Title: What Mathematics Can Do for You
Subtitle: Essays and Tips from Japanese Industry Leaders

Preface

Japan is a tiny country that occupies only 0.25% of the world's total land area. However, this small country is the world's third largest in economy: Japanese GDP is roughly equivalent to the sum of any two major countries in Europe as of 2012.

This book is a first attempt to ask business leaders of top Japanese companies for their thoughts on mathematics. The topics range from mathematical problems in specific areas (e.g., exploration of natural resources, communication networks, finance, etc.) to mathematics literacy that would help a leader who has to weigh many different issues, and even to mathematical thinking in connection to quality control and a long-term strategy. We express our deep gratitude to these business leaders who shared their thoughts on mathematics with us in spite of their extremely busy schedules. The reader may notice that every article – sometimes even the choice of vocabulary – reflects the authors' ways of life and thinking.

This book is an enlarged English edition of the Japanese version, *What Mathematics Can Do for You – Essays and Tips from Japanese Industry Leaders*. For this edition we have invited three mathematicians who have been trying to expand and strengthen the interaction between mathematics and industry.

Mathematics asks nothing in return. The role of mathematics is often invisible when it is applied effectively and smoothly in science and technology, and mathematical strategy is usually hidden when it is used properly and successfully. It is a pleasant surprise to us that the leaders in global companies appreciate this invisible feature of mathematics. The editors hope this book will give the reader an opportunity to notice something hidden but important.

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