

Drivers and Barriers of Cross-laminated Timber (CLT) Production and Commercialization



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Abstract

Cross-laminated timber (CLT) was introduced to the Austrian and German markets in 1999 thanks to collaborations between the private and academic sector. Since its introduction, this construction system has slowly expanded through Western Europe, Japan, Australia and most recently Canada and the United States (US). This project investigated through a case study methodology the main challenges and barriers that CLT panel manufacturers in Western Europe had to overcome to successfully manufacture and commercialize CLT panels. Learning of the failures, successes and best practices of CLT pioneering companies in Western Europe is considered a key aspect to support the potential developing of CLT manufacturing capacity in the US. It is expected that current engineered wood products firms, investors and policymakers in the US will benefit of these results. The primary findings from this research for CLT panel manufacturing is related to the following factors: consistent supply of high quality raw material, vertical integration with lumber suppliers and glulam producers, efficient and effective management of the information flow, and proper logistic and transportation operations.

Goal and objectives:

This poster will provide an overview of the main drivers and barriers that CLT manufacturers in Western Europe had to overcome to streamline production of CLT systems.

Methods

A case study methodology was used to collect data through semi-structured interviews and observation of the CLT panel production facilities. In addition, suppliers of CLT manufacturing equipment were asked about the main challenges to begin CLT production to triangulate the data obtained from the interviews at the CLT production facilities. Interviews with suppliers were conducted during the 2017 Ligna show in Hannover, Germany.

Acknowledgement:

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Results

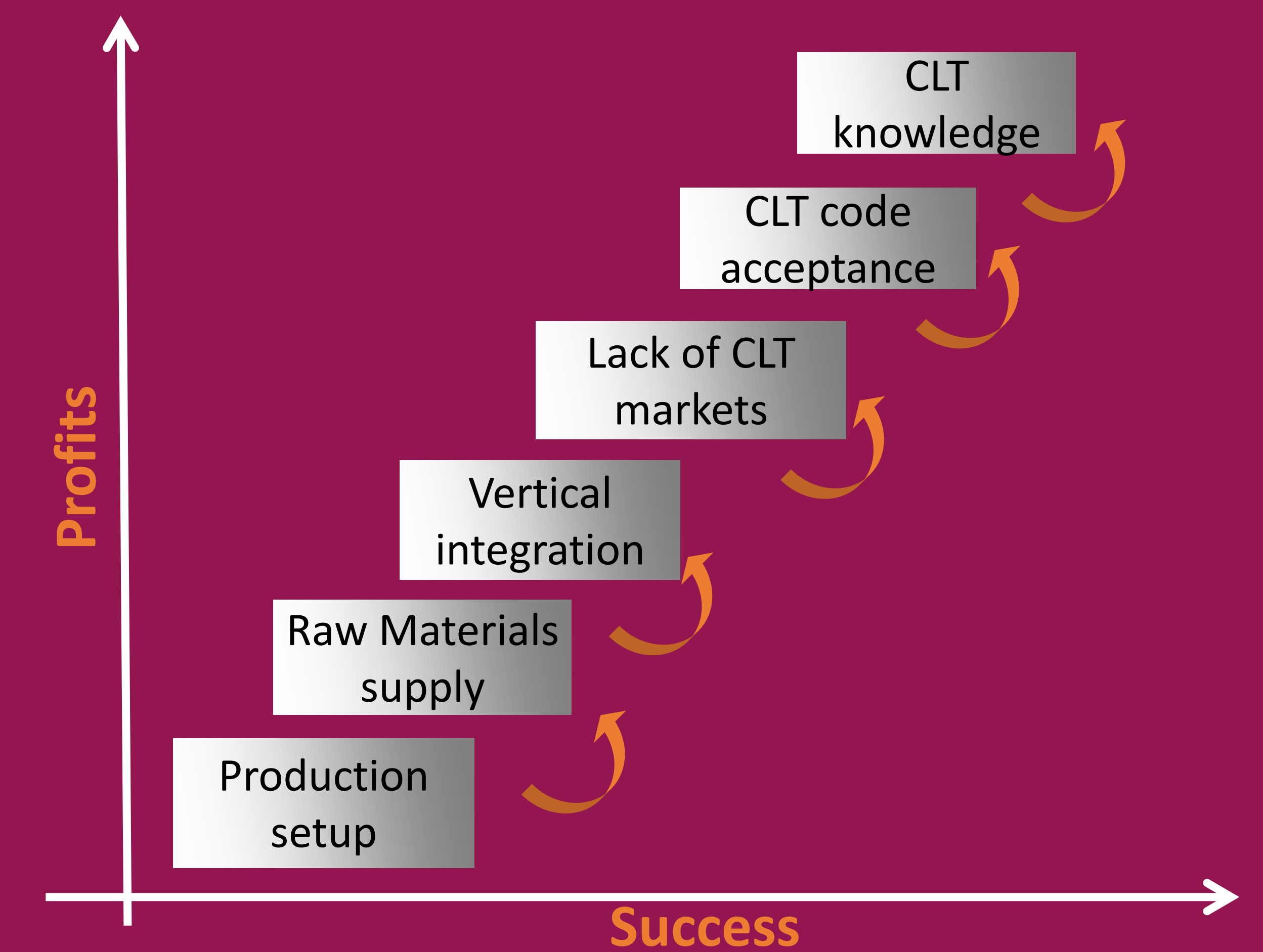
Main demographic aspects of selected companies

Demographic aspect	Company 1	Company 2	Company 3
CLT production capacity	65-75 thousand m ³ /year	65-80 thousand m ³ /year	95,000 m ³ /year
Species	Spruce and Fir	Spruce	Spruce
Markets	Europe, Australia and the USA	Global	Austria, Germany, France, UK, Italy, Sweden, Norway and the USA
Number of employees	50	40	175
Time producing CLT systems	Since 2008	Since 2012	Since 1999
Produced products before CLT	Lumber and engineered wood products	Lumber and glulams	None. First product

Drivers to start-up CLT production

<p>Financial</p> <ul style="list-style-type: none"> •Revenue •Profits •Return of investment 	<p>Integration</p> <ul style="list-style-type: none"> •Architects •Engineers •CLT production
<p>Collaborations</p> <ul style="list-style-type: none"> •Industry •University •Government 	<p>Raw material</p> <ul style="list-style-type: none"> •Quality •Consistency •Closeness
<p>Product uniqueness</p> <ul style="list-style-type: none"> •Customization •New product •Renewable material 	<p>Technical support</p> <ul style="list-style-type: none"> •Education •Technical specifications •Post-sale
<p>Infrastructure</p> <ul style="list-style-type: none"> •Transportation network •Current manufacturing 	<p>Pioneering</p> <ul style="list-style-type: none"> •Innovation •First in the market
<p>Verticality</p> <ul style="list-style-type: none"> •Sawmill •Glulam •CLT production 	

Barriers to start-up CLT production



Conclusions

- A CLT production line ranges from US \$10 to US\$ 30+ million for a 50,000 m³/year CLT mill.
- Main barriers for CLT start-up are: consistent supply of high quality raw material, vertical integration with lumber suppliers and glulam producers, efficient and effective management of the information flow, and proper logistic and transportation operations
- Even in Europe, the acceptance of wood and wood products such as CLT as safe and high-performance construction material is still rejected by many groups.
- Wood products supporting organizations and universities must continue to educate architects, builders, contractors, policymakers and the general public on the use and environmental impacts of CLT construction systems.
- Government support of CLT construction systems could be significant in incorporating wood products in new or remodeling of public buildings such as hospitals, schools, fire stations, windmills towers, etc. These projects could serve as case studies and demonstrations to showcase the advantages of CLT construction systems.

Additional information:

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