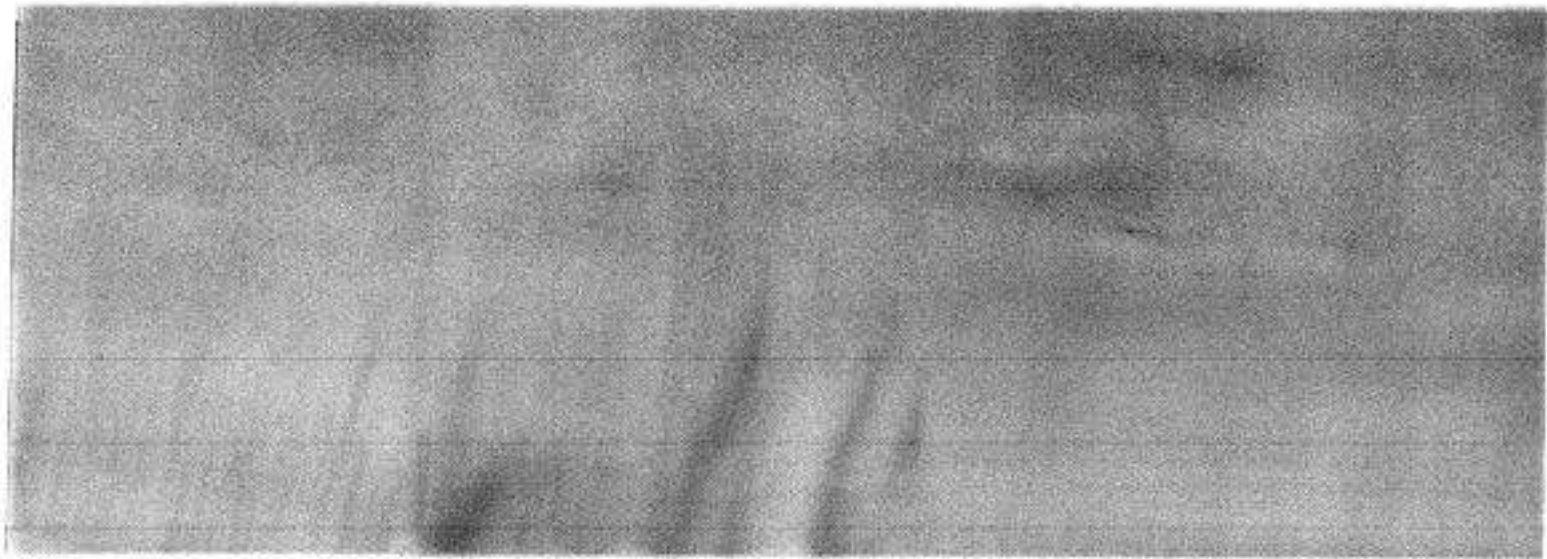
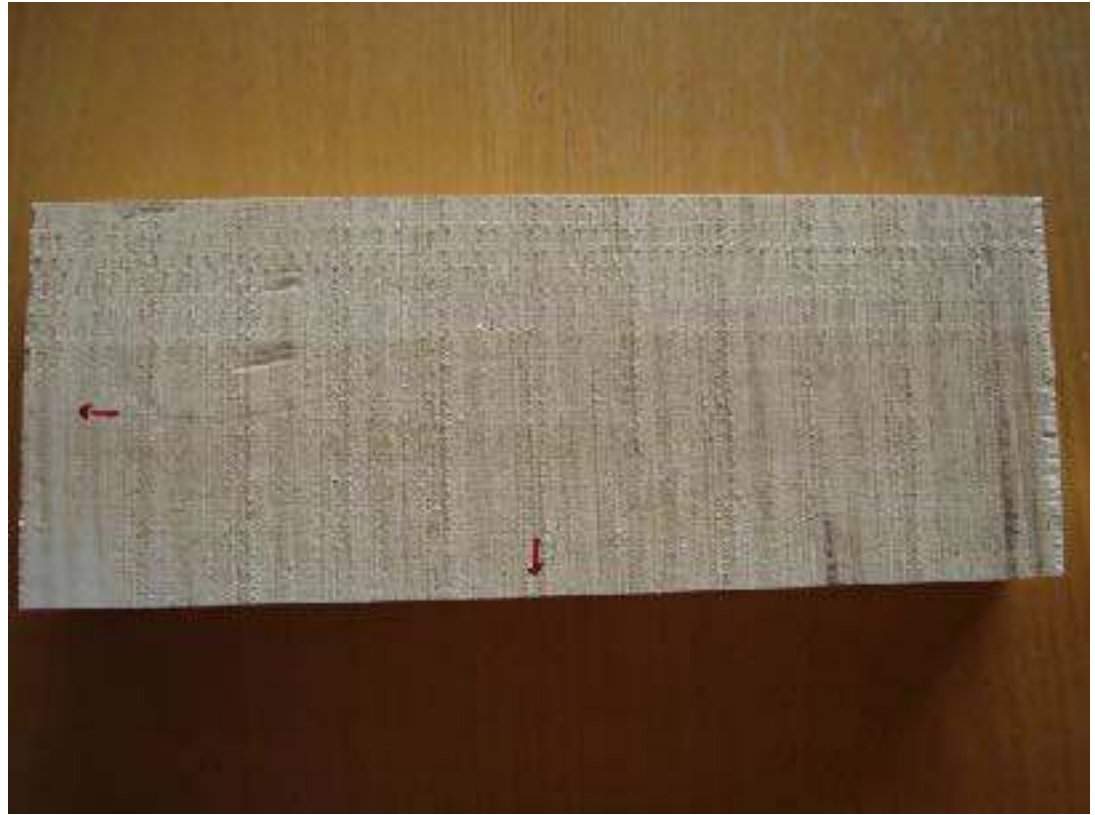
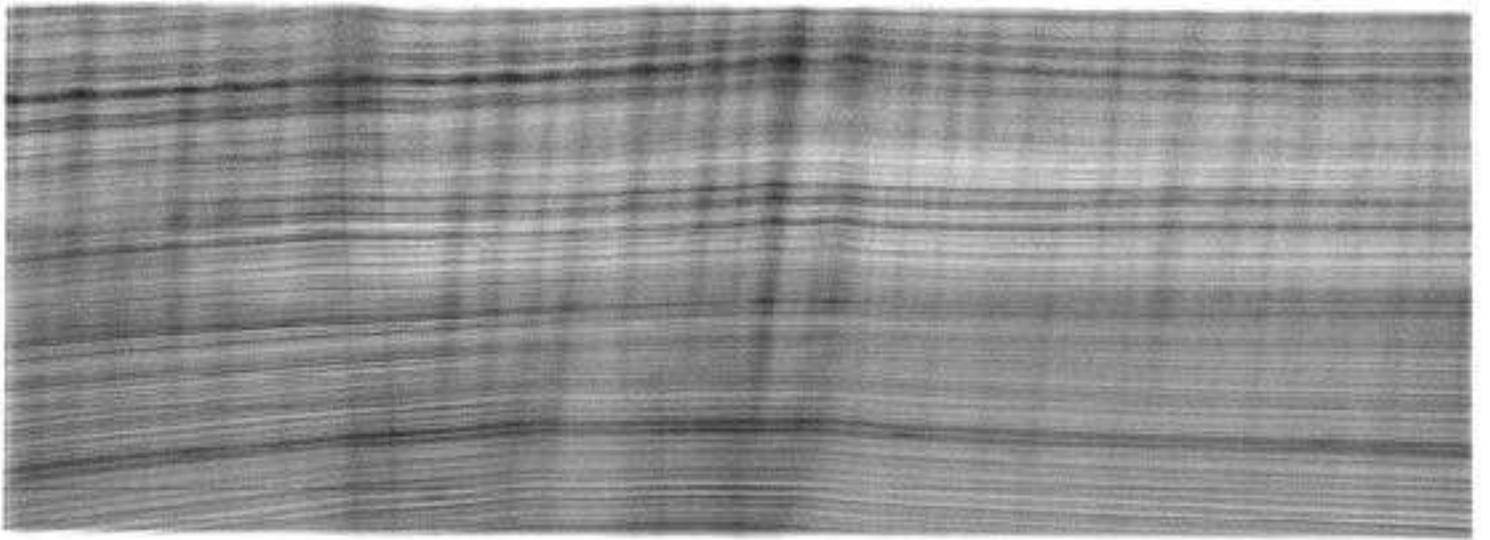
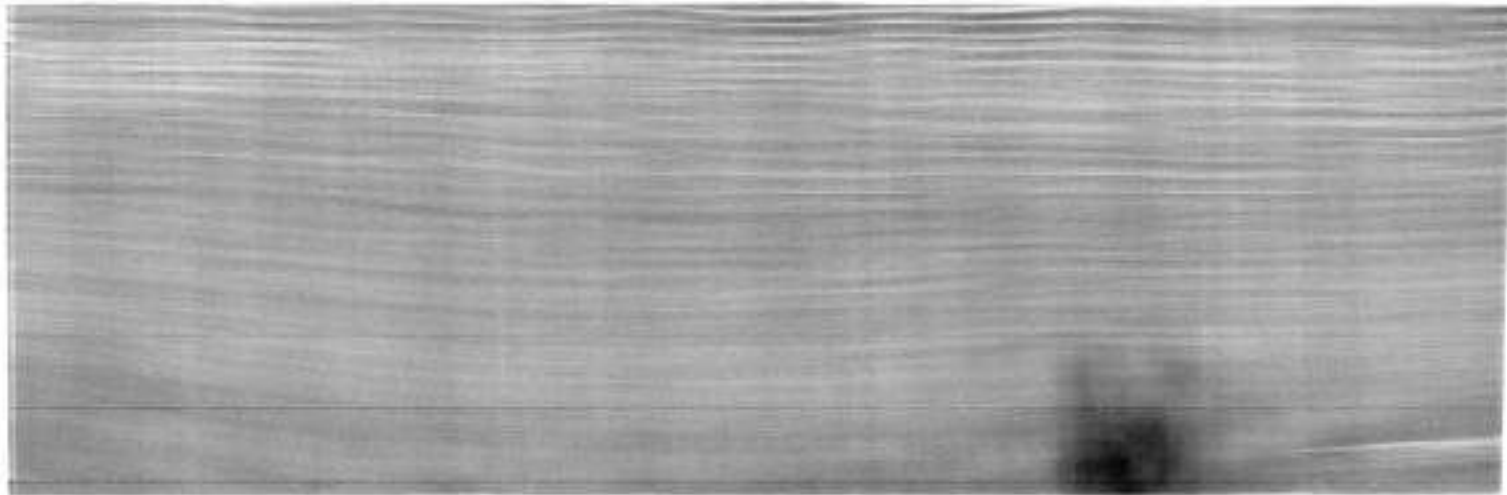


Møbelindustrien er afhængig af råvarer af bedste kvalitet. Priser på møbeltræ er høje, og spild der opstår som følge af fejl (knaster, revner, fremmedlegemer) er en stor omkostning. Fejl kan kun identificeres visuelt ved overfladeinspektion, på et meget sent tidspunkt i fremstillingsprocessen. Kassation udgør sammen med driftsstop en stor omkostning og medfører yderligere knaphed på kvalitetstræ. Løsningen er en røntgenteknologi der udvikles så detektionskapabilitet og hastighed er tilstrækkelig til identifikation af kritiske interne svagheder i møbeltræ. Der opnås en signifikant ressourcebesparelse når teknologien implementeres på savværket, forud for opskæring af planken, således at saven styres ud fra et tre- dimensionelt (3-D) billede der afspejler kritiske svage zoner. Udfordringen ligger i at kombinere detektionskrav, udskæringsoptimering, hastighed, robusthed, og en konkurrencedygtig prissætning. Projektets resultat er et omkostningseffektivt system der responderer på kundekrav om øget kvalitet, omkostningskontrol, bedre udnyttelse af råvarer og minimeret spildtid







## HIGHLIGHT OF THE RESULTS

The outcome of the scientific and technical developments that are believed to have international value are:

The overall idea. This is simply an application of obvious potential yet with none having brought a solution. The reason is that the high speed - high contrast & high resolution X-ray imaging capability only has been available for few years, and is not at all widespread in usage;

The geometrical imaging technique where the plank moving speed will be applied to track the details in the images, in a similar way that time delay integration is working. This is truly innovative yet the risk is that the speed of the data acquisition may be a bottleneck. Expectably, the use of GPU's may provide for the required solution;

The image reconstruction technique that involves essentially planar views and the timing as essential spatial parameters. The method development is presently unknown (to be developed), and is hence a risk element;

The categorization of image structural information, possibly in the form of directional vectors, that can combine with projection sets for a large number of defect types as mapped in a number of X-ray exposures and subsequent destructive characterization and structural/mechanical evaluation in practice at the furniture makers;

Developing the recipe that best matches the plank internal structure with the order lists at the sawmill. Although this in itself may not be unique, the functional principles for this are complex and demands real-time data managing linked to the adaptive controlling.