

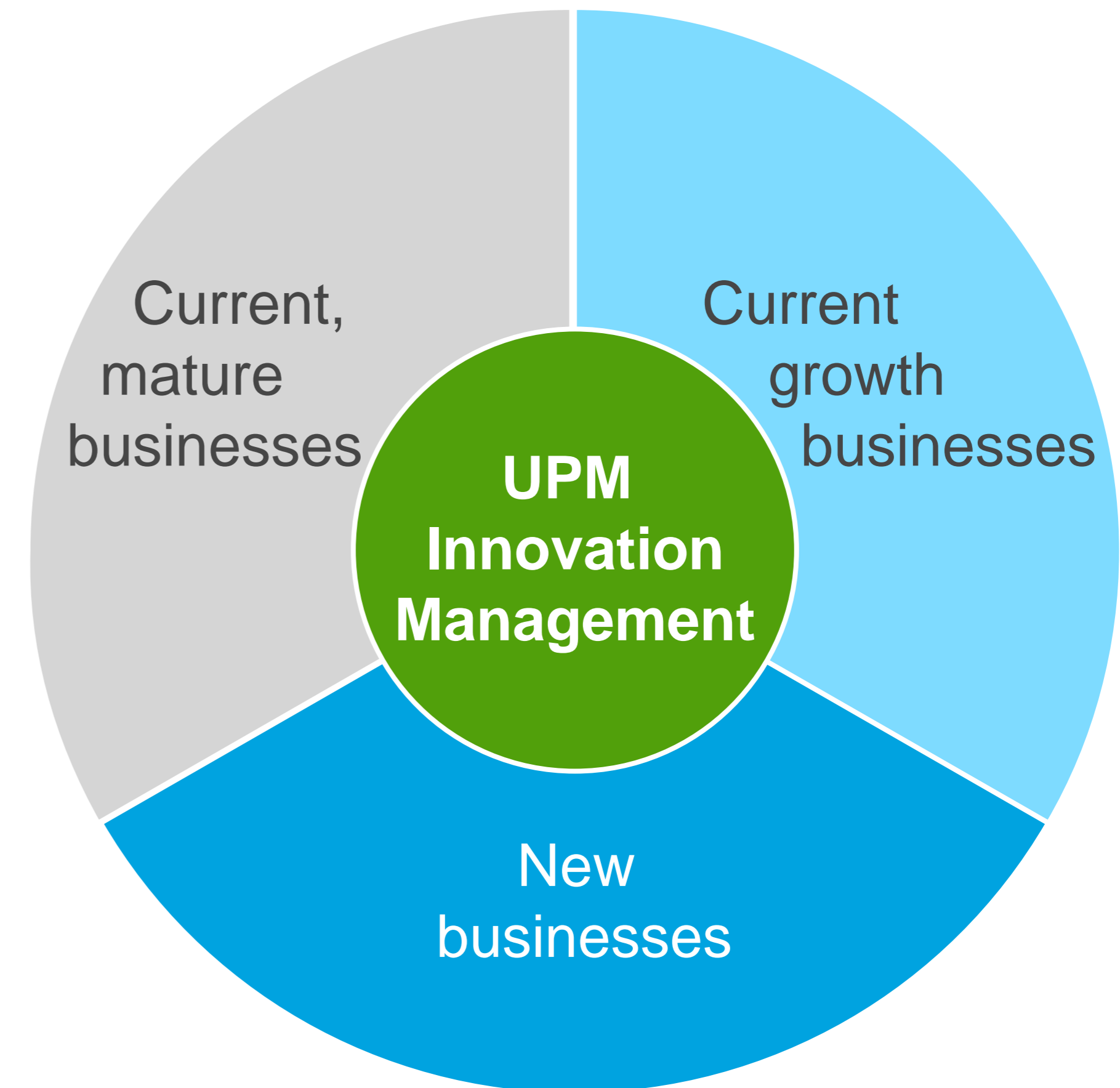


COMPETITIVE ADVANTAGE AND GROWTH THROUGH INNOVATION

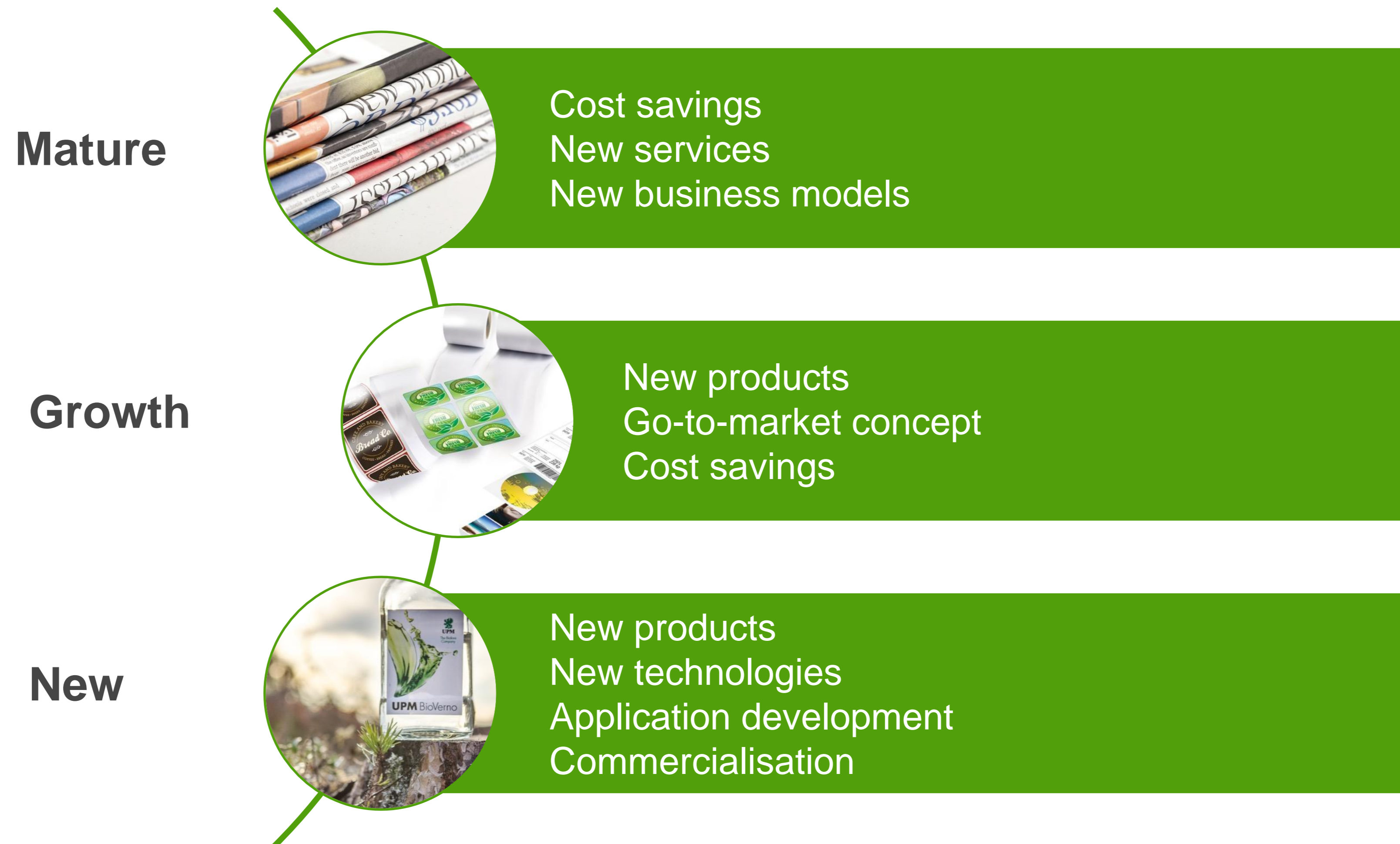
Jyrki Ovaska
EVP, Technology

What do we mean by innovations at UPM?

- Target: to find & develop new business opportunities and enhance existing businesses
- Innovation is an idea that translates into business value for UPM
 - Business model
 - Service concept
 - Product / product enhancement
 - Business
 - Technology & process
 - New way of operating



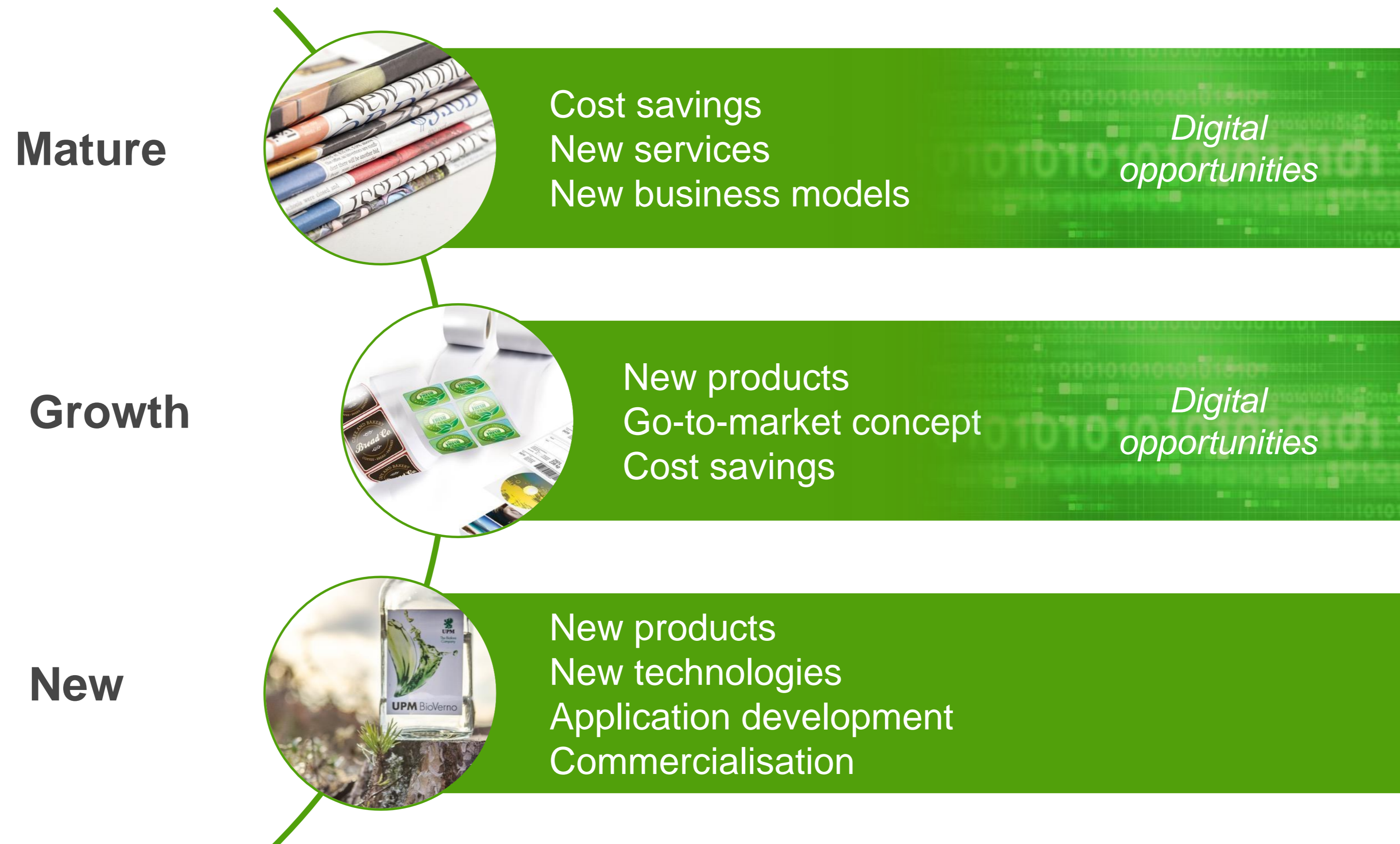
Innovation needs differ, but it is a must in all UPM businesses

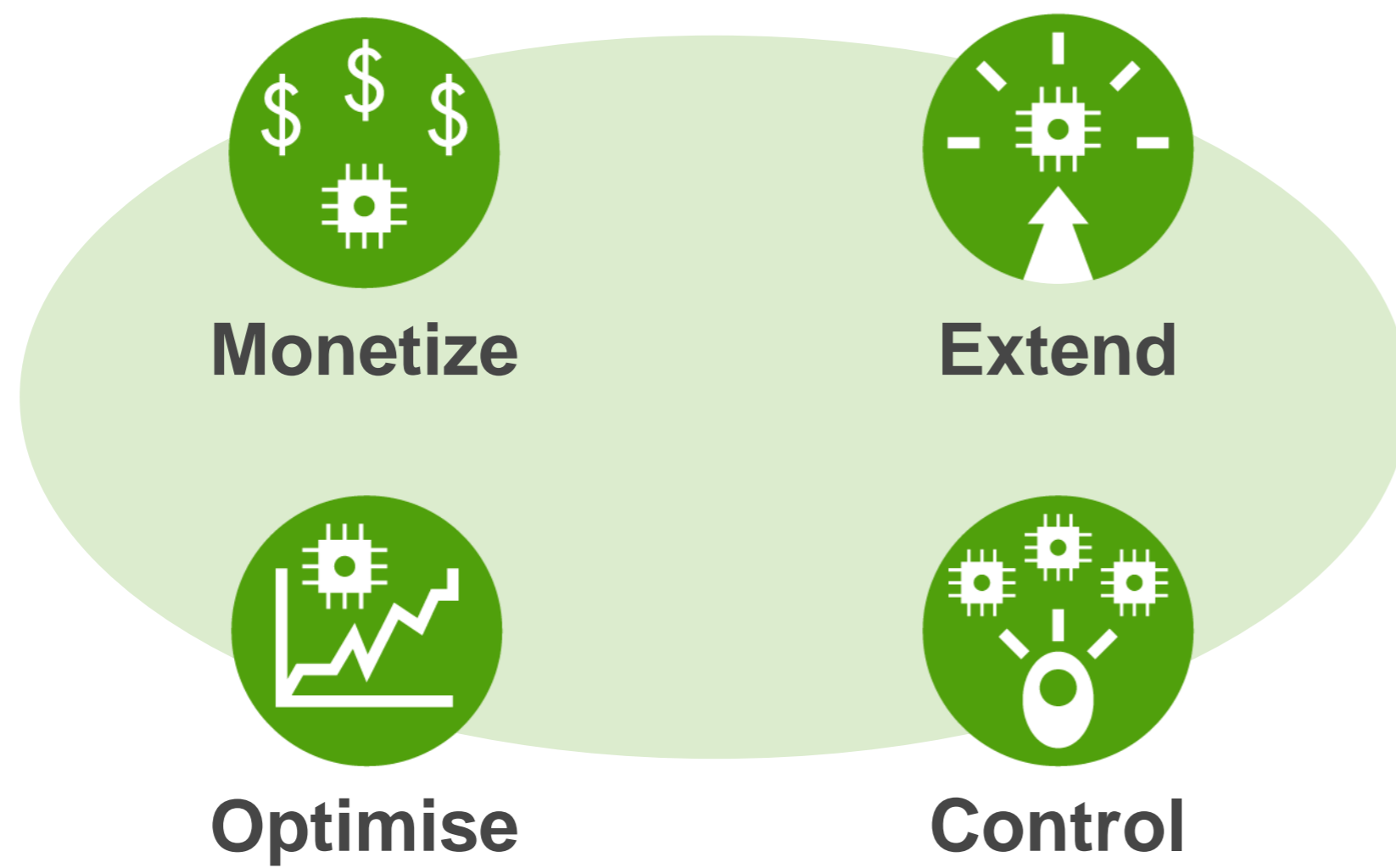
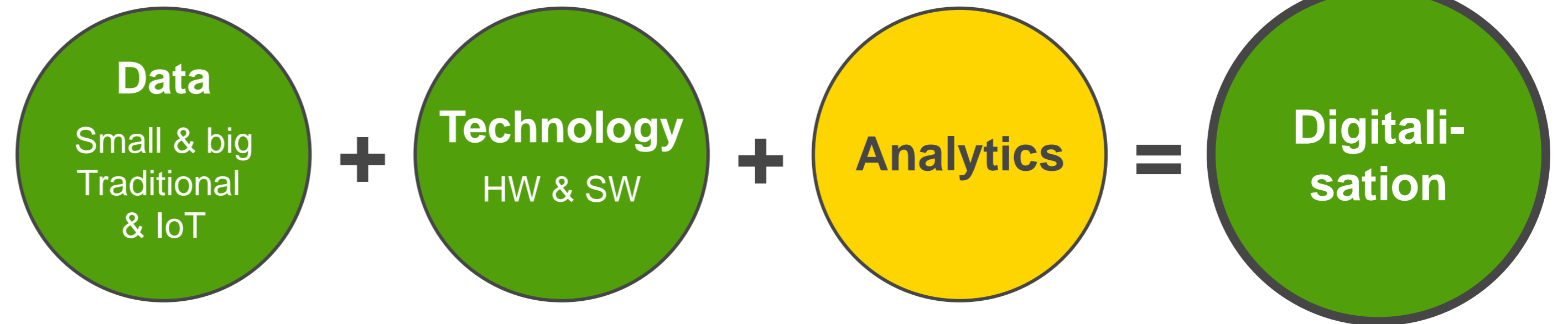
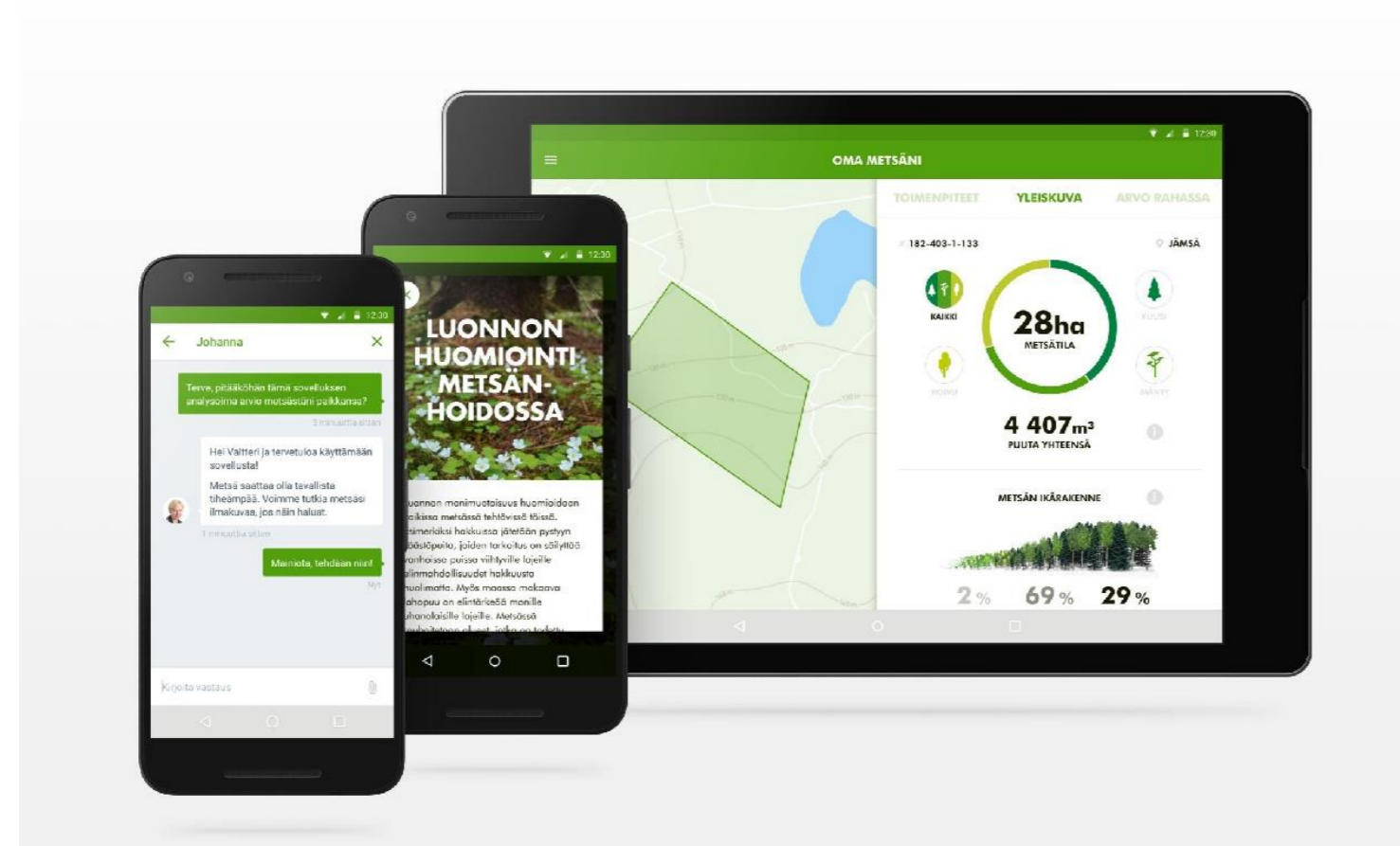


Product innovations in new and existing businesses



Digital innovations offer a new opportunity to transform existing businesses



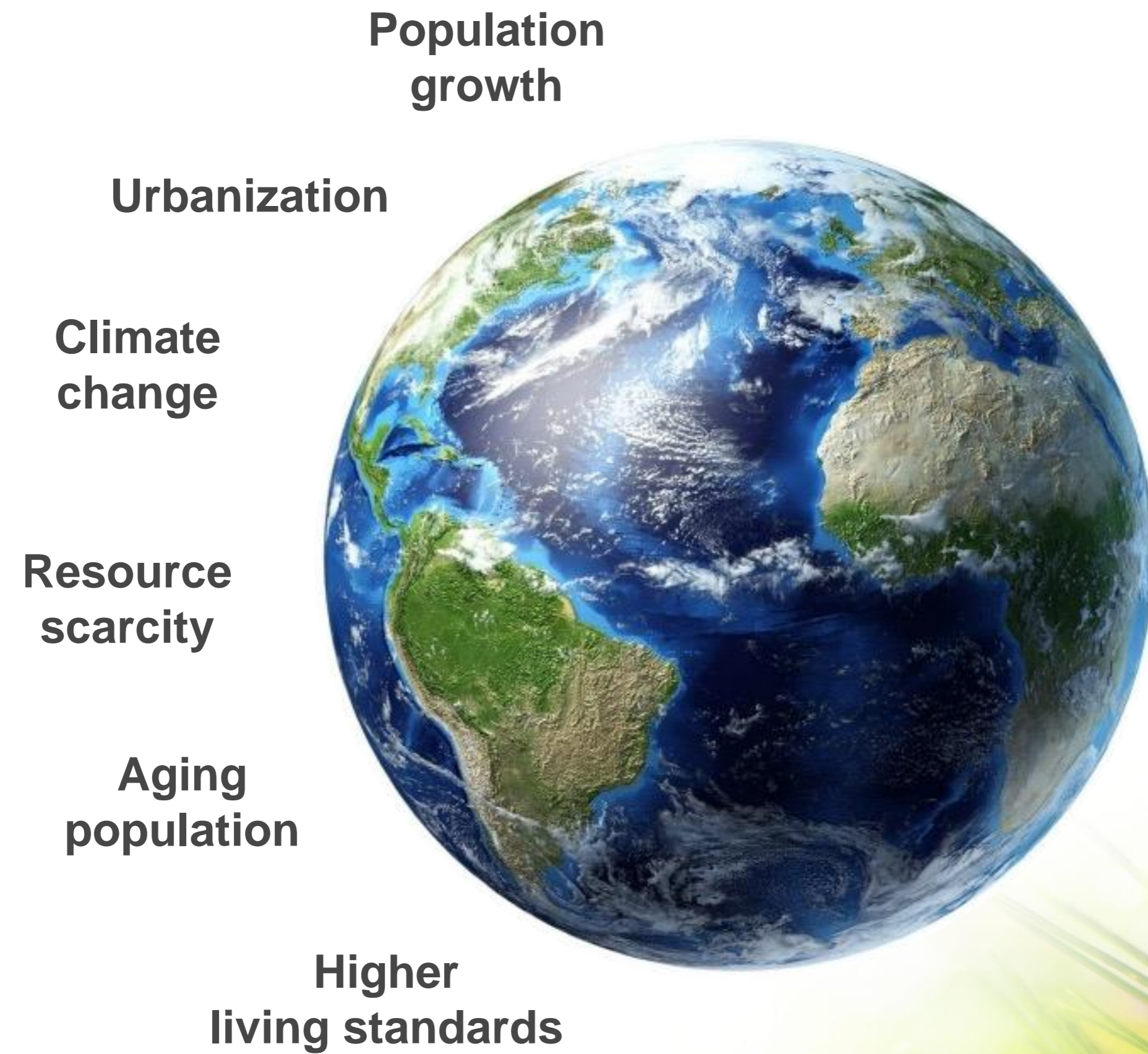


Why to be interested?

- New competitive advantage that is hard to copy
- Better customer / user satisfaction with lower costs to serve
- Disrupt industry practices and our own ways of working
- Next steps in cost competitiveness
- Frontrunners will define the rules of the game



Our planet has to provide increasingly more wellbeing to more people



**MORE WITH
BIOFORE**

**SUSTAINABLE BIOALTERNATIVES
& NEW BIOINNOVATIONS**

Consumer brand owners continue to drive renewables and green initiatives



Wood is a unique and excellent raw material for mitigation of global challenges



RENEWABLE

RECYCLABLE

VERSATILE

SUSTAINABLE

NON-GMO

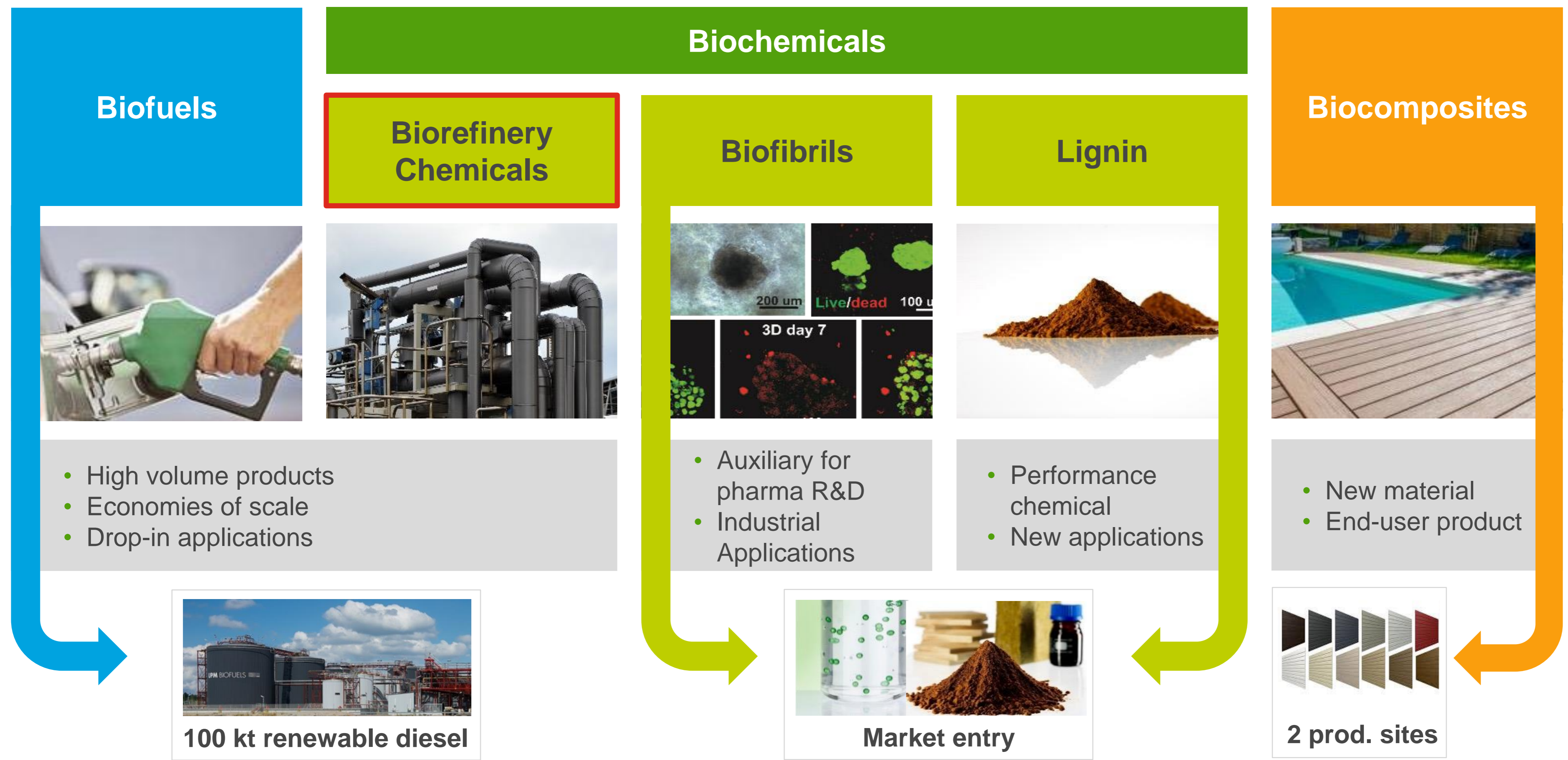
LOW MARKET VOLATILITY

NON-FOOD

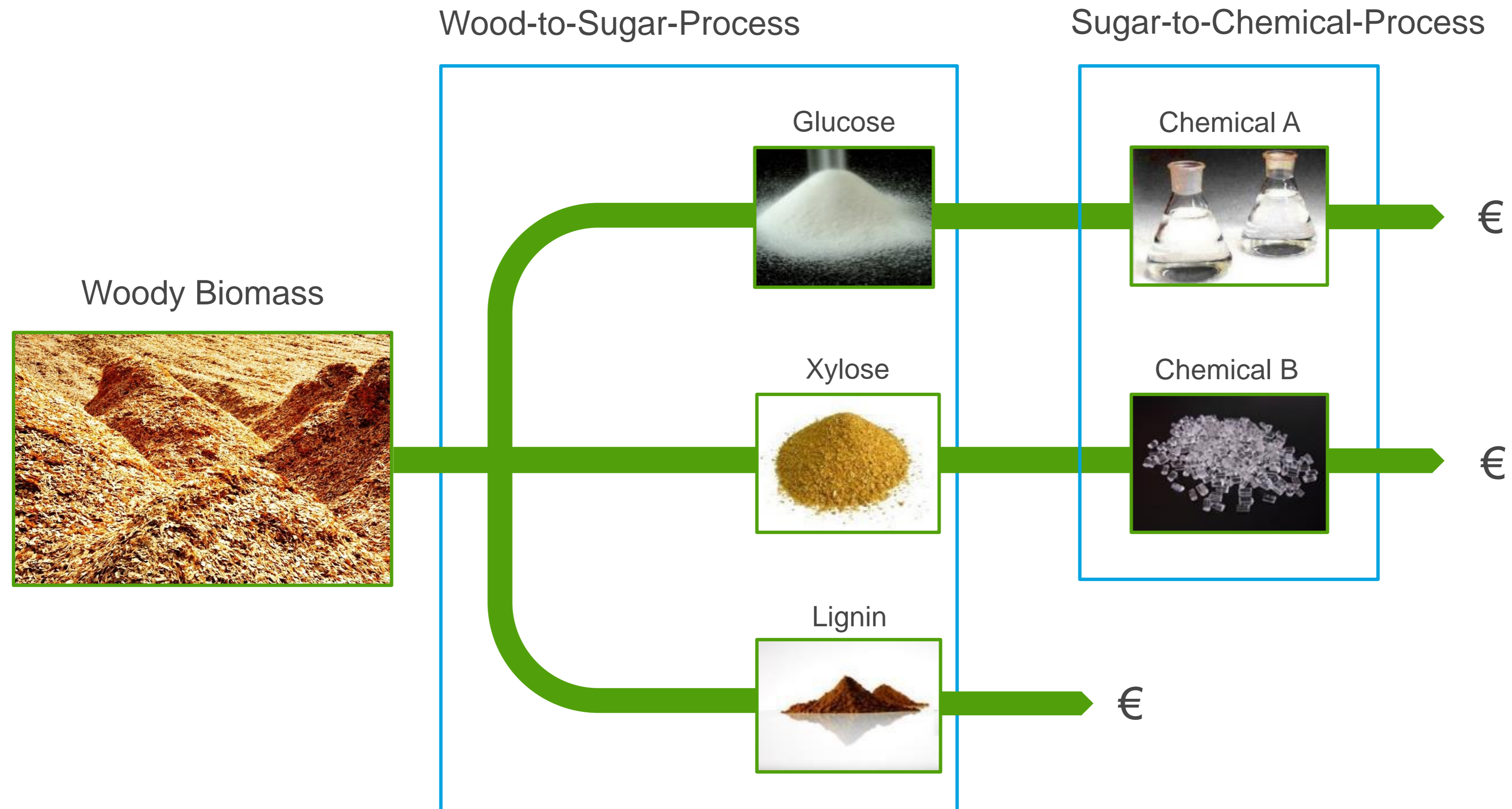
COMPETITIVE



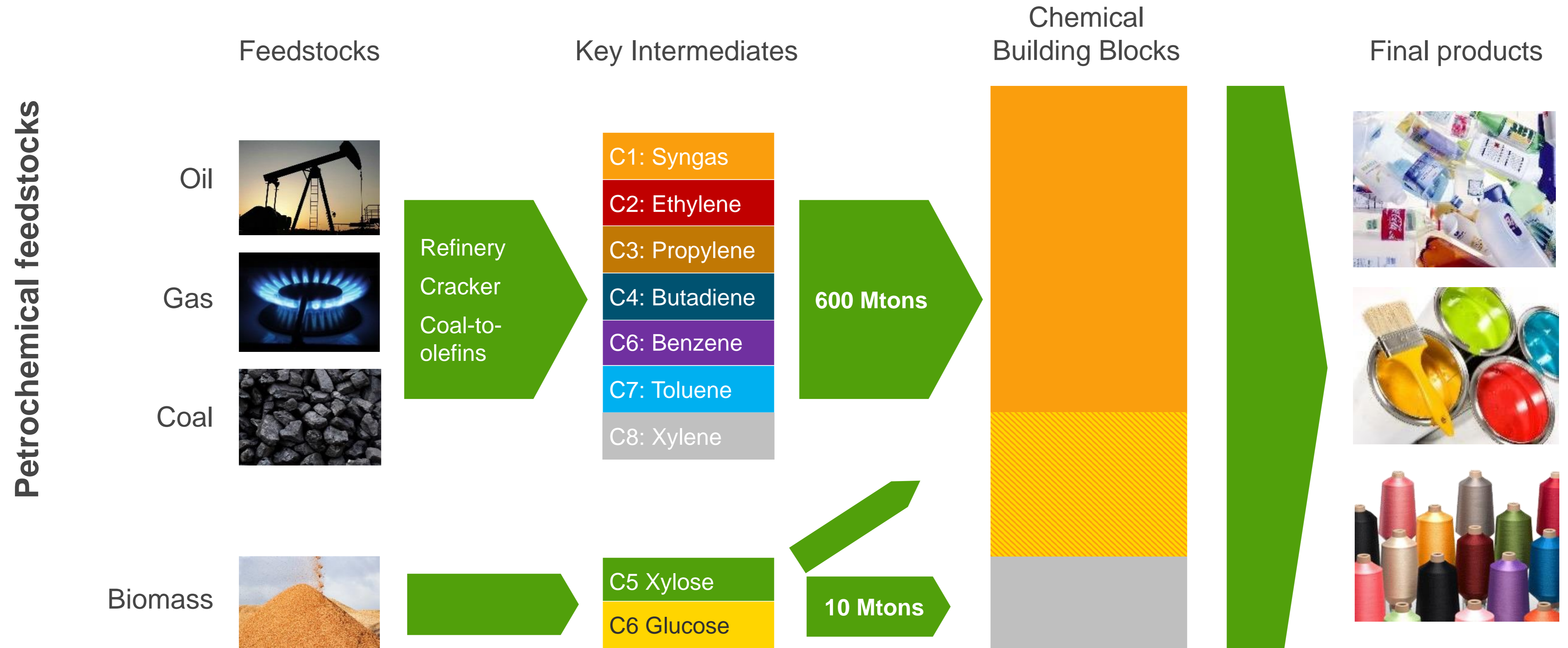
New business opportunities for UPM



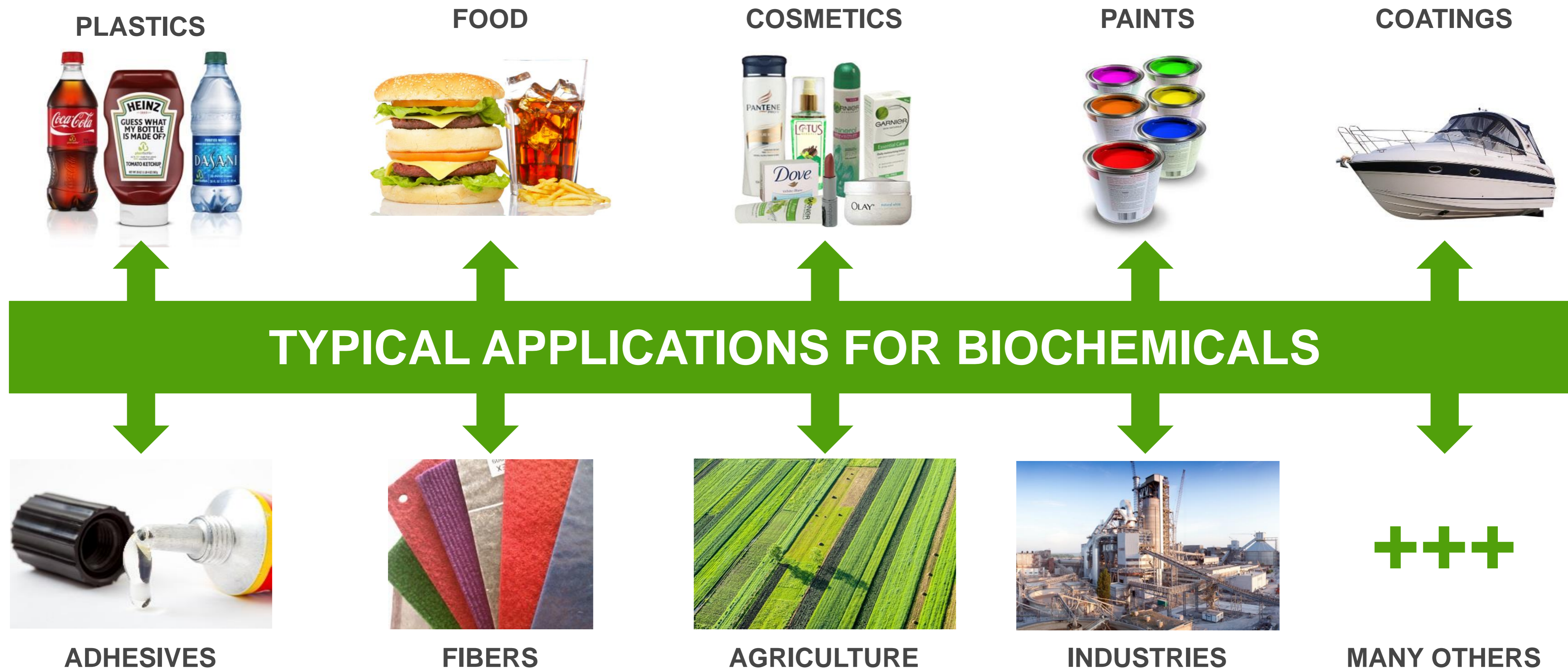
New separation technologies ensure best overall value capture



Partial overlap with fossil-based value chains in chemicals



Diversified chemicals markets offer many opportunities



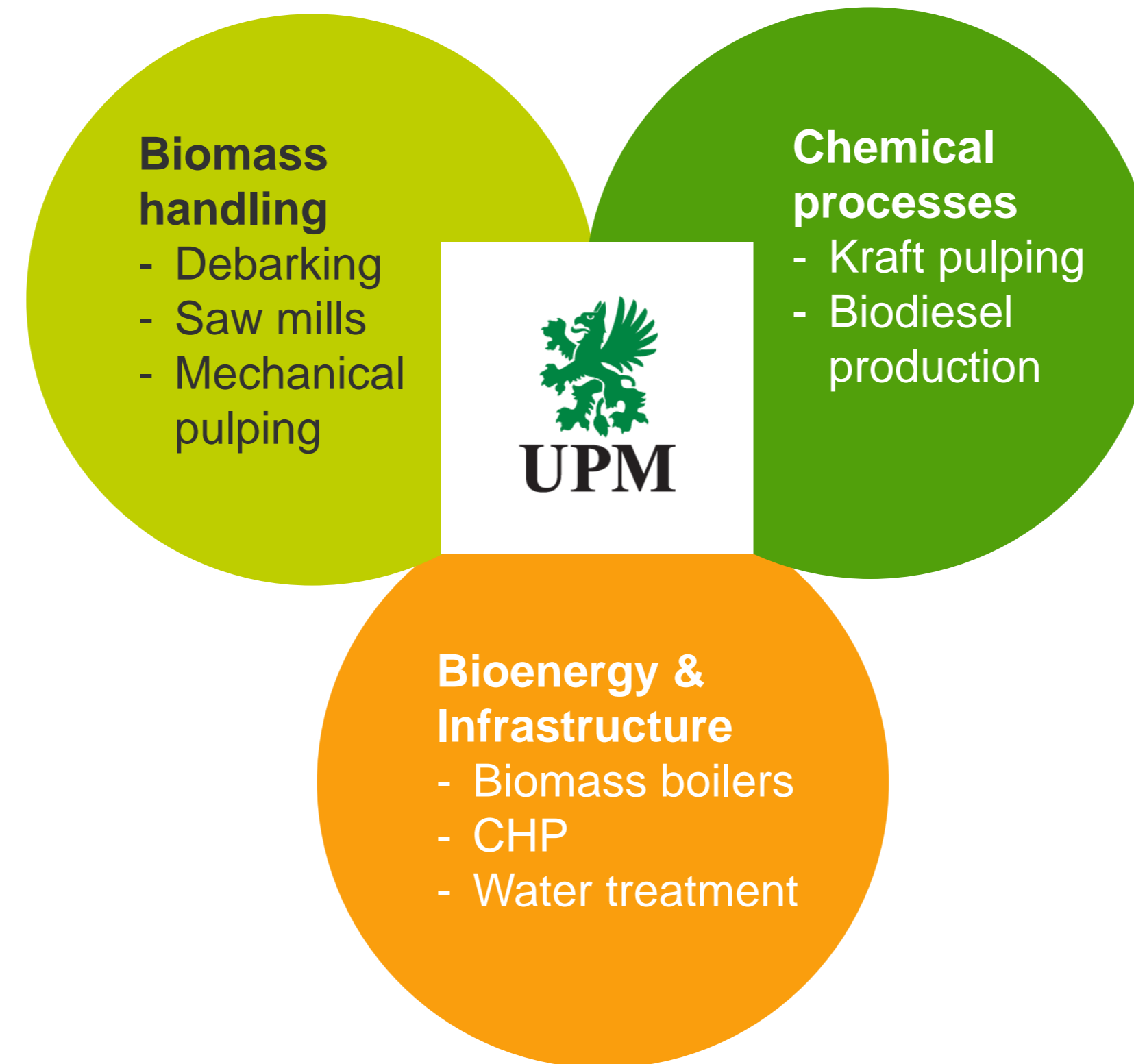


Why UPM and biochemicals ?

Access to and management of 2G-biomass



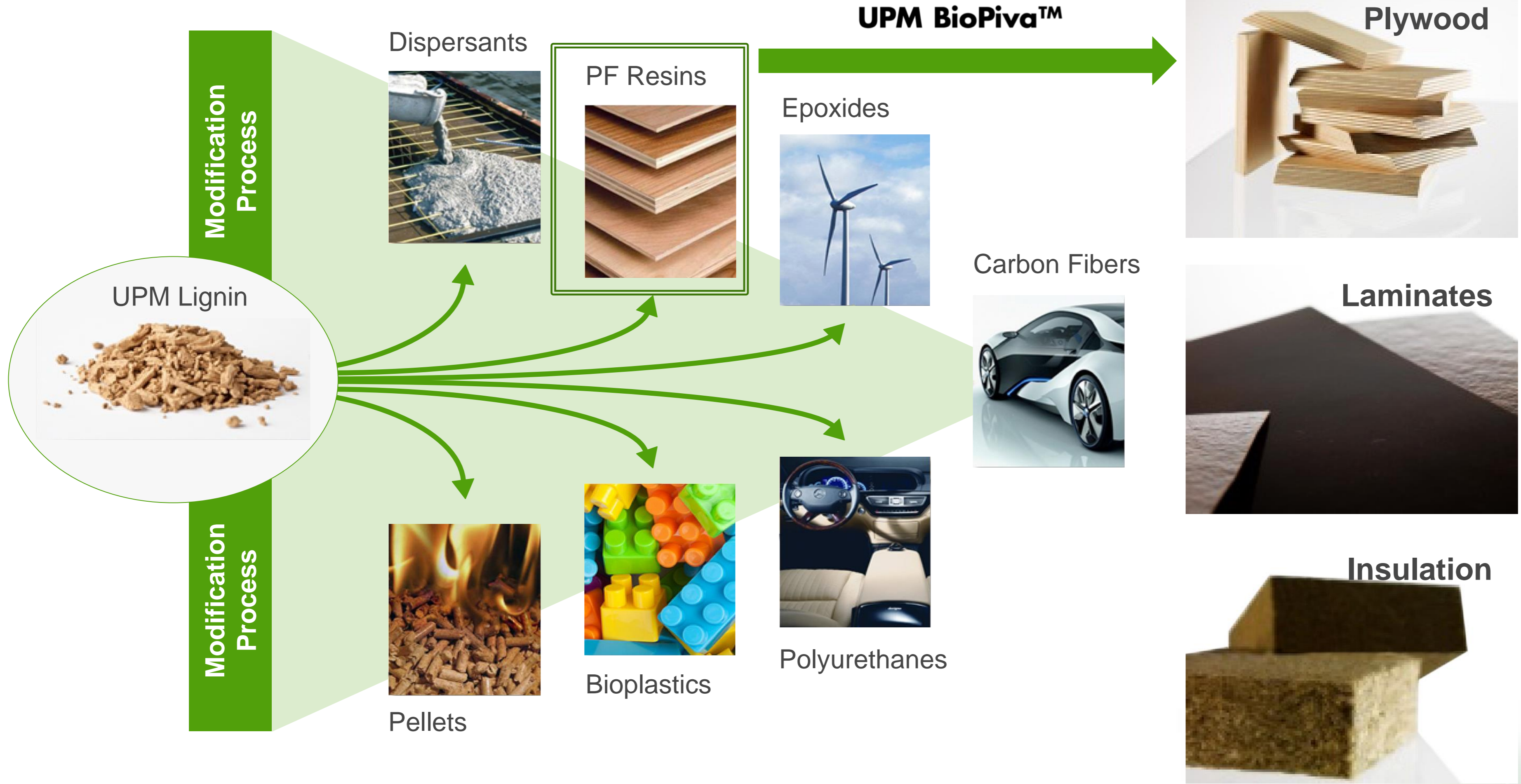
Biomass conversion processes



Run sustainably large industrial processes



REALITY: phenol in resins replaced by renewable UPM biochemicals



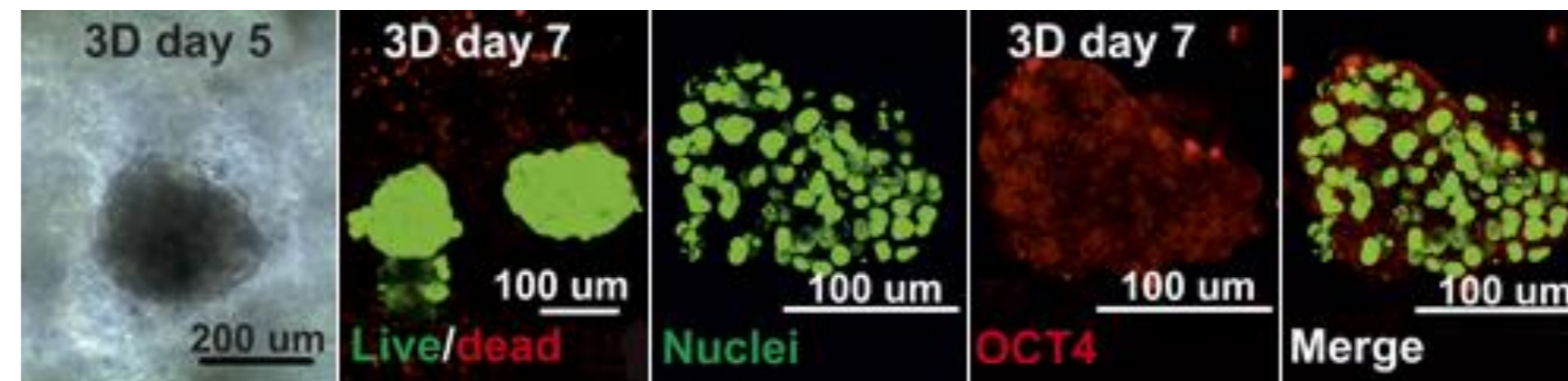
REALITY: UPM biomedical enabling development of new medical treatments

GrowDex[®]

cellulose based hydrogel for life science applications



3D Cell Culturing Matrix for e.g. Cancer Research



Membranes for e.g. Wound Care Applications



Summary

- Innovations accelerate transformation, drive competitive advantage, top-line growth and new business opportunities
- UPM is in unique position to provide mitigating solutions for global challenges
- Biochemicals provide large market potential. UPM is in good position to capture value through focused growth investments
- Major studies for novel technologies have been going on for 5 years



The Biofore Company **UPM**

Redefining the industry

BIO + FORE



UPM

The Biofore
Company