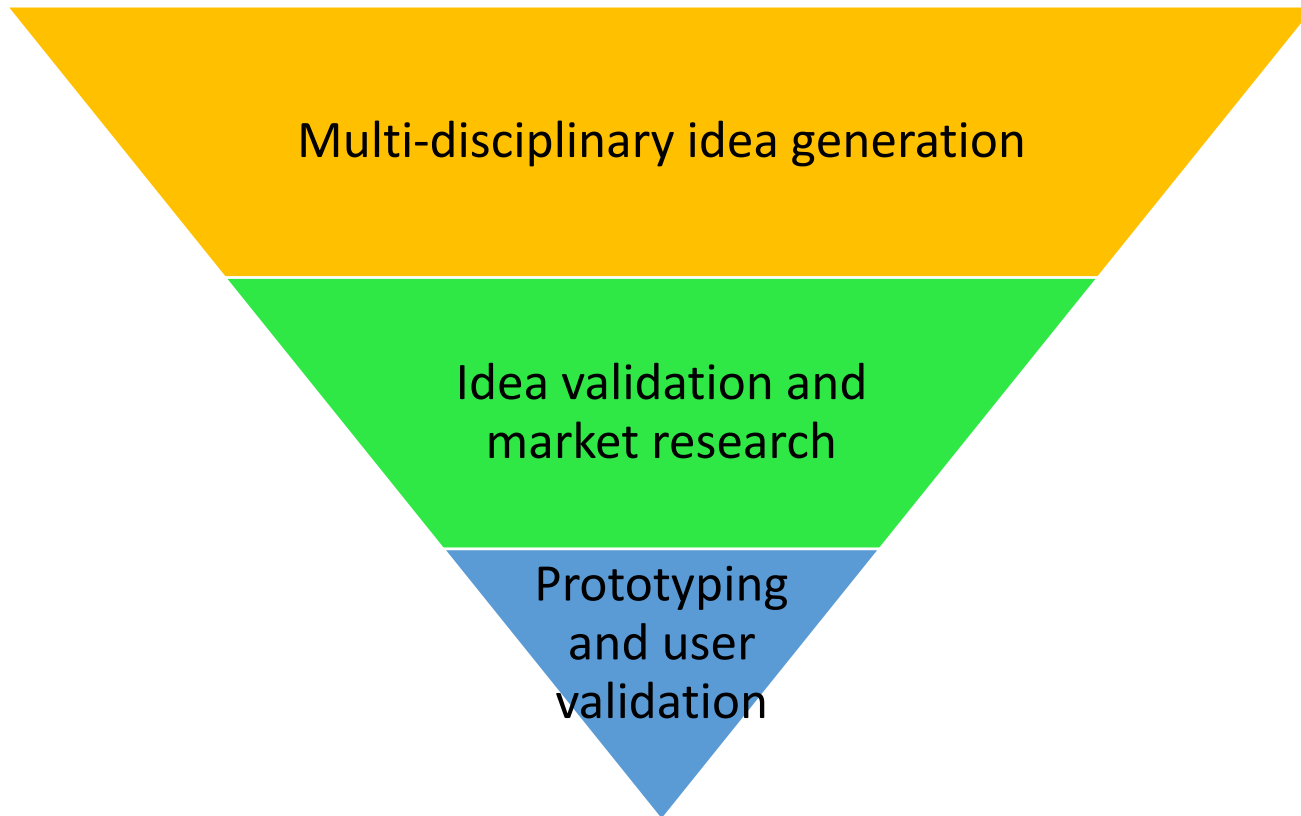


ADEB-VBA Digital Lab SteerCo

23 April 2020

DIGITAL LAB: OBJECTIVES



MISSION OF THE STEERCO

- Link with the Board of Directors
- Prioritization of the project portfolio
- Strategic feedback and input
- Ambassadorship within the sector
 - Promotion of ADEB-VBA digital projects internally and externally
 - Leverage of network (attraction of talent, skills, entrepreneurs, ...)

CONSTRUCTION LIFECYCLE: PRIORITIZATION

'How would you ideally split your attention / energy over the 4 phases?'

GET THE PROJECT



15%

PREPARE



40%

BUILD



30%

AFTER CARE



15%

INPUT FOR MEMBERS' TIME

- Apps and tools
- Machine Learning & AI
- Blockchain
- Internet of Things
- Drones
- Robots
- 3D printing



GET THE PROJECT



15%



PREPARE



40%

1. SupContractor

2. More than LetsBuild

3. Open BIM

4. Lean planning

BUILD



30%

5. AICHA

6. TrackIt

7. Cobots

8. Smart speakers

AFTER CARE



15%

9. Digital twin

PROJECT PORTFOLIO

PREPARE



BUILD



AFTER CARE



SHORT TERM

DeliverApp

WelcomeApp

MEDIUM TERM

Open DMS

Just Le@n it

Smart Facility Mgmt

More than LetsBuild

Energy monitoring

AI text recognition

RFID Comatko

LONG TERM

Open BIM

AICHA

Robots on site

More than LetsBuild



WHAT & WHO Which need do we solve & for whom?

- Context: LetsBuild (formerly: Aproplan) is a popular tool for quality & safety control on site. Including collaboration with subcontractors, architect and clients. It generated lots of data over the past years.
- Shouldn't we use this data to generate new insights?
 - Learn from past mistakes
 - Evaluation of subcontractors
 - Avoiding DO & REDO
- We see the potential. Thomas Goubau (Chief Customer Officer of LetsBuild) is open to help us to explore the possibilities

HOW How do we think we can make this happen?

- Make the data available
 - Clean-up
 - Structuring the data across sites
 - Open Data
- Define the business case: which type of insights do we want?
- Data analyst makes sense of the data
 - Make the business case
 - Confidentiality: keep the data per contractor
- Implement this type of reporting into LetsBuild
 - Embedded reporting in the tool itself
 - API to link external reporting tools (Power BI, ...)

BUSINESS CASE First estimation. Why should we do this project?

- Concrete business case should be made, but everyone feels there's a lot of value in the data that LetsBuild has gathered over the past years

WHY ADEB-VBA What are the benefits of doing this project together?

- Value to all contractors
- Extremely good connection with Thomas Goubau and LetsBuild

NEXT STEPS & NO/GO DECISION Why should we continue to concept phase or stop?

- Identify the concrete use cases and reporting (based on the Member's Time) with a small workgroup of key users (CIT Blaton, CFE, BAM, BESIX...)
- Sit together with Thomas Goubau to write a concrete action plan
- Attention points: data ownership and confidentiality
- Steven & Peter: we can go quick and it doesn't really cost anything in this stage

Smart Facility Management



WHAT & WHO Which need do we solve & for whom?

- Building owners & operators want
 - Better maintenance
 - Easy maintenance
 - Lower Total Cost of Ownership
 - Reduce uncertainties
 - On top of this, for residential buildings, also “more comfort”
- Contractors want to valorise the BIM model they make for the construction phase
- The magical “Digital Twin” will solve all our problems in the future, but contractors need something now.

HOW How do we think we can make this happen?

- Define a standard for all information needed for future-proof facility management
 - Clear structure
 - Set of basic information that is required
 - Easy to extend the standard for those contractors who want to go further
- Make a Smart Facility Roadmap for our industry with a step-by-step approach for all contractors to implement the standard
- Technical: find an open platform to support:
 - Open data and API’s
 - Smart links between all documents

BUSINESS CASE First estimation. Why should we do this project?

- Advantages for our clients
 - Complete overview of all risks related to maintenance for the full life cycle of the building
 - WYSIWYH: what you see is what you get
 - Cost control for the maintenance costs
- Advantages for contractors
 - Standardised approach for this extended “as-built”
 - Step-by-step model where all contractors (big / small) can benefit
 - We get paid for our BIM efforts

WHY ADEB-VBA What are the benefits of doing this project together?

- Standardisation requires a coordinated approach on industry level
- ADEB-VBA is the ideal organisation to get all members on the road to the future: smart buildings & smart facility management
- ADEB-VBA creates support across the industry

NEXT STEPS & NO/GO DECISION Why should we continue to concept phase or stop?

- Make a small workgroup with ADEB-VBA members with a facility management company (Denys is interested)
- Meeting with the International Facility Management Association (IFMA) and PropTech to learn about their requirements
- Steven & Peter: we can go quick and it doesn’t really cost anything in this stage

Open DMS



WHAT & WHO Which need do we solve & for whom?

- Open Document Management System for the construction sector
- Easy document sharing during TV/SM and across the chain (client, architect, engineering agency, contractor, subcontractor, ...)
- Always access to the 'latest' version (centrally available), while continuing individual habits and routines
- For all stakeholders across the chain, for all site-related profiles
- Idea coming from CEO interviews, Members' Time discussion and request from Louis Dewaele

HOW How do we think we can make this happen?

- Easy synchronization between different content platforms (Bricsys, MSFT SharePoint/Teams, in-house, ...), e.g. through CooperLink
- Common taxonomy / templates for the sector (per type of work, ISO standards)
- Integration with 3rd party applications (like Aproplan)
- Approval workflow
- Focus on end user experience

BUSINESS CASE First estimation. Why should we do this project?

- Faster start-up of document management during TV/SM, because of consistent tools, procedures and taxonomy
- Traceability and audit of documents
- Easier hand-over of 'project files' to later phases in the construction lifecycle (e.g. smart facility management)
- True access to the latest version

WHY ADEB-VBA What are the benefits of doing this project together?

- Need for 'open' platform
- Commonly defined taxonomy and requirements
- Preferably collaboration with commercial partner / software house, based on these requirements

NEXT STEPS & NO/GO DECISION Why should we continue to concept phase or stop?

- Set-up of workgroup (QSHE, Digital)
- Elaboration of functional needs (QSHE)
- Market scan of solutions: Cooperlink, F5scan.com, Bricsys... (Digital)
- Where do you see most business value of this project?

Just Le@n it



WHAT & WHO Which need do we solve & for whom?

- Contractors need to optimise their production
 - Planning: adapt for deviations
 - Sharing of information with external parties (client, subcontractors, engineering)
 - Estimate the impact of decisions (or non-decisions) on other activities
- Contractors want to:
 - Objectivate impacts of decisions
 - Objectivate reasons for deviations
 - Sensitise all parties on their responsibility

HOW How do we think we can make this happen?

- In short: we need digital post-its
 - Link the digital post-its to the overall planning
 - Link the activities
- Feedback: possibility to record the cause of delay and who's responsible for it
- Clean reporting

BUSINESS CASE First estimation. Why should we do this project?

- Lean has proven its impact on the construction site
- Digital lean approach will take this even further (without making it too complex)

WHY ADEB-VBA What are the benefits of doing this project together?

- Lean only works if everyone is involved
- ADEB-VBA can build support across the industry

NEXT STEPS & NO/GO DECISION Why should we continue to concept phase or stop?

- Find out how to get this adopted. The biggest risk is not in the digital part, but probably in the user adoption
- Digital aspect: check for existing tools on the market, certainly not reinvent the wheel (Timoty, Letsbuild, Sablono, ...)
- Steven & Peter: we can go quick and it doesn't really cost anything in this stage

Robots on site



WHAT & WHO Which need do we solve & for whom?

- There's several cases where it makes sense to replace and/or assist human workers on site:
 - Need for high precision (e.g. geometrical)
 - Safety risk
 - Work that is unpleasant to do ("loopjongen") or boring (e.g. highly repetitive)
 - Labour shortage
 - Need for availability 24/7
- We see multiple cases, but all related to the real work on the construction site.

HOW How do we think we can make this happen?

- Do a deep-dive into several use cases based on the initial list set-up during the Member's Time
 - Large & small earthworks
 - Inspections, measurement
 - Dirty jobs: façade renovations, ..
 - Logistics on site
 - Waste sorting and management
- Check with the robot industry for technical feasibility
- Based on technical feasibility, and business viability select the most promising project
- We think we need to develop 1 robot case for the Belgian industry

BUSINESS CASE First estimation. Why should we do this project?

- We feel the need that "robots are coming", we need to prepare
- The sooner we can use these robots on site, the better, because the need is real: safety, precision, labour shortage, ...
- It's better that we show the industry what we need, than to wait and hope for the best solutions to come

WHY ADEB-VBA What are the benefits of doing this project together?

- This exceeds the capacity of our individual members
- ADEB-VBA can create support in the industry (with its members but also with the wider industry and all our subcontractors)
- ADEB-VBA can (indirectly) help to find subsidies to sponsor this "longer term" research

NEXT STEPS & NO/GO DECISION Why should we continue to concept phase or stop?

- Contact research and knowledge institutes (VUB-ULB, WTCB-CSTC and Sirris)
- Feasibility check of the use cases
- Find a member that wants to try on site

- Steven & Peter: we can go quick and it doesn't really cost anything in this stage

Welcome App



WHAT & WHO Which need do we solve & for whom?

- Streamlined welcome experience on site
- Harmonized safety instructions and validation of workers' or subcontractors' competencies
- For both supporting services (Safety, HR, subcontractor managers) and Project Managers / Work Preparation
- Driven by Safety Board workgroup (CIT Blaton, BESIX, BPC, Louis Dewaele, Cobelba, Thomas & Piron))

HOW How do we think we can make this happen?

- Central database containing (validated) workers' and subcontractors' competencies
- Common ADEB-VBA safety instructions (serving as 'welcome'), with specific instructions per employer / site / type of work where needed
- Open platform that can be integrated with other applications (HR, site apps, ...)
- At first sight, technical feasibility seems covered by functional analysis and software development capabilities
- However, critical topics need to be addressed: data protection, GDPR & privacy, traceability, integration

WHY ADEB-VBA What are the benefits of doing this together?

- Common database and safety instructions for the sector, with similar subcontractors across members
- Current solutions only cover part of the solutions (e.g. SD Worx for internal HR, Check In At Work, ...)
- Need to safeguard data protection

BUSINESS CASE Estimate of costs & benefits

- (Estimated) cumulative cost savings of 1-1,5M Euro per year for the ADEB-VBA members, because of centralized validation of workers' and subcontractors' competencies
- Compliancy with safety regulations and proof of competencies (e.g. in case of incidents or claims)
- Faster welcome experience and less administration on site
- Clear 'security' signal towards subcontractors at sector level

NEXT STEPS & NO/GO DECISION Continue with a prototype to test with real users?

- Finetuning of business case (safety, subco management, HR, project managers)
- Definition of business and technical requirements (workgroup Safety Board)
- Evaluation of current providers (T-Report, Traxxeo, ...) and/or in-house solutions (Willemen? BESIX?)
- Attention point: data ownership, confidentiality and GDPR

AICHA

WHAT & WHO Which need do we solve & for whom?

- Monitoring and optimization of construction sites with respect to efficiency, quality and safety
- Automated progress reporting and benchmark against 5D digital twin (3D BIM + planning + budget)
- For site managers, work preparation, Quality-Safety-Environment, finance

HOW How do we think we can make this happen?

- Data capturing through (fixed and mobile) cameras, sensors and trackers
- AI models for object / people recognition, resulting in heatmaps, efficiency of time spent, (ergonomics)
- AI models for computer vision, resulting in background detection and edge detection (tracking building progress)
- Technical feasibility has been proven during POC 1 at Technopolis (Fall 2019): data capturing, AI models, analysis for different scenarios
- POC 2 on a site needs to address the open topics, including: limited visibility on the site, Internet connection, manual effort needed, privacy issues (camera)

WHY ADEB-VBA What are the benefits of doing this together?

- Joint and faster learning curve on AI ... with a shared budget
- Need for common data (protocol)
- Potential of common scenarios (like safety)

IDEA

CONCEPT

PROTOTYPE

LAUNCH

BUSINESS CASE Estimate of costs & benefits

- Key drivers
 - Efficiency (including real-time feedback and proposed changes)
 - Reduction of failure costs (if deviations are monitored)
 - Objective data collection, used for post-calculation and future work preparation
 - Avoidance of safety incidents
- Precise use cases to be determined: efficiency, safety, quality, ...
- Specific locations/activities to be determined
 - Static camera: tower crane, entrance site, storage site, circulation routes,
 - Dynamic camera: activities like concrete, steel, ...

NEXT STEPS & NO/GO DECISION Continue with a prototype to test with real users?

- POC 2 on a site of Franki Construct (open construction sites, BIM model available) to address open topics
- Prioritization of use cases (!)

DeliverApp

IDEA

CONCEPT

PROTOTYPE

LAUNCH

WHAT & WHO Which need do we solve & for whom?

- Digitalization of delivery notes and the 'goods receipt' process, as a first step towards EDI and e-invoicing for the sector
- Both for Contractors (Project Managers, Site Personnel, Finance) and Suppliers

HOW How do we think we can make this happen?

- Application that scans QR codes, processes the information on the delivery notes, adds complementary information (like place, timing, status of the delivery) and triggers the administrative workflow
- Based on 4 key principles: open and flexible platform, European PEPPOL standard, first step towards EDI, privacy

BUSINESS CASE Estimate of costs & benefits

- Key drivers: efficiency, paperless, speed (of processing)
- Yearly saving per Contractor = 225.000 Euro per year, assuming 67 construction sites
- Yearly savings per Supplier = 275.000 Euro per year, assuming 81 large customers
- Complementary benefits: journey to EDI and e-invoicing, consistency across suppliers, analytics on the workflow

WHY ADEB-VBA What are the benefits of doing this together?

- Success depends on broad adoption by suppliers and contractors
- Need for an open platform that can be flexibly integrated
- Data integrity

USER VALIDATION How does the user feedback confirms the business case?

- Contractors involved: BESIX Infra (+ integration with MSFT Dynamics), Willemen, Eiffage, Jan De Nul, CFE and STRABAG
- Suppliers involved: Stradus (+ integration with SAP), Wavin
- Pipeline of suppliers and contractors
 - 70 participants for seminar on 13 February
 - 28 participants have an intention to test within 6 months
 - 15 participants for 'getting started' webinars on 18 March, including Deschacht, Wurth, Omnibeton etc
- Positive end user feedback (BESIX, Stradus, Wavin)
 - > 4000 delivery notes scanned (with and without QR code)
 - Finance even wants to go faster 😊
- Product roadmap
 - Android version (available)
 - iOS version (ready by end June)
 - New functionality: workflow

NEXT STEPS & NO/GO DECISION Who will take ownership? Do we launch it?

- Ambassadorship internally, to start testing
- Ambassadorship towards key suppliers: 'DeliverApp as an opportunity for dematerialization and social distancing'
- Go-To-Market model
 - ADEB-VBA? Third party? Joint venture?
 - Safeguard the 'free service' (with payable add-on services like integration, other functionality and support)
 - Safeguard the key principles (like data ownership and confidentiality)

BUDGET FOR 18 MONTHS

- Set-up phase: 30K Euro
 - 10 C-level interviews (priorities)
 - 15-20 interviews with the field (project managers)
 - Feedback from existing digital competence centers (BESIX, Willemen, Aertssen, ...)
 - Feedback from incubators (IMEC, Start It, Netwerk Ondernemen, ...)
 - Ideation sessions
 - 25-30 ideas
- Concept validation: 100K Euro
 - 10K-15K per concept
 - 5-10 concepts
- Prototyping: 150K Euro
 - 50K per prototype
 - 3 prototypes
- TOTAL = 280K Euro
- This budget does not include time spent by ADEB-VBA members

DISCUSSION TOPICS

- Other priorities?
- Additional resourcing for the Digital Lab and/or SteerCo?
- Qualitative interviews with Project Managers
- IT Application Board (ERP, document management, check-in, ...)
- Planning of next SteerCo (end August?)