

# Preface

Uncertainty is an intrinsic and pervasive property that fittingly characterizes the very nature of the world we live in. Uncertainty makes the world dynamic, vibrant, and complex. Uncertainty exists everywhere and it poses tremendous challenges to human decision makers. Uncertainty causes disruptions to an operational plan and it makes the smooth execution of a perfect plan difficult and, perhaps, even to fall apart. Uncertainty is hardly avoidable or preventable. Thus, we must face it. We can hedge against it, design strategies to cope with it, reduce its negative consequences, and even use it to our advantage. Disruption management is a methodology that copes with disruptions in real time.

During the past decade, we have seen a flourish of research and applications in the area of disruption management. The initial value was achieved in the airline industry. The successful implementation and usage of a decision support system for disruption management saved several major airlines in the United States tens of millions of dollars annually together with improved on-time performance and better customer service. Recently more research has been conducted on disruption management in the area of production management, inventory control, supply chain coordination, machine scheduling, telecommunication routing, and project management. These studies have demonstrated that

- 1) Disruption management has a broad range of applications;
- 2) Disruption management problems can be effectively modeled and solved; and
- 3) Disruption management can create remarkable values and impact.

The targeted audiences of our book are researchers in the area of operations research/management and practitioners in charge of operations control. We intend to write every chapter of the book in a self-contained manner so that readers who are interested in specific areas need only read the relevant chapters. We illustrate various concepts and models via simple examples. For each chapter, we include a brief literature review section summarizing the literature relevant to the discussed content. We also list all the references associated with the chapter at the end of each chapter.

The field of disruption management is young, growing, and promising. We hope to use the book to open the door for exploration, to stimulate more interest in research and applications, and to promote the endeavor of advancement of this field.

As disruptions become the norm rather than the exception, the challenges as well as the opportunities are ahead of us. God does play with dice. Let us face it.

*Gang Yu*  
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