



# Enhancing competitiveness of European SME iron foundries by full customer service concept fitting together local production and outsourcing

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## ABSTRACT

Even during current market boom, competitive operation of customer driven small and medium sized (SME) iron casting foundries in Europe is challenged. Pressures related to customer service, times and reliability of deliveries, series sizes, pricing and rising costs are directed to foundries. An emerging business model for SME iron foundries is presented to enhance their ability to serve wider range of customers and product sectors in sustainable and profitable way. In the presented model, foundry company acts as a full service provider and as a business network hub, providing customers with all the proximity advantages of local resources and service, combined with the benefits and capacity of remote low-cost country (LCC) outsourcing resources. General background of the model and the preconditions for successful implementation of it, are discussed.

Keywords: Foundry industry, business model, outsourcing, networking, cast iron

## INTRODUCTION

Currently, a period of very high demand of manufactured products is going on in Europe. At the same time, global competition has tightened <sup>1</sup>, markets and technology are changing rapidly, product life cycles are shortening, raw material prices have risen, and general uncertainty has increased. To meet these challenges, original equipment manufacturers (OEMs) have focused on their core competencies and outsourced non-core activities <sup>1,2</sup>. Outsourcing to low-cost countries is appealing, because labour cost level per one average industrial worker, for example, in China is around 5 % of that of Finnish level <sup>3</sup>. Imports from low-cost countries (LCC) have already affected many consumer product sectors, and this process is spreading in many industrial and investment product sectors.

In addition to global competition, castings users' requirements are changing. A study about castings users' perspectives of foundries as suppliers has been conducted <sup>4</sup>. Castings users expect foundries to offer globally competitive price level that will be lower year by year. Foundries are also expected to be flexible and deliver at short notice with close to 100 % delivery reliability. Other studies <sup>5,6</sup> support the

findings that suppliers are expected to be agile and flexible. In addition, castings users want to buy ready-to-install components or even subassemblies instead of raw castings. However, customers' views over deeper product development co-operation are mixed. Good service and technical support is expected <sup>4,7</sup> but foundry company's deep penetration into their product design and development process is not desired <sup>8</sup>.

Changing business environment and customer requirements set challenges for competitive operation of European small-and-medium sized (SME) iron casting jobbing foundries. Even during the current market boom there are problems such as long delivery times, shortage of capacity, low delivery performance and inflexibility in production methods and systems. However, it will be even much more problematic to stay competitive and profitable if both the demand and prices of castings stagnate or start to go down.

This study focuses on the special business environment and operating conditions of the European customer driven iron casting SME jobbing foundries. Generally taken SME jobbing foundries tend to be associated with flexibility, good delivery performance and close customer service. However, even if the customer and product spectrum may be wide and scattered, most SME jobbing foundries offer relatively narrow actual range of supply. Technical flexibility of SME jobbing foundries is typically connected to manual moulding and to use of a few relatively small capacity induction furnaces. Thus, casting size and configuration range may be relatively wide, and melting batch size quite small when necessary. On the other hand, typically, production is labour-intensive, material range is limited and manual moulding does not suite well for competitive series production. Thus, typical SME jobbing foundry is actually seldom very flexible nor able to fulfil a large range of demand of cast components of any given customer.

Typical scattered customer base and range of product segments of SME jobbing foundries differ significantly from those of larger automatic moulding line foundries and specialised in-house foundries. These differences have protected SME companies from the most direct competition from other types of foundries. This may well apply also on the effects of LCC import, since imported castings are likely



to be long series castings. If the current boom stagnates and LCC supply hits the larger foundries, they have to re-assess their service concepts and strategies. Thus, repercussions of LCC import and generally lowering price levels may be expected to affect also SME jobbing foundries. This effect is currently moderated, in a significant extent, by the strong global general demand of castings.

Far-off or LCC outsourcing has been well and long exploited in numerous global industry branches. However, in the iron castings business it is not highly developed and has a limited relative volume. It is the large long series manufacturing companies, e.g. within the automobile industry, which have carried out most significant cast component outsourcing to LCC. Jobbing foundry business is currently less connected to far-off outsourcing. However, there are now numerous readily available dedicated marketing organisations operating at the low-cost production regions, and outsourcing agencies operating inside western countries or from the LCC countries (e.g. Metexim, China Sourcing Express, International Purchasing Group, The Simmons Group, Asian Castings Consortium, SinoScan, The Outsourcing Network and numerous others). Their main service is to help western customers to purchase or order castings from far-off foundry companies. Some of them offer certain management services for more complex or continuous outsourcing relations. In all of these cases, these “broker” activities do not incorporate many of the functions of an actual foundry company, such as financing production, owning the products, real product development support or technology transfer, nor logistics that ensure high delivery performance. Thus, direct LCC outsourcing is still difficult and even risky approach for a SME customer or short series buyer, compared to exploiting the high-cost services of local SME jobbing foundries.

### URV FOUNDRY LTD. CASE STUDY <sup>9,10,11</sup>

URV Foundry Ltd. (URV, Uudenkaupungin Rautavalimo Oy) is the first iron casting foundry in Finland that has commenced combined exploitation of its own production and far-off outsourcing. Earlier there has been only limited non-continuous low-volume LCC castings outsourcing broker activities in Finland. From the very beginning, the outsourcing approach of the URV Foundry Ltd. has been well deliberated and conducted. Knowledge and previous experience about castings outsourcing services, for example as an agent, was available to the management when the business concept was conceived. At that time, there were really no known examples to follow within the iron casting markets. The closest parallel models were from aluminium pressure die casting business. A choice between staying within long-term stagnating domestic operation, focusing on special products or to find a way to grow into international markets, was confronted. One of the driving forces for commencing company’s current business model was the will to find a way to turn the outsourcing into working sustainable and profitable business with reasonable investment costs.

URV Foundry Ltd. has developed a clear and definite business model called “URV Supply System”. It includes four main sectors of co-operation and relationship

management, essential to the successful operation of the business hub model:

- Customer service and co-operation
- Far-off outsourcing partner relationships
- Subcontractor and expert relationships
- The “own production” i.e. local homebase foundry

Furthermore, marketing and technology licensing services have been associated to the URV Supply System.

Former information about the business thinking at URV Foundry Ltd. emphasised the Finnish and Swedish proximity markets. However, current core of the URV Supply System is orientation to global customers and producers. The service that can be provided world-wide is imperative. For the customer, company provides a global one-window-service and takes the full responsibility over the delivery performance and product quality.

Currently URV Foundry Ltd. has 10 Chinese outsourcing foundry partners and 1 Estonian foundry partner. The dramatically growing total turnover year 2006 was ca. 21 M• (million Euro) and is now at level of ca. 25 M• (2007, est.). Of that, currently ca. 50% is returns from sales of own production and the other 50% from rapidly increasing far-off outsourcing (Fig. 1).

It is the view of URV Foundry Ltd., that the timing of implementing the selected concept was just a bit late concerning the general globalisation. On the other hand, timing was perfect considering the then beginning local castings demand boom. Regarding the possible beginning competitors adopting similar business plan, URV Foundry Ltd. is not really worried. Followers are considered to be rather late and to not constitute any great threat, because constructing the service and supply systems and gathering competent staff takes years.

Regarding the future of European castings production and the role of far-off outsourcing, the insight of the URV Foundry Ltd. management is that the growth in the BRIC (Brazil, Russia, India, China) markets will still keep up huge demand of engineering products. Thus, the LCC import does not devastate the European markets seriously. On the contrary, both the European engineering product manufacturers and the BRIC industry are considered to form a strong global demand benefiting both European and LCC foundries, and there will be significant volume cross exporting, too.

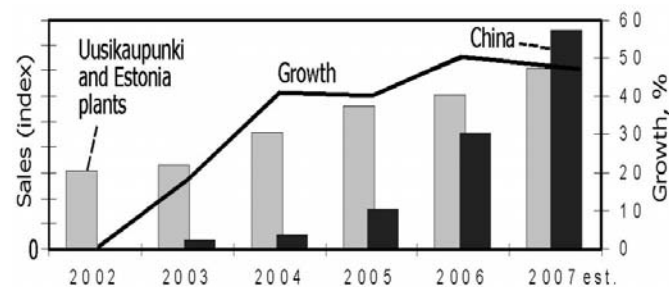


Fig. 1 : Growth trend of the URV Foundry Ltd. sales during the period of utilisation of Chinese outsourcing resources. <sup>9</sup>

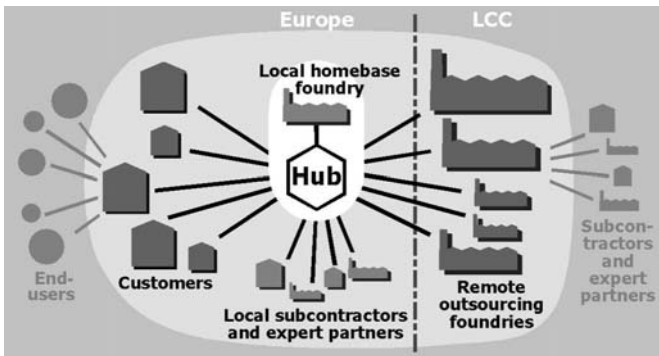


Fig. 2 : Schematic presentation of the business hub centred full service concept.

URV Foundry Ltd. considers that “own production” close to the main customers area is an absolutely necessary part of its successful business. High delivery performance, quick ramp-up and customer support would not be possible without it. The role of the own production is described as extremely valuable regarding, for example, know-how, production method development, and demanding prototype, single casting, short series and back-up production. The company has also invested in material research, and even developed its own high strength grade ‘URVA’ ductile iron.

Only limited amount of cases and information of business activities comparable to the one of URV Foundry Ltd. can be found. In the case of Clay and Bailey Manufacturing Co. in USA, running not only castings production, somewhat similar outsourcing activities, are reported <sup>12</sup> regarding its combination of own and outsourced castings production. Interesting information is given specifically regarding preconceived attitudes of some USA customers to far-off LCC outsourcing and to the outsourced castings. For a variety of reasons, including customer service, quality and delivery expectations, some demanding customers are reported to exhibit significant reservations and are even turning down lower-cost options and demanding only homebase foundry products.

## RESULTS

A new business model is hereby formulated for the European SME iron casting jobbing foundries. It is based on observations regarding:

- high-cost level European business environment and foreseeable threats
- available means to gain higher sustainability and competitiveness
- requirements set by the customers needs and expectations
- developments in the globalising iron casting markets, outsourcing business, LCC import and supply chain systems
- experience and emerging features in the business models of pioneering companies

In the presented model, the foundry company acts as a full service provider and as a business network hub (Fig. 2). Wide range of customers can be provided with all the proximity advantages of local resources and service, and also with the benefits and capacity of remote low-cost outsourcing resources. Thus, even a SME foundry company can increase its flexibility and attain resources comparable to much larger competitors in a competitive and sustainable way, with relatively small investments. This model is also in accordance with the general developments in the supply chain and outsourcing operations within the current globalisation trend. The investment and additional costs related to the full service and operation of the absolutely necessary homebase foundry shall be partly covered by the returns from the outsourcing business.

To master the inherent problems rising from the far-off outsourcing set-up and to deliver all the proximity benefits from local production and customer support, and to optimise the logistics of utilising different product sources, the hub has direct production control on a highly agile and flexible homebase or “in-house” foundry. The main objective of keeping up a homebase foundry close to the main customer area is to gain excellence in customer service and delivery performance. The necessity for flexibility, agility and quick deliveries, covering wide range of prototype, test and short series production, supplementing and backing up outsourcing and generally ensuring the speed and reliability of deliveries (Fig. 3), is imperative. Flexibility, agility and delivery performance requirements incorporate abilities to:

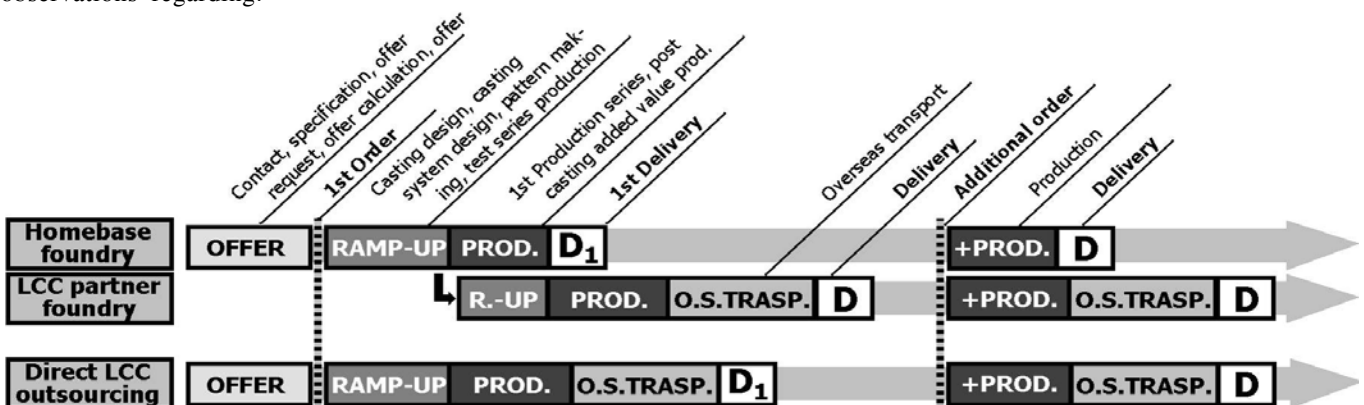


Fig. 3 : Schematic simplified exemplary comparison of ramp-up - production - delivery timeline for combined local and remote outsourcing production vs. direct remote outsourcing or contracting in typical jobbing production.



- cast and finish wide range of products (size, iron grade, complexity etc.)
- quick first deliveries and quick deliveries of prototype castings, and test and short series
- speed-up ramp-up phase also in the partner foundries
- cover outsourcing delivery hiccups and patch quality problems
- quick production of replacement components in emergency cases

Methods to gain high quality, flexibility and agility in the homebase foundry production include technical excellence in wide range of product and production know-how, and also utilisation of techniques such as manual flaskless moulding and patternless moulding, flexible melting equipment and practices and wide cast iron material range. Thus, production of wide range of as-cast and heat-treated low-alloyed graphitic and white irons grades should be mastered.

The hub shall be the sole collector and distributor of the flow of business in a meaningful volume. The volumes should also be as predictable as possible. The economy of the far-off outsourcing is strongly dependent on the production batch sizes and total volumes. For the best possible performance and quality, orders shall be allocated to the available foundry best suited for given specified production, from a diverse enough coalition of foundries. From the point of view of the outsourcing production partners, the business hub service has to excel and work on win-win principle. The hub has to clearly be the easiest, the most effective, trustworthy, co-operational, supporting and committed servant generating visible long-term benefits and profit for the far-off outsourcing partners, as well as for the customers.

The technical excellence of the local customer service, networking and subcontracting is crucial. From the point of view of the customer, the service must work on one-window principle as if the production would take place "next door". All the advantages of modern ICT (Information and Communication Technology) techniques and tools are to be exploited. To solve customers problems and to optimise the cast product, special engineering expertise about a wide range of products is needed either in-house or as outsourced to an external engineering bureau. Accordingly, to provide the customers with the complete finished cast component or sub-assemblies, an access to a network of specialised subcontractors, is needed. The personnel in the hub, especially the management, should be able to work internationally. Knowledge about the business environment of the customers, subcontractors and partners is vital.

The hub shall be solely responsible to the customers of the quality of the products and deliveries. Subsequently, caution should be applied in choosing the outsourcing partners and controlling the quality of their production. There should be readiness to share production know-how with the producers and to cover any quality and delivery problems by the homebase foundry production. Close relationship with open communication is needed. This may include significant production technology transfer, i.e. also creating a risk of

know-how leaks, and requiring that part of the engineering staff will be more or less permanently stationed in the outsourcing local. The customer and the far-off outsourcing foundry should not be in direct contact. This may be assured by legal contracts and by disciplinary control of the orders and, if necessary, removing a rogue foundry from the network.

## DISCUSSION

Combining own production with outsourced production is nothing new in numerous global branches of industry. In the case of SME level iron castings production, the experience and example of the URV Foundry Ltd. company has been indispensable. It has shown a fresh approach into manageable outsourcing and into the full service concept. However, hereby presented service concept model has a few differences, or dissimilarities in emphasis, as compared to the Supply System of URV Foundry Ltd. Firstly, URV Supply System has to be characterised as market driven. This is, even if the customer service has an emphasised status. Regardless its relatively small size, the company exhibits global market attitude towards customers and producers. Hereby presented business model is rather focusing on local customer driven European SME jobbing foundries, strengthening their profitability and competitiveness and increasing the supply spectrum and service performance. Combining own and LCC outsourcing production is the way to accomplish these goals and to fund it all. One may also say, that in current model it is more question about a "survival plan" for the SME jobbing foundries, than a plan for global expansion and success.

From the point of view of the exporting Far East castings producer, international large end-product manufacturers differ, of course, substantially from European SME foundry companies turning into outsourcers. It may still be quite attractive to gain access to European markets, including the scattered jobbing markets, without huge own marketing and customer service effort. If the small order streamlets can be gathered to form larger streams, this demand may constitute large and continuous enough volumes to interest even the large capacity LCC producers.

It is, perhaps, not so fashionable to present business concept incorporating "lesser focusing", wider spectrum of service, products and customers, ultra flexible own production capacity and, stronger and more open and deeper binding with customers and production partners. One may, of course, ask: Back into the past, or back into the future?

## CONCLUSIONS

European customer driven SME iron casting jobbing foundries do have development opportunities to gain better competitiveness and sustainability of business, even if the business environment and customer demands are getting tougher and the low-cost far-off import increases. A working new business model incorporating combination of own production and outsourcing and a one-window full service concept, is presented to meet that goal.



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