

INTRODUCTION TO THE COURSE PORTFOLIO IN OPERATIONS MANAGEMENT

Mannheim Master in Management (M.Sc.), Fall 2023

Mannheim | August-29, 2023

Area Operations Management



Welcome to operations management

LOGISTICS & SUPPLY CHAIN MANAGEMENT



Prof. Fleischmann

<https://www.bwl.uni-mannheim.de/fleischmann/>

PRODUCTION MANAGEMENT



Prof. Stolletz

<https://www.bwl.uni-mannheim.de/stolletz/>

SERVICE OPERATIONS MANAGEMENT



Prof. Schön

<https://www.bwl.uni-mannheim.de/schoen/>

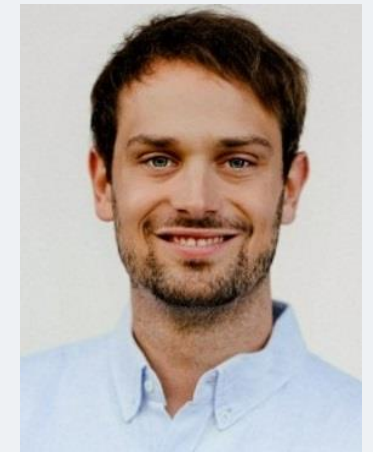
PROCUREMENT



Prof. Bode

<https://www.bwl.uni-mannheim.de/bode/>

OPERATIONS MANAGEMENT (Assistant Prof.)



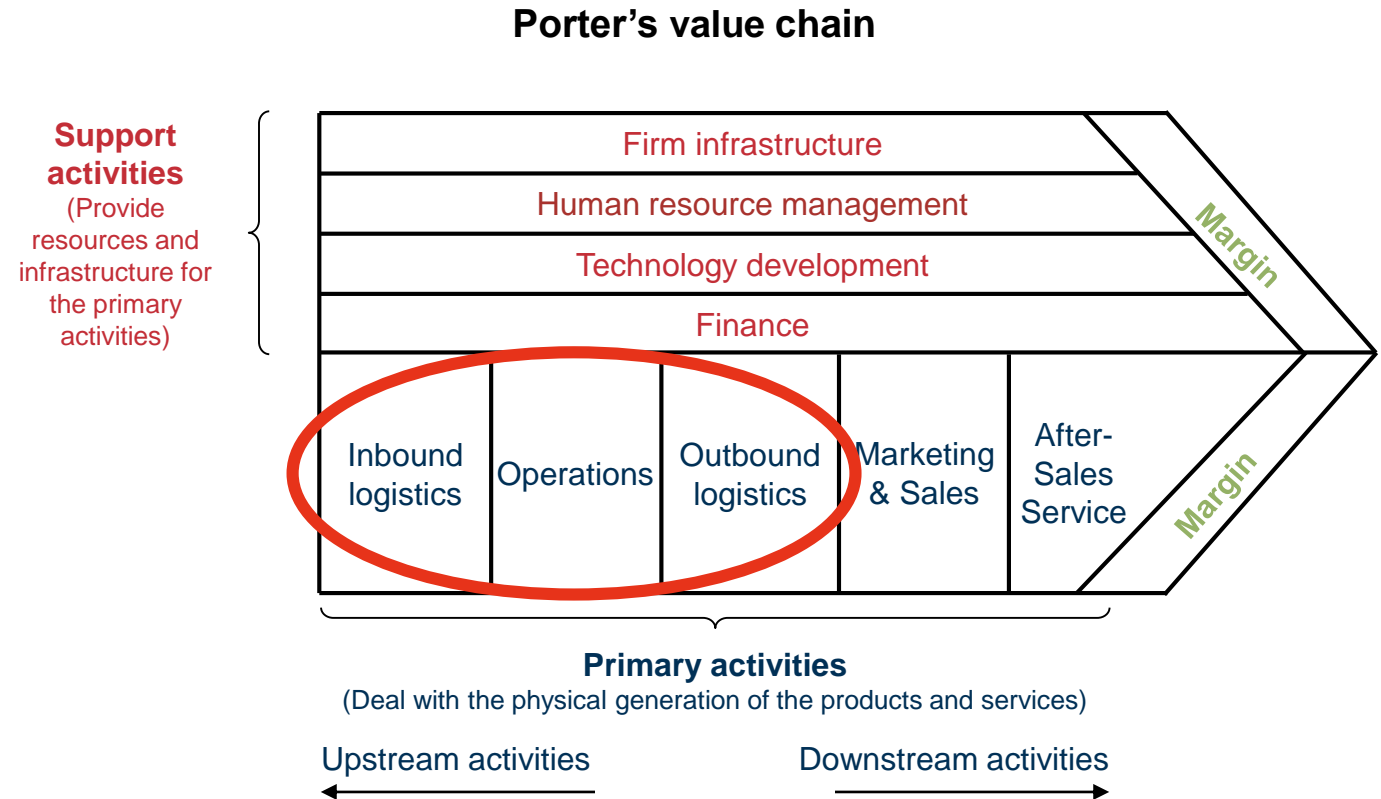
Prof. Glanzer

<https://www.bwl.uni-mannheim.de/glanzer/>

The Role of Operations Management

The heart of doing business: Matching supply and demand!

- Operations Management is responsible for **creating** and **delivering** a company's **products and services**. In other words, Operations Management is about delivering on the promises made to the customer – and about allowing these promises to be made in the first place.
- The discipline is paramount to the **creation of any business value**. Carefully designed and well executed operations provide an important source of competitive advantage.



Operations and supply chain management as a strategic differentiator

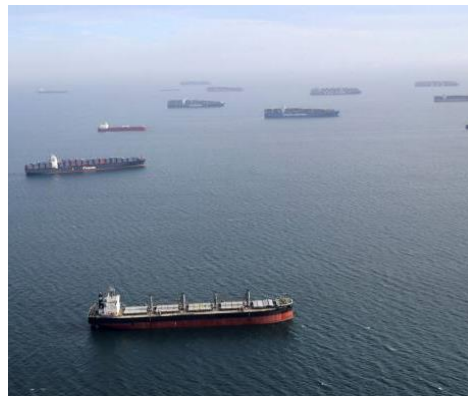
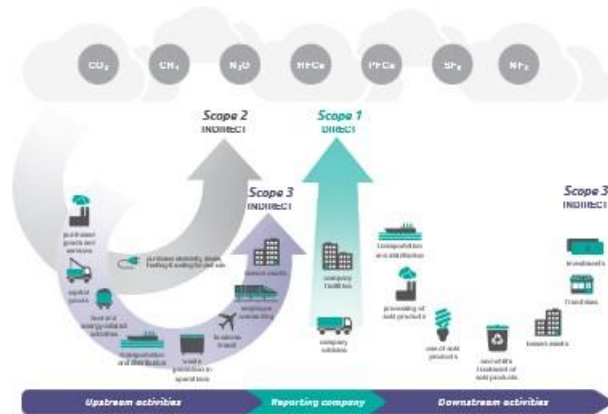
What do these firms have in common?



(just to name a few...)

Some current trends...

Global crises, supply shortages, and the struggle for sustainability have pushed operations management to the centerstage of business

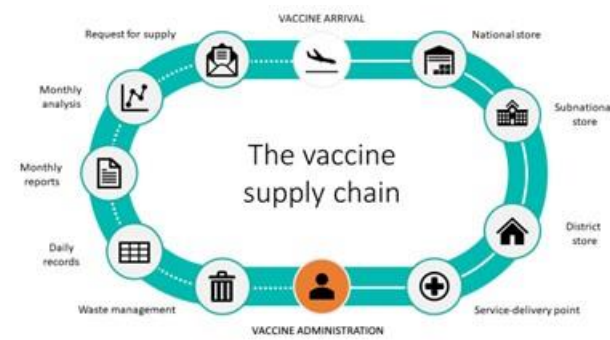


September 3, 2021, 10:00 AM GMT+2

Forget Finance. Supply-Chain Management Is the Pandemic Era's Must-Have MBA Degree

The just-in-time inventory systems embraced by many businesses led to empty shelves and costly bottlenecks. That's put a rare spotlight on supply-chain programs, which are attracting more students.

By Matthew Boyle

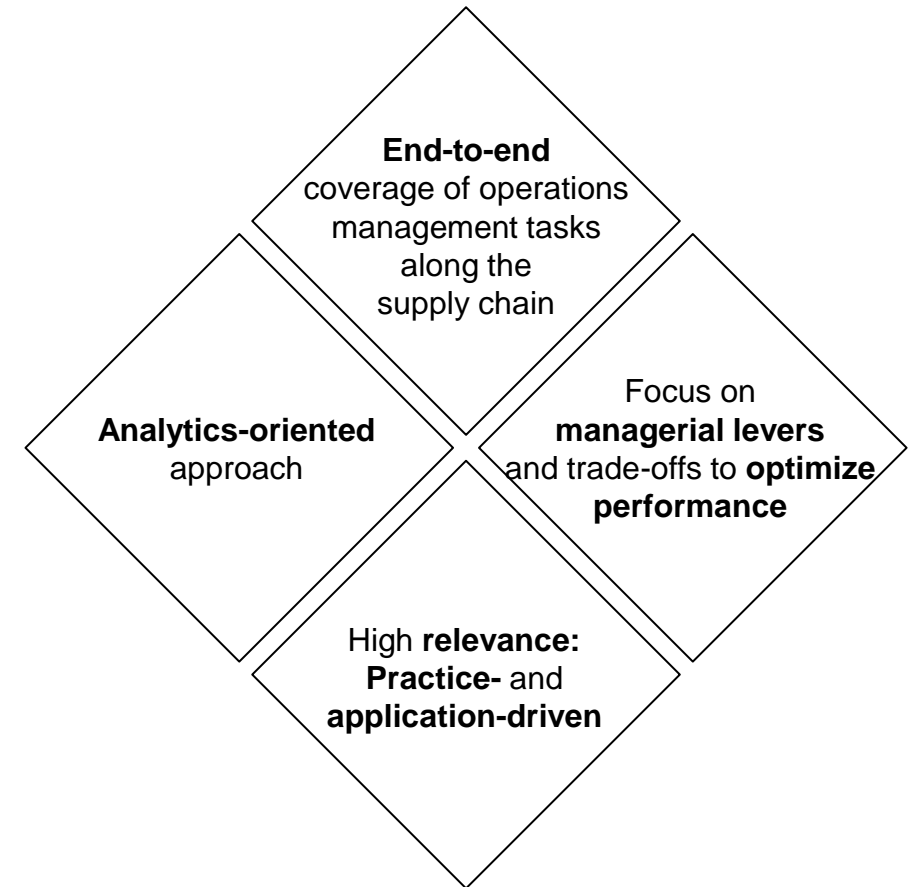


▲ The container ship Ever Given, stuck in the Suez Canal in Egypt on March 27. PHOTOGRAPHER: GÖKTURK ÖRSER/GETTY IMAGES

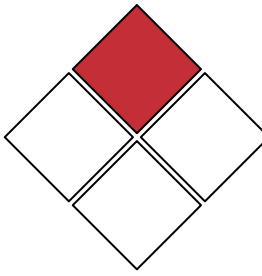
Our Approach

Operations management in Mannheim builds on four pillars

- Our overall goal is to develop and disseminate knowledge that facilitates better decision-making on managerial levers and trade-offs along the entire supply chain, including logistics, production, service operations, and procurement.
- **Four pillars** characterize our approach:
 - **End-to-end** coverage of operations management tasks along the supply chain
 - Focus on **managerial levers** and trade-offs to **optimize performance**
 - **Analytics-oriented** approach
 - High **relevance: Practice- and application-driven**

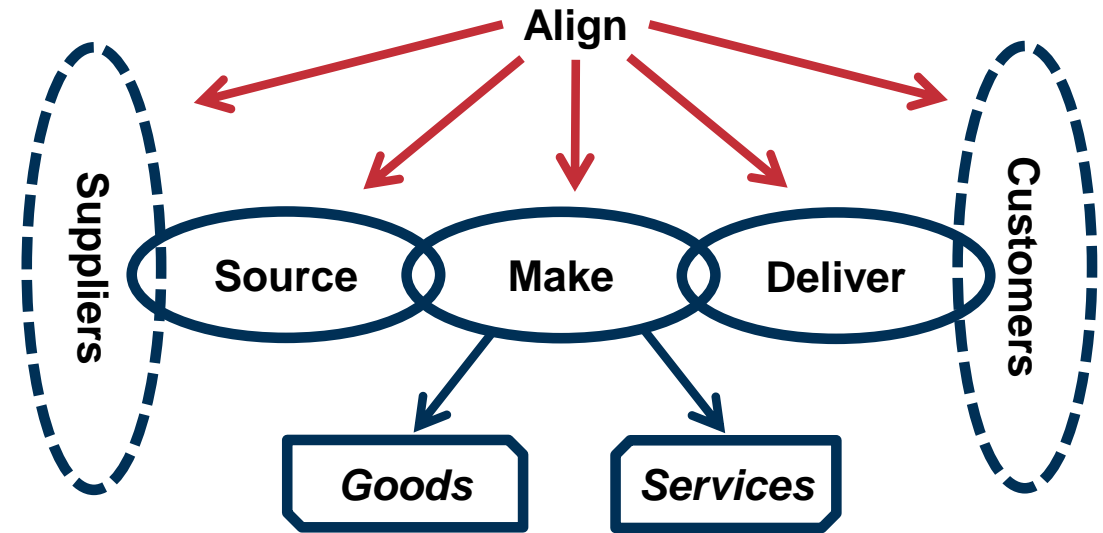


End-to-end coverage of operations management tasks along the supply chain

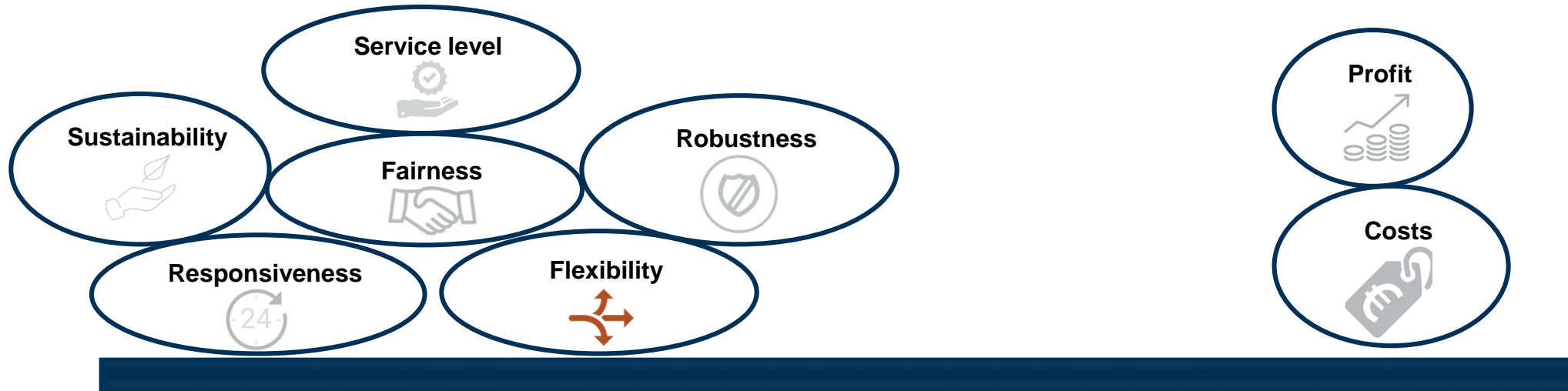
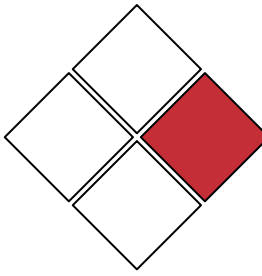


Our collective **areas of expertise** cover the **full scope** of Operations Management, ranging...

- ...from **sourcing** to **distribution**
- ...from discrete **manufacturing** to process industries
- ...from physical **goods** to **services**
- ...from **focal** company to supply chain **coordination**



Focus on managerial levers and trade-offs to optimize performance



Capacity:

Strategic, proactive, networks, ...

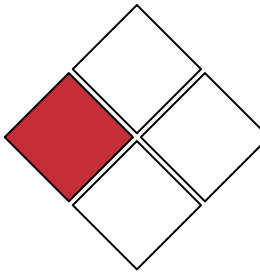
Processes:

Operations concepts, scheduling, lean management, ...

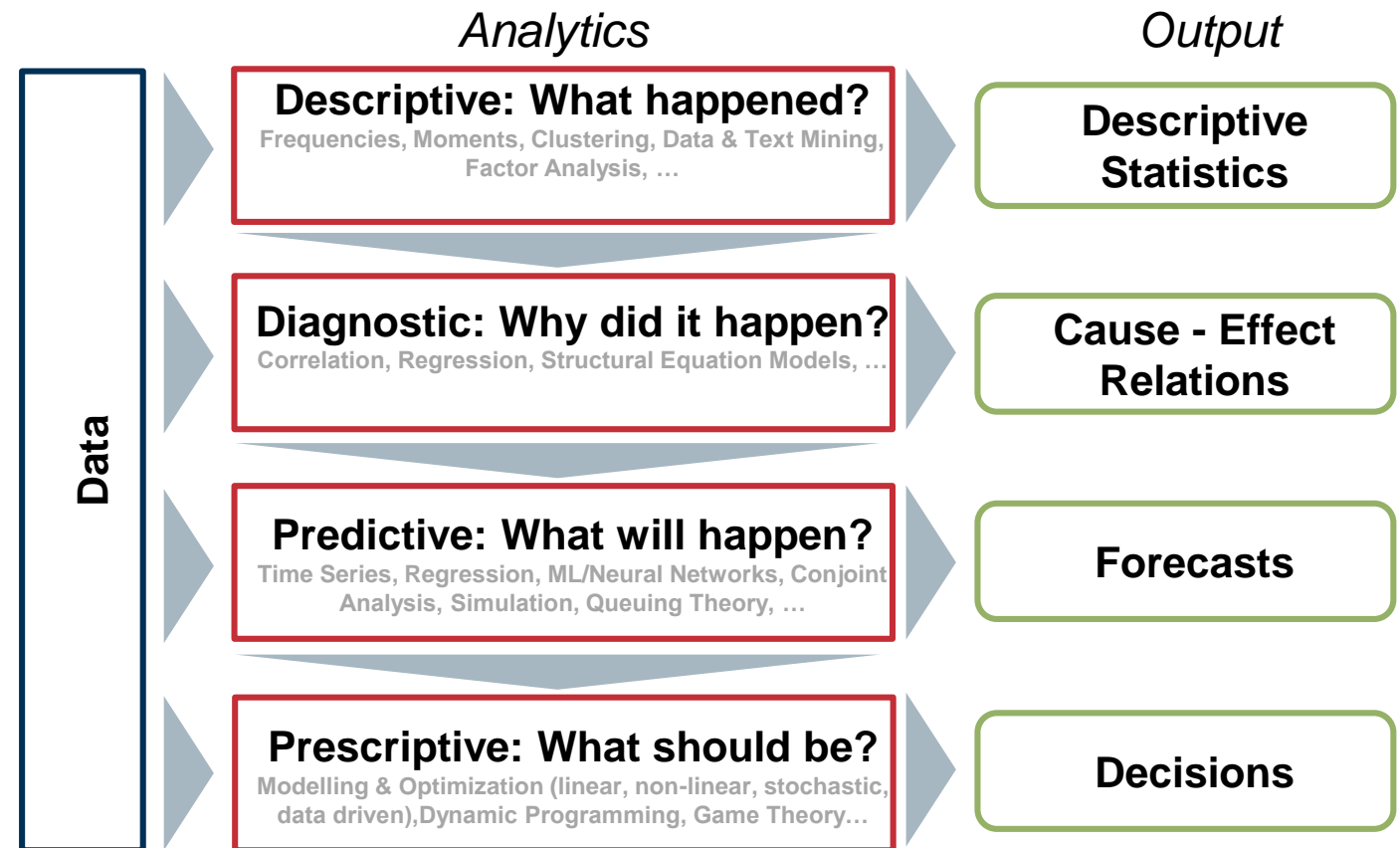
Performance Management:

KPIs, revenue management, benchmarks, ...

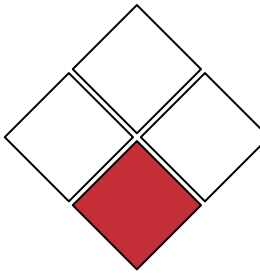
Analytics-oriented approach



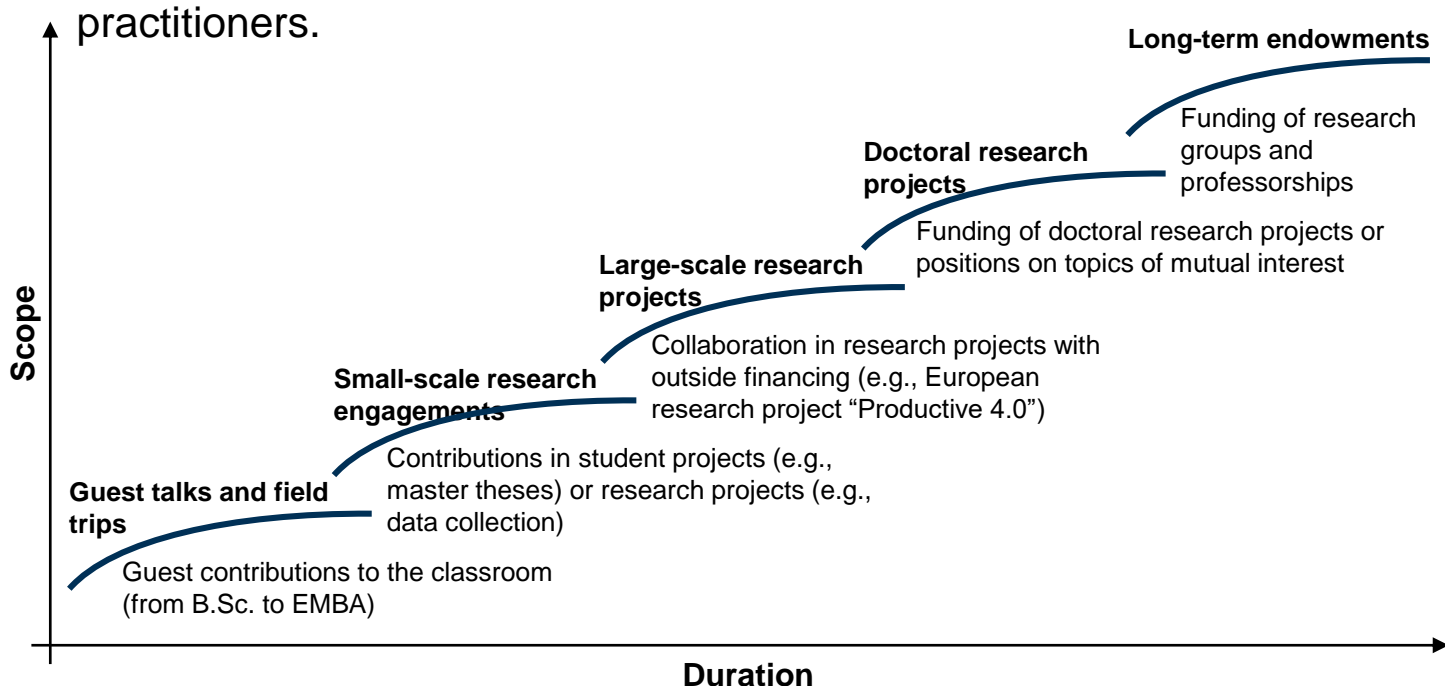
- We address the complexities of **managerial decision making** by means of analytics
- Our expertise includes a wide range of **advanced analytical methods** from the fields of operations research, data science, econometrics, and the social sciences
- We combine **methodological expertise** and **intimate domain knowledge** in relevant areas of operations management
- We see analytics as a means to an end
- We focus on how to **generate value** from data by enabling **better decisions**



High relevance: Practice- and application-driven



- Practice- and application-driven means that our research and teaching activities are informed by **problems facing the practice of operations management**.
- We collaborate with a **wide range of partners from the corporate world** and provide a **forum for exchange** between faculty, students, and practitioners.



Examples

BASF
We create chemistry



BME Bundesverband
Materialwirtschaft,
Einkauf und Logistik

CLAAS



HEIDELBERGCEMENT

HEIDELBERG



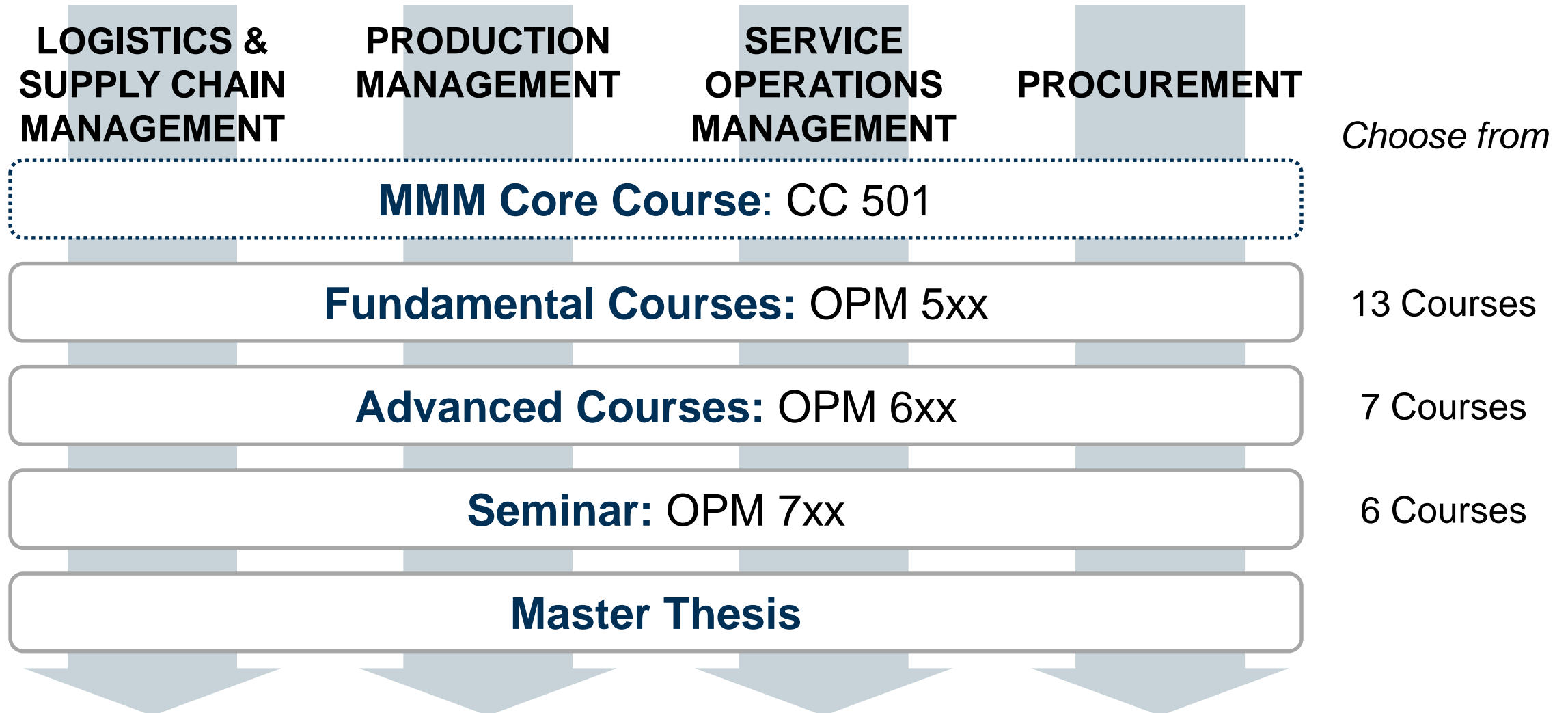
McKinsey
& Company



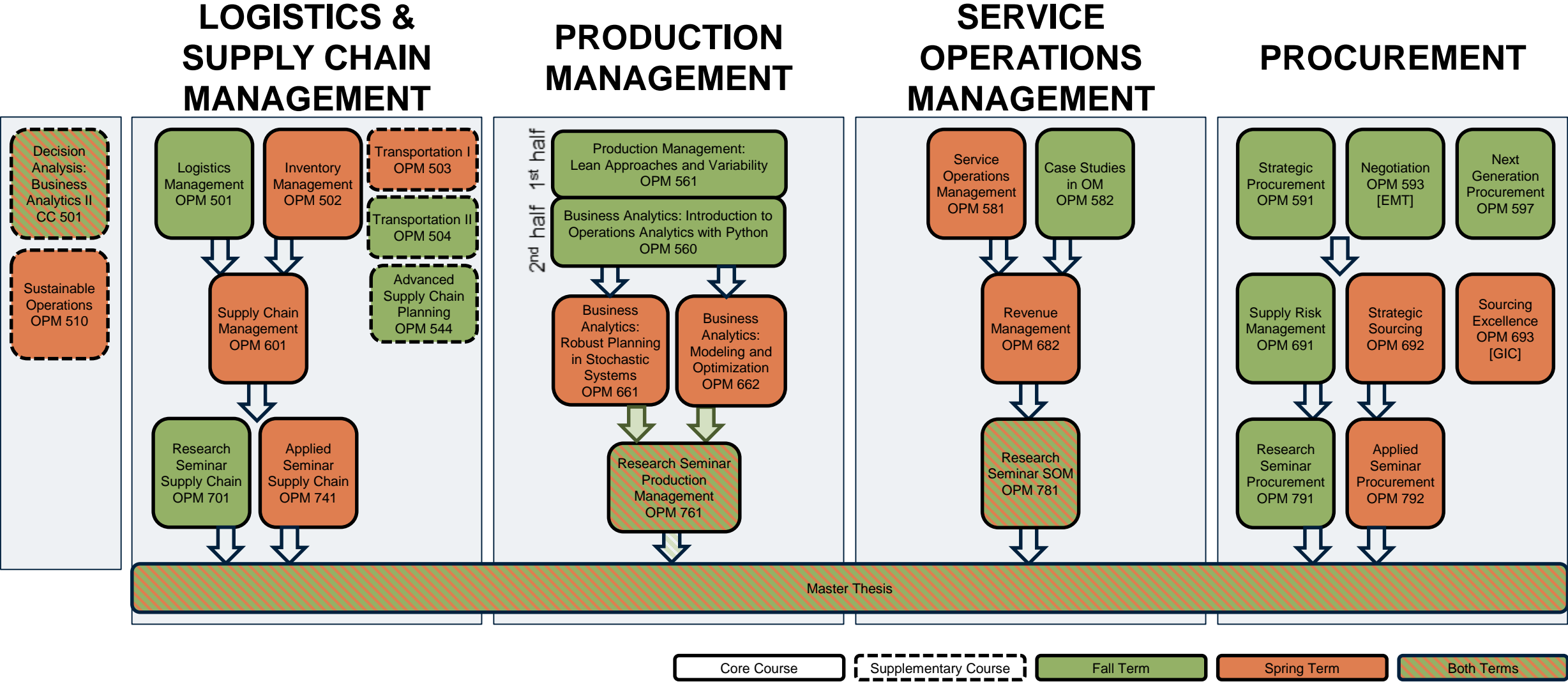
SEW
EURODRIVE

VOLKSWAGEN
AKTIENGESELLSCHAFT

Program structure



Broad choice and much flexibility



The Chairs and Their Course Offerings

Logistics & Supply Chain Management

Start OPM 501:
Monday, 4.9., 15:30, O 151

Logistics & Supply Chain Management is about managing the flow of products and materials along the supply chain to assure availability and serve the customer.

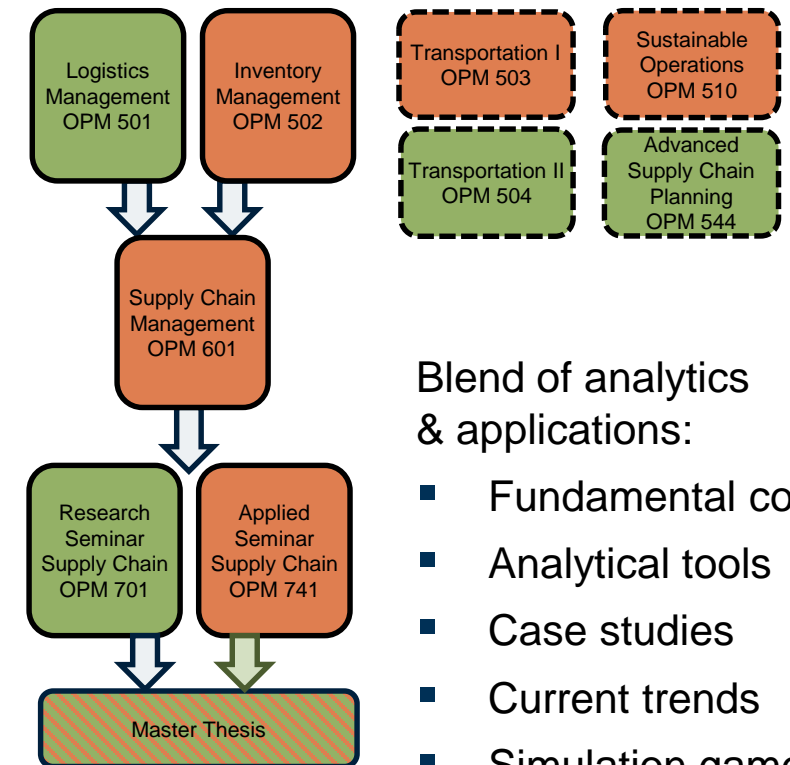
Key processes include:

- **Transportation** of products between different sites and organizations
- Storage of products in **inventory** to assure availability
- **Coordination and alignment** of activities between different supply chain members

Current focal topics at the chair:

- Closed-loop / sustainable supply chains
- Last-mile distribution / e-groceries
- Data-driven supply chain planning
- Inventory management for seasonal products

Course portfolio:



Blend of analytics & applications:

- Fundamental concepts
- Analytical tools
- Case studies
- Current trends
- Simulation games
- Guest lectures

More information: <https://www.bwl.uni-mannheim.de/en/fleischmann/>

Production Management

Production Management is about the design and management of manufacturing capacities.

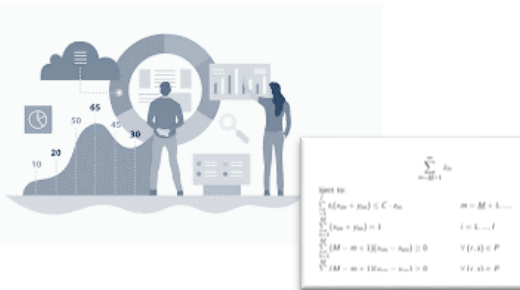
This includes:

- Capacity planning
- Operations planning and scheduling
- Lean management
- Decision support and tools
- Managing uncertainties



Productive 4.0

<https://youtu.be/Hq0HTPrIPGI>



More information: www.bwl.uni-mannheim.de/en/stolletz/teaching/master/

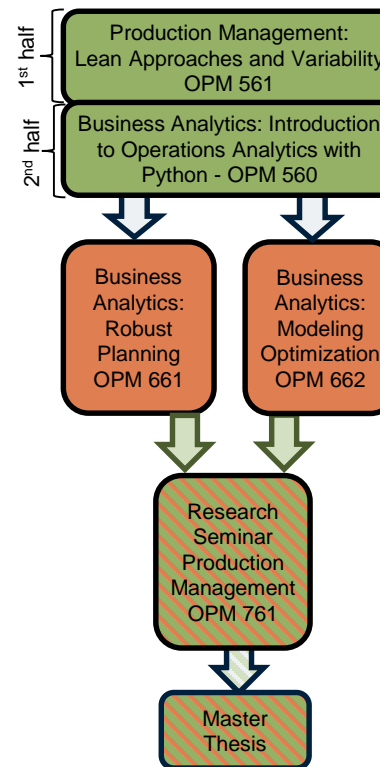
Detailed Chair Introduction:

Wednesday, 6.9., 10:15-11:45

O 145 Heinrich Vetter Hörsaal (Schloss Ostflügel)
(see www.bwl.uni-mannheim.de/en/stolletz/news)

Start OPM 561: Wednesday 6.9.

Course portfolio:



Blend of analytics & applications:

- Fundamental concepts
- Professional analytics tools
- Implementing operations analytics in Python
- Case studies & field trips
- Guest lectures

Service Operations Management

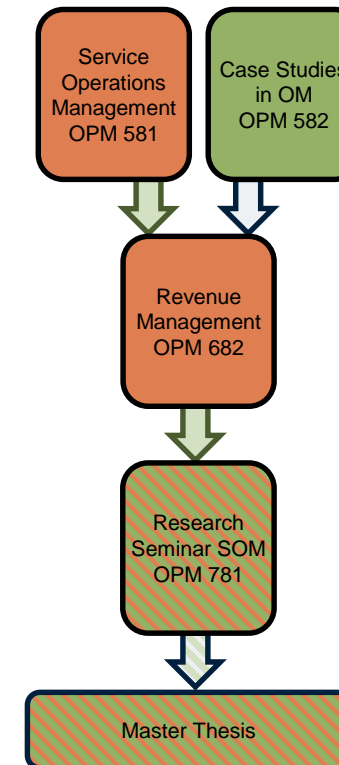
Start OPM 582:
Friday, 8.9., 12:00, [O 226-28](#)

Services pose particular challenges to managers: intangible nature, perishability, customer involvement.

Managing services requires tight integration between operations, marketing, strategy, technology, and organizational issues.

Decisions include

- **Strategic issues** such as the design of service products, processes, networks, sustainability through servitization
- **Tactical and operational issues** such as capacity and revenue management, resource scheduling



Our focus:

- Relevant concepts
- Quantitative modeling and tools
- Data-driven decision making
- Case studies and real applications
- Guest lectures

More information: <https://www.bwl.uni-mannheim.de/schoen/>

Procurement

*Procurement is an MBA's dream –
Everything is strategy
and everything is deal!*

The McKinsey Quarterly

Procurement is about the provision of external resources at the right time, quality, quantity, and cost. This involves:

- **Strategic issues:** Make-or-buy decisions, strategic supply base planning, global vs. local, etc.
- **Tactical issues:** Organize competition in sourcing (negotiation, auctions), category optimization using commercial and technical levers, etc.
- **Operational issues:** Executing the purchase-to-pay process, working capital management, etc.

More information: <http://procurement.bwl.uni-mannheim.de> and on [ILIAS](#)

Current focal topics at the chair

- Risk, disruptions, and resilience
- Buyer-supplier relationships
- Transparency and visibility
- Sustainability
- Innovation and entrepreneurship
- Software procurement
- Digitalization and the future of procurement

Detailed intro: **Monday, Sept-05, 13:45, O 151** [OPM 591]

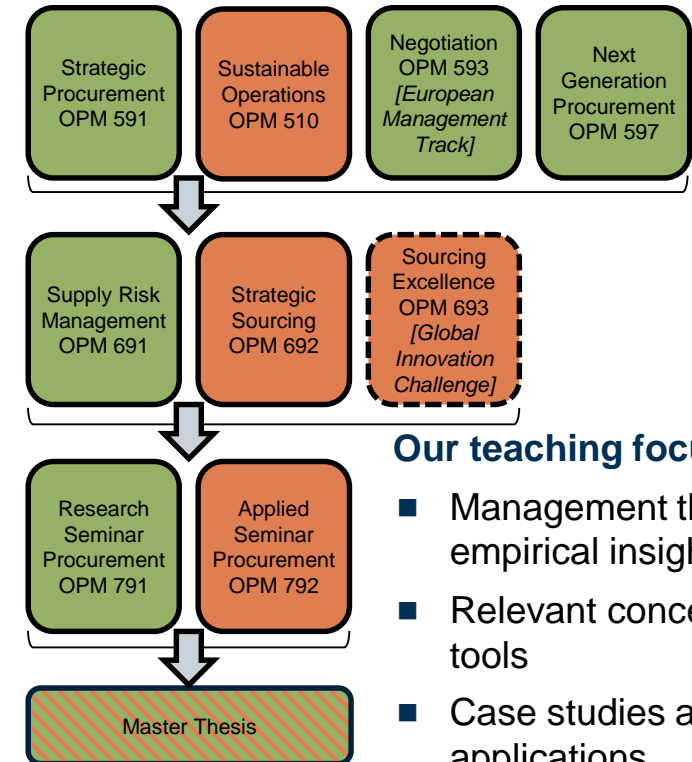
Start OPM 591: **Monday, Sept-04, 13:45, O 151**

Start OPM 593: **Tuesday, Sept-05, 08:30, O 135**

Start OPM 597: **Friday, Sept-29, 08:30, O 129**

Start OPM 691: **Thursday, Sept-07, 10:15, O 129**

Course portfolio



Our teaching focus:

- Management theory and empirical insights
- Relevant concepts and tools
- Case studies and industry applications
- Strong connections with practice

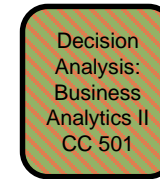
Operations Management (Assistant Prof.)

Operations Management is about designing and managing the processes of producing and delivering goods and services.

Applications are very diverse, including:

- **Scheduling** of energy production
- **Managing** portfolios of financial products
- **Capacity control** for limited resources
- **Managing** water systems

Course portfolio:



- Prescriptive Analytics
- Modeling and solving complex decision problems
- Using spreadsheet models and the MS Excel solver
- Optimal decision making when all parameter values are known
- Optimal decision making under uncertainty

More information: <https://www.bwl.uni-mannheim.de/en/glanzer/>

Graduating in Operations Management

Planning your study program

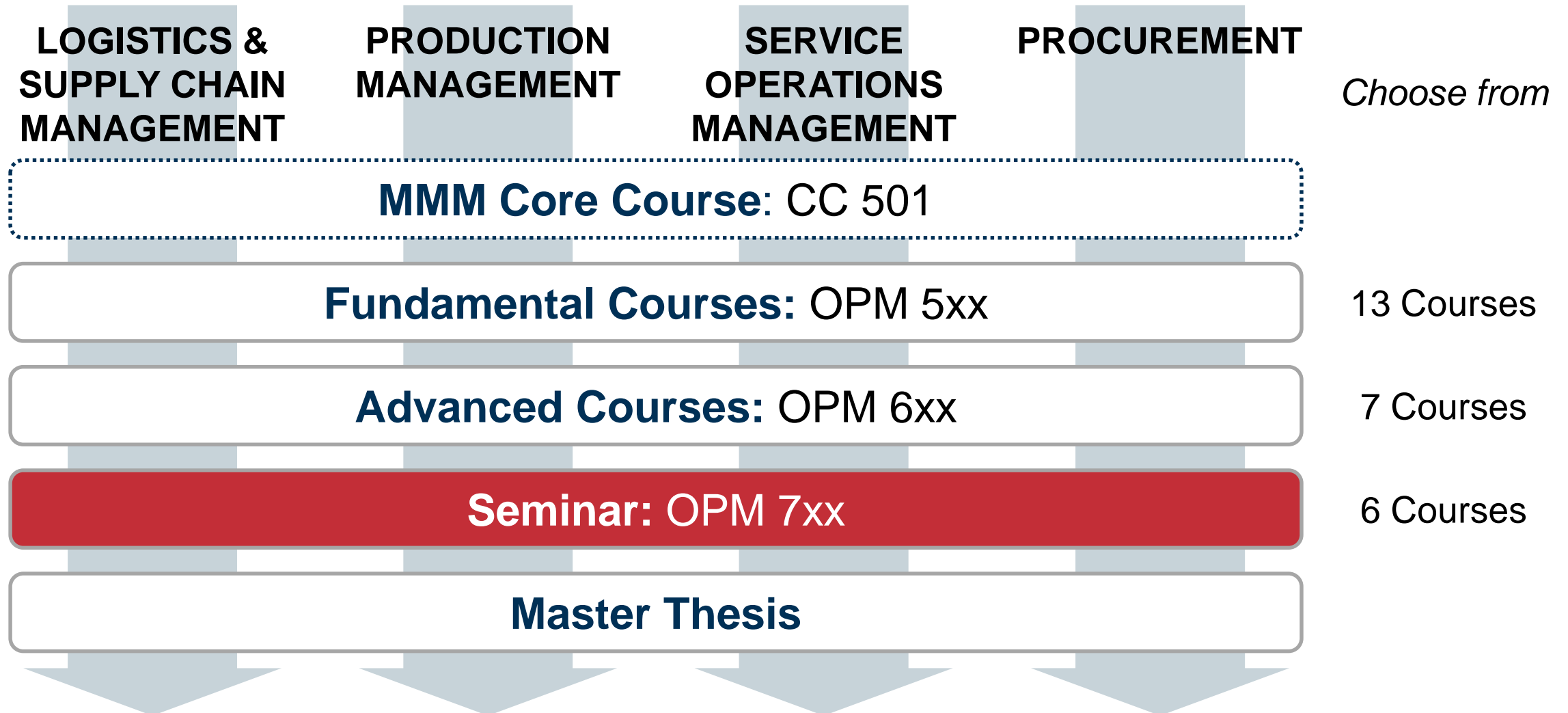
Many opportunities to **customize**:

- Wide range of course offerings, covering the full domain of operations management
- Flexibility to combine courses across chairs
- Flexibility to complement portfolio with courses from other areas
- Flexibility to fit in semester abroad or internship

⇒ **Design your own study program!**

⇒ **Important element: Seminars OPM 7xx**

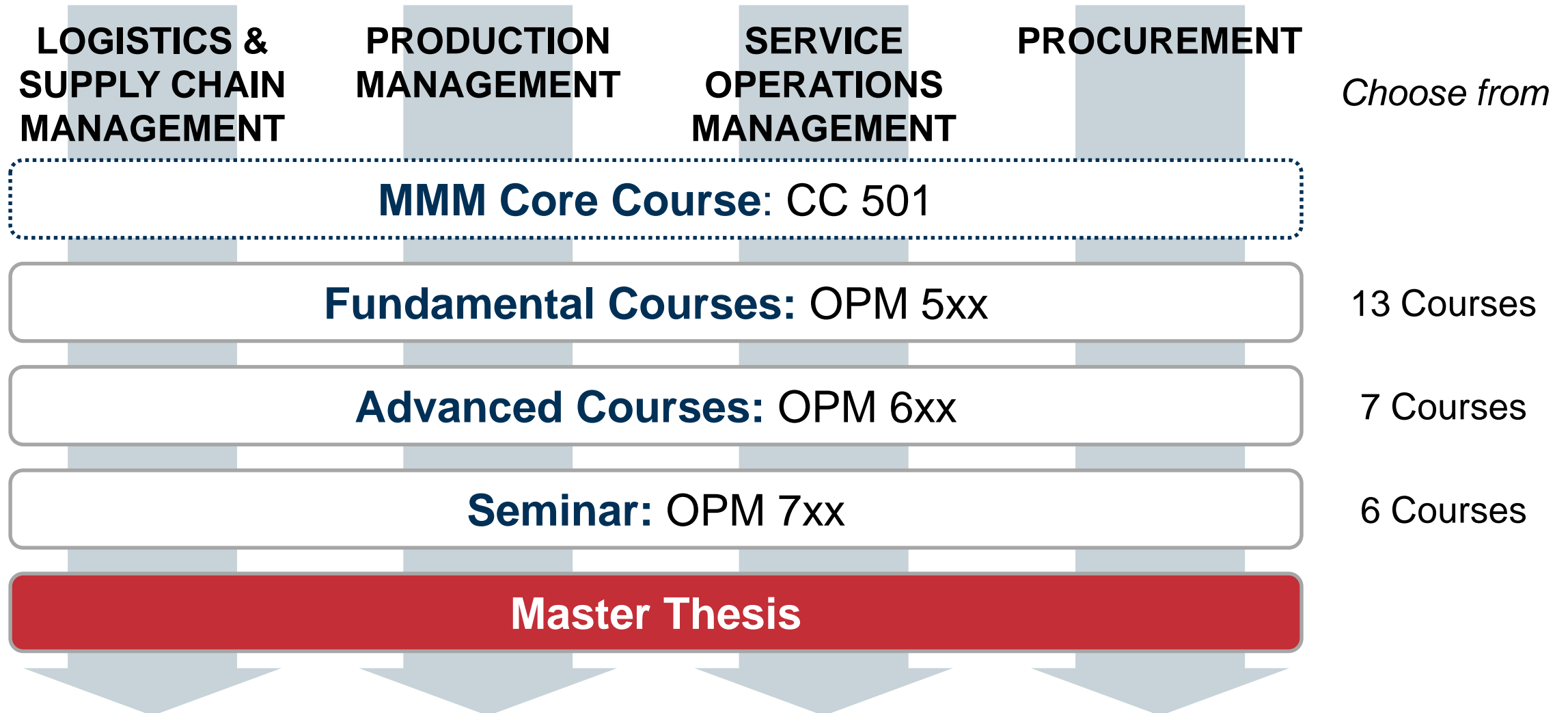
Program structure



Seminars (OPM 7xx)

- Goal: Preparation for Master Thesis
- Insight into scientific literature
- Selection of current topics in operations management
- Two types:
 - **Research Seminar:** Literature based and/or quantitative analysis (all chairs)
 - **Applied Seminar** (OPM 741 / 792): In collaboration with companies
- **Admission:**
 - Application at end of each term (details see home pages)
- **Requirements:**
 - At least one module OPM 6xx

Program structure



Master thesis

- Participants write their master thesis at one of the chairs of area, depending on the attended **core courses**.
- **Requirements:**
 - At least one course OPM 7xx and one course OPM 6xx
- **Starting date:** Any
- Application by e-mail (see chairs' homepages)
- **Topics:**
 - Different topics offered by each chair (see homepages)
 - Practice-oriented topics welcome (in cooperation with a company)
 - Own suggestions possible (to be coordinated)

Master thesis: Examples of research-oriented topics

■ Optimization studies

- Demand-management for online-grocery
- Artificial intelligence approaches for the performance evaluation of operations systems

■ Theoretical / conceptual modeling

- Supply chain management and the circular economy
- Fairness in operations management

■ Quantitative empirical research

- Empirical investigation of innovativeness in buyer-supplier relationships using archival data
- An analysis of financial distress of suppliers in the Automotive industry

■ Qualitative empirical research

- Case studies on sustainable sourcing

■ Field research

- Impact of Climate Change on Supply Chains

■ Literature studies

- Research opportunities for resilient post-COVID-19 supply chains
- Planning and management of production ramp-ups

Master thesis: Examples of in-company topics

- Strategic and tactical distribution planning in the sugar industry: Case Study at **Südzucker**
- Influencing Factors of Inventory Management: A Case Study on the European Parts Distribution Centre of **John Deere**
- Implementation of an Online Delivery Service in Retail Grocery Industry – Case Study at **REWE**
- Enhanced demand forecasting with predictive analytics (with **BASF**)
- Revenue Management and Price Optimization at **Deutsche Bahn**
- Inventory Reduction through VMI – A Case Study at **Procter & Gamble**
- Simulation-based Slot Scheduling of Truck Handling Operations at the **Lufthansa Cargo** Hub in Frankfurt
- Supervised learning approaches for yield prediction in semiconductor manufacturing (with **Bosch**)
- Simultaneous Ramp-up & Allocation Planning in the Automotive Industry at **Daimler**



JOHN DEERE



Lufthansa Cargo
The business to business class.



BOSCH

DAIMLER

Career outlook

- The qualifications you gain with our courses open a wide range of career options in industry, consulting, and academia.
- Starting positions of our alumni are for example:
 - **Trainee**
 - **Supply Chain Planner**
 - **Consultant**
 - **Account manager**
 - **Project controller**
 - **Procurement manager**
 - **PhD Student**
 - ...



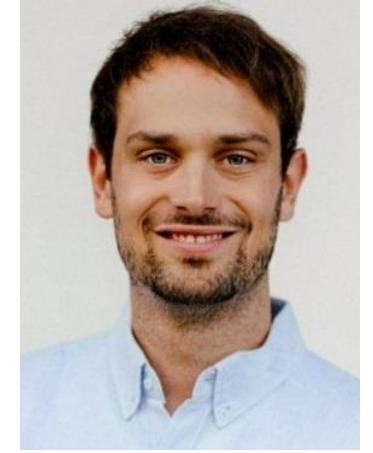
Wrap-up

More information

- More information on specific courses: Chair home pages + student portal
- Course companion sites on e-learning platform ILIAS:
 - Detailed schedules
 - Announcements
 - Class material: Slides, readings, spreadsheets,...
 - ➔ Register for the courses you would like to attend

Questions?





See you soon in Operations!

<http://www.bwl.uni-mannheim.de/operations>