The Road Ahead: GenAI Future Direction and Innovation Shaping Mobility

April 30, 2024
Brief technical overview | Generative AI is a class of algorithms capable of generating new content

**Data collection**
Multimodal training data is assembled and aligned

**Model training**
Model learns complex patterns within the data

**Generation**
Based on a user prompt, model generates a new element

**Outputs**
- Text
- Image
- Video
- Audio
- Code
GenAI will complement, not replace, traditional AI capabilities and make them more accessible.

**Traditional AI strengths**
- Sense patterns & trends
- Target government investments
- Service segmentation & design
- Target ‘risk treatment’
- Optimize public assets & operations
- Anomaly/ Fraud detections

**GenAI strengths**
- Simplify day to day work (docs, meetings…)
- Review & draft contracts
- Customer engagement
- Messaging content generation
- Code generation
- Social media monitoring
Large pre-trained models usher in a new paradigm for building AI applications

Power (Model's Parameters)

1970 2000 2010 Present

1K 10K 10M 175B

Machine learning Deep learning Large pre-trained (foundation) models

10M

What made LLMs possible?

01 Breakthroughs in algorithm development: transformer architecture, self-supervised and transfer learning

02 Availability of large volumes of various types of data, including text and images for model training

03 Significant increase in available computational power and reduced cost
Gen AI is having significant impact across industries

<table>
<thead>
<tr>
<th>Automotive</th>
<th>Media</th>
<th>Biopharma</th>
</tr>
</thead>
<tbody>
<tr>
<td>CarMax replaces time-consuming manual summarization process(^1), with</td>
<td>Mongoose leverages Jasper to generate finished content and propose AI-generated edits, resulting in</td>
<td>Generative AI Identified a novel drug candidate for the treatment of IPF in</td>
</tr>
<tr>
<td><strong>11 years</strong> of content generated in days (with 80% editorial review approval rate)</td>
<td><strong>166%</strong> increase in organic traffic(^2)</td>
<td><strong>21 days</strong> (vs. years with traditional methods(^3))</td>
</tr>
<tr>
<td>Software</td>
<td>Insurance</td>
<td>Financial Institutions</td>
</tr>
<tr>
<td>IT organization implemented Github Copilot with strict governance and quality gates(^4)</td>
<td>Insurers generated new app names &amp; descriptions to drive downloads, resulting in</td>
<td>Synthetic GAN-enhance training set for fraud detection achieved a</td>
</tr>
<tr>
<td>~50% overall productivity increase (with 40-50% commits increases)</td>
<td>~66% increase in app downloads(^5)</td>
<td>~98% accuracy rate (vs. 97% with unprocessed original data(^6))</td>
</tr>
</tbody>
</table>

---

Spotlight | Mobility Solutions – Scalability & Problem Solving

European city focused on traffic simulation and optimization in congested areas.

Province in Canada, traffic pattern comprehension and transit project impact prediction.

State in Asia is optimizing light timings, overall reducing congestion, improving throughput and varying priorities by time of day.
Multiple designs generated based on provided parameters, such as anchor point locations & shape, strength requirements, and unrestricted movement of pieces.

The result:
- 15% lighter
- 15% stronger
- 86 fewer parts

Source: AutoDesk
The services and materials provided by Boston Consulting Group (BCG) are subject to BCG’s Standard Terms (a copy of which is available upon request) or such other agreement as may have been previously executed by BCG. BCG does not provide legal, accounting, or tax advice. The Client is responsible for obtaining independent advice concerning these matters. This advice may affect the guidance given by BCG. Further, BCG has made no undertaking to update these materials after the date hereof, notwithstanding that such information may become outdated or inaccurate.

The materials contained in this presentation are designed for the sole use by the board of directors or senior management of the Client and solely for the limited purposes described in the presentation. The materials shall not be copied or given to any person or entity other than the Client ("Third Party") without the prior written consent of BCG. These materials serve only as the focus for discussion; they are incomplete without the accompanying oral commentary and may not be relied on as a stand-alone document. Further, Third Parties may not, and it is unreasonable for any Third Party to, rely on these materials for any purpose whatsoever. To the fullest extent permitted by law (and except to the extent otherwise agreed in a signed writing by BCG), BCG shall have no liability whatsoever to any Third Party, and any Third Party hereby waives any rights and claims it may have at any time against BCG with regard to the services, this presentation, or other materials, including the accuracy or completeness thereof. Receipt and review of this document shall be deemed agreement with and consideration for the foregoing.

BCG does not provide fairness opinions or valuations of market transactions, and these materials should not be relied on or construed as such. Further, the financial evaluations, projected market and financial information, and conclusions contained in these materials are based upon standard valuation methodologies, are not definitive forecasts, and are not guaranteed by BCG. BCG has used public and/or confidential data and assumptions provided to BCG by the Client. BCG has not independently verified the data and assumptions used in these analyses. Changes in the underlying data or operating assumptions will clearly impact the analyses and conclusions.