



PPP Project Annual Report 2018
 The PPP-projects that have been established under the direction of the top sectors must submit an annual report on their technical and financial progress. This format is to be used for reporting the technical progress. A separate format ('PPP final report') is available for PPP-projects that have been completed in 2018.
The annual reports will be published in full on the websites of the TKIs/top sector, excluding the blocks 'Approval coordinator/consortium' and 'Planning and progress' . Please ensure that no confidential matters are left in the remaining blocks.
 The PPP Project Annual Reports must be submitted by 15 February 2019 to Hans van der Kolk

General information	
PPP number	DFI-AF-18019 formerly AF-15216
Title	Use cases 3D Food Printing (DFI)
Theme	Slimme Technologie
Executive knowledge institution(s)	WFBR (coordinator), TNO (subcontractor), Wageningen Startlife (subcontractor). This project is co-funded with DFI funds aiming at the collaboration between WFBR and TNO.
Research project leader (name + e-mail address)	Martijn Noort, martijn.noort@wur.nl
Coordinator (on behalf of private parties)	WFBR
Government contact person	
Total project size (k€)	151 kEUR incl VAT / 125 kEUR excl VAT
Address project website	N/A
Start date	01/10/2018
End date	31/12/2019

Approval coordinator/consortium	
The annual report should be discussed with the coordinator/the consortium. The TKIs appreciate being informed of possible feedback on the annual report.	
The coordinator has assessed the annual report on behalf of the consortium:	<input checked="" type="checkbox"/> approved <input type="checkbox"/> rejected WFBR coordinates this consortium, composed of WFBR, TNO and Wageningen Startlife as knowledge institutes, and 4 industrial partners.
Possible feedback on the annual report:	N/A

Short content description/aim PPS
 What is going on and how is this project involved?
 What will be delivered by the project and what is the effect of this?
 Innovation in food and agriculture has come a long way in the past century, resulting in the production of more food than ever before. However, the food industry is facing new challenges due to rapid societal changes: in 2040 there will be 9 billion people to feed; there is an increasing demand for personalized, nutritious, and healthy food; and food production should be done in an affordable way without harming the environment. Radical innovations are required to meet the demands of the near future. 3D printing provides the food industry the opportunity to adapt and change. In order to accelerate and facilitate the application of 3D food printing processes in the food industry, we assist a group of leading food industrial partners to define use- and business cases using 3D printing, along with gaining initial practical experiments based on WFBR/TNO state of the art 3D printing facilities.
 The aim of the project is to create use-cases for targeted 3D printed food applications (first phase), and

to test these applications in a real-life commercial setting (next phases). The use cases focus on 3D printed food products with added value over conventionally mass produced foods, in terms of product properties, process flexibility, consumer experience and/or level of personalization. Some of the possible application areas are personalized nutrition in the healthcare domain and specific applications in food service and retail.

In the next phases of the project for these use cases prototype 3D printing systems will be developed, and we will work on product formulation and printed food products with added value to be studied in consumer research, and we will jointly further develop the targeted business cases.

Planning and progress (if there are changes to the project plan, please explain)	
Is the PPP going according to plan?	Yes, the project started late in 2018 (October) and already 2 out of 4 industrial partners participated in the project.
Have there been changes in the consortium/project partners?	We expect 2 additional industrial partners to join the consortium in 2019.
Is there a delay and/or deferred delivery date?	We expect to finalize phase 1 in 2019 as planned and initiate phase 2 during 2019.
Are there any substantive bottlenecks?	no
Are there any deviations from the projected budget?	no

Results in 2018/ so far
Give a short description of the high-lights and (most important) project deliverable in 2018 / so far and their target group
<p>Although the project started in October 2018, we were able to initiate the project activities with the first two industrial partners. First of all, we developed a workshop format, to efficiently disseminate the WFBR/TNO knowledge on 3D food printing to the industrial partners and to obtain a clear view on state-of-the-art. This workshop comprised knowledge transfer sessions using presentations by various TNO and WFBR experts on all aspects of 3D Food Printing, specifically:</p> <ul style="list-style-type: none"> • 3D (food) printing, equipment, current commercial applications and (future) upscaling; • Materials and formulations for 3D food printing, material requirements and innovation opportunities of 3D printing in product design, i.e. structure, sensory, health. • Shaping, software and design rules, consumer interfaces, etc. <p>A first dissemination meeting was organized and reported. Next workshops will be organized for the other partners in 2019 using the same template.</p> <p>With the first industrial partner already 3D printing experiments were performed at the WFBR printing lab and reported. With these experiments we gained further practical experience as well as first tangible ideas about print possibilities with the specific material of the industrial partner. Finally, a workshop format for Business Modeling was set-up by Wageningen Startlife. These workshops are based on the Accelerated adoption of Innovations toolset, to make a value proposition and business model canvas for 3D printed food in a certain market channel. These workshops will be organized for each industrial partner in 2019.</p>

Number of delivered products in 2018 / so far (in an appendix, please provide the titles and/or description of the products or a link to the products on public websites)			
Academic articles	Reports	Articles in journals	Introductions/workshops
0	4	0	1

Appendix: Names of the products or a link to the products on a public website

Presentation: 3D food printing state of technology, Kjeld van Bommel

Presentation: Materials and formulations for 3D food printing, Jerome Diaz

Presentation: Shaping, software and design, Mathijs de Schipper

Presentation: 3D food printing USE CASE initial phase, Exploration of FDM Printing, Martijn Noort