



CONFINDUSTRIA  
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*open innovation*

# **Modular product architecture**

## Product Architectures

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# What is product architecture

- The organization or chunking of the products functional elements and the definition of the interfaces between these elements
- It consists of 3 constituents:
  1. The definition of functional elements
  2. The mapping of these elements into physical components
  3. The specification of interfaces among interacting physical components

# Different types of product architecture

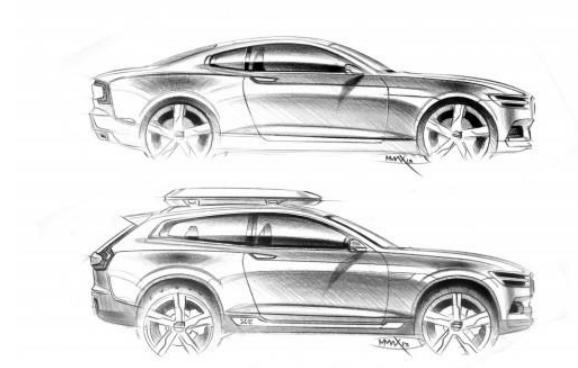
- Integral



- Modular



- Mixed



# Definitions

- Integral product architecture
  - Does not exist a clear relationship between functional elements and physical chunks: one function may be implemented by more chunks or one chunk may implement many functions (or part of functions)
  - In the integral product architecture usually interactions between chunks are not well defined
- Modular product architecture
  - A clear relationship is established between functional elements and physical chunks: each function is fully implemented by only one chunk (each chunk may implement one or more functions)
  - Interactions between chunks are well defined (with standardized interfaces)
- Mixed architecture
  - A mix of the above

# Different types of modular product architecture

- Slot
  - Each interface between modules is different, so different types of modules cannot be interchanged
- Bus
  - All modules are connected to a single bus with the same interface
- Sectional
  - All interfaces are of the same type and each module may be connected to every other

# Examples of different types of architecture

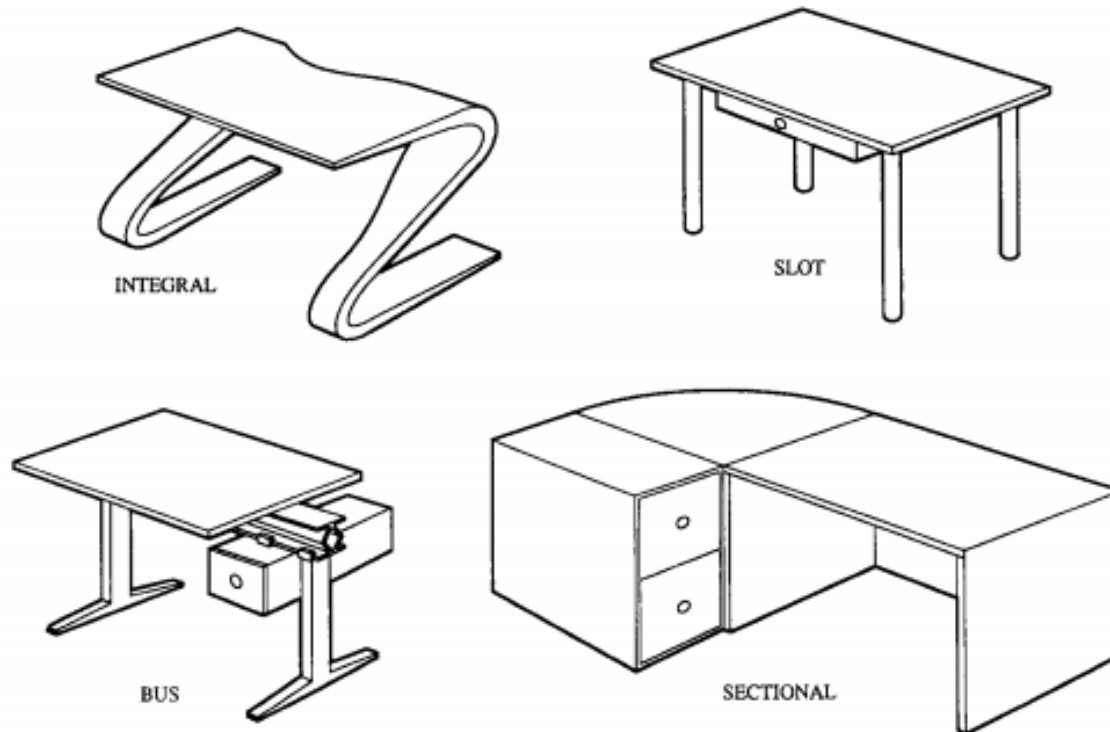
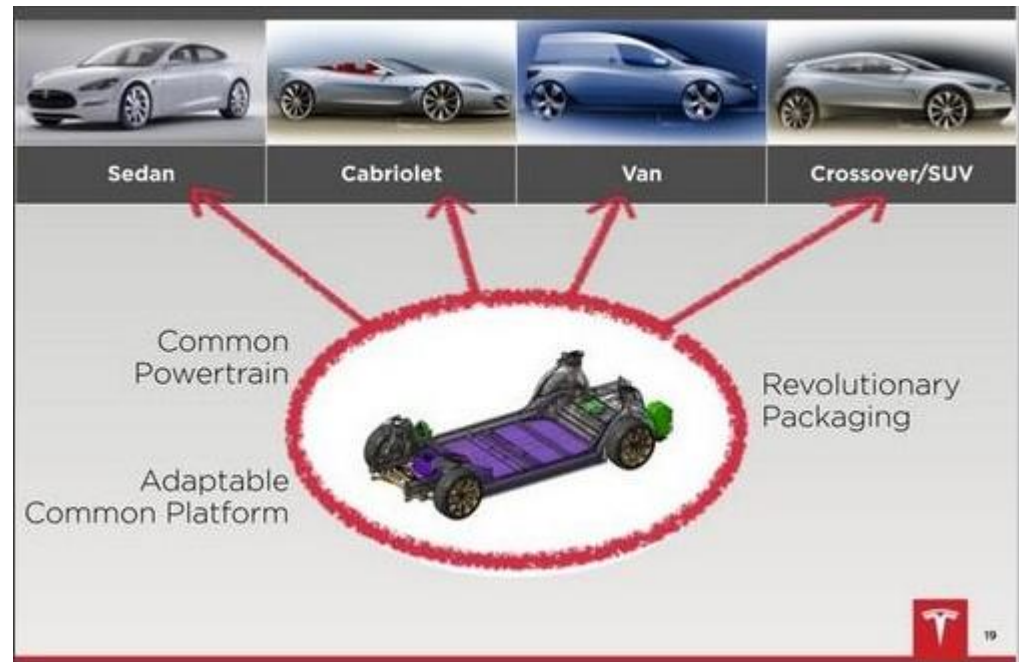


Fig. 6. Four desk architectures.

<http://www.mne.psu.edu/simpson/courses/me546/ulrich.prod-arch.pdf>







# Product platform

- A product platform is a set of modules and interfaces that form a common structure from which a stream of derivative products can be efficiently developed and produced



# Optional accessories

- Modules that may be included in a product configuration, but are not mandatory

 <p><b>18" ALLOY WHEELS</b></p> <p>Lexus 18" alloy wheels reinforce the stature of the FX, profile while contributing a distinct touch of personal expression. They are precision engineered for durability and balance.</p>	 <p><b>WHEEL LOCKS</b></p> <p>Replacing one nut on each wheel with a Lexus lock addresses wheel security, because the locks feature a unique coded key and a rounded profile that cannot be gripped by a conventional spanner. The locks are unobtrusive and have a chrome finish to blend harmoniously with the wheel design.</p>	 <p><b>FRONT SKIRT WITH UNDERRUN</b></p> <p>Designed to enhance the look of individuality, the Lexus front skirt with silver finish underrun emphasises the bold streamlined contours of the FX front bumper.</p>
 <p><b>REAR UNDERRUN</b></p> <p>With its silver finish and angular sculpted form, the rear underrun adds a striking visual highlight to the FX wrap-around rear bumper.</p>	 <p><b>SIDE MOULDING</b></p> <p>Side mouldings provide your vehicle with an extra layer of protection to help guard the side panels against minor bumps and scrapes. They are delivered primed and ready to be painted to match your car's body colour.</p>	 <p><b>HOOD DEFLECTOR</b></p> <p>The deflector is designed to aerodynamically integrate along the leading edge of the hood. It diverts airborne water, mud and stones away from the hood and windshield to help prevent damage.</p>