

***Project Business Management*^{1,2}**

Project Business, Artificial Intelligence, and Ethics – Can They Get Along?

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*“For the natural, the universe is hardly vast enough;
what is artificial requires closed space.”*

J. W. v. Goethe, Faust II



Summary

Artificial Intelligence (A.I.) is about to revolutionize the management of Project Business. However, the gains in efficiency and productivity come with risks in form of pipe-dreaming, pollution, and poisoning. The solution is supervising the systems and syndicating their outputs.

¹This is an article in a series by Oliver Lehmann, author of the book “[Project Business Management](#)” (ISBN 9781138197503), published by Auerbach / Taylor & Francis. See full author profile at the end of this article. A list of the other articles in PM World Journal can be found at <https://pmworldlibrary.net/authors/oliver-f-lehmann>.

² How to cite this article: Lehmann, O. (2024). Project Business, Artificial Intelligence, and Ethics – Can They Get Along? PM World Journal, Vol. XIII, Issue I (January).

What is Project Business?

Project Business takes place when two or more organizations do a project together as customers and contractors. In Project Business, the project is no longer solely there to support a business. It is the business.

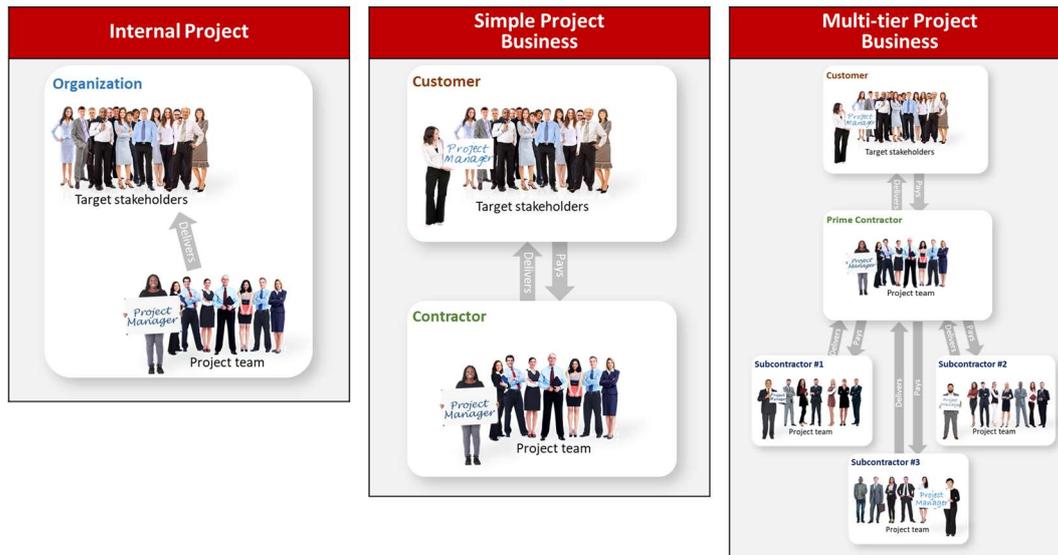


Figure 1: In contrast to internal projects, where the target stakeholders of the project and its performing team are located in the same organization, Project Business is cross-corporate with two or more—often many more—organizations involved.

Project Business is different from internal, cross-functional projects. In a simple scenario, there may be just two organizations involved: A customer and a contractor. In mega-projects, such as big infrastructure, aerospace and defense programs, or even Olympic games, there may be hundreds of organizations working together towards a common goal. Typically, these organizations build complex and dynamic multi-tier project supply networks, and for most of them, the project is not a cost center; it is a customer project—a profit center. It must bring money home and safeguard the organization's credit line.

Many companies rely on project business as their sole source of income. As contractors, they sell project services and products against payment. Others include customer projects as a component in their proposition packages: They sell hardware, software, or ongoing services, and the project to implement these on the customer side is part of their success formula for the paying customer.

The high art of Project Business is forging the different organizations together and making them follow a common mission: The successful completion of the project. Ideally, contract parties become project partners teaming up for the benefit of each of them and for the smile on everyone's face when they have achieved a desired and distinguished result together, a result that one organization alone could not have achieved.

In real life, this art is rarely found. Project Business is too often burdened with incompatible business interests, poor communications, quarreling, and finger-pointing:

- Customers find it hard to ensure they receive the services and deliveries they ordered and for which they are prepared to pay.
- Contractors struggle to reconcile their three main objectives: Happy customers, appealing margins, and a sustainable cash flow for the organization. Often, making the customer happy requires extensive outlays in the form of work and money, and it is indeed not rare that a contractor can no longer afford these outlays and slips into illiquidity even in an otherwise profitable customer project.

When one asks project managers what they perceive as a trend, more internal projects or project business, an overwhelming majority respond it's Project Business.

Project Business is not a fringe topic of project management—it's a big, global trend across all industries.

A Business Case for A.I. in Project Business

When asked, most project managers in Project Business agree that their discipline requires special education. However, only a minority of them respond that they have received that. Many decisions are, therefore, based on trial and error. However, in Project Business, trial is expensive, and error even more. Project managers trained in technical disciplines—still the majority in the field—may not be the best to write convincing letters to customers or contractors, particularly when, as a worst-case scenario, these messages may later play a disastrous role in a lawsuit at a court of law.

Another common problem is the time needed for various forms of communications and documentation, such as writing and reading memos, reports, and meeting notes. In internal projects, this requirement can become a tough burden, but in Project Business with its cross-corporate nature and the commercial and legal risks adding to “regular” project risks, the time and energy that must be invested grow even more.

These days, a new player steps into this sphere and promises help: Artificial Intelligence (A.I.). Based on the knowledge of millions of contributors, often seemingly tapped from their publications without their approval³, it promises to reduce the time consumed for writing messages, reporting progress, and documenting performance. A.I. improves the quality of texts regarding grammar, tone, and style. Undeniably, A.I. increases its users'

³ (Grynbaum & Mac, 2023)

productivity and recommends step-ups. It translates texts into languages the user does not speak and ensures the correct choice of words, spelling, and punctuation.

A.I. can do more. It can help learning various aspects of project management from lessons that are easily available. [Appendix A](#) shows an example developed with the A.I. software SPREYE.AI, which uses a failed project from a failed project during the 30-Year's War (1618 to 1648) to provide wisdom for today.



Figure 2: The sunk battleship VASA was salvaged and is now on display in the VASA museum in Stockholm, Sweden. Artificial Intelligence tells her story.

A.I. algorithms can do more. In a corporate environment, they can help implement a company-wide style guide and ensure a consistent tone in the messages written by the various individuals involved with external communications. It can tone down texts that are too assertive and pushy while making dull texts more intensive and persuasive.

On the side of the recipient, similar programs can read long texts and condense them into short summaries that are easy to read. They can identify the mood of the person who wrote the text and recommend appropriate responses.

A.I. writes summaries of meetings and helps make decisions. A.I. can be analytical, predictive, and generative (= creative). It works for text (the focus of this article), images, video, music, and many other media. It can be appealing at times; at others, it is rather appalling.

A.I. is developing fast. The powerful tool for written communications rapidly permeates into spoken language. Most of us are used to the short prerecorded or computer-generated text snippets of navigation systems, such as “turn right” or “you have reached your

destination.”⁴ Based on these texts, navigation systems could only respond to traffic situations for which they had pre-prepared text messages, assuming traffic situations are generally repetitive and predictable. Today, with A.I., navigation systems can respond to unforeseen and unique traffic situations. This makes it also a basic component for autonomous driving vehicles promised for the future.⁵

Similar developments happen in project management, whether internal or in the form of cross-corporate Project Business.

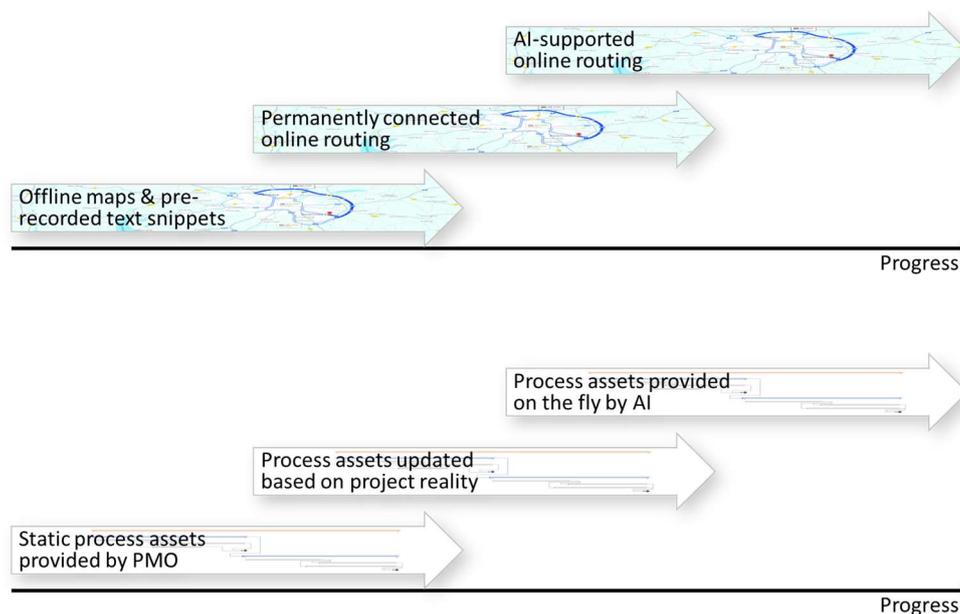


Figure 3: Process assets for projects follow a similar development path as navigation systems from static over dynamic to AI-driven.

Many organizations use standardized forms, templates, checklists, etc., as “Organizational Process Assets,” comparable to the pre-recorded texts of older navigation systems. These raw documents were developed by a Project Management Office (PMO) some time ago, and their use may be discretionary or mandatory. They are generally static. Their developers assumed during development that certain requirements on reporting, documentation, and communications would turn up in the future and prepared the process assets for these expected needs.

In many organizations, no one is updating them. They are comparable to navigation data on an old CD-ROM or DVD that reflects the streets of some years ago, unaware of changes due to construction or revised rules and traffic signs. The only way to change this set of data is by replacing the disk.

⁴ A rather humorous version of how the text snippets were prerecorded was shown in a 2012 commercial (TomTom, 2012).

⁵ (AI-Mastermind, 2023)

A big step forward in navigation systems was the move from data stored on offline disks to a continuous online connection with central servers. This allowed navigation services to adjust swiftly to changes such as opening of new routes or closing of old ones. In the next step, the bidirectional communications between the onboard navigation systems, which could be integrated into board entertainment, be used on separate dashboard-fitted units, or as apps on smartphones, transferred big amounts of data back and forth, allowing navigation systems to measure current traffic situations and select the best routes based on real-time information.

This could be compared to a more dynamic approach to organizational process assets in some organizations. In continuous communications between project managers, their supervisors, and the PMOs, these process assets are reviewed from time to time and get updated and adjusted whenever the changing needs of the projects and the organization make it appropriate to do so.

The introduction of artificial intelligence is the next logical step forward. When a car driver leaves home for a longer journey, the AI-driven navigation system does not only recommend a route based on current traffic information and calculate an arrival time based on that, but also uses forecasts of the traffic conditions at critical locations on the way by the time the driver will be there. Its prognoses of arrival times are based on much more data, and it can add further services, such as planning stops for charging electric cars along the route.

Can process assets for projects do something similar? Indeed, software that can help with generating project documentation, reports, and other time-consuming artifacts is already on the way and will revolutionize the way project managers document and communicate their projects.

This gets even more interesting, when projects are no more done just cross-functional but as cross-corporate Project Business. This adds commercial and contractual layers of risk and complexity in addition to the complexity and risks that are anyways an essential element of projects. Artificial intelligence can help write texts that are commercially sound and legally safe.

The 3Ps

Generative A.I. can save time and improve the quality of texts. However, these benefits have limitations. They can be subsumed under the 3 Ps: Pipe-dreaming, pollution, and poisoning.

Pipe-dreaming:

Also referred to as hallucinating. It refers to Artificial intelligence's almost human tendency to fill knowledge gaps with conjecture.

Here is an example. I sometimes ask A.I. to give me information about myself. The reason is not vanity; it is the information where I can assess best what is right and what is wrong. Figure 4 shows the response I received from ChatGPT on 27 December 2023.



You

Who is oliver f. lehmann?



ChatGPT

Oliver F. Lehmann is a certified project management professional (PMP) and a well-known figure in the field of project management. He is recognized for his contributions to project management education and his work in promoting project management best practices. ¹

Lehmann has authored several books and articles on project management and is known for his expertise in risk management, quality management, and project management methodologies. He has also developed project management training materials and courses.

One of his notable contributions is the development of the "Lehmann's Laws of Project Management," which are a set of principles and observations that highlight common challenges and issues in project management. ²

Oliver F. Lehmann has been involved in various project management organizations and has a strong online presence, providing valuable insights and resources to project managers and professionals in the field. It's important to note that my knowledge is based on information available up to January 2022, and there may have been further developments or changes in his career or contributions since then. ³



Figure 4: Response of a generative A.I. service to a question about myself (December 2023).

The result includes some significant errors:

1. My work does not “promote project management best practices”. Instead, my work rejects the term, assuming they don't exist; the same practice that may be successful in one situation may lead to failure in another.⁶ My work, therefore, promotes situational approaches.
2. There are no “Lehmann's Laws of Project Management”.

⁶ (Lehmann, 2016, pp. 2-4)

3. I have been involved in only one project management organization, Project Management Institute (PMI).

Pollution:

A.I. systems get trained using a vast amount of data of mixed quality. Some data comes from serious sources and reflects true and valid information. However, this is not true for all source data. A.I. cannot distinguish between data that should be excluded from being used and others that should be included. A.I. can hardly distinguish between facts and opinions and does not have the background knowledge to identify which statements are true in a specific context only and which are generally acceptable knowledge.

And here is the danger: Statements based on valid and true data make information communicated credible. However, the assumption of credibility makes false information mixed into the true information credible, too.

To make things worse, it is typically unclear where A.I. takes its information from. One of the rare examples where the sources are made public are *Collaborative Articles* on the professional social network LinkedIn⁷. LinkedIn says about them:

‘Collaborative articles are a new way to tap into the collective knowledge of the LinkedIn community so you can learn from experts across professional topics, ranging from the common “How do I get a promotion?” to the more specific “How do I advertise to Generation Z?”’

Collaborative articles are knowledge topics published by LinkedIn with insights and perspectives added by the LinkedIn community. These articles begin as AI-powered conversation starters, developed with our editorial team, but they aren’t complete without insights from our members. A select group of experts have been invited to contribute their own ideas, examples and experiences within the articles.’⁸

Indeed, the number of contributors is big, and the criteria for their selection is murky. LinkedIn says:

‘LinkedIn has invited a select group of experts to contribute insights within these articles. LinkedIn identifies members who are likely to be experts in a certain topic based on their work experience, skills proficiency, and prior engagement on the platform. They must also meet high trust and quality standards by adhering to LinkedIn’s User Agreement and Professional Community Policies, and their contributions must remain relevant, original, and additive. To be considered, you can engage with the articles by liking or reacting to them.’

⁷ (LinkedIn, 2023a)

⁸ (LinkedIn, 2023b)

It seems, the purpose of the contributions is to feed the A.I. database with opinions, explanations, and other forms of information. However, the reliability of this information and its sources is not tested.

Poisoning:

Picture a situation where a Buyer ABC is asking a number of vendors for offers for some project work. The company has approached several vendors, who are now competing for the business opportunity.

The purchasing staff of the company uses artificial intelligence to obtain information about the vendors, using prompts (input questions) such as:

- “Is Vendor X competent and reliable?”
- “What do customers say about Vendor X?”
- “Is Vendor X in sound financial condition?”

One of the vendors is aware of the buyer’s use of A.I. for vendor assessments. The company now considers unethical means to gain an edge over the other vendors:

1. Manipulating the A.I. system to produce negative responses for the other vendors.
2. Feeding information to the A.I. system, resulting in responses that make the company look good in the eyes of the prospect.
3. While corrupting the data, ensuring that the other companies cannot detect the manipulation.

Would it be possible to poison the information that A.I. uses for its responses? For most systems, the answer is, unfortunately, “Yes”.

Here is the evidence: Appendix B shows a dialogue with ChatGPT, a popular Artificial Intelligence system, about the meaning of the term “Project Business Management”. The system first misinterprets the definition as a form of internal project management as discussed in [Figure 1](#), but then accepts the correction.

Artificial intelligence systems rely on user input to enhance their ability to respond accurately. While this transparency offers several advantages in terms of the quality and validity of the A.I.’s responses, it also exposes the system to the risk of manipulation. ChatGPT cannot distinguish between good-willing correction and malicious manipulation of data it receives.

Conclusions and Solution

Artificial Intelligence has the potential to significantly boost productivity in Project Business Management. Its ability to process vast amounts of data and provide quick insights can enhance decision-making, reduce manual work, and improve project outcomes.

However, the increasing use of A.I. in project business also raises serious concerns. It is important to acknowledge that A.I. is not infallible, tends to fill knowledge gaps with false information (“pipe-dreaming” or “hallucination”), can sometimes generate inaccurate or misleading results based on inaccurate or low-quality input (“pollution”), and is open to malicious manipulation when malicious players attempt to poison the results by tampering with the data for nefarious purposes.

Therefore, it is essential to closely supervise the A.I. and ensure that its inputs are carefully scrutinized. Furthermore, the results of A.I. analysis should be syndicated to ensure that all relevant stakeholders have access to the same information and can make informed decisions based on accurate data before being used to make critical decisions.

Appendix A: From the History of Failed Projects

A.I. system used: Spreye.

This conversation took place on December 30, 2022



OFL

What caused the failure of the VASA project during the 30-years' war?



Spreye

The failure of the Vasa project during the 30 Years' War was not caused by the war itself, as the Vasa was not directly involved in the conflict. Instead, the failure was primarily due to design and construction flaws.

The Vasa was a warship commissioned by the King of Sweden, Gustavus Adolphus, in the early 17th century. The ship was intended to be a powerful symbol of Swedish military might. However, due to several factors, the project faced significant challenges.

Firstly, the ship's design was top-heavy and unstable. The Vasa was built with multiple gun decks and a high superstructure, making it overly top-heavy. The design did not sufficiently account for stability and balance, leading to a lack of seaworthiness.

Secondly, there were issues with the shipbuilding process. The construction of the Vasa was rushed, with pressure to complete the ship quickly. This resulted in poor workmanship and inadequate quality control. The builders lacked experience and made critical mistakes, such as using insufficient iron bolts to secure the ship's structure.

Lastly, there were communication failures between the shipbuilders and naval authorities. The concerns raised by experienced shipwrights about the stability of the Vasa were ignored or downplayed, leading to a lack of corrective action.

As a result of these factors, the Vasa launched on its maiden voyage in 1628 but capsized and sank within minutes. The ship was salvaged centuries later and is now housed in the Vasa Museum in Stockholm, Sweden.

The failure of the Vasa project serves as a cautionary tale about the importance of proper design, construction, and communication in project management, highlighting the disastrous consequences that can arise from neglecting these critical aspects.

Appendix B: A Conversation with Artificial Intelligence, correcting its Result

AI system used: ChatGPT 4.0.

This conversation took place on January 1, 2024:



OFL

What is Project Business Management?



ChatGPT

Project Business Management is a specialized area within the broader field of project management. It focuses on applying project management principles and practices to drive business goals and objectives. Here are the key aspects of Project Business Management:

1. **Alignment with Business Objectives:** It emphasizes aligning project goals with the strategic objectives of the business. This means that projects are not just managed for their own sake but are seen as integral to achieving broader business goals.
2. **Financial Management:** Project Business Management pays special attention to the financial aspects of projects. This includes budgeting, cost management, and ensuring that projects deliver a good return on investment (ROI).
3. **Stakeholder Engagement:** Engaging stakeholders, including clients, investors, and team members, is crucial. This approach ensures that all stakeholders' needs are considered and that there is clear communication about project goals and progress.
4. **Risk Management:** Identifying, analyzing, and managing risks that could impact the business aspect of projects is a key component. This involves assessing potential financial, legal, and market-related risks.
5. **Integration of Business Processes:** It involves the integration of standard business processes, such as procurement, H.R., and compliance, into project management practices. This ensures a holistic approach where projects are managed in the context of the overall business operation.
6. **Value Delivery:** The focus is on delivering value to the business, which can be measured in terms of financial performance, market position, brand strength, or other business metrics.
7. **Adaptability and Agility:** Given the fast-paced and often unpredictable nature of business, Project Business Management also emphasizes adaptability and agility in managing projects. This allows businesses to respond quickly to market changes or internal challenges.

In essence, Project Business Management is about ensuring that project management contributes directly to achieving business success, by aligning projects with business strategies, managing project finances effectively, engaging stakeholders, managing risks, and integrating projects with core business processes.



OFL

Project Business Management is project management when more than one organization is involved. Organizations act as customers and contractors und contract.



ChatGPT

Project Business Management, in the context you've described, refers to a scenario where project management is applied across multiple organizations, often involving a network of customers and contractors bound by contracts. This approach is especially prevalent in industries where projects are

outsourced or involve collaborations between different companies. Here's a deeper look into this specific aspect of Project Business Management:

1. **Multi-Organizational Collaboration:** Projects often involve collaboration between various organizations. Each organization might have different goals, cultures, and practices, and managing these differences effectively is crucial for project success.
2. **Contract Management:** A significant aspect is managing contracts effectively. This includes understanding and negotiating terms, ensuring compliance, and handling contractual obligations and rights among parties involved.
3. **Customer and Contractor Dynamics:** In such projects, the dynamics between customers (who request the work) and contractors (who perform the work) are vital. Managing expectations, deliverables, and communications between these parties is key.
4. **Risk and Change Management Across Organizations:** Risks and changes need to be managed not just within one organization but across all involved parties. This requires robust communication channels and collaborative decision-making processes.
5. **Financial Transactions and Budgeting:** Financial management becomes more complex in a multi-organizational setup. It involves handling payments, budget allocations, and financial risks across different legal and operational frameworks.
6. **Legal and Regulatory Compliance:** Ensuring compliance with the laws and regulations of different jurisdictions is essential, especially when international partners are involved.
7. **Stakeholder Management:** Identifying and managing stakeholders across all organizations is crucial. Stakeholders in such projects can range from top management in each organization to end users affected by the project's outcome.
8. **Cross-Cultural and Cross-Functional Collaboration:** Projects spanning multiple organizations often involve cross-cultural and cross-functional teams. Managing diversity and ensuring effective collaboration across these teams is a key challenge.

In summary, Project Business Management in a multi-organizational context involves managing the complex interplay between different organizations engaged in a project. It requires effective collaboration, robust contract and stakeholder management, and a keen understanding of the legal, financial, and operational aspects spanning different organizations.



OFL

What is Project Business Management?



ChatGPT

Project Business Management is a branch of project management that deals specifically with managing projects within a business context, particularly when multiple organizations are involved. In this setting, organizations often act as customers or contractors, engaging with each other under formal contracts. This approach is most common in industries like construction, I.T. services, and engineering, where projects often require collaboration between different companies. Key aspects include:

1. **Contract Management:** This involves negotiating, executing, and maintaining contracts between the involved parties. It's crucial for defining roles, responsibilities, deliverables, and timelines.
2. **Inter-Organizational Collaboration:** Projects in this context often require coordination between multiple organizations. This includes managing relationships, expectations, and communications between all parties.
3. **Commercial and Financial Management:** This covers budgeting, cost control, billing, and other financial aspects of projects across different organizations. It's key to ensuring that projects are profitable and financially viable.
4. **Risk Management:** Identifying and mitigating risks is essential, especially since risks in such projects can be amplified due to the involvement of multiple parties.
5. **Compliance and Legal Aspects:** Ensuring that the project complies with all relevant laws and regulations, and managing the legal implications of inter-organizational contracts.

6. **Quality Management:** Maintaining high standards of quality in deliverables, often across different organizational practices and standards.
7. **Stakeholder Management:** Identifying and managing the needs and expectations of all stakeholders involved, which can be complex due to the variety of parties involved.
8. **Communication and Reporting:** Ensuring effective communication across all levels of the project, and providing accurate reporting to stakeholders.

Project Business Management, therefore, requires a blend of project management skills with a strong understanding of business relations, contracts, and the specific challenges that arise from managing projects across organizational boundaries.

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Oliver F. Lehmann, MSc, ACE, PMP, is a project management educator, author, consultant, and speaker. In addition, he is the owner of the website Project Business Foundation, a non-profit initiative for professionals and organizations involved in cross-corporate project business.



He studied Linguistics, Literature, and History at the University of Stuttgart and Project Management at the University of Liverpool, UK, where he holds a Master of Science Degree (with Merit). Oliver has trained thousands of project managers in Europe, the USA, and Asia in methodological project management, focusing on certification preparation. In addition, he is a visiting lecturer at the Technical University of Munich.

He has been a member and volunteer at PMI, the Project Management Institute, since 1998 and served as the President of the PMI Southern Germany Chapter from 2013 to 2018. Between 2004 and 2006, he contributed to PMI's *PM Network* magazine, for which he provided a monthly editorial on page 1 called "Launch," analyzing troubled projects around the world.

Oliver believes in three driving forces for personal improvement in project management: formal learning, experience, and observations. He resides in Munich, Bavaria, Germany, and can be contacted at oliver@oliverlehmann.com.

Oliver Lehmann is the author of the books:

- ["Situational Project Management: The Dynamics of Success and Failure"](#) (ISBN 9781498722612), published by Auerbach / Taylor & Francis in 2016
- ["Project Business Management"](#) (ISBN 9781138197503), published by Auerbach / Taylor & Francis in 2018.

His previous articles and papers for PM World Journal can be found here:

- <https://pmworldlibrary.net/authors/oliver-f-lehmann/>