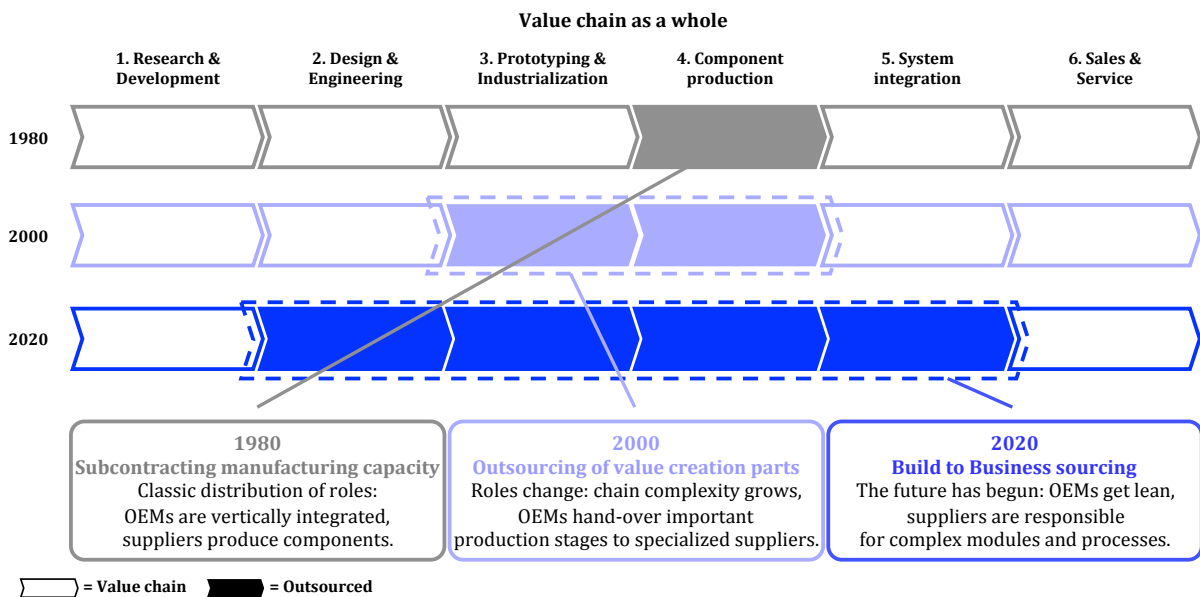




101 – Productization

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Nowadays Original Equipment Manufacturers (OEMs) increasingly unbundle and outsource manufacturing and assembly of modules up to sub-systems instead of component production only. Since the turn of the century they also outsource innovation and collaborate with suppliers in their development and design processes. As such value creation in the chain has shifted¹:



Consequently OEMs select suppliers that create value beyond manufacturing services. Value in terms of ‘products’ that are funded, developed, delivered and sustained by suppliers. ‘Products’ that stem from supplier owned roadmaps and are aligned with OEM roadmaps and requirements. Such suppliers have gone through the productization transformation and migrated from traditional Build-to-Print subcontractors to virtually integrated Build-to-Roadmap partners for several OEMs.

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¹ Amongst others BusinessWeek (2005), BOM (2007) and Brainport Industries (2008-2011).



1. PROPOSITION - WHAT IS IT ?

Productization is the transformation process wherein suppliers create value beyond manufacturing services, as they:

- ❖ Based upon own roadmaps, competences and funding, take a concept, technology or capability.
- ❖ Turn it into a fully marketed, developed, designed, industrialized, build, integrated, installed, maintained and sustained ‘product’ (modules up to sub-systems), reusable for several OEMs.
- ❖ Ultimately have ‘life time accountability’ for the ‘product’.

This definition emphasizes that the fundamental principle of productization is to understand how the customer (or even the customer’s customer) will use the ‘product’ of the supplier in such a way that it increases the value of its proposition. Furthermore this definition illustrates the changing relation between customer and supplier: traditionally the relation between OEM and Build-to-Print supplier was loose and interchangeable. Productization requires both companies to share customer insights, vision on the product and technology roadmap and understand the mutual dependencies and risks. These risks are managed in contracts, but handled in trust.

In the literature² four distinct company profiles - for OEMs as well as suppliers - and associated collaboration levels are distinguished that together create a holistic maturity model dedicated to the stages of productization:

| | | Maturity stage | | | |
|-----------------|----------------------|---------------------------------|-------------------------------|------------------------------------|-------------------------------------|
| | | No productization | Ad-hoc productization | Semi productization | Full productization |
| OEM | Company profile | Vertically integrated | Limited unbundled | Largely unbundled | Virtually integrated |
| | Core competence | R&D, D&E, Assembly, SI, S&S | R&D, D&E, SI, S&S | R&D, Sourcing, S&S | Research, SCM and M&S |
| | Sourcing strategy | Procurement | Sourcing | Strategic sourcing | Built 2 Business |
| | Performance criteria | QC (Spend) | QLC (Spend) | QLTC (NPI TCO) | QLTC (PLC TCO) |
| | Risks | Inflexibility (scale & scope) | Inflexibility (scope) | Accomplishment specs (application) | Supplier lock in (technology) |
| | Ownership | Client, IP, application, assets | Client, IP, application | Client, IP (fore / background) | Client, IP (background) |
| Relation | Collaboration | Arms lenght | Cooperative | Interdependent | Integrated |
| | Perspective | Short term (<1 year) | Short term (1-3 years) | Mid term (3-5 years, NPI) | Long term (>5 years, PLC) |
| | Scope | OEM & many suppliers | OEM & limited suppliers | OEM & few suppliers | OEM & value chain |
| | Specification | Single sided (OEM) | Single sided (OEM) | Single sided (OEM) | Mutual, two sided (OEM & Suppliers) |
| | Mechanism | Cost based (Time & material) | Cost based (Time & material) | Performance based (Deliverables) | Revenue based (Risk-reward) |
| | Trust | Convenient | Important | Necessary | Essential |
| Supplier | Company profile | Build-to-Print | Build-to-Print Plus | Build-to-Specifications | Build-to-Roadmap |
| | Output ('product') | Components | (Sub-) Assemblies | Modules | (Sub-) Systems |
| | Trigger | Drawing | Technical product description | Functional specification | Roadmap |
| | Core competence | Production | Assembly, Installation | Engineering, SI | Development, PM, PLM |
| | Risks | Expensiveness (Efficiency) | Expensiveness (Efficiency) | Feasibility specs (Effectiveness) | Applicability technology (ROI) |
| | Ownership | Assets (capacity) | Assets (capacity) | Application (capability) | Roadmap, IP (foreground) |

² Amongst others Prahalad and Hamel (1990), Quinn and Hilmer (1994), Monckzka (1999), Kaplan and Norton (2010) and De Man (2013).



In traditional Build-to-Print subcontracting the OEM specifies in detail how a component should be built. The metaphor for this relation is the technical drawing in print. In case of underperformance the supplier is exchangeable for another.

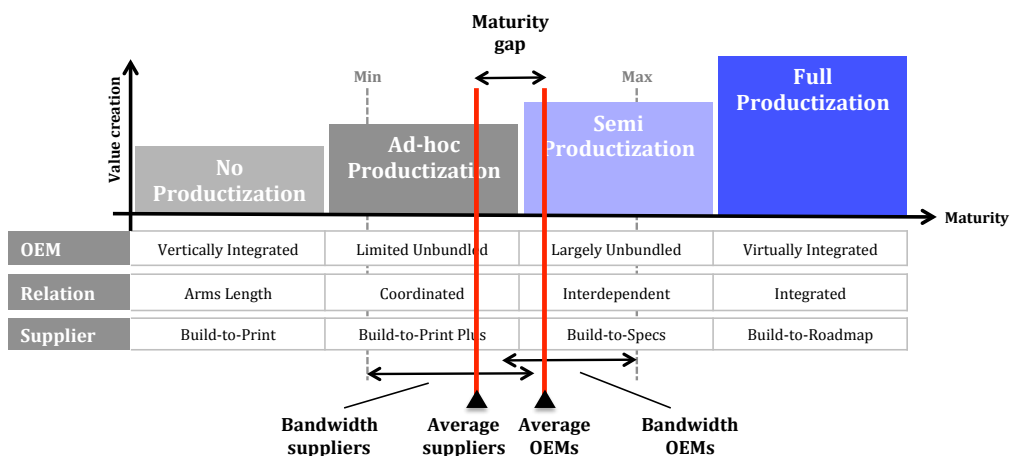
In the Build-to-Specifications constellation however a supplier responds to the specifications of the OEM by proposing a design and producing accordingly. To enable this OEM and supplier have to be able to work in multidisciplinary and cross-functional programs.

A next step is the OEM sharing its roadmap and future milestones. The supplier aligns by tailoring its technologies or capabilities to meet these milestones and by developing and delivering the constituting components as a module or sub-system: Build-to-Roadmap. The supplier ends up with life cycle responsibility and total cost of ownership of the modules that are part of the OEM system.

2. COMMERCE - WHY IS IT IMPORTANT ?

Recent research³ amongst leading OEMs and suppliers in Dutch high and medium tech sectors illustrates that they perceive the need for productization. Powered by core competence focus, yet inhibited by dependency and internal resistance, OEMs push suppliers towards productization. Driven by growth and customer lock-in suppliers in their turn consider productization, yet they frequently lack the value adding capabilities.

To date productization is situational, only a few cases exist in the Netherlands. OEMs are at the semi-productization maturity stage, suppliers however are at the ad-hoc maturity stage, with a Build-to-Print Plus profile. This implies an OEM-supplier maturity gap:



³ Praetimus – ‘Productization of supply companies’ – January 2016.



Nevertheless OEMs can only be successful when they have strong suppliers in their immediate proximity and suppliers can only be competitive when they are able to meet OEM demand. Therefore both OEMs and suppliers in the Netherlands have work to do.

3. OPERATIONS - HOW DOES IT WORK ?

It is well established that six business elements need to be addressed to take a transformation step by step in order to control a company's performance and direction⁴. These six business elements can be identified as Business Model & Strategy, Management & Organization, Processes & Supply Chain, People & Culture, Information & Infrastructure and Performance & Improvement.

The basic notion is that a company - be it an OEM or a supplier - cannot migrate itself in a 'big bang' into an aimed for company profile: to realize a successful transformation all business elements of a company must be reinvented in a balanced manner and adapted in stages. Transforming for example a company from a Build-to-Print into a Build-to-Specifications supplier takes several steps: restructure the organization, set-up new and redesign existing processes, align the footprint, infrastructure and assets, add and expand content and collaboration capabilities, adjust KPIs, governance, contracting mechanisms and change management practices, risk appetite and funding, and finally a gradual cultural change and intensifying confidence.

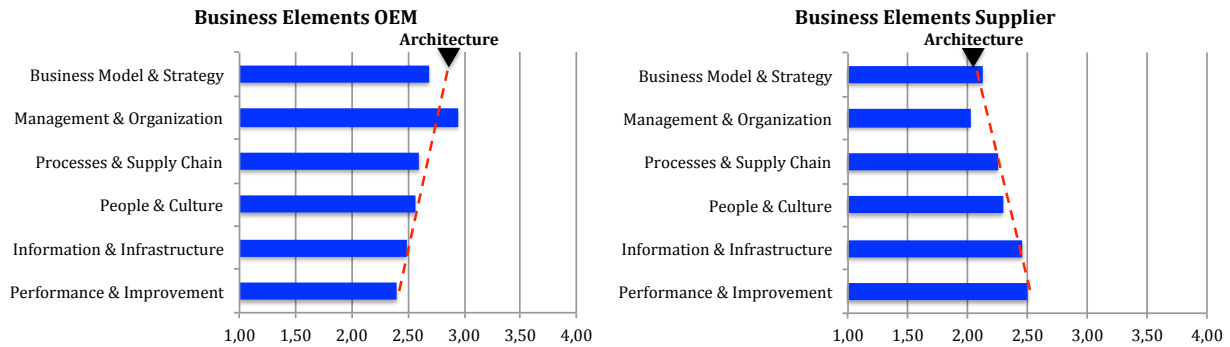
Apart from the earlier mentioned maturity gap the research⁵ also found a discrepancy in business perspective and architecture between OEMs and suppliers, indicating an OEM-supplier transformation gap:

- ❖ OEMs transform easiest in strategic and tactical business elements Management & Organization and (to a lesser extent) Business Model & Strategy. They seem to apply a (proactive) long-term business perspective, but in practice often use a short-term (financial) procurement approach.
- ❖ Suppliers transform easiest in operational business elements Information & Infrastructure and Performance & Improvement: apparently they are relatively target (KPIs) and progress focused. Suppliers appear to have a (reactive) short-term orientation, with limited business focus.

The OEM-supplier transformation gap is reflected in the shape of the business architecture and differences in maturity levels of the underlying business elements between OEMs and suppliers:

⁴ Nolan and Croson (1974).

⁵ Praetimus – 'Productization of supply companies' – January 2016.



Due to this double gap - maturity and transformation - today's supplier propositions insufficiently meet the demand of OEMs and bridging this mismatch can be characterized as 'the hopping procession of Echternach': three steps forward, two steps backward. And that is not a good thing for the supply sector in the Netherlands: in this way Dutch OEMs will in time set their sights abroad and their collaboration with foreign suppliers grows. Therefore, there is work to be done, both for suppliers and OEMs. Acceleration is required, starting with:

- ❖ OEMs should align their business and sourcing: pursue long-term business impact and focus on value instead of transaction based 'win-lose' procurement thinking, bickering over price and geared towards short-term financial savings.
- ❖ Suppliers have to focus in profile (Build-to-Print or Build-to-Specifications or Build-to-Roadmap instead of 'and-and-and'), business model (in tier and core competences) and transform their business architecture subsequently.

4. FINANCE - HOW DOES IT CREATE VALUE ?

OEMs in the Netherlands intent to outsource at a higher - that is wider and deeper - level, now more than in the past. However, they struggle to find and collaborate with Dutch suppliers that have gone through the productization transformation. To date only a limited number of suppliers migrated from Build-to-Print component manufacturer to Build-to-Specifications supplier and almost none to Build-to-Roadmap partner. Meanwhile OEMs expect them to do so. As such productization relates to the core of the competitiveness of the Dutch industry and in the long run the preservation of craftsmanship and employment in the Netherlands.



Moving into the direction of a Built-to-Roadmap supplier can be seen as an attractive option: multiple sources⁶ give the impression that 'climbing up the chain' towards the end market generates higher margins. Some nuance, however, seems appropriate here: a recent sample⁷ of some hundred Dutch companies in high and medium tech sectors indeed indicate that larger OEMs with a margin of over 13% do almost twice as well as smaller OEMs and do also better than the average supplier. But smaller, specialized 'mean and lean' suppliers do at least as well: over the years they realize a margin of around ten percent, with peaks of almost 14%.

Despite OEM pressure not every supplier will or should become a Build-to-Roadmap partner. Certainly not. Transforming to such a profile imposes serious requirements, including:

- ❖ **Way of working.** From capability based activities to multidisciplinary development programs, with both capability and project managers. And ultimately from a time-based program, with a portfolio of projects with a start and an end, to life long 'products' that never 'stop'.
- ❖ **Mindset.** From a reactive 'Your wish is our command' attitude towards a proactive, committed and target and customer based culture.
- ❖ **Focus.** Alongside continuous development and maintenance of the proprietary technology and application, focus should be on the product and the market, not at a single OEM but on sectors and multiple OEMs.
- ❖ **Investments.** Obviously in roadmaps and engineering and program management capabilities, but also in marketeers, business developers and people that understand IP protection.

Aforementioned requirements are rigorous, usually too rigorous for 'a big bang'. Or stated differently, it requires a transformation with intermediate steps that brings a company to a relative stable next stage. Unfortunately though, suppliers that take steps towards a Build-to-Roadmap profile should transform their entire business architecture rapidly, after all a mixture in profile and business model induces a blurred chain positioning and will eventually lead to lower profitability.

⁶ Amongst others CBS (2009-2013) and Management Team – 'Maakindustrie Top 100' – (2013-2015).

⁷ ABN AMRO – 'Toeleverancier blijven of eigen product gaan maken?' – January 2016.