Generalized matrix artin algebras

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In this talk I discuss the representation theory of generalized matrix artin algebras; that is, artin algebras of the form $\Lambda = \begin{pmatrix} A & N \\ M & B \end{pmatrix}$, where A and B are artin algebras, M is a B-A-bimodule and N is an A-B-bimodule. To understand the multiplication in Λ, we must be given two bimodule homomorphisms $\phi\colon M \otimes_A N \to B$ and $\psi\colon N \otimes_B M \to A$ that satisfy certain conditions. We study covariant finite, contravariant finite, and functorially finite subcategories of the module category of Λ. We also give bounds on the global dimension of Λ in terms of the global dimensions of A and B in the case when both ϕ and ψ are 0.