新创业的环境建设政策取向。需做到面向生态、环境本位、要素切入，重点打造有承载力、竞争力、影响力、生成力的双创载体，发挥好大型创新主体的积极作用，在开放、协同中聚焦并实现创新目标和绩效。

二、颠覆性技术创新是政企共同的战略目标。可以倡导新的科技观、创新观，引导政企进行创新管理变革，对创新进行分类和策略化管理，为新技术新组织融合提供自由空间，做好应变准备（鼓励权变管理），做一个对创新负责任的组织。

三、创新创业的服务发展的趋势和重点。双创服务是围绕从创意、产品、国际化等各个环节展开的，大数据云计算、物联网、智能终端、社交化、虚拟现实渗透到创意活动中，成为设计和产品体验不可或缺的一部分。

喻子达 博士
深圳神州通集团总裁

企业创业创新的困惑及思考

目前，我们集团的产业布局涉及移动互联网、流通、高科技、能源、地产、金融、光通信、生态农业、慈善事业等。企业是有生命周期的，不同成长阶段会面临不同的挑战，如政策变化、技术快速迭代、用户需求变化、企业治理趋势转变等。因此必须持续不断地创新，让企业变在市场的前面，促使企业产品、工艺、营销、组织、战略等各方面的创新。我在企业推行了三件事，第一是搭建聚才兴业的平台，包括组织的平台化和商业模式平台化，实现企业内外资源和人才的共享；第二是共享成功的机制，从分配制变为分享制，例如项目跟投制、员工入股制、合伙人机制、内外部创业制等；第三是创业创新的文化，始终保持创业者状态（企业文化氛围、激励机制）。

李春燕 博士
同济大学经济与管理学院

三创指数的创立——构建创新创业创投的智慧平台

同济的三创指数体系是反映整个社会创新、创业、创投情况的综合指标体系，通过对三者投入、产出、转换效率及波动性等的计算，以探求其相互间的作用关系及演变规律。创立三创指数，有利于政府制定政策，且有的放矢地投入引导基金，从而用杠杆效应带动创投资金的投入；有利于创投机构发现不同行业、地域的投资机会，也可同时用于判断不同行业、地域的投资热度，从而规避可能的泡沫风险；有利于创业者为其创业地域、行业的选择提供参考，尽量减少盲目或错判的成本；有利于指导企业对创新领域的探索和挖掘，为企业的投资、研发方向提供指导；对高校而言，可通过提供新知识发现等学术活动的智慧平台，为大学、职业学校学生的专业配置及就业方向提供前瞻性的指导。

EXPERTS' THOUGHTS ON BUIDLING A HIGH QUALITY PLATFORM FOR "INNOVATION, ENTREPRENEURSHIP AND VENTURE CAPITAL"

WU Xiaobo, Professor
Cheung Kong Scholar, Former Dean of School of Management, Zhejiang University

The Transformation of Paradigm: An Innovation Strategy to Catch Up

Since the Third Industrial Revolution, there has been a change in the structure of demand and supply, along with an increasing investment of innovation resources (human and technology). The old paradigms are being replaced by the new, and China is trying to catch up with those pioneers. What is a paradigm? It refers to a recognized pattern that must be followed in a field, including common concepts, theories, examples, methods, means and standards. If one manages to capture the new paradigms of the new time, he is sure to succeed. O2O (online-to-offline) can be a breach for Internet + traditional industries, turning hardware into service, functions into experiences, users into fans. This is a qualitative change from value chain to value network or business ecosystem. The way for us to catch up is to innovate continuously in the paradigms of technology, management and value system. The innovation of technology and business model can be achieved by exploitative, amnesiac and creative learning, through improvement within paradigms, transformation between paradigms and creation of new paradigms.

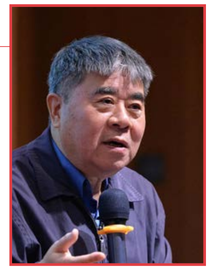
CHEN Jin, Professor
Cheung Kong Scholar, Director of the Research Center for Technological Innovation, Tsinghua University

To Build World-class Innovative Enterprises

All developed economies are aware that only innovation can continuously stimulate new economic growing points. Developing countries, too, are constantly pushing forward the upgrading of industrial structure through innovation. The United States is home to many extremely wealthy innovative enterprises, especially those emerging companies with their market values of over $100bn, such as Apple, Google, Facebook and Amazon.

How to promote innovation? Firstly, enhance the enterprise's awareness. According to the 2014 BCG survey, 76% of CEOs consider innovation top three of their priorities, among which 40% take innovation as their top priority. Secondly, strengthen the strategic management of innovation. An innovative four-level model is consisted of innovation of operation, technology, strategy & business model, management. Thirdly, build an innovative ecosystem. A strategic system is needed to support the governance of the organization. Fourthly, build a strong team to innovate and improve technology, long-term strategy, R&D and marketing, etc. A notable indication of an enterprise's comprehensive ability of innovation is its growing proportion of the revenue generated by new products, new crafts and new services. An important indicator of a company's ability of technological innovation is its income of intellectual property, its ability to formulate industrial standards and its brand value.

XU Erming, Professor
Dean of Shantou University Business School



Design Thinking and Service Innovation

What is most valuable of design thinking is that once you realize that you are able to achieve a goal, you will have the motivation for the next. In other words, you would have a "habit to achieve goals". Nobel economic prize winner Herbert A. Simon once said: "Any design is the result of the adaptation of the internal environment to the external one". All managers need design, without which the enterprise would have nothing to depend on and thus could never grow. What is the use of design thinking? It can assist managers in gaining feedbacks through experimentation, including steps like exploring needs, defining problems, proposing possible solutions, working out operation plans and models. We need to employ design thinking instead of inertial thinking, so as to look at the world from a new perspective and in turn improve it in an innovative way. In a new era of demand-driven business, we need to apply design thinking to service innovation and explore new breakthroughs from the perspective of customer desirability, technical feasibility and business viability.

YU Zida, Ph.D
CEO of Shenzhen Sinomaster Group

Innovation and Entrepreneurship of Enterprises: Questions and Thoughts

So far, the industries of our group have involved mobile internet network, circulation, hi-tech, energy, real estate, finance, optical communication, eco-agriculture and philanthropy. An enterprise has a life cycle. At different stages of growth, it faces different challenges, such as change of policies, rapid reformation of technologies, change in user requirements, shifting trends of enterprise governance. Under such circumstances, the enterprise should innovate continuously, in order to make changes before the market does. Aspects needing innovation are product, technology, marketing, organization and strategy. As the CEO, I have implemented three measures in the enterprise. First, I have built a platform for accumulating talents and promoting business, including the organization and business models, in order to share resources and talents. Second, I have established a mechanism of sharing accomplishments and changed the old distributing system into a sharing one, such as project co-invest system, employee stock ownership system, copartner system, inside and outside business starting system. Third, I have developed a culture of innovation and entrepreneurship, encouraging employees to keep the mindset of an entrepreneur through the culture of the enterprise and a motivation system.

WANG Yuan, Research Fellow
Former Executive President of Chinese Academy of Science and Technology for Development, Chairman of China Science Technology Monetary Promotion Association

"Innovation, Entrepreneurship and Venture Capital" : Challenging Questions and Topic Directions

In the discussion of this topic, theories of economics should be used as the main tool for interpretation and analysis. There are three noteworthy questions. First, is there a correlation between China's sustained economic growth and its progress in technology? Second, in the context of "innovation-driven development" and "an innovative-oriented country", should we break away from the old but successful way (at least in growth), and turn to a new strategic option? Third, faced with multiple pressures from the new trend of the global economy and domestic adjustment of structure, the combination of technology and economy faces many problems. It should not pursue a complete and all-inclusive list of policies, but rather grasp the major issue: who is the leader? Is it the entrepreneur, intermediary, or the finance?

Therefore, the following are major areas that need to be studied: 1. the indicator system of an innovation-oriented country; 2. the construction of innovative industry chain; 3. enterprise entity; 4. the role of middle organizations; 5. the role of universities and research institutes that serve as sources of knowledge; 6. financial instruments and capital markets; 7. the role of authorities; 8. innovation in methods.

LIU Qiyan, Research Fellow
Associate Director of Institute of Scientific and Technical Information of China

Thoughts On the Construction and Development of the Environment of and Services Related to "Innovation and Entrepreneurship"

1. The policy orientation of the construction of the environment for innovation and entrepreneurship. It should be ecology-oriented, environment-oriented and focusing on key points. The carrier of innovation and entrepreneurship should be of carrying capacity, competence, influence and productivity. Main innovation bodies need to play a positive role by focusing on and realizing the innovative objective as well as satisfactory performance in an open and cooperative environment.

2. The common strategic goal for enterprises and authorities is a disruptive technological innovation. The organization should be responsible for innovation and is thus advised to advocate a new concept of technology and innovation, to guide the management reform of enterprises and authorities, to classify and strategically manage the innovation, to provide a free environment for the integration of new technology and organization, to prepare for contingency by encouraging contingency management.

3. The trends and priorities in the service development of innovation and entrepreneurship. Services of this kind cover the aspects of creation, product and internationalization. Big data cloud computing, internet of things, smart terminal, socialization and virtual reality are involved in innovative activities and thus become indispensable parts of design and product experience.

LI Chunyan, Ph.D
Tongji SEM

Establishing an Index of Innovation, Entrepreneurship and Venture Capital—To Build a Smart Platform

Tongji's index system of innovation, entrepreneurship and venture capital (VC) is a comprehensive one that indicates the situation in this field in the whole society. The system calculates the input, output, conversion efficiency and volatility of the three elements, aiming to explore the interaction among and the evolution law of them. The establishment of this index system has many benefits. First, it will help the government formulate policies and invest guide funds with a purpose, thus using the leverage effect to generate venture capital investments. Second, it will help VC institutes spot investment opportunities and assess investment popularities in different industries and places so as to avoid possible risk of fueling bubbles. Third, it will help entrepreneurs provide reference for the choices of place and industry, thus reducing blind or wrong investment. Fourth, it will guide enterprises in exploring innovative fields and setting direction of investment and R&D. Fifth, for colleges and universities, it will build a smart platform for academic activities like discovering new knowledge and therefore provide prospective guidance on profession arrangement and employment.

欧洲管理学博士项目协会首个中国成员院校

花落同济经管

2017 年 10 月 16 日，经过一整天的现场访问和面谈之后，我院顺利完成所有申请程序，正式加入“欧洲管理学博士项目协会”，简称 EDAMBA（European Doctoral Programs Association in Management & Business Administration），成为该协会在中国的首个成员院校。这标志着同济经管在商学教育和博士培养的国际化道路上又迈进了一步。

我院于今年 7 月提交申请，启动加入 EDAMBA 的官方程序，申请报告获 EDAMBA 执行委员会一致通过。8 月底，我院副院长阮青松及院长助理吴波宁代表学院赴欧洲参加 2017 年全球年会，在会上报告学院及博士项目的发展及概况，获得所有成员院校全票通过。10 月 16 日，EDAMBA 主席，法国里昂商学院 Dimitris Assimakopoulos 教授及丹麦奥胡斯大学 John Ulhøi 教授代表 EDAMBA 执行委员会对学院进行了现场访问，院党委书记金福安代表学院领导会见了两位专家。在座谈交流后，专家们高度评价了学院博士项目的发展战略、博士导师的教学和研究水平、博士项目的教学质量、国际合作水平等。双方就中欧联合培养博士、培训和发展青年博导、合作申请欧盟课题及资助等方面展开了积极讨论。

国际化是包括博士培养在内的商学教育重要的发展趋势之一。我院在先后通过 AACSB、EQUIS、AMBA 和 PMI-GAC 等权威国际认证之后，顺利成为 EDAMBA 首个中国成员。未来，学院将依托国际认证及国际协会提供的多元渠道与优质资源，结合自身优势，加快推进博士培养的国际化进程。通过聘请国外顶尖学校的教授担任学院兼职教授或导师，提高博士研究能力；联合指导博士，开展合作科研，发表国际研究成果；向国外名校推荐博士毕业生，拓宽博士生就业渠道；招聘国际优秀博士毕业生，充实青年教师队伍等。

EDAMBA 是成立于 1991 年的非盈利性商学院协会组织，旨在通过组建商学院之间的沟通网络，为科研合作、博士培养等方面搭建一个全球性的合作平台，从而推动管理学博士项目的资源共享与质量提升，促进高水平研究的发展与合作。其会员以欧洲院校为主，覆盖北美、南美、亚太等 30 余个国家和地区，包括欧洲排名前十的商学院，例如英国 London Business School、西班牙 ESADE 商学院、荷兰鹿特丹管理学院等。

TONGJI SEM BECOMES THE FIRST CHINESE MEMBER SCHOOL OF EDAMBA

European Doctoral Programmes Association in Management and Business Administration

On October 16, 2017, after a full day of site visit and interviews, SEM successfully went through all the application procedures and officially joined European Doctoral Programs Association in Management & Business Administration (EDAMBA), becoming its first member school in China. The admission marks another progress made by Tongji SEM of the internationalization of business science education and doctor training.

SEM submitted the application in July this year, starting the official procedures to join EDAMBA. Later, the application report was unanimously approved by the Executive Committee of EDAMBA. At the end of August, SEM's associate dean Ruan Qingsong and assistant dean Wu Boning attended the 2017 EDAMBA Annual Assembly in Europe as representatives. At the meeting, they reported the development of SEM and its PhD programs, which passed the full committee. On October 16, on behalf of the Executive Committee of EDAMBA, Dimitris Assimakopoulo, EDAMBA's president and professor of E.M.LYON, and John Ulhøi, professor of Aarhus University, paid an on-site visit to Tongji SEM. Jin Fu'an, the school's Party Secretary, met with the two experts on behalf of the school. After the discussion, the experts spoke highly of the school's development strategy of PhD programs, PhD instructors' level of teaching and research, the teaching quality of PhD programs and the level of international cooperation. The two sides held active discussions on China-EU joint training of Doctors, training and development of young-aged PhD instructors, cooperation in applying EU projects and funds.

Internationalization is one of the significant trends in business science education, including doctor training. After earning authoritative international accreditation from AACSB, EQUIS, AMBA and PMI-GAC, SEM has successfully become the first Chinese member school of EDAMBA. In the future, on the basis of its own advantages, SEM is to accelerate its internationalization of doctor training, relying on diverse channels and high quality resources provided by international accreditations and associations. Tongji SEM plans to enhance its doctors' research abilities by employing professors from top universities abroad; to carry out joint doctor training programs, cooperate in research fields and publish international research results; to broaden doctors' employment channel by recommending doctors to famous foreign universities; to enrich the young teaching faculty by recruiting excellent doctors from international universities.

Found in 1991, EDAMBA is an international non-profit making business school association. It aims at building a global platform for cooperation in research and doctoral training by providing a network for communication among business schools, in order to help increase the quality of doctoral programs and share resources, as well as to promote the development and cooperation of high-level researches. Its members, mostly European universities, are from over 30 countries and regions like North America, South America, Asian Pacific, etc. Participating schools include Europe's top ten business schools, such as London Business School, ESADE Business School, Rotterdam School of Management in Erasmus University.

APP 经济近年来发展得如火如荼。APP（即 Application）是指运行在智能手机、平板电脑上的小型应用程序，其类型包括游戏、社交、购物、教育、商务、办公、娱乐等。APP 经济正以迅雷不及掩耳的速度日新月异地刷新各项统计数据纪录。APP 经济，简单而言，指开放 APP 应用并通过智能手机进行服务的分发、创造经济价值。APP 经济在创造新市场的同时，也为中小企业和个人创造新的财富。毫无疑问，用户下载收费 APP 产生的经济收入，以 APP 为平台的打车、购物、社交、新闻、游戏、旅游、教育催生的经济规模不容小觑。

周向红
同济大学经济与管理学院教授、博士生导师
上海公共事务研究会副会长

王琳
博士研究生

算法黑箱：APP 经济成长中的 BUG

APP 经济对传统行业产生了积极的作用，通过减少信息不对称使资源得到更好地配置，提高了行业效率，其中以对服务业冲击最为显著。出行 APP 对缓解高峰期打车难题、挖掘出租车运力发挥极大的作用；购物 APP 以更亲和的交互界面、更方便的购物历程和更个性化的促销手段延续了风光局面，在产业链上端的制造业和下端的物流业也发挥了独特的魅力。

然而，在这过程中也有一些不和谐的声音。近日朋友圈、微博等社交媒体被某知名机票预定平台的诡异查票结果霸占了头条。很多用户第一次可以搜到低价机票，但是多查询几次后就发现低价票数量迅速减少，若更换电脑则又可以搜索到数量不菲的低价票。是什么原因导致如此搜索结果？

其实，有基础软件开发知识的人都能从此现象中领悟其中的奥妙：算法！算法是一个计算的具体步骤，常用于计算、数据处理和自动推理，算法的核心是创建问题抽象的模型和明确求解目标。一个软件系统的核心就是算法，不同功能使用不同的算法，尽可能使用高效、稳定、安全的算法为用户提供服务是一个软件系统基本要求。算法不需要后台人工控制就可以根据获取的一个或多个预设变量值，自动计算出可能的结果并推送给用户。

随着信息技术的发展、互联网的全方位覆盖，几乎所有商业运作都离不开优良的软件系统，不仅用户对软件系统的性能、功能的要求越来越高，而且企业也希望能利用软件系统挖掘更多的商业价值，创造更多的利润，实现这些要求的本质就是对算法进行不断更新、优化。软件开发人员眼里算法是有灵性、生命力的，它不是枯燥的字符串，在不同环境、变量触发下绽放出多彩光芒。然而在利益驱使下，算法在利益控制下闪烁着邪恶的荧光。作为软件系统的普通用户，却由于缺乏这些相对专业的信息技术知识而被蒙在鼓里，无法识别是否已经被邪恶算法控制了，无法知道个人利益在何时、在何种软件系统中被掠夺了。由于无法收集被侵犯的证据而不能进行权益维护，只能进行道德领域的声讨，而作为拥有此类软件系统的企业却能全身而退。在日常生活中，大部分软件系统、软件应用的普通用户都缺乏数字信息技术专业知识，尤其涉及算法这类只有专业软件开发人员才能理解的知识，对普通用户来说几乎是天方夜谭。如果说数字鸿沟是在当代社会信息化、数字化、网络化发展过程中，不同基础条件的信息主体之间在现代信息技术拥有与使用方面的差距，这类普通用户与有目的利用算法操纵软件系统的主体之间的差距，已经超出数字鸿沟能涵盖的理论范畴。

虽然这类操纵算法是为普通用户推送不合适的营销信息的行为，和开发特殊程序利用公共通讯网路（如互联网和电话系统）在未经许可的情况下，载入或攻击对方系统的违法行为截然不同，但是依然是利用高科技绑架了普通用户的意愿，实现企业自身利益增加的目的。这类行为在互联网行业中已经成为默许的规则，有些行业或许做得不明显，而有些行业太急功近利了。至于普通用户，由于无法了解其中奥秘，也只能听之任之。不过这个问题也暴露出 APP 经济对生活方式捆绑的影响，效率、可计算性、可预测性、控制和理性中的不合理性也使平台公司深陷逐利迷雾，一切都在利益计算过程中。

现代信息技术让互联网、智能手机成为了生活工具，信息流已经不局限于点与点之间的互动，信息由点及面的聚集形成了一个新的空间，让人类集聚的空间从地理延伸至镜像。APP 为政企创新、商业模式、服务供给等微观领域的演进提供了新的动力，这种变革也凸显了虚拟和现实间的交错。技术进步也孕育了虚拟和现实交互的多维空间。在 2017 年政府工作报告中，李克强总理强调，政府要“推动‘互联网 +’深入发展、促进数字经济加快成长，让企业广泛受益、群众普遍受惠”。“互联网 +”为民营资本的商业创新提供了切口，“顾客导向”的服务创新为区域福利带来了增量。不过，资本的逐利性却也诱发了创新的潜在风险，产业、服务的“互联网 +”创新进一步加剧了数字鸿沟，政府规制演变与市场变革的不匹配让法律、制度漏洞逐渐凸显出来。虚拟和现实的多维互动，使社会运作愈发多样化、复杂化。算法黑箱加剧了平台、生产者和消费者之间的信息不对称，让数字鸿沟更加隐蔽，包容性、公平性应纳入政府考虑内容。

“互联网 +”创新中“成长的烦恼”为政府的社会运作管理提出了新挑战，唯有制度创新、技术选择、商业模式互动融合才能“兴利除弊”。大数据、数据挖掘等前沿技术也为政府职能转型、政策工具的升级提供了机遇，基于信息、数据的政府监管、行业规制的模式、流程亟待系统理论的指导和支撑。不同的社会群体都应担负各自的重任，进一步推进弥补数字鸿沟研究，建立科学数据共享机制及新的研究范式，并对于目前出现的算法黑箱现象进行关注。政府可形成总体框架政策，对于即刻或不能接受的风险做出积极应对。由于算法要求高及复杂，除了呼吁平台公司发挥积极的作用，更需要一些专业领域的志愿者和行业协会的积极努力，缓解信息不对称。政府相关职能部门及各级官员也应系统地学习数字经济发展的相关知识，了解数字鸿沟等负面影响并予以警惕，使更多人分享到数字红利，减少其负面效应，以及由技术带来的隐性欺诈。必要时设立多部门以及跨界公益协会或者联盟，使有效的政策能落实到具体问题，减少成长中的 BUG。

ALGORITHM BLACKBOX: BUG IN THE GROWTH OF APP ECONOMY

App economy has been growing vigorously in recent years. App (or Application) refers to a small, specialized program downloaded on smart phones and tablets, and is widely used in such areas as game, networking, shopping, education, business, office and entertainment etc. App economy is refreshing the record of various statistical data at an astonishing speed. App economy, in a word, means the opening of mobile applications as well as distribution of services and creation of economic value through smart phones. While creating a new market, App economy is also generating new wealth for SMEs and individuals. Undoubtedly, the economic income generated by users' downloads of paid Apps as well as the economic scale triggered by App platforms (e.g. taxi-hailing, shopping, networking, news, game, tourism, education) shall not be underestimated.

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App economy has exerted positive influence on conventional industries, among which the service industry is most obviously affected. The reduction of information asymmetry has better configurated the resources and thus improved the industry efficiency. Taxi-hailing apps have played a positive role in mitigating the difficulty of getting a taxi during peak hours and tapping the transport capacity of taxis; shopping apps have continued their popularity with more user-friendly and interactive interfaces, more convenient shopping experience and more customized promotion methods, and have exerted unique glamour in the upstream manufacturing industry and downstream logistics industry of the industrial chain.

However, there are also some unharmonious voices during the course. Recently the headlines of many social media such as WeChat and Weibo were captured by the uncanny flight search results of one well-known online booking platform. Many users could find low-priced air tickets in their first attempts but would see the number of low-priced tickets diminishing quickly after several attempts. But if the users change to another computer, he/she would find a considerable number of low-priced tickets again. What is the cause of such search results?

In fact, those with basic knowledge of software development could easily understand what's behind this phenomenon: algorithm! An algorithm is an unambiguous specification of how to solve a class of problems, and are often used to perform calculation, data processing and automated reasoning tasks. The core of the algorithm lies in the creation of abstract models for problems and clarification of calculation objectives. The critical part of a software system is the algorithm and different algorithms are required for different functions. The basic requirement for a software system is to provide services to users with highly efficient, stable and safe algorithms. Without the need for backstage manual control, the algorithm could use one or more preset variables to automatically calculate the possible results and release them to the users.

Along with the development of information technology and universal coverage of the Internet, almost all business operations cannot be separated from excellent software systems. Not only users have an increasing demand for the performance and function of software systems, but enterprises also wish to use software systems to exploit more business value and generate more profits. The essence of meeting such demands is to continuously update and optimize the algorithms. Instead of being monotonous character strings, the algorithms are, in the eyes of software developers, smart and full of vitality, and shine brilliantly as triggered by different environments and variables. However, algorithms shine with an evil light under the control of interests. Due to the lack of specialized knowledge on information technology, the ordinary users of software systems were kept in the dark, and thus were unable to identify whether they had been controlled by evil algorithms. Besides, they were also unable to know when and where their personal interests had been seized. As a result of the difficulty in collecting the evidence of being infringed, the users are often unable to safeguard their rights and interests, but can only denounce this misconduct morally, while the enterprises that own such software systems are able to escape unscathed. In our daily lives, the ordinary users of most software systems and applications lack specialized knowledge on digital information technology, not to mention the algorithm-related knowledge that are only understandable to specialized software developers. In the development process of informationization, digitalization and networked technology, if digital divide is considered as the gap between different subjects of information in terms of the possession and usage of modern information technology, the inequality between ordinary users and the subjects that intentionally use algorithms to manipulate software systems has gone beyond the theoretical category to be covered by digital divide.

This kind of manipulating algorithm is the action of sending inappropriate marketing information to ordinary users, and is totally different from the illegal action of developing special programs and using public communication networks (e.g. Internet and telephone system) to load or attack another system without authorization. However, it still take advantage of high technologies to kidnap the will of ordinary users and achieve the goal of increasing business interests. Such kind of behaviors have become tacitly acknowledged rules in the Internet industry. Perhaps some industries did not behave so obviously, but some were too eager for quick success and instant benefits. The ordinary users, however, can only leave the problem to go unchecked as they are unable to know the inside secrets. This problem also reveals the binding effect of App economy on our lifestyle. Efficiency, calculability, predictability, control and irrationality of rationality have caused platform enterprises to be obsessed with the eagerness for interests and all are in the process of interest calculation.

Modern information technology have turned Internet and mobile phones into life tools, and information flows are no longer restricted to point-to-point interactions. The points of information have accumulated to form a new space, enabling the space of human aggregation to extend from geographic to mirroring space. App has provided new momentum to the evolutions in micro areas such as government-enterprise innovation, business model and service supply etc. This kind of evolution also gives prominence to the overlaps between virtuality and reality, and technological advancements have given birth to multi-dimensional space of interactions between the two. In the 2017 Report on the Work of the Government, Premier Li Keqiang emphasized that the government should "push forward with the Internet Plus action plan and speed up the development of the digital economy to benefit both businesses and the people." "Internet Plus" provides a good starting point for the business innovations of private capitals, and the "customer-oriented" service innovations have brought increments to regional benefits. However, the profit-chasing nature of capital also induces the potential risks of innovation. The "Internet Plus" innovations in industry and service have further aggravated the digital divide, and the loopholes in laws and systems have gradually emerged due to the mismatching between evolution of government regulations and market changes. The multi-dimensional interactions between virtuality and reality have made social operation increasingly diversified and complex. The algorithm blackbox has intensified the information asymmetry among platform, producer and consumer, and made digital divide more elusive. The topics of inclusiveness and impartiality should be taken into consideration by the government.

The "growing pains" in "Internet Plus" innovations have brought about new challenges to the social operation management of the government. Only the interactive fusion of system innovation, technical choice and business model could promote the beneficial and abolish the harmful. Cutting-edge technologies such as big data and data mining have also provided opportunities for the transformation of government functions and upgrading of policy tools. The models and processes of information and data-based government supervision and industry regulation are in urgent need for the guidance and support of systematic theories. Different social groups should take their respective responsibility by further promoting the research on bridging digital divide, establishing scientific data sharing mechanism and new research paradigms, and paying attention to the existing phenomenon of algorithm blackbox. The government could establish an overall framework policy, and respond actively to the immediate or unacceptable risks. Due to the high requirement and complexity of algorithms, in addition to appealing to platform companies to play an active role, some volunteers and industry associations in specialized fields are more desired to mitigate the information asymmetry. Government officials of relevant functional departments should systematically study the knowledge on the development of digital economy, understand and guard against its negative impacts like digital divide, and enable more people to share the digital dividend. The negative effects as well as the recessive cheat caused by technologies should be minimized. The government should, if necessary, establish multiple departments as well as cross-industry public welfare associations or alliances to apply effective policies to specific issues and thus reduce the bugs in its growth.

医疗分诊系统浅析

本文来自作者和其合作者的一篇工作论文的节选

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基于现存的医疗资源利用不平衡的现状，中国推出的医疗改革方案中将使用转诊流程来确定患者是否需要看专科医生。患者一般会先去看全科医生，并由全科医生根据病情的复杂程度进行治疗或将其转诊给专科医生。大多集中在大城市三甲医院的专科医生通常比较昂贵，并且资源非常有限。转诊制度的目的就在于有效地利用具有不同专业技能和成本的资源。与只接受全科医生治疗的患者相比，被转诊至专科医生的患者即使在健康状况调整后，也往往会产生更大的医疗保健支出。比如，在美国，人们对于不断增长的转诊率存在一定的担忧 (Barnett 等 (2012))，据估算，目前美国的医疗转诊率已高达英国的两倍。过度转诊患者经常被指责为不必要的开支浪费，并且 Epstein(2015) 也指出过度转诊患者接受昂贵的专科医生治疗是推动美国医疗开支上升的六大原因之一。一方面，一些病情复杂的患者确实需要接受专科医生而不是全科医生的治疗。比如北京协和医院的工作人员曾表示，去该医院治疗的患者 70% 属于头痛脑热类，完全可以由社区家庭医生处理的病情。另一方面，全科医生也担心潜在的风险，包括诉讼、不转诊患者而导致的误诊索赔等。Song 等 (2014) 认为，门诊条件下的患者转诊决定，对于医生与其他医疗专业人士之间的合作十分重要，并且“在支付方式改革的辩论中很大程度上被忽视了”。

尽管转诊率十分重要，全科医生转诊率和专科医生所提供的医疗服务之间也存在重要的关联。如果全科医生转诊了太多的患者，专科医生可能就会不堪重负，而预约专科医生的等候时间就会更长。这种情况经常会发生，因为专科医生资源在世界许多地区包括美国的部分地区都十分稀缺。在专科医生数量有限的情况下，较高的转诊率会导致更大的拥堵和更长的等待时间。根据弗雷泽研究所开展的一项调查显示（Barua 等 (2016)），加拿大从全科医生转诊到接受专科医生治疗的等待时间中位数为 18.3 周。类似数据也大量存在于包括美国在内的其他许多国家。根据一项针对 11 个富裕英联邦国家医疗保健行业进行的研究显示（参见 Davis 等 (2014) 图表 5），尽管在某些情况下拥堵和等候预约全科医生可能会是个问题，获得专科医生服务以及漫长的等待时间似乎问题要严重得多。Stainkey 等 (2010) 描述了在澳大利亚昆士兰州进行的一项研究，当地患者接受专科医生治疗需要的等待时间有时会超过 2 年。文中还介绍了他们如何与全科医生合作以改进转诊流程，从而减少此类等待时间。漫长的等待时间会导致患者健康的恶化以及恶劣的健康结果 (Emberson (2014))。除了更长的等待时间，加剧的拥堵状况也会迫使专科医生减少患者的治疗时间。高度拥堵与治疗时间缩短之间的关联已在相关文献中有所记录 (Batt & Terweisch (2017), Chan 等 (2017))，而后者直接导致了治疗质量的下降。在专科医生数量有限的情况下，全科医生的转诊决定对于专科医生的表现具有重要影响。因此，对转诊率及可用的专科医生资源进行周密的协调，这点变得尤为重要。

支付方案在医疗保健系统的各个方面都发挥着十分重要的作用。在我们的背景下，向医生支付报酬的模式对于全科和专科医生的决定都有着重要的影响，并且能够缓解或加剧转诊率、专科医生等待时间和医疗质量等问题。近期，美国社会关于现有支付模式对控制医疗保健成本的效果存在着日益激烈的争论，并一直在探讨新的支付模式。Miller (2010) 对美国当时采用的各种支付模式及其对医疗服务人员和患者的影响进行了详细的讨论。正如 Miller (2010) 所指出的，支付方式改革的一个重要目标，就是建立支付与服务结果（质量）之间的关联，并激励医生在实现高质量的同时节约成本 — 这被称之为“可负担、负责任的”医疗保健服务。尤其值得一提的是，捆绑支付作为一种新型的医疗保健服务支付方式，已被广泛吹捧为一种最有前途的支付方式。在传统支付模式下，不同医生所提供的服务将按照单个患者固定收费或者按量计酬的方式分别进行支付，而与此形成鲜明对比的是，在捆绑支付模式下，患者将在某一治疗阶段结束后向“一群医疗服务提供商”支付一次性费用。这一全新模式假定这些提供商有动力在内部进行协调，从而降低成本并实现高质量的医疗服务。然而，此种协调需要将成本和质量准确归因于提供商的决策。

设计健全的医疗支付方案的一大挑战就是将成本和患者所经受的痛苦归因于提供商的行动。专科医生的治疗决定会影响对患者的医护质量，以及患者由于痛苦、疾病、复发等而产生的成本。这将因此导致不满意的患者、声誉受损以及诉讼等。在理想状况下，我们能够将患者结局准确地归因于提供商的行动。然而，由于患者结局和相应的成本取决于诸多因素，包括患者特征和疾病种类，且大部分因素不在提供商的控制范围之内，在现实中这几乎是不可能完成的。正如近期一篇文章 (Beck (2015)) 所指出的，要让专科医生对医疗结果负全部责任是不现实的。此外，有很多干扰因素会导致复杂的结果 -- Krumholz 等 (2013) 以及 Brotman 等 (2016) 的研究显示，在对提供商部分问责的情况下，重新入院等措施与死亡率呈负相关关系。我们还探讨了专科医生对患者结局承担部分责任将如何影响支付方案的效力。

关于支付体系如何导致过度或不适当的服务和专科护理 (Barnett 等 (2012)) 以及某些支付方案如何促使医院出于财务原因，在患者未达到出院条件的情况下，让其过早出院 (Neu 等 (2016)) 方面存在大量的争论和分析。然而，有关支付模式如何影响转诊率以及全科和专科医生之间决策协调的分析却少之又少。据我们所知，目前没有任何研究分析了支付模式如何影响转诊率与专科医生资源局限之间的关联，以及它对护理质量、等待时间和医疗成本所产生的影响。本研究旨在填补这一空白。

本研究的目的是了解医疗保健的不同支付模式，尤其是在部分问责的情况下，如何帮助解决全科医生和专科医生之间的护理协调，从而对转诊决定、专科医生工作量以及医疗服务质量产生影响。我们通过一个程式化模型来解决这些问题，这一模型包含三个实体：全科医生、专科医生和单一支付者（例如政府机构）。该支付者与全科医生和专科医生订立合约，并代表患者向其支付酬劳。在这一背景下，我们探讨了不同支付体系的表现，包括已在美国得以实行的捆绑支付模式，以及支付者利用不同支付方式与提供商单独订立合约的体系（我们称之为非捆绑式支付）。我们比较了不同的支付方案，并将其与最优方案进行对比，在此方案中，由单一的中央规划者做出所有的决定，从而取得可能的最佳结果。然而，本论文的重点是评估现有的支付方案而不是找出最佳的方案。由于捆绑式方案近期吸引了大量关注并被认为前景可观，本论文的首要焦点就是评估捆绑式方案的有效性，并同时探索捆绑式方案在某些重要运营指标上与传统的非捆绑式方案相比表现如何。

我们发现，与非捆绑式系统相比，捆绑式系统会导致更高的转诊率、较少的治疗时间和较低的专科医生服务质量。此外，虽然捆绑式方案中的系统总成本更高，支付者却无法像在捆绑式系统中一样充分提取非捆绑式系统中的盈余。非捆绑式支付方案的特点是对医生拥有更高的控制，因而能够取得比捆绑式方案更高的效率。然而，伴随这一高效率而来的则是支付者承担的更高成本。这是因为支付者希望通过向全科医生选择性支付更高的报酬，来归纳出非捆绑式系统中理想的转诊率，全科医生也因此将获得比捆绑式系统中更高的净利润。捆绑式方案实现了全科医生更低的误诊成本以及专科医生更高的质量成本。因此，与上述两类医疗服务提供商分别订立合约的能力，可帮助非捆绑式方案在转诊率、治疗时间、专科医生质量成本以及系统总成本等方面更加接近最优方案。捆绑式方案中的转诊率最高，从而导致最低的误诊成本。当专科医生承担部分责任时，与最优方案相比，无论是捆绑式或非捆绑式方案中，专业医生都将减少患者的治疗时间。当专科医生几乎能为患者结局承担全部责任时，捆绑式或非捆绑式方案都将发挥积极的作用，并取得与最优情况类似的结果。

A BRIEF DISCUSSION ON REFERRAL-BASED HEALTHCARE SYSTEM

(This article is an excerpt from a working paper by the author and his co-author.)

Many healthcare systems use a referral process to determine if a patient should see a specialist. Indeed, China is planning to launch a referral-based healthcare reform. Patients typically visit a general practitioner who may either treat them or refer them to a specialist, depending on the complexity of their ailment. Specialists are often more expensive and their supply is limited in some regions and referral systems are designed to effectively utilize resources of varying expertise and costs. Patients who are referred to specialists tend to incur greater health care spending compared with those who remain within primary care, even after adjusting for health status. Borrowing from existing experience from other countries, we can see similar phenomenon. For example, there is concern about increasing referral rates in the US (Barnett et al. (2012)) and they are estimated to be twice as high as in Great Britain. The excessive referral to specialists is often decried as wasteful spending and Epstein (2015) states that excessive referral to expensive specialist care is one of the six major reasons driving up healthcare cost in the U.S. On the other hand, some patients with complex ailments need to be treated by a specialist rather than a general practitioner. Moreover, as is implicit in the anecdote above, generalists are concerned about potential risks, including lawsuits, of mistreatment claims if they do not refer patients. Song et al. (2014) argue that patient referral decisions in an outpatient setting are fundamental to collaboration among physicians and other health care professionals and "have been largely ignored in the payment reform debate".

While referral rates are important, there is an important link between the referral rate of the primary care provider and the service provision delivered at the specialist. If the primary care providers refer too many patients, then the specialists may get overwhelmed and the wait time to get an appointment with a specialist could be longer. This is often the case because specialist resources are scarce in many regions of the world, including parts of the US. Higher referral rates combined with limited specialist capacity results in greater congestion and long wait times. According to a Fraser Institute survey (Barua et al. (2016)); the median waiting time between referral from a general practitioner to receipt of treatment from a specialist is 18.3 weeks in Canada. Similar statistics abound in many countries including in the US. While congestion and waiting to get an appointment with a generalist may be an issue in some cases, access to and long waits for specialist service appears to be much more problematic based on a Commonwealth study of healthcare in 11 rich countries (see Exhibit 5

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in Davis et al. (2014)). Stainkey et al. (2010) describe a study in Queensland, Australia, where times wait for specialists was over 2 years in some cases and how they worked with general practitioners to improve the referral process to reduce such waits. The long wait times can result in deterioration in patient health and poor health outcomes (Emberson (2014)). Other than longer waits, increased congestion may compel the specialist to spend less time with patients. The link between high congestion and shorter treatment time which results in lower care quality has been documented (Batt and Terweisch (2017), Chan et al. (2017)). Thus, the general practitioner's referral decision has an impact on the specialist's performance when specialist capacity is limited. Therefore, it is important that referral rates and specialist resource availability are carefully coordinated.

Payment schemes play a very important role in all aspects of healthcare. In our context, models used to compensate physicians play an important role in influencing both providers' decisions and could either alleviate or exacerbate the problems with referral rates, wait time for specialists and care quality. Recently, there has been growing debate in the US about the relative efficacy of existing payment models in controlling healthcare costs and new models are being explored. Miller (2010) provides a detailed discussion of various payment models used in the US and their implications for providers and patients. As indicated in Miller (2010), a key objective of payment reform is to link payment with service outcome (quality) and incentivize physicians to save cost while achieving high quality—referred to as "affordable and accountable" healthcare. In particular, bundled payment, a new way of compensating healthcare service, has been widely touted as one promising payment scheme. In sharp contrast to traditional payment schemes under which service provided by different physicians are paid separately using either a flat fee per patient or fee-for-service, the payer under the bundled scheme pays a lump-sum to "a group of service providers" for each episode of care. The presumption is that providers then have an incentive to coordinate among themselves to reduce the cost and achieve high quality. Such coordination however requires accurate attribution of cost and quality to providers' decisions.

One of the challenges in designing good payment schemes in healthcare is the attribution of costs and pain suffered by a patient to a provider's actions. A specialist's decisions on treatment effort impacts the quality of care and costs incurred by patients due to suffering, ailments, relapse, etc. This in turn leads to unhappy patients, reputation, lawsuits, etc. for the specialist. In an ideal world, we would be able to accurately attribute patient outcomes to the provider's actions. However, in reality, this is impossible since patient outcomes and corresponding costs depend on many factors, including patient characteristics and type of ailment, many of which may be outside the provider's control. As a recent article (Beck (2015)) points out, it is not possible to hold a specialist fully accountable for healthcare outcomes. Moreover, there are many confounding factors leading to mixed results—Krumholz et al. (2013) and Brotman et al.(2016) show that measures such as readmission and mortality may be inversely correlated in the presence of partial accountability of providers. We explore how the partial accountability of specialists for patient outcomes impacts the performance of the payment schemes.

There has been considerable debate and analysis of how payment systems may result in excessive or inadequate services and specialist care (Barnett et al. (2012)) and how certain payment schemes have led to hospitals discharging patients more quickly than medically appropriate, for financial reasons (Neuet al. (2016)). However, there has been little analysis of how payment models may influence referral rates and the coordination of decisions by the general practitioner and specialist. In particular, to the best of our knowledge, there has been no analysis of how payment mechanisms may influence the linkage between referral rates and specialist resource limitations and the resulting impact on quality of care, wait times and healthcare costs. This work aims to fill this gap.

The objective of this work is to understand how different payment models in healthcare, particularly in the presence of partial accountability, can help address care coordination between the general practitioner and the specialist, which impact referral decisions, specialist workload and quality of care at the specialist. We address these issues by considering a stylized model comprised of three entities: a general practitioner (called generalist henceforth for simplicity), a specialist and a single payer (say a public agency). The payer contracts with and compensates the generalist and specialist on behalf of the patients. In this setting, we explore the performance of different payment systems, including the bundled systems that have been introduced in the US as well as systems where the payer may contract with the providers separately using different payment schemes (which we refer to as unbundled payment). We compare and contrast the different payment schemes and also compare them with the first best scheme, wherein a single central planner would make all the decisions and thus achieve the best outcome possible. However, the focus of the paper is on evaluating existing payment schemes and not on deriving the first-best scheme. In particular, since a bundled scheme has attracted attention recently and is deemed to be promising, our primary focus in this paper is to evaluate the effectiveness of the bundled scheme and also explore how the bundled scheme performs on some important operational metrics relative to traditional unbundled payment schemes.

We find that the bundled system results in higher referral rates, lower treatment times and lower service quality at the specialist stage as compared to the unbundled system. Moreover, while the total system costs are higher in the bundled scheme, the payer cannot fully extract the surplus in the unbundled scheme unlike in the bundled scheme. The unbundled scheme, featuring more controls over the physicians, can thus achieve a higher efficiency as compared to the bundled scheme. However, this higher efficiency comes with a concomitantly higher cost to the payer. This is because the payer aims to induce the ideal referral rate in the unbundled system by making a higher elective payment to the generalist, who therefore earns a strictly positive profit unlike in the bundled scheme. The bundled scheme achieves lower mistreatment cost at the generalist but higher quality costs at the specialist. Thus, the ability to contract separately with the two providers helps the unbundled scheme get closer to the first-best scheme in terms of referral rates, treatment time and quality costs at the specialist and total system costs. Referral rates are highest in the bundled scheme resulting in the lowest mistreatment costs. When specialist accountability is partial, the specialist spends less time with the patient in both the bundled and unbundled schemes as compared to the first-best scheme and quality costs are higher. When the specialist can be held almost fully accountable for patient outcomes, both the bundled and unbundled schemes do very well and achieve results similar to those in the first-best case.

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中国经济会掉入中等收入陷阱么？新常态引发的新商业思考

2017 年中国经济已进入新常态数年，人口红利消失，产能过剩困扰，经济结构待优化。“三去一降一补”的转型调整期漫长，供给侧改革初见成效，宏观经济企稳向好，人民币对美元汇率由贬转升。

随着我国央行退出货币宽松政策、一行三会金融监管趋严，中国股市、债市、楼市在经历过山车行情后，正处在周期性调整和行业洗牌的过程；利率市场化，同业竞争加剧，地方政府和国企去杠杆，不良资产攀升，互联网金融冲击，多重因素叠加，传统商业银行的信贷业务收入和利润随之下降。当地方政府和国企财务加杠杆进入警戒区，当国内银行、券商、保险、基金混业经营相互渗透越来越让人担忧时，当互联网金融变成各种庞氏骗局时，为避免“地方政府和国企出现债务危机”、“金融资本持续空转”、“产业资本脱实向虚”、“伪互联网金融野蛮生长”导致系统性金融风险，MPA、中央金融工作会议精神相继出台，信托、理财、同业等纷纷被收紧，表外业务转向表内，金融监管持续升级，合规和内控监管加码，各类金融机构在狂躁和高烧后，开始降温，回归理性。

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自阿里巴巴、腾讯、京东、百度、苏宁、亚马逊这些电商的 O2O 战略全面启动后，我们不难看到，很多商超和购物中心中除了餐饮聚集人气之外，各类商铺的冷清和没落。这两年，各种智能终端、移动互联网、物联网、大数据、云计算、区块链、人工智能（AI）、虚拟现实 (VR)、无人机等技术热点层出不穷，新零售、无界零售飞奔而来。随着新技术突飞猛进，消费者行为不断转变，中国经济似乎已经找到了新的增长方式和驱动引擎。

“产品为王”、“品牌为王”、“渠道为王”、“资本为王”或成历史，“数据为王”将是未来市场竞争的一种新法则。各种曾经风光无限、令人艳羡的产业链、商业模式、经营业态正在经历大浪淘沙，被各种新产业、新商业模式、新业态取代。

展望移动互联网时代的市场营销，当 O2O 营销模式和各种层出不穷的新技术日渐渗透到各类 B2B、B2C 行业和企业时，企业经营管理者从思维到行动，从战略到策略，都需要在实践中迅速升级换代。

试想不远的未来，某个消费场景：当眼球经济、粉丝经济、网红经济、话题经济与各类传媒、电商巨头、移动智能终端、智能家居、VR 技术、大数据、云计算结合在一起，每天都对消费者和厂商进行无断点和盲点的宣传和洗脑；当互联网金融把线上购物、金融服务变成随时随地唾手可得；移动支付从扫码支付变成刷眼、刷掌、刷脸的任意购；当 AI、智能家居、无人驾驶汽车等技术高度融合，声音遥控即可完成购物消费的全过程，只等无人机、无人驾驶车、机器人把快递送上门。届时，目标市场选择、客户群体分析、营销战略定位、营销策划部署、产品和服务的设计开发、品牌建设和推广、渠道拓展和维护、消费者教育和忠诚度或都呈现出另一番全新景象。

新零售只是开始，无界零售或将加速演进……这样的变革不仅将对原料供应商、生产制造商、经销商、物流企业产生深远影响，改变服务行业，更将引发金融服务业的巨变。

伴随着技术创新和持续升级，消费者行为和偏好改变，品牌依然具有其核心价值，但市场、客户、产品、服务、渠道、资金、数据都将被全新解构和重塑。盒马鲜生、京东之家、苏宁 O2O 银行只是新零售、新商业、新金融的一种开始。

试想不久的未来，一种家庭场景：我们的冰箱不光是用来储藏和保鲜食物的家电，而是一个美食智能终端。冰箱面板配有液晶面板，不仅可以通过上网提供各种外卖信息，让我们轻松点购各类熟食外卖和蔬果生鲜，而且可以在线配置各类菜单，通过网络视频演示各类烹饪技法。冰箱还可以自动检测你日常需要的水果、蔬菜、禽蛋、牛奶、肉制品、水产品、饮料、零食的品牌、品种、数量，发送有关信息到你我的智能手机或其它便携式终端，由我们决定是否需要链接电商或附近商超，实现按需网购、在线刷脸支付、1 小时物流配送到家。有关商超和电商可以通过大量智能冰箱的补货数据（大数据），拉动水果、蔬菜、禽蛋、牛奶、肉制品、水产品、饮料、零食供应商的订单，无缝对接这些厂商的采购供应链系统和智能制造系统，实现精准营销、敏捷制造、最优库存、最低成本等一系列管理提升和优化。

改革开放 39 年，中国一跃成为全球第一制造大国。从出口拉动经济增长到投资驱动经济增长，再到内需和外需（一带一路）双轮驱动经济增长。放眼未来数年，经济结构转型升级虽非一蹴而就，必有曲折，但前途是光明的，因为中国市场产业升级后，潜力巨大。航空航天、生命科学、生物医药、智能城市及智能交通建设、新能源汽车替代燃油发动机汽车、新零售全国性发展、新普惠金融（服务于实体经济的普惠智能金融）、智能家电产业升级和先进制造业企业工业 4.0 改造，都将为中国制造向中国“智”造转型提供了各种可能。此外，“一带一路”国家战略稳步推进，全球产品中国造很可能变成中国产品在全球各地造。因此，中国经济不但不会掉入中等收入陷阱，反而将有巨大的成长空间和惊人的市场商机。

WILL CHINA’S ECONOMY FALL INTO THE “MIDDLE INCOME TRAP”?

THOUGHTS ON NEW BUSINESS IN THE CONTEXT OF NEW NORMAL

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By 2017, China’s economy has entered a “new normal” stage for several years, featuring vanishing demographic dividend and overcapacity as well as an economic structure to be optimized. The transition and adjustment phase of the “Five Priority Tasks” encompassing de-capacity, destocking, deleveraging, cost reduction, and closing the gap will last long. Initial success has been achieved in supply-side structural reform, while the macro economy has made a turnaround and stabilized. The RMB exchange rate against USD finally rebounded after almost 2 years’ depreciation.

Since PBoC’s exit from the monetary easing policy and a tighter financial regulation of the People’s Bank of China, the China Banking Regulatory Commission, China Securities Regulatory Commission and China Insurance Regulatory commission (i.e. One Bank, Three Commissions), the stock market, bond market and property market in China after riding a roller coaster have entered a period of cyclical adjustment and reshuffle. The revenue and profit of traditional commercial banks gained through credit business are declining, due to various reasons: interest rate liberalization, intensified horizontal competition, deleveraging of local government and SOEs, increase of bad assets and internet financial shock. Financial leverages of local authorities and SOEs are above an alert level. More and more concerns have been raised about the mixed business operations and interpenetrating of domestic banks, securities firms, insurance companies and fund management companies. Moreover, it turned out that many I-finance cases are actually Ponzi scheme. Under such circumstances, in order to avoid systemic financial risks caused by debt crisis in local governments and SOEs, continuous flow of idle funds within the financial system, industrial capital hollow and barbaric growth of pseudo I-finance, China has issued the Macro-prudential Assessment system (MPA), the spirit of Central Financial Work Conference, tightened the trust funds, money management and interbank borrowing, put some off-balance sheet businesses onto their balance sheets, strengthened financial supervision and regulation, reinforced compliance and internal control and supervision. As a result, different types of financial institutions that used to be manic and overheated are turning back to normal.

When e-commerce giants, like Alibaba, Tencent, JD, Baidu, Suning, Amazon, have launched their ambitious O2O strategies, many traditional supermarkets and shopping malls have gradually become desolated and can only attract customers by catering businesses. The past two years has seen a boom in new retail and unbounded retail, along with innovative technologies like intelligent terminal, mobile internet, internet of things, big data, cloud computing, block chain, artificial intelligence, virtual reality and drone. When consumer’s behaviors have been changed by technical innovations that are advancing swiftly and vigorously, it seems that Chinese economy has found a new growth pattern and engine.

All of the old lords such as product, brand, channel and capital might have to give up their throne. The notion of “data being king” is going to be a new law of market competition. Those industry chains, business models and management formats that have once been enviable have gradually been replaced by new ones like great waves sweeping away sand.

In terms of marketing in the Internet Age, entrepreneurs and professional managers must upgrade their ideas strategically and tactically when B2B and B2C industries and enterprises have been influenced and changed by numerous new technologies and O2O marketing patterns.

Let us imagine the future economy. When eyeball economy, fan economy, internet celebrity economy and topic economy have integrated with mass media, e-commerce giants, intelligent terminals, smart home, VR, big data, cloud computing, consumers and business clients must be surrounded and influenced by their uninterrupted advertising and brainwashing. Thanks to the rapid development of internet finance, online-shopping and financial services would be available at any time and any circumstances. People would be able to pay with a simple scan of their eye, palm, face, instead of scanning QR code on their phones. After the integration of AI, smart home, and pilotless automobile, we would be able to shop through acoustic control and simply wait for the delivery by drones, driverless cars or robots. At that time, it would be a whole new image when it comes to target market selection, customer group analysis, marketing positioning and planning, product and service development, branding and communication, channel expansion and maintenance as well as consumer education and loyalty.

New retail is just a beginning. Unbounded retail might develop fleetly, which would not only exert a profound influence on raw material suppliers, manufacturers, dealers and shippers, arouse historic changes in the service industry, but also cause fundamental changes in the financial services industry.

With the upgrade and innovation of technology, the change of consumers’ behavior and preference, the core value of a brand isn’t declining. However, markets, clients, products, services, channels, capital and data are facing deconstruction and reshaping. Freshhema, JDhome and Suning O2O bank are just a start of new retail, new business and new finance.

Let us then imagine the future home. Our refrigerators would not only be for food storage and preservation, but also be smart terminals for gourmet. We could search information about foods, order take-outs, vegetables and fruits online on LCDs on refrigerators’ doors. We would also be enabled to design individual menus and learn how to cook from videos presented on that screen. They could also check brands, types and quantities of foods that we need daily, including fruits, vegetables, eggs, milk, meats, sea food, beverage and snacks and so on. Then, they would send information and data to our smart phones or other intelligent mobile terminals, letting us decide whether to visit websites of nearby or online retailers in order to achieve online shopping on demand, online payment by face scan and delivery within one hour. Based on the replenishment data (big data) of various smart refrigerators, retailers would be able to promote the orders of corresponding suppliers and in turn seamlessly connect to manufacturers” intelligent manufacturing system and supply chain system, thus achieving accurate marketing, agile manufacturing, optimized inventories and lowest cost.

During past 39 years’ reform and opening-up, China has become the largest manufacturer in the world. China’s economy that used to be driven by export and then by investment, is now fueled by both domestic and international demands such as the Belt and Road initiative. Although the structural transformation of China’s economy still has a long way to go and is bound to encounter obstacles, the future of China’s economy is optimistic because China market is certain to have great potential after the industrial upgrading. Many industries provide opportunities of the shift from “Made in China” to “Created in China”, including aviation and aerospace, life science, bioengineering and pharmaceutical industry, construction of smart city and the traffic system, the popularization of new energy vehicles, the nationwide expansion of new retail, innovative inclusive financial system (an inclusive intelligent finance serving the real economy), industrial upgrading of intelligent home appliance and version 4.0 of advanced manufacturing industry enterprises. In addition, with the steady progress of our OBOR initiative, the notion of “worldwide products made in China” might be replaced by “China products made in the globe”. Therefore, China’s economy will not fall into the “middle income trap”. On the contrary, it will embrace tremendous room for growth and amazing market opportunities.

同济 EMBA 开学季 | 春风十里不如你

关于缘分，张爱玲有过很经典的诠释：

于千万人之中遇见你所遇见的人，

于千万年之中，时间的无涯的荒野里，

没有早一步，也没有晚一步，

刚巧赶上了，那也没有别的话可说，

惟有轻轻地问一声：

“噢，你也在这里吗？”

中年不惑，和同济 EMBA 注定的因缘

张俊　同济 EMBA 学员，Autodesk 大中国区行业战略经理

人到中年保温杯，枸杞难阻岁月催！

前段时间朋友圈被一场保温杯的中年危机刷屏，原因是微博上一篇吐槽黑豹乐队鼓手赵明义手持保温杯照片的博文突然走红。谁能想象，当年的一首《无地自容》让多少热血青年为之沸腾，只是如今铁汉依旧在，英雄却是暮年时，又再一次印证了庄子那句：人生在世，如白驹过隙，忽然而已。

关于“衰老”这件事我想不管放在谁身上，都是一个过不去的坎，只是令我们猝不及防的是它居然来得这么悄无声息，令人无所适从。

其实老去，有时候也并不都是一件唱衰的事情。前段时间复出参加真人秀的林青霞，息影近 20 年，学习进修、出版自己的散文集、参加节目，即使年华老去，皱纹浮上面颊，她仍然从容淡定。如同作家琼瑶在《窗里窗外》序言里说的，“这个窗里窗外的青霞，正在用成熟的心态，走进另一个境界。她不再饰演别人，她开始找寻自我，甚至是在‘发掘’自我。在发掘的同时，她也发掘着人生的真谛。这样的青霞，我实在喜欢。”

人生逆水行舟，不进则退，在寻找自我认知的道路上我们需要学习，需要不断地充电。这些都无关年龄。学习是人生的一场修炼，初始目的是在未知的世界和事物中探索和成就自我，最终目的是在成就自我的同时认识自我、实现自我。学无止境。

巧：冥冥之中注定的因缘

来同济读 EMBA 是一个巧合，也仿佛是冥冥之中的安排。2005 年初，我离开研究所到上海工作，参加的第一次工作会议就是在同济大学。后来有幸跟随德高望重的张曙教授工作，他的博学及严谨令我在同济的这段学习中收获颇多。

由于个人兴趣及工作原因，一直保持着学习的习惯。两年前，偶然的机会我参加了母校 MBA 课程的学习，并参加了国家统考，通过了全国 MBA 统考的分数线。我一直在思考自己下一步应该如何走，是继续做论文拿个学位呢，还是迎接新的挑战？

最终我选择后者，调剂一所新的高校。在这之前我对上海各大高校商学院的特色和优势、学员的年龄、职业分布等做了整体研究。结合自身的工作背景，我认为同济作为一所工科院校，尤其在设计领域有着深厚底蕴，就读该校会对我的职业发展助益良多。恰在其时，我在北京出差时从朋友口中得知了同济 - 曼海姆 EMBA 项目。在电话咨询时，老师和善的态度及专业的讲解使我对这个项目产生了极大的兴趣。我也在第一时间收到了相关资料。从北京回上海的飞机上，身边坐了一位德国 SAP 的高层，与他聊提起曼海姆时，这位严肃的先生顿时眉飞色舞，并拿出手机搜索出曼海姆雄伟大气的教学楼给我看，使我对该项目的好感倍增。

专业：让你爱上同济

准备报考这个项目时，需要准备大量的个人材料，如自我评述、引荐信，内容涉及到对国际思维的判断、将来职业生涯的发展，这些就足以让我沉下心来思考学习的意义。专业与严谨的面试过程让我对同济又产生了一个好印象，大家都知道细节决定成败，但是细节做得好的又有几个？

面试非常成功，但我的心情依然很紧张，一直在焦急地等待。将近一月后，终于等到了德国曼海姆的确认信，此时心里一块石头落了地。可能有人会说，同济效率太低，不灵活，但我知道这恰恰体现了同济与曼海姆在价值观上的一致，严谨与专业！

惊艳：远超想象的开学前活动

本以为接下来就是按部就班地等待 9 月开学，但同济 EMBA 中心为我们这批新生提前送上了开学大礼！

迎新手册做得足够专业，内容安排几乎完美！

在 6 月的新生开学活动中，专业的拓展公司结合 EMBA 教育给我们上了一堂生动的热身课。从“初识同路人”、“引路人分享”、“白手起家”到“漫漫人生路”，让同学们在真实的案例学习中互相熟悉、磨合、学习。当晚的“EMBA 新生欢迎晚宴暨同济 EMBA 戈 12 庆功会”的活动又让大家惊喜不断，师兄师姐们不仅是事业的成功者，更是在体能、意志、时间管理、协作上不断挑战自己的佼佼者！

为了让大家不断地提升自己，EMBA 中心提前邀请 Thomas 咨询公司给大家做了“行为特性分析”及“情绪表达及情绪管理”评测，帮助大家认识真正的自己，并安排了两天的课程。工作 20 年来，我参加过大量咨询公司的培训，自己也做过很多培训、教学与 Coaching，明白培训、教学、Coaching 三者是完全不同的体系，但同济 EMBA 中心却在尝试做有机融合，着实让人惊艳！

乘扁舟而济，粹大道而动

新生开学活动上，EMBA 李主任推荐了“在大学里只为遇见最好的你”这篇长文。文章中讲到了大学的特质、知识的载体、大学给予人的特殊力量、内在精神的成长，以及思辨能力对我们的改善。我们也许错过了 20 多年前读大学时的深度思考，但当我们有机会重新走入校园时，是否能审视自己心智？又是否能体验热闹、喧嚣及独处给我们带来的平和与宁静呢？

另外一篇文章“大学精神的本质，是恢复人类的天真”，作者刘瑜以自己的亲身体验来解读哈佛大学为何成为顶尖学校。文章虽然剖析了中国教育在系统性、人文教育方面的缺失，但更多地是作者作为师者对改变现状的焦虑、憧憬、期望与实践！

乘扁舟而济者，其身也安；粹大道而动者，其业也美。

虽庄子说：“吾生也有涯，而知也无涯。以有涯随无涯，殆已！”，但“路漫漫其修远兮，吾将上下而求索”又何尝不是一种人生乐趣？

BACK-TO-SCHOOL SEASON OF TONGJI EMBA

Shall I Compare You To A Spring's Day

> *In Eileen Chang's eyes,*
> *this is what destiny is:*
>
> *Among the millions of people,*
>
> *amid millions of years,*
>
> *you happen to run into the one,*
>
> *neither a step too early nor a step too late.*
>
> *Just say no more, but ask gently, "*
>
> *So you are here too?"*

A DESTINED ENCOUNTER WITH TONGJI EMBA AT AN AGE OF NO-DOUBT

ZHANG Jun
Tongji EMBA Student, Business Strategy Manager at Autodesk's Greater China Region

Over The Hill at Middle Age

Some time ago, a picture of the Black Panther rock band drummer holding a thermal cup went viral in WeChat moments, sparking people's discussion on the "Mid-life Crisis". Decades ago, a passionate song of the band named "CRASH AND BURN" made so many young men's blood boil. But look at him now, still the iron man, but in the autumn of his life. Just as what Chuang-tzu said, "As humans, our time passes so quickly like a white pony's shadow across a crevice".

True, aging is a cruel reality for everyone. The thing is that it catches us off guard and is a fact that's hard to swallow.

Actually, it is not always a bad thing. Two years ago, the 61-year-old actress Qingxia Lin appeared again on TV in a trueman show. During her 20 years' break from acting, she was studying, writing her own prose works and occasionally joined some shows. Even though with a wrinkled face, she is still a lady with a composed and calm temperament. As Chiung Yao commented in the preface of Qingxia Lin's prose collection, Inside and Outside the Window, "Qingxia is walking towards another spiritual realm, with a mature attitude, either through or beyond that window. She is not playing the part of anyone else, but herself. On her way of self-quest and self-discovery, she is discovering the essence of life. The way she is now is so pleasing to me".

Life is like sailing against the current, to stay still is to drop back. No matter how old we are, on the way searching for our identities, we need to keep learning. Learning is cultivation, the initial purpose being to explore and to achieve in an unknown world, the ultimate goal being self-cognition and self-realization. We are never too old to learn.

A Coincidence and a Destiny

Choosing Tongji EMBA is a total coincidence, and as if a destiny. In 2005, I left my institute for a job in Shanghai, and the first conference in that job was held in Tongji University. Later, I had the honor to work under the revered Professor Zhang Shu, whose erudition and rigorousness inspired me a lot.

Due to my interest and work, I have kept a habit to learn. Two years ago, I attended the MBA courses of my alma mater. Later I took the state level MBA Entrance Examination, and met the national requirement for MBA admission. I had always been thinking about my next step, whether to stay in my alma mater and get a degree, or to meet new challenges.

I ended up choosing the latter. Before making the decision, I studied comprehensively about major collegiate business schools in Shanghai, including their characteristics, advantages, and the age and occupational distribution of candidates, etc. In the light of my work experience, Tongji University became my choice because of its prestige as an engineering university and its profound heritage in designing, which I believe will help further my career. Just at that time, during my business trip to Beijing, I heard about the Tongji- Mannheim EMBA program from a friend. Then during the telephone consultation, the program consultant gave me a professional explanation in a friendly manner, fully arousing my interest in this program. On the plane back to Shanghai, I was talking to a senior manager of SAP Germany who sat next to me. When I mentioned Mannheim, his solemn face lit up. Later, he even showed me pictures of Mannheim University's magnificent teaching building on his cell phone, making me even more attracted to the program.

Professionalism Makes You Love Tongji

To apply for this program, I need to prepare a lot of documents such as personal statement and reference letters, requiring my opinion on international thinking and future career development. In preparing these documents, I had plenty of time thinking about the meaning of learning. The interview was professional and rigorous, leaving me a fond impression of Tongji. It is widely known that success depends on details. Very few universities actually do well in this and Tongji is definitely one of them.

The interview was a big success, but I was still quite anxious when waiting for the result. About a month later, Mannheim University finally sent me the offer and it was a huge relief for me. Somebody would consider the process to be lack of efficiency and flexibility. However, I believe it is, on the contrary, showing the shared values of Tongji and Mannheim University—professionality and rigorousness.

Amazing, Pre-school Activities Beyond Your Imagination

Just when I thought I only have to wait until the start of the courses in September, Tongji EMBA Center offered all of us new candidates a first gift!

The freshman's handbook was professional and its contents are perfectly-arranged.

During the orientation program in June, an experienced development training company delivered a vivid warm-up class customized just for us EMBA candidates. In the activities including "Making Acquaintances with Fellow Travelers", "Suggestions from A Guide", "Starting from Scratch" and "The Long Journey of Life", many true stories were shared, allowing us to get acquainted, running in and learn from each other. More surprises came on the "EMBA Freshmen Welcome Dinner and Celebration of the 12th Tongji EMBA Gobi Challenge". We came to know a lot of senior schoolmates who are not only successful in their own careers, but also outstanding in challenging themselves constantly in terms of physique, willpower, time management and cooperation.

EMBA center invited people from Thomas Group Consulting to give us a 2 days' course as well as evaluations including "Behavior Analysis" and Emotional Expression and Management" in order to help us know our true selves. I had been involved in all kinds of trainings from consulting companies for over 20 years. I myself had given much training, teaching and coaching, and always considered that they were three independent systems. However, Tongji EMBA center was trying to integrate them. How impressive!

Sailing in a Boat and Act with a Mind Knowing the Truth of Life

In the opening ceremony, Dr. Li, the Director of Tongji EMBA Center recommended us a long article, "Only to Meet the Best of You in College". The article is about the nature and special power of a university as a carrier of knowledge, and how a university influences us on our inherent spirit and the significance of critical thinking. We probably failed to understand all these in college some 20 years ago. Now that we are given a second chance returning to campus, are we able to examine our own minds? Can we feel the peace and tranquility brought by the bustle and solitude?

Another article she recommended was "The Essence of the College Spirit Is to Restore the Innocence of Mankind". The author, Liu Yu, explained the reasons why Harvard University is among the best in the world by sharing her own experiences there. Apart from analyzing the deficiency of China's education in being systematic and humanistic, this article expresses the author's anxiety and expectation to change the situation as an educator.

Sailing in a boat, one's heart will be at ease; Taking actions with an understanding of the truth of life, one is sure to succeed.

Although, as Chuang-tzu put it, "life is limited while learning is unlimited. If you try to follow the indefinite by doing nothing, you are sure in danger". However, "the way ahead is long; I shall search high and low". And I believe it is, too, a pleasure in life.

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中国阳光投资集团行政支持总部总经理、高级经济师

培养“四识”素养
成为优秀职业经理人

有不少 MBA 在读同学请教，什么是职业经理人的素养，具有什么样的素质才能称为一名成功的职业经理人？个人认为，作为一名成功的职业经理人，必须有“四识”的积淀和内涵，缺一不可，而从一名 MBA 学生走向成功职业经理人，须注重对这些方面的磨砺和培养。“四识”是职业经理人从业基础，更是迈向成功的关键。

第一“识”是知识

其要求在于广博，很多人读了管理学、经济学、MBA 以后就觉得自身的管理知识已经足够了，并不注重跨学科、行业以及新兴产业的各种知识，就管理而学习“管理”知识。殊不知，知识是一个体系，体系的外延越广阔，我们能游刃有余管理应对的突发情况就越多。作为一名职业经理人，我们将会面对不同的管理事项，而作为一名成功的职业经理人，将面对并非单一行业、专业的融合性、复杂性、突发性更为突出的管理事项，这些事项需要我们有一个“了解”的辨识基础。

通俗的来讲，对各项知识至少要有“三脚猫”的通识度。知识让我们“来能谈，听能懂”，如果“来不能谈，听不能懂”，不仅企业会错失发展的大小契机，自身也不会得到良好的晋升舞台，因为企业所有者或领导会察觉你知识的狭隘，而缩小提供的舞台，合作者则无法感受到基于了解的共鸣，而放弃扩大合作的可能。在职业生涯中常有伯乐，但很少有孔丘，职业经理人必须时时以己为师。譬如，近期，文玩逐步衍入企业家、经理人的圈子，开始成为代表其身份、素养的新宠，如果一名职业经理人能对蜜蜡、南红等有所了解，必然会对交流以及谈判提供了更具亲和力的交流基础。获取知识的唯一途径就是积累，唯一动力就是好奇，作为一名成功职业经理人，必须随时随地保持对知识的好奇和积累。广博的知识基础会使职业经理人终身受益，也为其应对企业外部变化而实施的创新变革提高了可能。

第二“识”是学识

将知识与学识区别开来的基础在于深度，这也是学识的要求。“术业有专攻”，这要求职业经理人在广博知识的基础上有所专攻，沉浸到一个点、一条线、一个面来深入研究和掌握。在实践中，我们常常能看到一些知识广博、侃侃而谈的职业经理人，但如果我们就他其中一个话题切入，横问行业、纵问项目、细问操作，往往瞠目结舌，罔顾左右。

王阳明言：人须在事上磨，方立得住。其又言，杀人须就咽喉上着刀，吾人为学，当从心髓入微处用力，自然笃实光辉。我们把这个扩展开来，知识和实践（事）上的磨练以及在点上的深入研究也正是获得学识的途径，这也是我们同济人所一贯倡导及擅长的。仅依靠在“知识上磨”、“事上磨”还不够，更要勤于思考，没有思考和总结的知识会让职业经理人疲于应对，变成“擦桌布”，处处留痕，无一深入。所以要做好归纳和总结的文章，形成对某一类事务独到的见解，并能将此见解演绎开来，在其他外部条件类似的情况下，有效地处置相似的事项。

第三“识”是见识

见识是指经历的广博，见多识广，也就是强调重视积累第一手资料对于职业经理人的重要性。见识对于职业经理人而言，又要分为三个方面：宏观上要“识势”。孙子兵法对“势”有如下的定义：激水之疾，至于漂石者，势也。职业经理人所遇之“势”，包括内外之态势、条件、环境、时机，是企业决策的基础。识势，是职业经理人对于宏观面的具体把握和辨识，而后方能善于应变，在实际操作中分别有顺势、借势、造势。胡雪岩说过，与其待时，不如乘势。顺势、乘势相对简单，但也要把握其中“事有渐则民不惊”的节奏。而职业经理人更需学会的是，在缺乏条件下的借势以及没有条件下的造势，马云所说的那类“遇到野猪，砰的一枪上去，猪没死冲上来，扔下枪就逃走”的经理人，只会顺势而为，撑撑顺风船。而一名成功的经理人一定是善于借势和造势，但“借”和“造”的两者其中，既有经验的累积，也有必须付出的交易成本，在此不予赘述。

中观上要“识人”。职业经理人一定要在管理过程中善于把握人的本质特性，在管理中要善于沟通、尊重他人、精于授权。

微观上要“识利”。司马迁在《货殖列传》中总结：天下熙熙，皆为利来；天下攘攘，皆为利往。职业经理人从事的是经济事务，必须把利之所趋的道理铭心刻骨，无论对内、对外的微观事务处理上，都要重视“利益”和“奖惩”两词对于组织活动的引导力。

第四“识”是意（毅）识

意识指的是，人主观的能动性，在这里用“毅”标注“意”，是强调职业经理人在主观意识上的韧性。成功的职业经理人必定是锐意进取、百折不挠、心志坚毅之人。现在很多职业经理人在接触各类传统文化经典时，将自己包装成“儒商”，希望能在“羽扇纶巾”的潇洒状态下，实现“无为”而治。把“无为”当作管理方式，而非管理的目标终点，最终只能是书生误国、纸上谈兵，往往浅尝辄止，一遇挫折就望风披靡、垂头丧气，甚至牢骚不断，成为马云笑谈中那个“野猪一来枪一扔”的逃跑者。

在实际招聘工作中，很多企业所有者或 HRD 选择企业高层时，会注意权衡职业经理人能否在一家管理严酷、氛围压抑、压力较大的知名企业的关键岗位勇于担当，敢于负责，并能长期稳定工作。如果能的话，这将为这个职业经理人招牌增色不少。因为只有敢于直面惨淡的人生，才是真的勇士，在企业管理中也一样，能抗压的人才是值得托付的梁柱之才。成功的职业经理人，一定是顶住压力，追求结果，善于反馈的。勇于担当、不抛弃、不放弃的精神在中国的历代都是值得褒扬的品质，因为只有自己的不抛弃、不放弃，才能鼓舞并带领队伍走出困境，迈向企业的成功。

在现实中，中国职业经理人的处境略有尴尬，企业所有者在“空降”职业经理人之后，往往希望其能在条件并不充分的情况下，迅速推进工作并在短期内取得成果。而职业经理人在重新划分企业“蛋糕”的同时，身边又围绕着企业所有者的血亲老臣，理顺管理的过程，也是重新切割利益的过程，在这个过程中会遇到困难和阻碍。职业经理人须明白，对于企业所有者而言，聘请经理人是权衡后的选择，是一份托付的信任，可能也是其唯一的选择。职业经理人，应是企业困难解决者、克服者，而绝不应该是抱怨者、逃跑者。不断提升自身的“四识”素养，提高自身的“职业、专业、敬业”水平，方能成为一名真正优秀的职业经理人。

ON THE "GEEP" QUALITY OF PROFESSIONAL MANAGERS

CHEN Yufei
Tongji MBA Interviewer
General Manager of Administrative Headquarters of China Sunglow Group, Senior Economist

Many MBA candidates have asked me: what are the qualities of a successful professional manager?
My answer is the "GEEP" Quality, which is not only essential for a successful professional manager but also a goal for MBA candidates.

"G" in "GEEP" means general knowledge, requiring broadness.

Many candidates become content with their management knowledge after studying management, economics and MBA, while neglecting knowledge of multiple subjects, professions and emerging industries. However, knowledge is a system. The more extensive the system is, with more ease one is able to manage all kinds of emergencies. A successful professional manager faces managerial affairs which are not only cross-industry-and-profession, but also far more inclusive, complex and unexpected, requiring the knowledge as identification basis.

In short, one has to be a jack-of-all-trades. A wide range of knowledge enables one to understand a random topic and even talk a little about it. Without such ability, a person is not only jeopardizing his company's opportunity for development but also his own promotion possibility, since the collaborators, without reaching a rapport with him based on mutual understanding, might give up the idea of expanding cooperation, and the leadership of the company perceiving that his knowledge is too narrow for a higher position, will limit his promotion space. In one's career, talent scouts are frequently encountered, but patient teachers are rarely seen, which means professional managers often have to study by themselves. For example, collectable cultural relics have recently gained popularity in the community of entrepreneurs and managers because such things act as a means of showing their status and attainments. A professional manager who has dabbled in amber and chalcedony would communicate or negotiate with collaborators in a more pleasant and approachable way. The only way to grasp knowledge is through accumulation, the only drive to which being one's curiosity. A professional manager has to keep curious and accumulating all kinds of knowledge as a way to benefit himself and to promote innovation in response to external changes of the organization.

The first "E" means expertise, which emphasizes the depth of one's professional knowledge.

As an old saying goes, "every profession has its own experts". It is then advisable for professional managers to develop a specialty on the basis of a broad knowledge through in-depth study. In real life, we often encounter professional managers who are knowledgeable and talkative. However, when asked about a specific industry, a particular project or operational details, they are often stunned.

An ancient Chinese philosopher named Wang Yangming said, "A man establishes himself through trial", and "in order to kill a man, one should knife his throat. In order to learn, one should start with the heart since it is the origin of human nature". His thoughts coincide with what we Tongji people always advocate and do well in. Nevertheless, apart from constant learning and practice, a professional manager has to be diligent in reflecting and summarizing, for without which he would be like a "dirty rag", leaving watermarks everywhere but nowhere actually clean. In order to avoid such situation, one needs to keep a habit of writing summaries so as to form his own perspective of a particular type of affairs, and thus be able to deal with similar matters effectively in real-life situations.

The second "E" indicates Experience, that is, abundance in first-hand information.

For professional managers, it can be further divided into three aspects. The first aspect, from a macro view, is grasping the trend. In Sun Tzu's Art of War, the "trend" is defined as the rushing water quick enough to wash away stones. In the field of management, the "trend" includes situation, condition, circumstance and opportunity, which are basis for business decision-making. Grasping the trend means the ability for the professional manager to recognize the overall situation, and then act upon it, whether to go with it, to take advantage of it, or to build it up. In the 19th century, a famous businessman Hu Xueyan said, "it is better to take advantage of a trend than to wait for the right time". It is relatively simple to go with a trend, if cautious with the progressive rhythm. However, what is more significant for professional managers is the ability to take advantage of a trend with inadequate conditions, and to build up trends from nothing. Those managers who are only able to go with trends are like hunters who "randomly fire a boar, but have to throw the gun and flee because the boar, not dead at all, start to charge", just as the CEO of Alibaba Jack Ma has once said. A successful professional manager is adept in taking advantage of and building up trends, which requires not only experience accumulation, but also necessary transaction cost.

The second aspect, at a medium level, is to recognize people. In the course of his work, a professional manager should be able to apprehend human nature, and be a smart communicator, respecter, and delegator.

The third aspect, on a micro level, is to pay attention to profits. In his Biography of Merchants, Sima Qian concluded that, "in the bustling world, all are pursuing their own interests". As in the business field, professional managers have to keep in mind this truth and pay attention to the leading-force of "profits", "rewards and punishments" in organizational activities, whether dealing with internal or external affairs.

"P" means persistence.

A successful professional manager must be tenacious, determined and indomitable. Many managers, influenced by traditional Chinese culture, call themselves "Confucian businessmen" in a hope to manage the company by "doing nothing" but in a calm and leisurely manner. Govern a company by non-interfere is an objective rather than management style. Otherwise, it would only become idle theorizing and leading the company astray. He who is satisfied with a smattering of knowledge and flees at the mere sight of the oncoming force just resembles the runaway "boar hunter".

When recruiting executives, many business owners or HRDs tend to weigh the ability of professional managers to take responsibilities courageously and work for a long time in strictly managed, depressing and stressful companies. Such managers are most wanted because a manager who can handle pressure is worth entrusting the company to. A successful professional manager must be one that stands up to the pressure, goes for the goal and good at feedbacks. Willingness to take responsibilities and persistence are two qualities praised by Chinese people in all ages. And only with such qualities can a manager lead his team out of the woods and then to success.

In reality, Chinese professional managers are rather awkwardly situated. After a professional manager is parachuted in, the business owner often expects a quick progress of work and achievements within a short time, even if without necessary working conditions. However, when allotting the cake of the company, the new manager has to consider the interests of those company veterans closely tied to the business owner, adding difficulty to his managing work. It is essential for a professional manager to understand that his engagement could be a last resort, an only option and an entrustment after the business owner's cautious weighing. A professional manager should be there to solve problems, not to complain and run away. Only in the way of developing the "GEEP" quality as well as being "professional, diligent and dedicated" can one become a truly outstanding professional manager.

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