

OMG MDA™

Model Driven Architecture

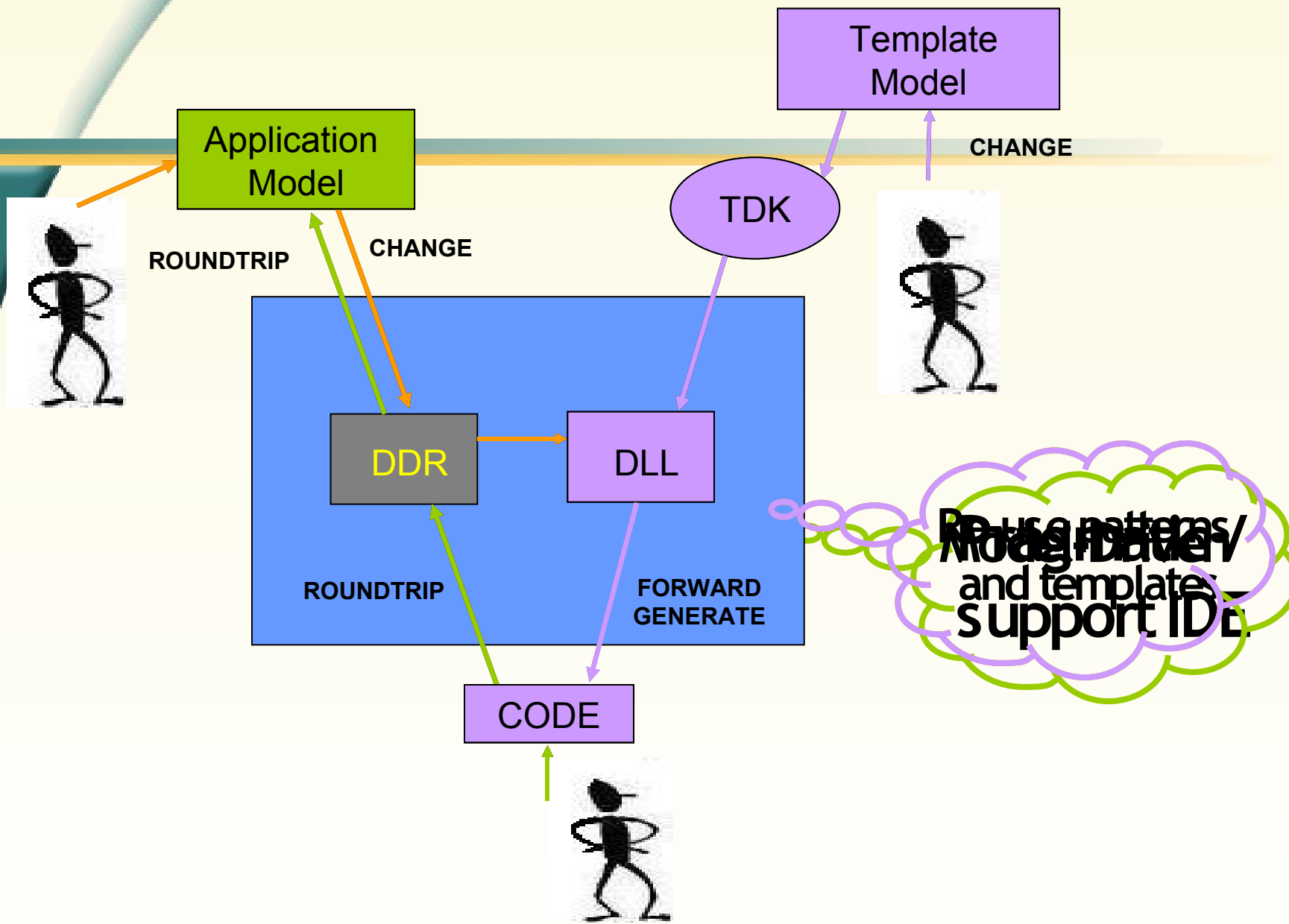
MDA – What are we talking about

MDA allows to model applications in such a way that:

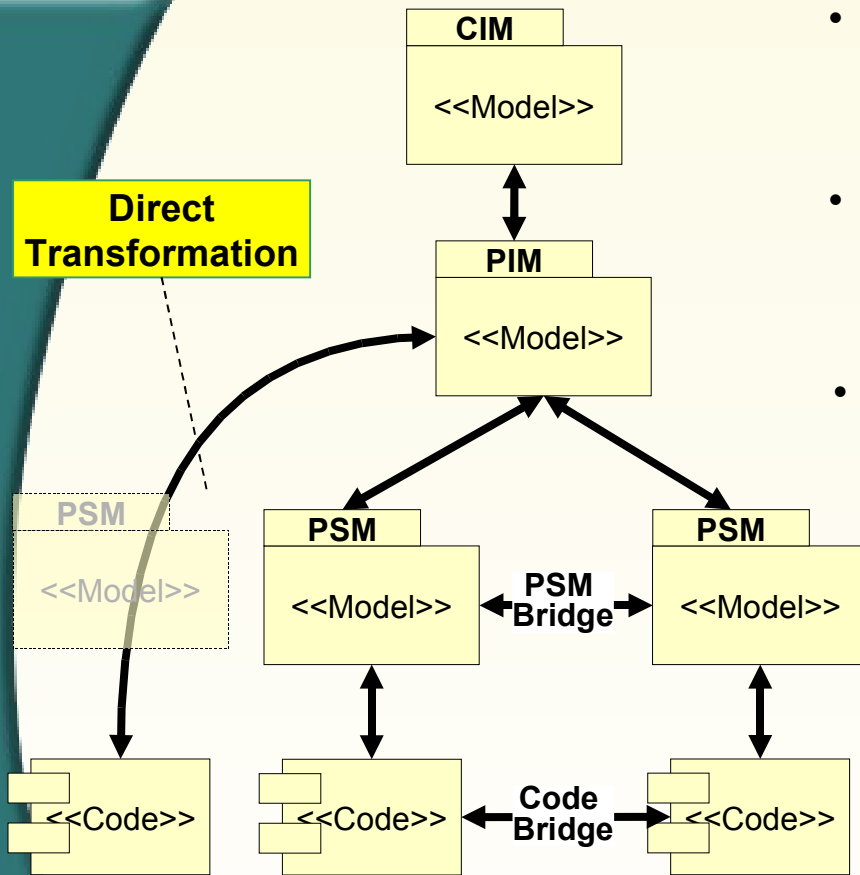
- The model is the place where most decisions are made
- The resulting application is portable across different *platforms*

With MDA, the application is built using different models, one per each abstraction level

- The portability of the solution is given by the *transformation of models* belonging to different levels of abstraction

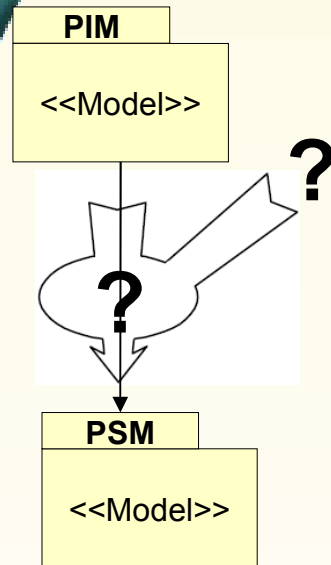


Models defined by MDA



- **CIM**, Computation Independent Model
 - Requirements model and business rules
- **PIM**, Platform Independent Model
 - The *application*, i.e. the description of the solution regardless of the specific platform
- **PSM**, Platform Specific Model
 - Model of the solution containing elements for the specific platform
 - Several applications can share the same way for mapping into a specific platform
 - The same application can be mapped into several platforms
 - Components of the same application can be distributed into different platforms connecting PSMs with *bridges*

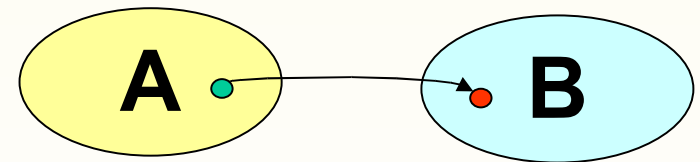
Possible transformations in MDA



- **Model transformation**

A model is converted in one or more models that describe the same system

- MDA does *not* specify transformation mechanisms or rules. This is decided by tool vendors, like the mapping between model and code is
- The transformation mechanism can be *automatic* or *manual*
- ARTiSAN MDA is base on an *automatic* model to model transformation



Support to MDA

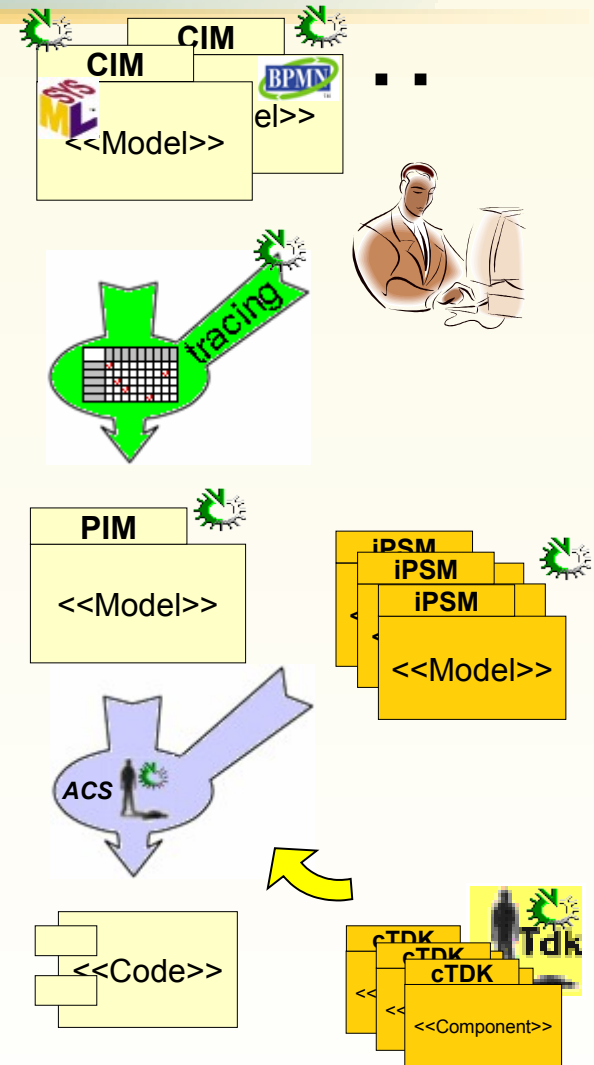
"The requirements for the system are modeled in [...] CIM describing the situation in which the system will be used." [OMG – MDA 3.1]

The conceptual model elements are linked to the PIM elements

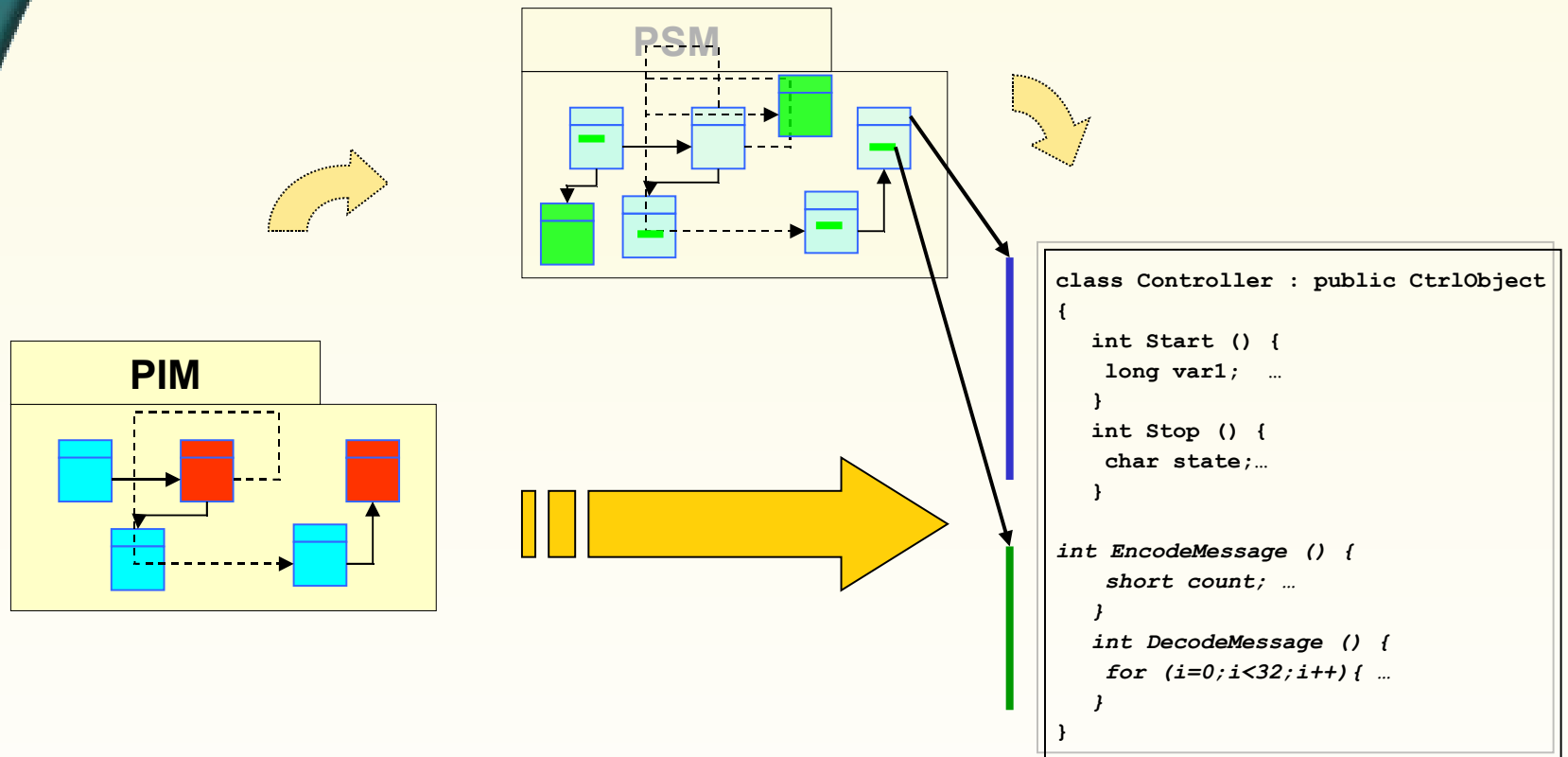
*The application is modeled independently from the platform. All the dependencies reside in the **iPSM**.*

Usually it is possible to transform the PIM automatically into code

- *By inserting the platform specific iPSM*
- *Transformation based on UML and model (pattern)*



Direct transformation



Direct transformation PIM to code