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IPFWCONNECT

REVENUE
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INFORMATION

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RESOURCES

OPPORTUNITY
COST

S U P P L Y
C H A I N

SUSTAINABILITY

SUSTAINABLE BUSINESS PRACTICES, SOME TIPS

WHY LUNCH WILL NEVER BE FREE:
THE ECONOMIC WAY OF THINKING

REVENUE MANAGEMENT, CAPACITY, AND
DEMAND SYNCHRONIZATION IN MAKE-TO-ORDER
MANUFACTURING

ONE PLUS ONE IS GREATER THAN TWO?

INDIANA UNIVERSITY
PURDUE UNIVERSITY
FORT WAYNE



A LETTER FROM THE VICE CHANCELLOR

SHARING KNOWLEDGE, EXPERIENCE, AND EXPERTISE

Hello! Welcome to the third issue of *IPFW Connect*—an issue that highlights business and economics through work by faculty from IPFW’s Richard T. Doermer School of Business (DSB). We—Vice Chancellor Carl Drummond; DSB Dean Melissa Gruys; and IPFW’s Institute of Research, Scholarship, and Creative Endeavors (IRSC)—thank our faculty authors and regional leaders for their time, expertise, and continued opportunities to connect.

We are proud to see the research endeavors of the talented DSB faculty featured. The articles highlight the strong experience, expertise, and knowledge of our faculty and provide a forum for our stakeholders to discover how their research efforts impact and improve business functions in the local business community and beyond:

- ▼ John Kessler’s interesting article on economics, which addresses whether a free lunch is actually free (is it?), demonstrates how economics applies to everything in life, even beyond money, interest rates, and the like
- ▼ Haowen Luo discusses his finance research on joint ventures and the impact of corporate ownership and governance structure on joint-venture performance
- ▼ The implementation of sustainable business practices is the focus of an article by Otto Chang and Michael Slaubaugh
- ▼ Cigdem Gurgur’s feature highlights her work to apply revenue management and data modeling and analyses to complex business situations for an area business organization

We hope you enjoy reading this issue. Thank you for your continued support of IPFW and for helping to advance its goals of fostering a strong business community and furthering the intellectual growth of northeast Indiana.



Melissa L. Gruys, Ph.D., SPHR, SHRM-SCP
Dean, Richard T. Doermer School of Business
Professor of Management



Carl N. Drummond, Ph.D.
Vice Chancellor for Academic Affairs
and Enrollment Management
Professor of Geology

TABLE OF CONTENTS

PAGE **4** **SUSTAINABLE BUSINESS PRACTICES,
SOME TIPS**

Otto H. Chang and Michael D. Slaubaugh
Accounting

PAGE **8** **WHY LUNCH WILL NEVER BE FREE:
THE ECONOMIC WAY OF THINKING**

John Kessler
Economics

PAGE **10** **REVENUE MANAGEMENT, CAPACITY,
AND DEMAND SYNCHRONIZATION IN
MAKE-TO-ORDER MANUFACTURING**

Cigdem Z. Gurgur
Management and Marketing, Business Analytics

PAGE **14** **HELMKE LIBRARY:
A COMMUNITY SERVICE**

PAGE **18** **2016 ARTS & SCIENCES AWARD
WINNERS AND GRANT RECIPIENTS**

PAGE **20** **ONE PLUS ONE IS GREATER THAN TWO?**
Haowen Luo
Finance

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S U S T A I N A B L E BUSINESS PRACTICES, SOME TIPS

OTTO H. CHANG, PROFESSOR OF ACCOUNTING

MICHAEL D. SLAUBAUGH, ASSOCIATE PROFESSOR OF ACCOUNTING

Ever wondered what other businesses are doing to make our planet a better place to live? This question was the motivation for a survey in which we asked U.S. business professionals to identify the most popular sustainability practices. Sustainability projects can be costly, but our survey results identify which currently used practices business entities view as the most viable from a cost-benefit perspective.

THE IMPORTANCE OF SUSTAINABILITY

Sustaining the Earth's environment is crucial because the time needed to reverse human environmental harm is waning. Sustainability is the focus of public forums and the main story in news media around the world. As major contributors to global human activity, business and industry play an important role in achieving necessary sustainability goals. Being environmentally friendly is not just trendy—it is key to many businesses' long-term viability and profitability. Already many consulting firms specialize in helping businesses implement sustainable practices, and organizations such as the U.S. Small Business Administration provide extensive guidelines to promote sustainable business practices.

To develop sustainable business practices some questions need answers: What sustainable practices are currently in use and by whom? Do businesses anticipate a shift in the need for these practices in the future? What recommendations do surveyed businesses have for implementing sustainable practices? How can regulatory agencies provide more

incentives to induce entities to adopt sustainable practices, and in what areas? Answers are needed to effectively implement sustainable business practices; unfortunately, current research provides few. This was the catalyst for conducting our survey.

INSIGHTS FROM BUSINESS PROFESSIONALS

For our research, we turned to the best sources available—business professionals—particularly those involved in implementing sustainable business strategies. We designed a questionnaire to gather their assessments of the current status and future development of sustainable business practices in their own companies.

We received responses from 172 U.S.-based business professionals. And despite the recent media attention given to corporate social responsibility, only 34% of survey respondents' firms currently have a comprehensive sustainability management plan. However, that percentage is expected to increase to 54% over the next five years, a modest increase given the importance of protecting our planet.

Our survey found that, in descending order, the six most popular sustainability practices at respondents' firms are: (1) recycling material, (2) reducing waste, (3) using less paper, (4) employing energy efficient technologies in manufacturing processes, (5) conserving water, and (6) adopting energy-efficient building designs. Respondents also indicated that,

over the next five years, their companies are likely to increase expenditures or investment in these six sustainable practices rather than adding new ones. Such choices indicate that these six practices are the most feasible and beneficial for businesses to implement.

We also found that larger firms are more likely to be engaged in sustainable practices because implementation costs are more of a burden on smaller firms. However, regardless of a firm's size or industrial classification, the six sustainability practices are ranked as listed previously.

IMPLICATIONS FOR THE FUTURE

Our findings have several managerial and policy implications for firms as well as for government regulatory agencies. For companies developing new sustainability strategies, the practices ranked highest in our survey are the most feasible

to implement. Thus, the benefits of sustainability are more attainable and the cost of implementation is negligible and/or more manageable. For policy makers who wish to encourage sustainable practices across a wider spectrum, perhaps more incentives or subsidies could induce businesses to implement more costly sustainable practices. In addition, because we found smaller firms are less likely to implement sustainability strategies, governmental incentives or subsidies could also help smaller firms meet the proportionally larger costs needed to implement sustainable practices.

Finally, for both companies and policy makers, the survey results show that association with organizations that promote sustainability plays an important role. Companies that wish to implement sustainable practices are encouraged to join sustainability organizations for support and assistance. Government regulatory bodies should also encourage or provide incentives for the expansion of sustainability organizations to help business entities protect our planet for future generations.



Otto Chang is a professor of accounting in the Doermer School of Business at Indiana University–Purdue University Fort Wayne. He earned a Ph.D. in accountancy from the University of Illinois. His areas of research include tax compliance and policy, management and international accounting, business ethics and philosophy, corporate governance, and social responsibility.



Mike Slaubaugh is an associate professor of accounting in the Doermer School of Business at Indiana University–Purdue University Fort Wayne. He earned a Ph.D. in accounting from Indiana University–Bloomington. His areas of research include financial accounting, managerial accounting, issues in accounting education, and corporate social responsibility.

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WHY LUNCH WILL NEVER BE FREE: **THE ECONOMIC WAY OF THINKING**

JOHN KESSLER, CONTINUING LECTURER IN ECONOMICS

Most people think of economics as being only about money, interest rates, and unemployment numbers. But economics is about much more: it is about making the best decisions possible with limited resources. As citizens of an increasingly complex global economy, we are asked to make important economic decisions that affect our individual success and that of our community, state, and nation. Thus, understanding the

economic way of thinking has implications for public policy, personal finance, and everyday life.

To understand the economic way of thinking, consider the statement, “There is no such thing as a free lunch,” what it actually means, and why it matters.

For example, if I invited you to lunch and said that I was buying, is your lunch free? On the surface it looks like it is. Most people think that if they do not have to spend money on something, then it is free. Economists, however, realize that there is more to the story.

THE TRUE COST OF THINGS

Just because you did not have to pay for the meal does not make it free. After all, someone had to pay for the meal—in this case, me. Lunch may have had no monetary cost to you, but it did to someone. Even if the restaurant was giving food away, someone had to pay for it—in this case, the owner.

We live in a world of scarce resources; there are not enough resources available to satisfy the desires of everyone. In order for the restaurant to make us lunch, someone must acquire the resources it needs: food, cooks, wait staff, kitchen tools, ovens, and more. The problem, of course, is scarcity. Other restaurants or people who cook at home want those resources. And other businesses are searching for people to work for them. If the restaurant we have lunch at wants those resources, it must be willing to pay a higher price than others to get them. Someone has to pay for the resources at some point or the food never arrives. So, there is no such thing as a free lunch: someone has to pay for it.

Economists even go one step further. We understand that the cost of something is not represented entirely by the price tag. The most important cost to consider is the *opportunity cost*, or what did you have to give up? When you accepted my invitation to lunch, it may not have cost you any money, but it certainly cost you the opportunity to do something else. That next best alternative is the opportunity cost, the true cost of the lunch.

Of course, the phrase “There is no such thing as a free lunch” is not just about lunch. It means there is no choice that you can make that has no cost. It means there is nothing you

can do that costs you nothing. Every dollar you spend has an opportunity cost because you could have spent it on something else. Every decision you make has an opportunity cost because you could have done something else.

This also means that promises of free things from politicians are not free either: even government action has an opportunity cost. Remember, the problem is scarcity; we cannot have all that we want at no cost because there simply are not enough resources to satisfy all of our collective desires.

Unfortunately, there is no such thing as a free lunch. Scarcity is the reality that we live in. There is no need to be upset by it; the goal is to try to get the most out of life in spite of it. Doing so requires thinking through the opportunity costs of our decisions by asking, “Is this the best use of my scarce resources?” The answer will not make our lunch free, but it may help us have a better lunch.



John Kessler is a continuing lecturer of economics and director of the Center for Economic Education at Indiana University–Purdue University Fort Wayne (IPFW). He teaches fundamentals of economics courses for non-business majors at IPFW. As center director, he presents workshops to K–12 teachers to help them integrate economics into their classes. Kessler received the Peter V. Harrington Award for University Centers in 2010 and 2012; is an adjunct scholar for the Indiana Policy Review; and serves as an economics education consultant and mentor teacher for the Foundation for Teaching Economics.

ENTITY
PROCESS
MODEL
STRATEGY
LIMIT
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STATISTICS
BUSINESS
DECISIONS
MATHEMATICS
DATA
FIELD
DEFINITION
USE
ANALYTICS
SCIENCE
BASED
MARKETING
MANAGEMENT
ASPECTS
RESEARCH
PERFORMANCE
REALISTIC
PREDICTING
DISCOVER
COMPUTATION

REVENUE MANAGEMENT, CAPACITY, AND DEMAND SYNCHRONIZATION IN MAKE-TO-ORDER MANUFACTURING: COLLABORATIVE WORK WITH A LEADING MEDICAL DEVICE MANUFACTURER

CIGDEM Z. GURGUR, ASSOCIATE PROFESSOR OF MANAGEMENT AND MARKETING AND
DIRECTOR, CENTER OF EXCELLENCE IN BUSINESS ANALYTICS

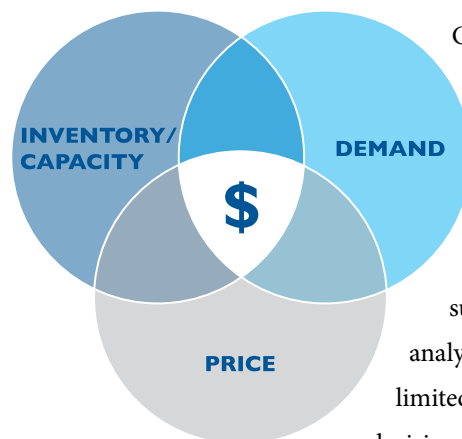
Supply chain management was a success story of the 1990s, with automated supply chain systems driving economy-wide improvements in efficiency and productivity. The success of supply-chain-management systems proved that sophisticated quantitative analysis applied to complex corporate problems could create real improvements.

Revenue management uses analytical techniques to improve corporate decision-making at all levels. Supply-chain management affects revenue management in another way. Most major corporate initiatives in the 1990s focused on improving efficiency and reducing cost. Books like Hammer and Champy's international best-seller *Reengineering the Corporation* spurred the wave of "downsizing and right-sizing" in the 1990s, as did the development of enterprise resource planning and supply-chain-management software. This diverse set of developments shares a focus on improving corporate efficiency: the "cost" side of the income statement.

While opportunities to improve efficiency and reduce costs have hardly disappeared, today most companies' returns on such cost-focused initiatives are falling. Concurrently, responsibility for corporate profitability improvement is shifting to the marketing and sales side of many businesses. For example, the research discussed in this article involved the marketing and sales offices of the organization under

study. When considering marketing- and sales-led improvements, revenue management usually provides the most immediate impact and the highest return.

Supply-chain management has a natural synergy with revenue management. Supply-chain-management systems have generally assumed that demand, while uncertain, is external. Supply-chain-management systems attempt to fill current and anticipated orders at a lower cost while meeting customer service expectations. Revenue management assumes that variable costs are fixed, searching for the set of market factors and customer orders that maximize profitability, subject to these constraints.



Companies use revenue management to concurrently reduce costs and increase annual income. While individually critical, such cost and income analyses examine only a limited subset of the company's decision-making structure. Even when a company achieves both supply chain and revenue management excellence, opportunities

may exist to increase profitability further by stronger links between operations- and customer-facing sides.

Revenue management processes have spread beyond their origins in the airline industry. The management approach is in widespread use by hotel corporations, rental car firms, cruise lines, freight transportation and energy companies, broadcasting houses, and sports management, advertising, and event-ticketing agents. So what industries are left? Currently, studies of how to use revenue management in the manufacturing industry are under way.

At IPFW, a leading medical device manufacturer recently funded a substantial revenue-management project with the Center of Excellence in Business Analytics (CEBA). The company's high volume of customized products necessitates a make-to-order (MTO) manufacturing environment. The CEBA research project studied various proprietary medical markets, examining segmentation within each market. While profit maximization is a traditional revenue management objective, this leading medical device manufacturer plans to examine additional objectives such as customer experience, market needs, and other business rationales. This is a unique

departure from the traditional applications of revenue management in business settings.

Customer orders constitute an essential prerequisite for sales. However if resources are scarce, accepting orders might

cause lost business opportunities downstream. This is particularly true for MTO companies because accepted orders require the availability of resources and scarcity can displace more profitable future orders. Intermittent periods of facility idleness as well as those of high demand are prevalent in MTO environments.

In an MTO environment, bottlenecks are not static and can be numerous. If the demand exceeds manufacturing capacity on a regular basis, MTO companies must find ways to optimize order acceptance. In general, the primary objective is to maximize overall profit by efficiently selecting orders in a sequence that dynamically controls order inflow. Such an environment seems ripe for the application of revenue management techniques, capacity control in particular. The quantitative assessment

techniques of revenue management can improve order acceptance decisions.

The infographic is a vertical grey rectangle containing three sections. Each section features a company logo, a headline, and a large percentage indicating growth. The first section for Marriott shows a red logo and states that revenue management generates \$100 million annually. The second section for National Car Rental shows a green logo and states that the company was pulled from the edge of bankruptcy and grew at 20% annually. The third section for Royal Caribbean International shows a blue and yellow logo and states that the CEO believes revenue management was instrumental in generating 300% growth.

Marriott
Revenue management generates \$100 million annually for Marriott International.

\$100 MILLION

National
National Car Rental used revenue management tactics as an integral part of a turnaround strategy. In 18 months National was pulled from the edge of bankruptcy and transformed into a visible, profitable, revenue-driven firm, growing at a 20% annual rate.

↑20%

Royal Caribbean INTERNATIONAL
Royal Caribbean International's CEO believes revenue management was instrumental in generating 300% growth.

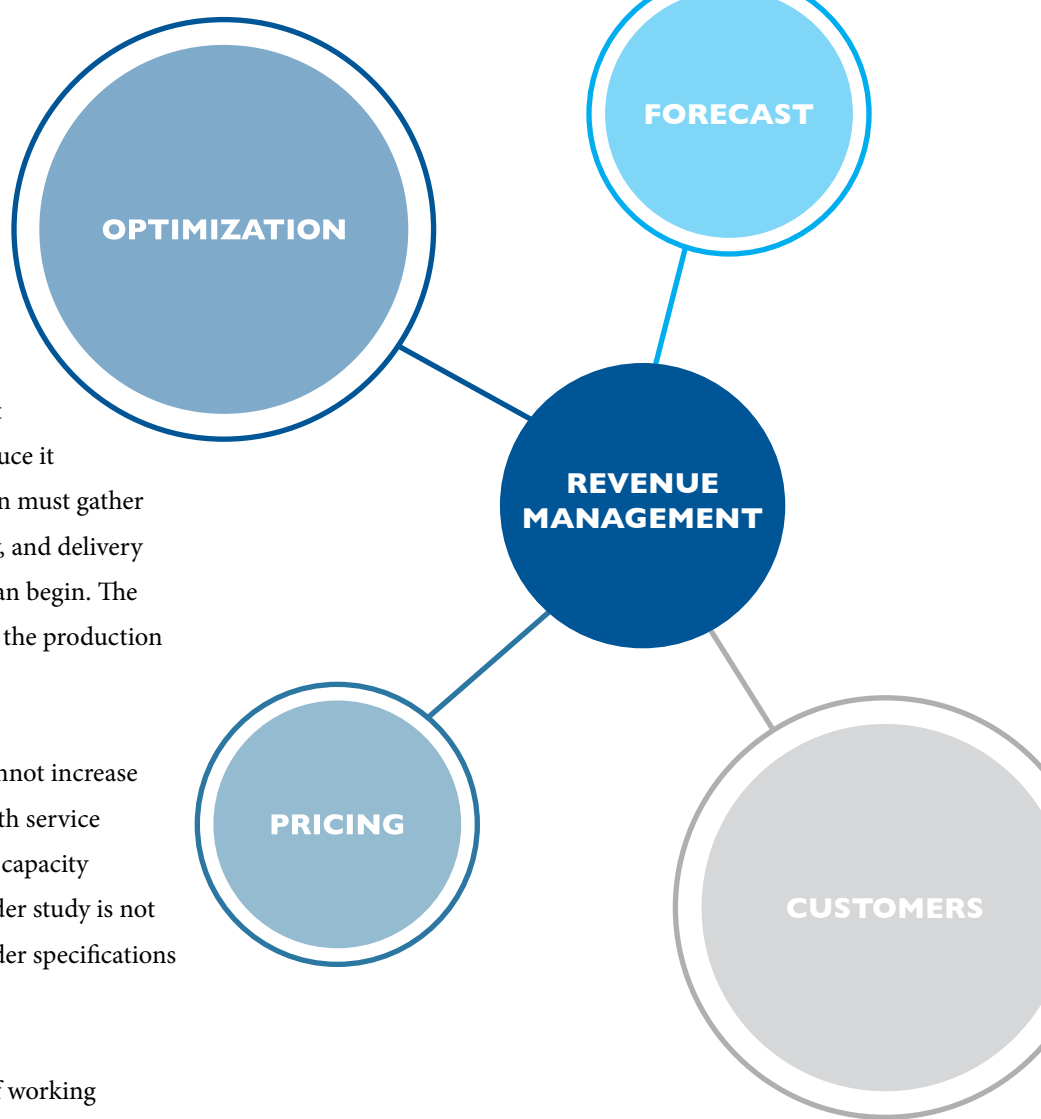
↑300%

For revenue management to be most effective, the production capacity in MTO manufacturing should be considered perishable inventory. In the context of MTO manufacturing, the product itself cannot perish, but the capacity to produce it can. A company employing MTO production must gather the relevant information on quality, quantity, and delivery date from the customer before production can begin. The acquisition of this knowledge is required for the production of goods and services.

Like airplane seats, manufacturing plants cannot increase machine capacity in the short term. Thus both service and manufacturing industries can face fixed capacity constraints. Although the MTO product under study is not perishable, the relevance of the customer order specifications are time-limited—and thus perishable.

As center director, I have had the pleasure of working with numerous executives and engineers to gain a strong understanding of the medical supply chain. According to a top-ranked sales and marketing official, the CEBA's research “brings a deep understanding of how to solve our most urgent problems using cutting-edge data modeling techniques by deploying advanced mathematical concepts to a complex business setting, and we look forward to growing our long-term relationship with Dr. Gurgur.”

In the end, this CEBA project with the medical device manufacturer will meet commercial demand and reduce the effects of supply constraints in an MTO environment. A series of models will form the foundation for the final output—a Decision Support System that will holistically connect the commercial department with the supply chain in an innovative way.



Cigdem Gurgur earned a Ph.D. in Industrial and Systems Engineering and an M.S. in Applied and Mathematical Statistics from Rutgers University and an M.S. in Management Science and Operations Research from Warwick Business School (U.K.). Her research and teaching activities are in business simulation, supply chain and predictive analytics, revenue, and risk management. She has consulted and published work in the interface of operations and finance, in cooperation with a broad range of companies such as Lockheed Martin Space Systems, McLaughlin Gold Mine, and McGraw Hill Financial. Gurgur's recent research has been in the health-care industry with projects for medical device manufacturers and specialty insurance providers.





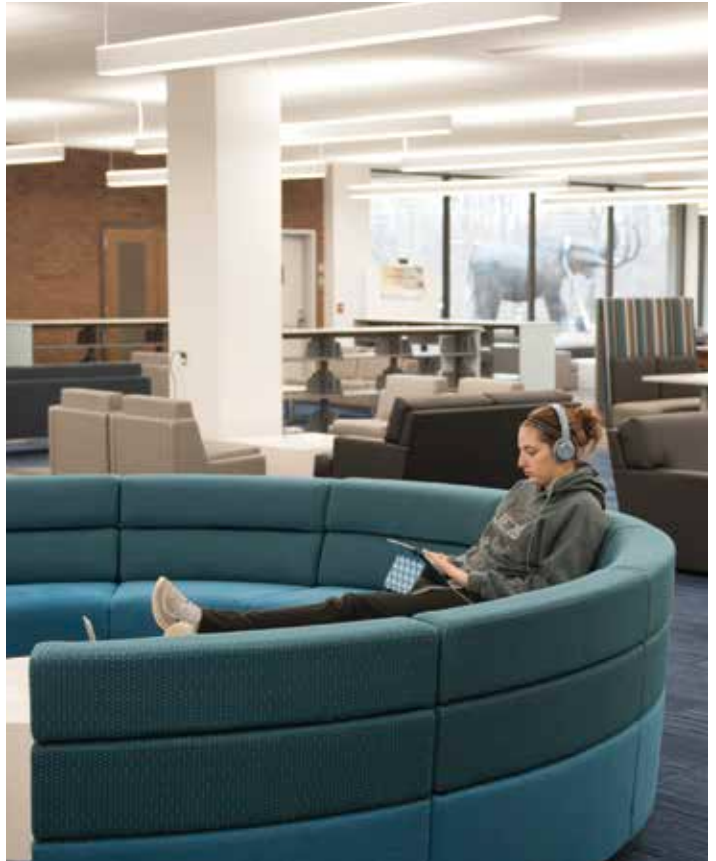
HELMKE LIBRARY: A COMMUNITY SERVICE

The Omnibus Lecture Series. UC² lectures. Centers of Excellence. Youth summer camps. Among the great resources IPFW shares with the community is the Walter E. Helmke Library, one of only a few academic libraries in northeast Indiana open to the public. Yes, the community is welcome to visit the library and to use our physical and digital resources (including 200 databases).

The work of the 21st century library extends far beyond managing print collections. The library is a learning hub,

a collaborative work and study space for students and our community, a curator of information, selecting resources that explore all sides of issues, a conservator of information, and a guide and teacher.

Helmke Library's academic mission is information literacy—the ability to “recognize when information is needed and to locate, evaluate, and use effectively the needed information.” In this era of fake news, junk science, filter bubbles, and “truthiness,” we all need to learn to think critically about

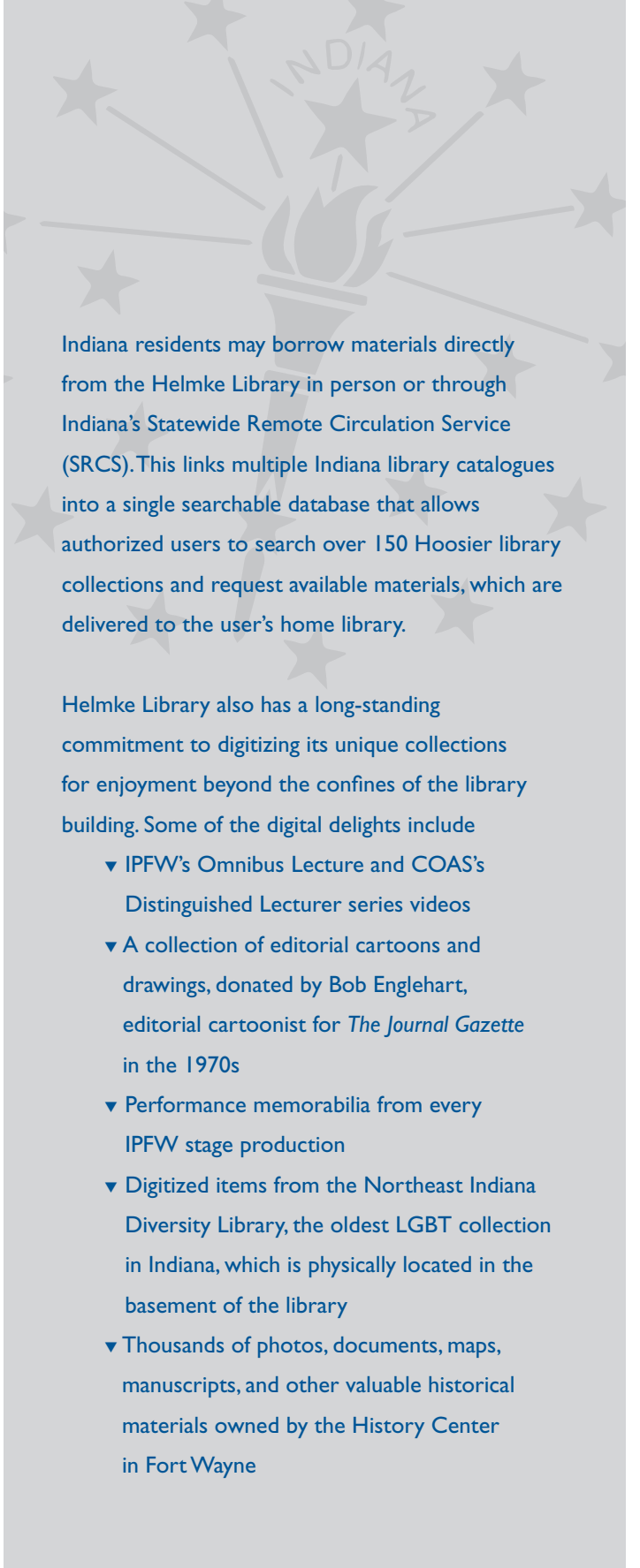


information. Information is ubiquitous; critical thinking and constructing knowledge from that information is still very much in process.

The library re-opened to the public January 9, 2017, after a yearlong renovation project. Funds awarded by the Indiana legislature financed most of the renovation and a library endowment fund covered some special projects. Former Dean Cheryl Truesdell, who retired December 31, 2016, led the library staff in the months-long planning and oversaw the renovation.

The library is an academic partner for every student, faculty, staff, and community member. From physics research to theories of learning to projects in student recruitment, the library can provide resources and instruction. And we welcome community questions and visits.

For more information on the library, its programs, and staff, see our website and Facebook page at library.ipfw.edu and [@IPFWlibrary](https://www.facebook.com/IPFWlibrary)



Indiana residents may borrow materials directly from the Helmke Library in person or through Indiana's Statewide Remote Circulation Service (SRCS). This links multiple Indiana library catalogues into a single searchable database that allows authorized users to search over 150 Hoosier library collections and request available materials, which are delivered to the user's home library.

Helmke Library also has a long-standing commitment to digitizing its unique collections for enjoyment beyond the confines of the library building. Some of the digital delights include

- ▼ IPFW's Omnibus Lecture and COAS's Distinguished Lecturer series videos
- ▼ A collection of editorial cartoons and drawings, donated by Bob Englehart, editorial cartoonist for *The Journal Gazette* in the 1970s
- ▼ Performance memorabilia from every IPFW stage production
- ▼ Digitized items from the Northeast Indiana Diversity Library, the oldest LGBT collection in Indiana, which is physically located in the basement of the library
- ▼ Thousands of photos, documents, maps, manuscripts, and other valuable historical materials owned by the History Center in Fort Wayne

2016 ARTS & SCIENCES AWARD WINNERS AND GRANT RECIPIENTS

Congratulations to all College of Arts and Sciences faculty on their many awards, grants, and other recognitions. The list below details a selection of the external awards and grants that our faculty received in 2016. For a full list of the many external and internal awards, grants, fellowships, and other recognition, please go to bit.ly/COAS-awards

2016 IPFW, Community, and Other Awards

MARCIA DIXSON (communication): Indiana University's P.A. Mack Award for Distinguished Service to Teaching.

JIM FARLOW (geosciences, emeritus): 2016 Distinguished Scholar Award by the Indiana Academy of Science; also named a Fellow of the Academy in recognition of his research and service to education and the Academy.

DAMIAN FLEMING (English): Leepoxy Award for Excellence in Undergraduate Teaching.

MARIETTA WOLCZAKA FRYE (COAS): *Fort Wayne Business Weekly's* 8th annual Forty under 40 Awards honoree.

TEACHING ENGLISH AS A NEW LANGUAGE (TENL) program: awarded "national recognition" accreditation status by the National Council for Accreditation of Teacher Education.

JACOB MILLSPAUGH (physics): Award for Excellence in Distance Learning Emerging Innovation Award from Purdue University.

FRANK PALADINO (biology): Elected and installed as the next president of the International Sea Turtle Society.

CHERYL TRUESDELL (history, alumna): awarded Indiana's Sagamore of the Wabash by Governor Mike Pence in December 2016.

2016 Grants

SANDRA BERRY (math): \$1,000 from Indiana Campus Compact for Mastodon Math Mentors Making Math Meaningful (M6) project.

ADAM COFFMAN (math): \$24,690 from the National Science Foundation for the Midwestern Workshop on Asymptotic Analysis.

KAROL DEHR (English): \$15,000 from National Writing Project for 2016–17 NWP Appleseed Invitational Summer Institute.

PETER DRAGNEV (math): \$16,693 from Vision Menu, Inc. for "Algorithmic Development of a Lease Calculation System."



Damian Fleming



Cheryl Truesdell with her Sagamore of the Wabash award



Frank Paladino demonstrating a drone for students

CHARLENE ELSBY (philosophy): \$5,000 from the 2016 Purdue Library Scholars Grant.

ROBERT GILLESPIE (biology): USDA grant of \$147,886 for “Effects of Nutrient-Pesticide Mixtures on Biota in Agricultural Headwater Streams in the Midwestern United States.”

ART HERBIG (communication): \$15,000 Cable Fund Access Board grant from the City of Fort Wayne to purchase production equipment for communication majors.

MARK JORDAN (biology): \$2,511 from the Academy of Science and \$500 from the Michigan Society of Herpetologists for “Utilizing Environmental DNA (eDNA) for the Detection of the Eastern Massasauga (*Sistrurus catenatus*).”

BRUCE KINGSBURY (biology): \$294,242 grant from the United States Department of Defense.

BRUCE KINGSBURY (biology): \$40,000 grant from the Michigan Department of Military and Environmental Affairs on “Assessing Value of Translocation as a Tool for Managing Eastern Massasauga from High Risk Sites.”

BRUCE KINGSBURY AND MARK JORDAN (biology): \$220,322 grant from the Indiana Department of Natural Resources.

PUNYA NACHAPPA (biology): \$20,000 from Indiana Soybean Alliance for “Effects of Drought, Flooding, and Insect Herbivory on Soybean Plant Growth and Yield.”

PUNYA NACHAPPA (biology): \$10,000 from Ohio State University for “Soybean Entomology in the North Central Region: Management and Outreach for New and Existing Pests.”

FRANK PALADINO (biology): research grant renewed for the 35th year by Earthwatch for about \$80,000, Hess oil grant renewed for \$145,000, and \$5,000 in additional grants from the Fort Wayne Children’s Zoo, World Turtle Trust, The Leatherback Trust, Mary Margaret Stucky Foundation, and others.

LEE M. ROBERTS (ILCS): \$3,000 grant from the United States Holocaust Memorial Museum in Washington, D.C.

SHERRIE STEINER (sociology): \$2,000 from Indiana Campus Compact for Sustainable Partnerships in Support of a Sustainable Community.

RYAN YODER (psychology): \$425,000 over three years, renewal of grant from the National Institutes of Health to study “Otolith-dependent Brain Functions in Mice.”



ONE PLUS ONE IS GREATER THAN TWO?

HAOWEN LUO, ASSISTANT PROFESSOR OF FINANCE

One plus one equals two. Right? That's probably the first math problem we learn to solve, and for most of us, the answer is always, "Yes." However, if you ask any chief executive officer (CEO) the same question, especially those who work for large corporations and are ambitious to build their business empires, don't be surprised if you hear different answers.

The term "corporation" derives from the Latin word for "body"—*corpus*. A corporation can be defined as a group of people whose collected output is more valuable than each individual's work. Thus, an example of one plus one equaling more than two.

Managers such as CEOs and chief financial officers (CFOs), the lord commanders of corporations, understand how one plus one can be greater than two, especially when it comes to expanding operations. One obvious way for managers to expand their business domain is to open new subsidiaries or branch offices.

However, two problems exist. First, expanding markets by opening new branches is costly. New resources are needed to hire and train new staff in new markets, as well as additional resources to maintain these operations and establish new business relationships. For example, consider how much money the U.S. government must spend each year to keep its overseas military bases running and establish new ones.

Moreover, establishing new subsidiaries in unknown markets triggers high, undiversified risk for parent organizations. But just as children are taught to share with others, managers, ironically, are trained to share risk with other agencies. So when new subsidiaries are fully funded by parent companies without any risk sharing, managers feel about as secure as a Chihuahua in a handbag.

JOINT VENTURES: FROM WILL YOU JOIN ME TO 'TIL THE END OF THE PROJECT DO US PART

An alternate approach, and arguably a better one, is to create joint ventures with local partners. Unlike company-owned subsidiaries, joint ventures are “hybrid” structures because their governance shares characteristics of both the hierarchical control within a firm and the lack of definitive control of local market transactions.

On the one hand, these hybrid joint ventures, like independent firms, are governed by a board of directors, and the partners receive control and cash flow rights proportional to their equity investment. On the other hand, joint ventures are comparable to arm's-length market transactions in that

joint venture agreements govern the terms of a collaborative expansion. Such contracts are required by law, like marriage licenses, and are essential in case of any legal disputes. These agreements also have specific expiration dates, which define the joint project's time limits.

Joint ventures are a better approach to business expansion for multiple reasons. First, managers usually don't have to borrow funds or include outside investors to establish joint ventures. In contrast to subsidiaries, which are fully funded by the parent company, joint ventures require few initial investments because local partners possess the necessary resources. For example, parent-company managers could use their joint-venture partner's customer database to market products. Or a parent company could build on a local partner's relationship with government agencies and banks to reduce tax rate implications, fees, and other friction costs. Such opportunity costs and resources are often too expensive or unachievable when managers work on their own.

In addition, joint ventures provide flexibility through their contractually limited life spans and liabilities. How? Risk sharing. Partners are only responsible for what they own. Such risk sharing is attractive to expansion-seeking managers who know little about local markets and are wary of uncertain prospects. Finally, joint venture local partners offer additional benefits, such as mature and stable distribution networks, access to specialized staff, and technology.

WHO'S THE BOSS?

Of course, as is often true, one problem's solution can raise a new question. Despite its many benefits, the hybrid structure of joint ventures also can cause problems. For example, how will the venture's board of directors and contractual provisions coalesce as parts of the governance of a joint venture? Given the collaborative nature of joint ventures, who is in charge and who makes daily operational decisions

is vital. Again like marriages, managing the relationship between joint-venture partners is the key to maintaining a successful long-term relationship.

Recently I was part of a research team studying joint venture agreements. We analyzed the board-of-directors and contracting provisions in a sample of 109 joint venture agreements to identify the allocation of control.

We found that for joint ventures in which boards were controlled by one of the partners, contracts were more likely to include restrictive provisions such as supermajority voting and option clauses to the noncontrolling partners. Minority partners are also more likely to establish blocks of equity in the controlling partner.

Our findings suggest that partners are willing to accept minority board positions if the contract includes provisions that prevent other partners from benefitting opportunistically from the joint venture. Our data and analysis confirms that joint ventures control is multidimensional and determined by joint interactions involving the allocation of voting rights, contractual clauses, and equity investments among joint venture partners.

Another obvious question is why partners do not simplify the governance structure by equally sharing control so that no party can dominate the joint venture. In fact, equal control sharing is actually the most prevalent joint-venture ownership structure, probably to control any opportunism by a controlling partner. So if most use equal control sharing governance structures, do joint ventures operate in the most efficient way, one that maximizes their productivities?

Interestingly, our research found that joint ventures perform better when one partner controls the board. However, these findings are restricted to a subsample of joint ventures that

include options and supermajority clauses in their contracts. One possible explanation for this is that such contractual provisions reduce the chance of opportunism, thereby encouraging collaboration and improved performance. However, partners in equally controlled boards can use veto power to protect their interests, even at the expense of increased productivity.

CONCLUSIONS

Understanding optimal asset ownership is vital to research on the structure of ownership, especially for managers attempting to expand their organizations. An extensive body of theoretical work analyzes the institutional structure of production, but difficulty in obtaining information about the control and performance of competing ownership structures limits the empirical work in this field. However, the hybrid structure of control in joint ventures studied here allows researchers to explore the relationship between control and performance. Or how CEOs can combine one entity with another to create an output that equals more than two.



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