

How a Mac Studio cluster at r2e2 enhances efficiency as an on-premises AI solution

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r2e2 Interview

Interviewee: Robert Eichhorn, Geschäftsführer r2e2 – <https://www.r2e2.de>

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Denkform: Customers & Companies | What does r2e2 do ?

r2e2 is a software company that develops solutions to simplify and digitize complex media and promotional material production processes. Our products are browser-based and enable efficient workflows—from layout creation and correction to centralized data management for print and web. We help companies make their advertising material production faster, more consistent, and more cost-effective.

Denkform: Business Case | What is the project about—what is the goal ?

The goal of the project is to build a local AI system that fundamentally automates the creation of advertising materials across various channels. Specifically, we are developing an AI solution that is seamlessly integrated with our PIM and media production system. The product data and content maintained in the PIM are automatically converted by the AI into finished layouts—fully automated and across all channels. The multi-channel approach is central to this: The AI is not only intended to create print brochures but will also serve digital channels such as the web, social media, and other media with tailored content in the future. This allows us to drastically reduce production times and enables us to respond to market demands even on short notice. In the future, the system is to be networked with other internal applications to holistically optimize workflows.

Denkform: How is the AI installation/integration carried out, i.e., how is the system fed ?

The system is being built in stages: First, we set up the hardware infrastructure using Mac Studio computers; then, the AI models are installed locally, configured, and trained using our specific data. The integration is closely aligned with our existing production workflows, en-



ensuring that the AI is directly incorporated into our daily operations. This iterative approach allows us to continuously improve the results and tailor the system specifically to our needs.



Denkform: Why was an on-premises solution chosen instead of a cloud solution ?

We deliberately chose a local solution because several factors are important to us: All data and workflows remain within our own system—this is crucial for protecting sensitive customer and production data. Furthermore, we can meet compliance and data protection requirements, particularly the GDPR, much more effectively. The local solution also opens up opportunities for us to learn: We can train and further develop the AI specifically to meet our needs without relying on external providers. And last but not least, we retain full control over availability and performance—without depending on external servers.

Denkform: What specific benefits does this entail, in detail ?

The benefits are numerous: We have full control over our data and workflows and can consistently adhere to internal data protection and security standards. At the same time, on-premises AI enables us to expand existing business processes in a targeted manner and develop new products that would previously have been unfeasible due to the effort involved. Through efficient automation, we reduce the number of correction cycles and significantly lower production costs. Another strategic advantage is multi-channel capability: We can use the same AI infrastructure to serve both print and digital channels, enabling us to run seamless campaigns across various media. In the future, we plan to integrate AI into additional programs to optimize our entire workflows.



Denkform: Which security or compliance requirements are particularly relevant ?

Several aspects are a top priority for us: GDPR compliance is a fundamental requirement, as we work with sensitive customer data. In addition, we rely on secure authentication and granular access controls to ensure that only authorized employees have access to the AI and the data it processes. Traceable workflows and audit-proof data storage ensure that all processes remain transparent and auditable. Last but not least, the integrity of the layout and graphic data is crucial—the quality of our results stands or falls with the reliability of the underlying data.

Denkform: Could such a project be implemented by a non-specialized IT team ?

Implementing a local AI system requires specific expertise in machine learning and large language models. However, this is not a deal-breaker: r2e2 and Denkform possess the necessary expertise and help companies gradually build up their existing IT teams. The advantage of Apple's infrastructure is that it provides a stable and easily maintainable foundation that allows even teams with no prior AI experience to work efficiently. The key is finding the right partner—and being willing to invest in building up that knowledge.

Denkform: What is the cost-benefit ratio ?

The investment covers the hardware infrastructure, development costs, and ongoing support and further development of the system. This comes with significant benefits: significantly shorter production times for advertising materials across all channels, lower production costs due to fewer rounds of revisions, and the ability to respond to competitive situations even at the last minute. The multi-channel approach further enhances these benefits: Instead of operating separate systems for print, web, and social media, we can produce consistent content for all channels using a single AI infrastructure. Furthermore, we are creating a unique selling point in our industry and opening up the possibility of establishing entirely new work processes and products. As early adopters of this technology, we see a clear strategic advantage that goes far beyond mere cost considerations.



Denkform: Why did you choose leasing ?

We deliberately chose a leasing model to ensure maximum flexibility. AI development places high demands on hardware—particularly on memory. By leasing, we ensure that we always have access to the latest generation of hardware without being tied to a specific system. Should requirements change or more powerful devices become available, we can respond flexibly and adapt our infrastructure accordingly.



Denkform: How quickly was the implementation carried out ?

Thanks to the Mac Studio systems, setting up the hardware infrastructure was straightforward and quick. At the same time, we are continuing to develop the AI solution through an iterative process. Our goal is to begin selling the solution in the third quarter of 2026. This timeline demonstrates that a project of this nature—from the initial idea to a market-ready product—can be realized within a reasonable timeframe.

Denkform: Why should we act now ?

The reasons are compelling: Those who invest in local AI now secure a clear competitive advantage and a unique selling point over their competitors. In times of a skills shortage, AI helps our experts work more efficiently and focus on value-adding tasks. As early adopters, we gain a head start that will be difficult to catch up with later. Furthermore, our experience shows that the use of modern technologies makes us more attractive as an employer and helps retain qualified employees. And last but not least, AI enables us to develop products that simply would not have been possible given the effort required in the past.

Denkform: Why Apple | Is an existing Mac environment absolutely necessary ?

An existing Mac environment is not a strict requirement—the AI models themselves run on any platform. However, as a Unix-based system, macOS offers significant advantages in terms of management and maintenance: administration is efficient, and cluster configurations are also excellently supported. An additional advantage of the Apple ecosystem is the ability to provide our developers with the complete development environment on a mobile



device in the form of a MacBook Pro. This enables further development of the system even without direct access to the central cluster—a feature that particularly meets the demands of modern work models involving a mix of office-based and remote work.

Denkform: What other relevant factors or constraints should be taken into account ?

In our view, the key factors have already been covered in the previous points. Additionally, the compact size and energy efficiency of the Mac Studio computers offer a practical advantage for our cluster infrastructure—both in terms of space requirements and operating costs.

Furthermore, with its unified memory approach, Apple hardware offers excellent value for money for local AI development—especially when compared to dedicated GPU servers, which cost many times more for comparable memory capacities.

Denkform: How do you ensure the solution is covered and is AppleCare an option ?



The security of our solution is based on multiple layers: At the infrastructure level, we implement standard IT security measures—physical access controls, network security, regular backups, and continuous monitoring. Securing the trained AI models is particularly important to us, as they represent a significant portion of our investment. AppleCare is an important additional component in securing the overall system. This ensures direct support from the manufacturer in the event of a failure—both for the central cluster and for mobile devices—worldwide. This gives us additional planning security.



Denkform: How do off-the-shelf products compare to custom-built hardware in terms of residual value and depreciation ?

Standardized Apple systems have clearly defined lifecycles, straightforward depreciation, and—this is a particular advantage—a high residual value. Apple devices retain their value significantly better than comparable hardware from other manufacturers or even custom-built systems. This high residual value provides a more reliable basis for leasing calculations and allows us to replace devices with newer models before the end of the lease term if necessary. Compared to custom-built hardware, there are also no risks associated with warranty, compatibility, and maintenance.

Denkform: What key performance indicators would you set for the project ?

The goal of our project is to fundamentally improve the creation of promotional materials across all channels. The key performance indicators are multifaceted: In addition to significantly reduced production and turnaround times, we also measure success by the quality of the results, consistency across different channels, and the number of new products we can develop thanks to AI. Another key indicator is the ability to create multi-channel campaigns from a single source, thereby significantly reducing time-to-market. Ultimately, the project helps us provide improved solutions to our existing customer base while simultaneously reaching new customer groups. It is thus an essential building block for the further development of r2e2.



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