Insights-driven digital innovation

Find out how you can build your data analytics capability in order to find the crucial, meaningful information that keeps your business ahead of the game.
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Executive summary

The last few decades have seen a technological revolution that has dramatically changed the way we live and work. Many of the devices and services that we live with daily have become digital – from music and films to Internet-based banking and shopping. In addition, social media sites enable us to interact with friends, family, and businesses in new ways, all of which leave a data trail which is visible to companies that provide these services.

Companies must ask the question: “Does our business strategy still work in a digital world?” In the first section, we will look at the different perspectives from which a company should review their business strategy in a digital world and how EY Digital Readiness Assessment tool can help companies obtain a holistic benchmarking of the digital maturity of their organizations.

The proliferation of digital products and services results in consumers generating huge volumes of personal data across all aspects of their lives, which is captured by organizations through digital channels or devices. Data about a person’s friendship networks, hobbies and interests is captured on social media, while details of their shopping patterns are captured by online retailers. In addition to these relatively established data sources, technological developments will continue to generate new sources of consumer data that could offer unique insights into consumer behavior. In the second section, we look into how businesses can harness and filter the insights from this information through social media analytics and digital analytics to improve customer experience.

Instead of looking at only past performance, businesses are now leveraging more predictive analytics for their decision making. In the third section, we look at how EY Simulait leverages cognitive science and human behavior modelling to help businesses in “what if” analysis of different business scenarios with high accuracy.

There are clear business benefits to be gained from gaining insights from analytics but there are also some key challenges in the implementation of analytics in China. In the fourth section, we look at these challenges: from the insufficient investment in data management, to the missing data-driven decision culture, and the limited advanced analytics capabilities; all of which collide to decrease the positive impact data analytics can have on Chinese businesses.

The importance of actionable insights, apart from delivering the insights themselves, is to drive people to actions that can improve business outcomes. These actions spur innovation by pushing companies to think about their businesses in new ways. In the fifth section, we explore how EY helps companies run experimentation with new business models, to support an established corporation to “fail fast” comparable to it’s more nimble ‘startup’ competition.

The businesses that have a clear vision of how these new sources of data can transform their business and be able to speed up their pace of innovation correspondingly, will be able to pull ahead of their rivals in making the most of the huge opportunities in a digital world.
Does your business strategy still work in a digital world?

We can help our clients design and deliver a new and expanded strategy, business model and operating model, fit for purpose in a digital world along with a clear roadmap and benefits case.

Alibaba surpasses Walmart as world’s largest retailer in 2016.

Re-thinking the business model

**Strategy**  
Is the business strategy fit-for-purpose in a digital world?

**Organization**  
Is digital engrained in the organizational culture? Is there sufficient digital capabilities within the talent pool?

**Processes**  
Where can digital platforms be used to optimize process?

**Compliance**  
Is the tax framework compliant with new digital regulations and standards?

**Customer**  
Where can digital platforms improve the end-to-end customer journey and enhance experiences?

**Risk**  
Does the cybersecurity framework meet business needs? Is the data privacy policy clear and accessible?

**Partners**  
Where can data and technology enhance collaboration? Are there potential new partners in adjacent industries?

**Information technology**  
How can technology and data help to drive innovation, operating effectiveness and efficiency?
Digital Readiness Assessment

The Digital Readiness Assessment is EY’s online, interactive, assessment and benchmarking tool. From our initial client conversation, the DRA helps clients to validate hypotheses about the digital maturity of their organizations.

After taking the assessment, the DRA data tool displays dynamic results that are benchmarked against other organizations by industry, size or geography. Through the DRA we can help our clients gain new insights into their organization. The DRA is based on and closely aligned with the maturity matrix of the Client Conversation Tool.
Insights-driven digital innovation

Actionable insights from analytics

Digital trends lead to the explosion of unstructured data

Emerging markets such as China will surpass mature markets in the generation of data traffic. Between now and 2020 the division of the digital universe between mature and developing markets such as China will switch – from 60% accounted for by mature markets to 60% of the data in the digital universe coming from developing markets.

Data is exploding in volume across the Internet-connected world thanks to growing human engagement with social networks and the explosion of machine-generated data. They are creating a new Big Data phenomenon. While enterprise systems are the primary data source in the past, today’s data comes from many additional sources: social networks, blogs, chat rooms, product review sites, websites, email, documents, images, audio and video streams and sensors. It is often chaotic – unstructured – and doesn’t fit neatly into the orderly – structured – world of the past.

China’s Internet provides a perfect example to demonstrate the immense size of data generated in the country. During the last Single’s Day, the biggest e-commerce company recorded $14.3 billion (RMB 91.2 billion) of goods transaction in just 24 hours, a growth of 60% from the previous year, through its online shopping platforms. The amount was larger than both Cyber Monday and Black Friday combined in the US. The leading social media company, which has over 649 million monthly active users, is directly driving consumption of RMB5.9 billion over its diverse entertainment platform. As Internet continues to penetrate every aspect of life, huge amount of data will arise from every industries in China not limiting to health care, automotive, energy, and manufacturing.

Stages in utilizing data

1. Identify and capture potential data opportunities
   Direct
   Indirect

2. Generate customer insight
   Understand customer behavior
   Product consumption - what, when, how, with what?
   Satisfaction - what do they think, who do they tell?

3. Internalize and improve relevance
   Offers
   Channels
   Message
   Content
   Timing
   Service/ problem solving
   Increase relevance

4. Realize business benefit
   Higher sales conversion rates
   Increased customer spend
   More loyal customers
   Better marketing ROI

Key considerations

- Which potentially rich new data sources are relevant to your business?
- How can this data be captured?
- Directly through new product launches or technological innovation?
- Indirectly through a partnership or a part of a trade deal e.g., provider accessing data from online retailers?
- Can you measure business performance improvements resulting from applications of new customer insights?
- Does your business have the processes and systems to disseminate insights to relevant teams?
- What opportunities are there to use insight to improve relevance of your offers and customer service?
- Can you store potentially high volumes of new digital data sources?
- Are your internal analytical capabilities sufficient to turn the data into actionable customer insight?
Social media analytics - real-time customer research

Many consumers are now constantly connected through social networking platforms, and the posts and conversations which take place online provide businesses with a valuable new insight into what their customers are saying about them.

In order to get relevant, timely and contextual insights, businesses must:

- 'Listen' to the stakeholders who matter across relevant channels
- 'Filter & Analyze' the information to select the right information
- 'Interpret & Report' the information with the right contextual understanding and insights

Require continuous 'fine-tuning' as the social media eco-system evolves with:

- New channels and mediums across geographies
- Changing importance and relevance of channels
- New stakeholders and relationships

Better understanding and decision making comes from the ability to effectively and efficiently synthesize the real insights from noise.

Businesses can leverage insights from social media analytics for many purposes such as identifying customer sentiments, key influencers, problems customers are having with products, customer preferences, suggestions for product improvements and potential risks to business reputation.
Case study

Customer centricity through analytics

Digital analytics play a key part in a pharmaceutical company’s transitioning to a customer centric ecosystem focusing on customer experience.

Purposes of Analytics Driven Customer Experience

<table>
<thead>
<tr>
<th>Personal</th>
<th>Valuable</th>
<th>Prompt</th>
<th>Convenient</th>
<th>Protected</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Aligned to the customers needs and expectations</td>
<td>• Making sure every interaction is impactful</td>
<td>• Respond to customers in a timely way</td>
<td>• Deal with customers on their own terms - give them choice</td>
<td>• Protect and nurture the customer relationship</td>
</tr>
<tr>
<td>• Relevant and tailored to the customer</td>
<td>• Consistently deliver on customer promises</td>
<td>• Be proactive in how customers needs are met - ‘don’t wait to be asked’</td>
<td>• Be easy to deal with - minimize hand offs and making the customer work</td>
<td>• Having the right intent and being transparent</td>
</tr>
<tr>
<td>• Exhibiting understanding and empathy when dealing with customers</td>
<td>• Create memorable experiences</td>
<td>• Respect the customers time, minimizing the duration of contact</td>
<td>• Make it convenient – engage where the customer is</td>
<td>• Being reliable</td>
</tr>
<tr>
<td>• Creating an ‘organizational memory’ – remember and follow up on previous interactions</td>
<td>• Align to the things that matter most (moments of truth)</td>
<td>• View duration as the point a customer becomes aware of a need until they say it is satisfied</td>
<td>• Maximize ease of access for products, services, information etc.</td>
<td>• Have the customers best interests at heart</td>
</tr>
<tr>
<td>• Be dynamic – evolve</td>
<td>• Consistently aligned to company values</td>
<td>• Maximize location-specific data and contextual</td>
<td>• Minimize invasive ‘push’ sales tactics</td>
<td>• Confirming security of supply and patient safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Managing data privacy and security</td>
<td></td>
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</tbody>
</table>
Case study

Automated marketing

Analytics enable precision marketing to deliver the right message to the right customers at the right time using the right channels.

<table>
<thead>
<tr>
<th>As-is</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand-alone MCM channels already in place but underleveraged by business users, requiring greater integration and orchestration</td>
<td>Pilots followed by wider roll-out to foster digitally savvy users and improve resource allocation through analytics</td>
<td>Integrated marketing through orchestrated channels using analytics to generate insights that are actionable by business users</td>
</tr>
</tbody>
</table>

### Digital Capability

- Create an integrated platform covering multiple brands
- Enable seamless campaign management
- Enable consistent, fact-based multi-channel customer engagement
- Synergize digital adoption across multiple brands to improve the efficiency, flexibility and differentiation of digital marketing

### IT Enabler

- Inventory optimization tools
- Commercial Ops dashboards
- Content Factory platform
- E-Events optimization:
  - Combine Speaker and Event into new Event system
  - Utilize V-invitation to new event for WeChat integration

### Integrated marketing using orchestrated channels

- Capture real-time customer data from all channels
- Mine data from third parties through strong partnerships
- Build up a single integrated data repository with accurate and complete data covering both core and broad market customers
- Enable a 360-degree customer view including profile and behavior
- Robustly manage customer data to confirm privacy and security

### Integrated data mining and management embracing all data sources

- Present clear and up-to-date view should be presented by factor / product / resources to optimize resource allocation
- Develop analytics capability to deliver predictive insights through mature analytics modeling

### Actionable Analytics

- Single repository for data from existing digital channels, CRM and ERP systems
- Big Data and Social listening
- Customers exposure, actions and engagement data mining
- Data integration and single view of the customer
- Digital Engagements capture
- Customer targeting and segmentation

### Success Factors

- Digitally-enabled marketing teams who know when and how to use digital tools
- Seamless and concerted collaboration between digital and traditional channels
Predicting consumer behaviors

**Predictive analytics is gaining traction**

China has transformed itself at a pace that’s unrivaled in the modern world. In practice this has translated into a profound and ever-evolving shift in both consumer behavior and consumer preference; creating opportunity for those who can sense the change and grab onto it.

Chinese consumers are becoming more and more sophisticated, value-oriented and quality-driven. Urbanization and industrial transformation enabled by policy change are being undertaken in China. All these forces collide to create a complex and constantly changing environment where data plays a larger role. Predictive analytics is a key to better understanding the Chinese consumers. It can help businesses unlock potential and create differentiated, individualized customer experiences to engage the largest consumer segments, and therefore help businesses make better decisions. These techniques and tools can provide the means to increase Chinese companies’ profitability and help surmount the challenges of increased competition and global expansion - thus paving the way to the Chinese economy’s success in the global marketplace.
EY Simulait – Predict human behavior of populations
When you want to know: “What if...?”

Simulait is a planning tool that can help you test scenarios to predict how human populations will react to new policies, products, or campaigns. It uses behavioral micro-simulation technology and draws on Census data and a library of pre-existing cognitive models to simulate how individuals in a population make decisions under different circumstances. Users can get online access to Simulait models on-demand.

EY Simulait

<table>
<thead>
<tr>
<th>Design policies...</th>
<th>Predict demand or sales...</th>
<th>Understand disruption...</th>
</tr>
</thead>
<tbody>
<tr>
<td>... and see how they will affect behavior</td>
<td>... in changing or volatile consumer markets</td>
<td>... when there is limited historical data</td>
</tr>
<tr>
<td>Predict complex behavioral responses to a range of policy intervention scenarios, to improve social, economic and environmental outcomes, using a world-leading behavioral economics modelling platform.</td>
<td>Forecast demand or sales in a complex and dynamic consumer market where traditional (statistical or learning) forecasting methods fall short.</td>
<td>Predict the uptake and impact of new disruptive products or technologies to assess both commercial risks and opportunities. Test the effectiveness of commercial models to disrupt or adapt to new markets.</td>
</tr>
<tr>
<td>Example case studies</td>
<td>Example case studies</td>
<td>Example case studies</td>
</tr>
<tr>
<td>Workforce planning: model job choice behavior to devise policy interventions to attract and retain workers to rural/ regional areas, and STEM qualified workers.</td>
<td>Utilities: energy and water appliance-based customer demand modelling to support capital planning, strategy, regulatory submissions, and demand management (e.g. restrictions, time-of-use tariffs, behavior-change programs).</td>
<td>Automotive and energy: predict the future uptake and usage of electric vehicles nationally.</td>
</tr>
<tr>
<td>Community emergency response: predict community response to bushfires to support evacuation planning and policy.</td>
<td>Transport: predict changes in transport behavior and usage for electric vehicles, driverless vehicles and ride-sharing.</td>
<td>Energy: Predict uptake of disruptive products including solar PV and battery storage technology, and identify commercial models to drive uptake.</td>
</tr>
<tr>
<td>Rebate incentives: assess the impact, effectiveness and ROI of behavior change incentives on product uptake.</td>
<td>Consumer products: predict and help uptake and sales of consumer products by improving price.</td>
<td>Health: quantify the impact of the uptake of wearables (e.g. Fit Bits) on reducing incidence and costs associated with Diabetes.</td>
</tr>
<tr>
<td>Example case studies</td>
<td>Understand the customer...</td>
<td>A ssess the market...</td>
</tr>
<tr>
<td>... with limited or no customer data</td>
<td>... and design campaigns to improve ROI</td>
<td>... and understand short-long term impacts</td>
</tr>
<tr>
<td>Predict the behavior of mass-consumers in existing or new markets where customer data is not available – ideal for new product launches or retailers with partial market penetration. Test scenarios to influence consumer behavior to increase demand, sales and retention.</td>
<td>Forecast market size, demand, sales, revenue and profit by region, customer segment and time. Test the impact of changing price, marketing effort or competition.</td>
<td>Predict short, medium or long-term customer behavior to identify strategic risks to products, assets, infrastructure or supplies. Test scenarios to identify strategies to influence customer behavior to help mitigate risks.</td>
</tr>
<tr>
<td>Example case studies</td>
<td>Example case studies</td>
<td>Example case studies</td>
</tr>
<tr>
<td>Utilities: predict customer demand and behavior of residential customers across a state, to identify new market opportunities and capital risks, and build business cases for regulators.</td>
<td>Consumer products: develop commercial and leasing models to drive uptake of new consumer products across a diverse customer base.</td>
<td>Utilities: forecasting and modelling long-term or peak demand to support capital planning and identify network quality risks.</td>
</tr>
<tr>
<td>Automotive: model the national automotive market to predict the sales of various types of new and used vehicles.</td>
<td>Market analysis: predict the impact of product pricing and marketing/promotion strategies on different retail consumers.</td>
<td>Consumer products: assess the impact of different product incentives and campaign to improve ROI and help mitigate risk of budget blowouts.</td>
</tr>
</tbody>
</table>
Key challenges in implementing analytics

While today’s organizations all understand the importance of data and the value of information that mobile phones, management systems, and the Internet of Things can help them unlock, the majority of those firms do not have the capability to realize the compiled data’s true potential. We have observed that not only do most companies collect a multitude of data passively (as a by-product of their day-to-day operations), they do not have tangible plans to use that unexplored goldmine.

We summarize three key challenges faced by companies in China after extensive interviews and observations:

- **Insufficient investment in robust data management infrastructure** means collected data are unreliable, inconsistent and therefore unusable.
- **Insufficient Talent**
- **Insufficient Advanced Analytics Capabilities**

Data Management & Integration

In an extremely competitive Chinese market, everyone wants a bigger piece of the growing pie. But how do you best position your company to do so?

While many believe investing in internal data analytics capabilities means giving up investment in other areas, it is not the case. More often than not, data analytics development complements existing capabilities and brings out further synergies.

Without sufficient investments in data analytics development, firms will not have the right data management systems, processes, and governance frameworks. This in turn leads to the inability to collect and analyze data from across the enterprise and deliver insight where it is most needed.

This results in a siloed approach to big data deployment that limits a company’s ability to find, measure, create and protect value across diverse operational areas.
Lack of culture and insufficient talent

Our research shows that an insufficient data analytics mindset creates significant challenges for companies when building the capability in China and then competing with peers in other countries. While executives have been able to address analytics opportunities at the strategic level, many of the people and cultural aspects still present a challenge. Furthermore, compounding the problem is the mismatch between the supply of capable data scientists who are able to draw accurate insights and the demand for their services.

To overcome these challenges and optimize the potential of value creation, organizations must first introduce an analytical mindset at all levels of the organization to embed big data into decision-making processes.

Second, organizations must acquire the skills needed to deliver every stage of a big data project, from building an appropriate case for change, to effective reporting that aids high-level decision-making. Third, analytics delivery resources need to be close to the business units and other functions where analytics are applied.

“Specialist skills are needed to develop a compelling business case for big data projects and to plan and execute them cost effectively. However, insufficient skills is a major barrier for big data projects.”

EY Market Research
As business leaders start to realize that traditional descriptive analytics can no longer allow them to detect the market trends or customer preference and therefore to compete in the global environment, it is not surprising that predictive analytics is not yet in many practices in China given that the technologies that help firms make sense of their data have only recently become available.

This calls a need for investment of the technologies and capabilities building that enable people to conduct predictive and prescriptive analytics.

Very few companies are fully exploiting the potential of data analytics with advanced analytics techniques, models or statistical methods. And these new aspirations also often collide with the struggle to contain and cut IT spending.

The key questions start with the ability to quantify the value of available information within the context of an organization, a department or business function. At the outset, issues range from working out how to derive benefits from information and in which context such data might be relevant.

Therefore, companies need to prioritize their investment activities and also need to ask the right questions to unleash value in existing data to develop insights to improve business outcomes.
"Fail fast" as a startup on innovation

Huge demand for digital innovation

The success of many digital startups originates from innovation, game-changing business models or customer experience that significantly disrupts the traditional business models. The “fail fast” culture of startups and their speed of innovation give them sustainable competitive advantages against the traditional businesses that struggle to adopt a similar pace of innovation. Many traditional businesses are learning from, partnering with or investing in startups to speed up their pace of innovation.

Experimentation of new business models, beyond just customer experience

More organizations are now adopting the “fail fast” experimental delivery approach for customer experience using techniques like A/B testing on their websites, mobile applications or social media. This change has helped organizations to reduce the time-to-market of enhancement on customer experience.

EY takes this one step further by helping organizations run experimentation of new business models, beyond just customer experience. This has supported organizations to truly speed-up their innovation leveraging EY’s vast innovation eco-system.

Experiments are NOT pilots

<table>
<thead>
<tr>
<th>Approach</th>
<th>Pilots</th>
<th>Experiments</th>
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<tbody>
<tr>
<td>• Small, initiative-focused team is removed from existing organization</td>
<td>• Small, initiative-focused teams make more out of existing data, faster</td>
<td></td>
</tr>
<tr>
<td>• Uses pre-defined approach</td>
<td>• Explicit learning objectives</td>
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</table>

<table>
<thead>
<tr>
<th>Duration</th>
<th>Pilots</th>
<th>Experiments</th>
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</thead>
<tbody>
<tr>
<td>• Dependent on projects selected</td>
<td>• Weeks or a few months for each initiative/cycle</td>
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</table>

<table>
<thead>
<tr>
<th>Results</th>
<th>Pilots</th>
<th>Experiments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Significant business results limited by “special” nature and project</td>
<td>• Significant business results fast</td>
<td></td>
</tr>
<tr>
<td>• Limited change of existing work methods</td>
<td>• Captures significant learning on organization abilities, barriers and implementation requirements</td>
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<table>
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<tr>
<th>Cost/Benefit</th>
<th>Pilots</th>
<th>Experiments</th>
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<tbody>
<tr>
<td>• Typically low and uncertain pay-off</td>
<td>• Low rapid pay-off</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Readily quantifiable</td>
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</table>
**EY supports entrepreneurship and startups**

At EY, we help our clients with their most challenging business problems and we believe in solving the business problems of tomorrow. In today’s digital world, many of these solutions rely on innovative technologies, with much of this innovation coming from technology startups. This is why the EY Startup Challenge was created. The mission of the EY Startup Challenge is to bring together our clients with these high-growth startups to explore solutions to tomorrow’s pressing business problems.

The EY Startup Challenge™ has successfully accelerated emerging technologies around three key business opportunities:

- **Right to be forgotten**
  How can companies use technology to change the way they manage data, adhering to local regulations and giving consumers the “right to be forgotten”?

- **Intelligent customer experience**
  How can companies use technology to regain control and supply the consumer with the experience they want?

- **Supply chain visibility**
  How can companies use technology to improve visibility, traceability and control along their supply chains to decrease exposure to risks?

The EY Startup Challenge™ accelerated emerging technologies towards clear business outcomes.
Conclusion

In the past few years, there has been an explosion in the volume of digital data created by consumers as they go about their daily lives, from making comments on social media to shopping and banking online. There are clear business benefits to be gained from capturing this data and using it to gain insights into customer behavior – insights that can be used to make a company’s offerings more relevant to its customers.

EY believes businesses that want to reap these benefits need to have a clear understanding of what data is needed to support their business model, how they can capture it and what they should do with it. They need to be aware of the four key steps required to utilize digital data sources, and of the challenges and considerations that each step entails.

Predictive analytics may not be commonly available to businesses because of different constraints in organizational resources and capabilities. However, predictive analytics can have important positive impact to a business by facilitating decision making. The businesses that have a clear vision of how these actionable insights can transform their business while having the capability to “fail fast” as a startup in innovations, will benefit most in a digital world.

Contact us

Steve Lo
Managing Partner
+86 10 5815 2837
steve.lo@cn.ey.com

Edward Chang
Partner
+86 21 2228 5975
edward.chang@cn.ey.com

Benson Ng
Partner
+852 2849 9365
benson-hk.ng@hk.ey.com

Josh Chau
Senior Manager, Data Analytics Lead
+852 2846 9625
josh.chau@hk.ey.com
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