Common themes in Wood Modification and Environmental Impact Assessment of Wood

Michael Burnard[1], Marko Posavčević[2], Edo Kegel[3]

[1] University of Primorska, Andrej Marušič Institute, Muzejski trg 2, 6000-Koper, Slovenia; michael.burnard@iam.upr.si; InnoRenew CoE, Livade 6, SI-6310 Izola, Slovenia

[2] University of Primorska, Faculty of Mathematics, Natural Sciences, and Information Technology, Glagoljaška 8, 6000-Koper, Slovenia; marko.posavcevic@famnit.upr.si

[3] Edo Kegel Consultancy & Advice, Veerpoortwal 20, 6981BS Doesburg, The Netherlands; edo@edokegel.nl

Bibliometric analysis utilises data mining techniques to capture selected aspects about a set of publications. For instance, researchers can quickly assess how research themes change over time, identify new trends in research, gaps in the knowledge base, assess collaboration patterns, identify key researchers, and other aspects of the research base. Our objective in this study was to identify common aspects of two research areas important to COST Action FP1407: wood modification and environmental impact assessment of wood.

To assess the common themes in these areas of research we retrieved all publications in the Web of Science database related to wood modification and environmental impact assessment of wood. The dataset included 922 publications in the environmental impact assessment of wood publication record (from 1977 onward), and 695 in the wood modification publication record (from 1955 onward). The publications were screened to for topical relevance. The data were then cleaned to equate similar keywords (e.g., removing plurals). Using this dataset, we analysed the keywords used to describe the publications and assessed the most frequently used terms in both groups, and the terms each group publications shared. For this study, keywords were processed for both datasets then merged to find the most common keywords for each group separately and the most common keywords used in both groups. The data were processed in R and the network graphs built in Gephi. This work extends our previous work in bibliometric analysis of the COST Action FP1407 themes and research work (Burnard *et al.*, submitted 2017).

There were only 5 publications that were in both datasets. 417 keywords were shared out of 3023 keywords used across all publications in the dataset. In Figure 1, a network graph shows the 15 most common keywords for each topic, and the 15 most common keywords used in both topics.
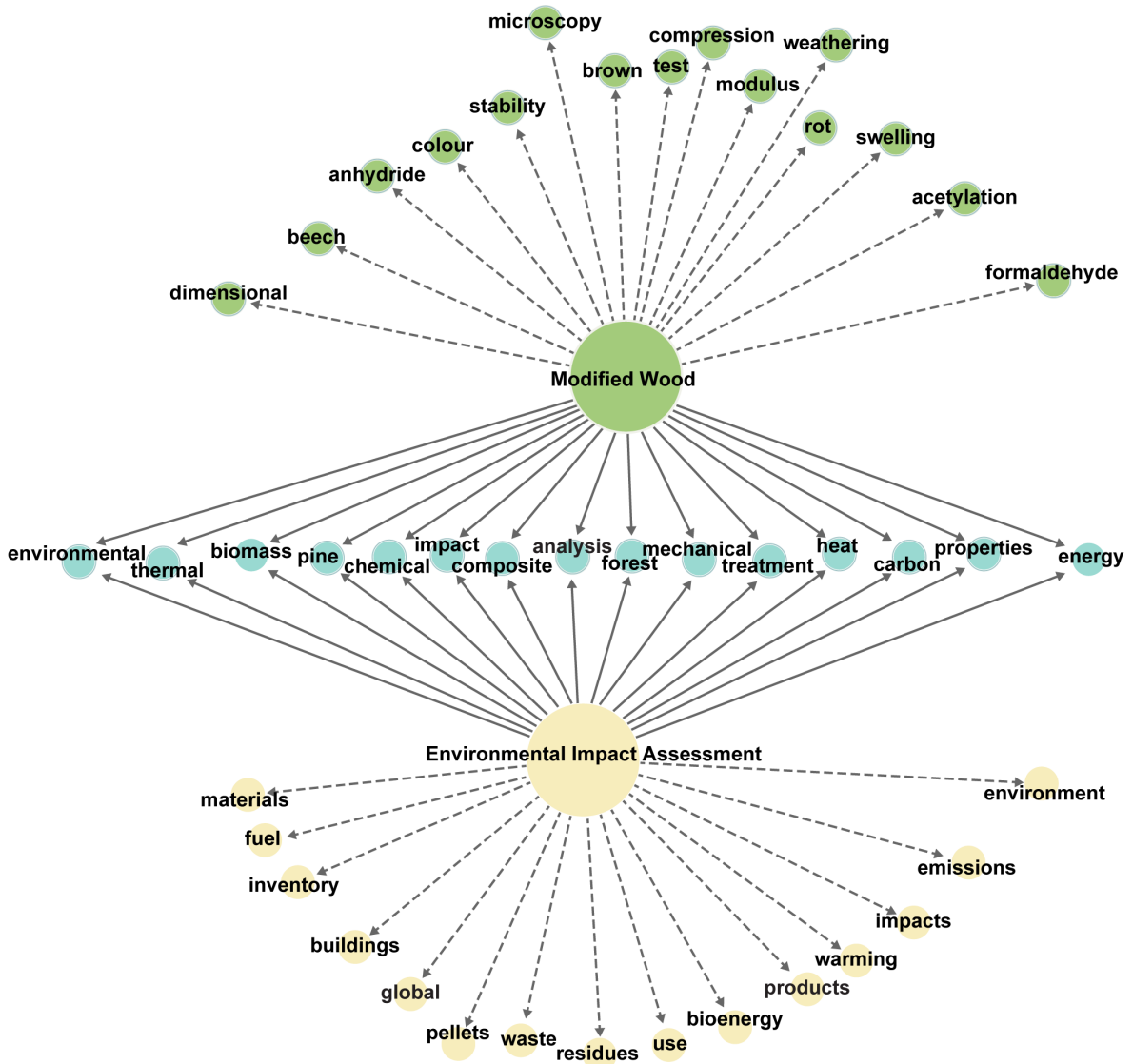

Figure 1:   Network of the 15 most common keywords for each topic (yellow, green), and the 15 most common keywords in both dataset (teal).

The shared themes indicated here, changes in research topics over time, and collaboration networks will be presented.

References

Burnard M., Posavčević M., Kegel E. 2017. Examining the evolution and convergence of wood modification and environmental impact assessment in research. In review, iForest. Submitted Feb. 2017.

Acknowledgements