

# **PLANNING OF RESEARCH ACTIVITIES IN A GRANT PROPOSAL**

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# A research Work plan


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It is a plan that guides you in the sequence of activities to be done in the research to have a timely completion

The goal of a research plan is to ensure that all the activities of the research are performed within a defined time frame to have a timely completion

This is a major priority to funders

Your research plan needs to be very convincing to funders



# Constituents of a research work plan or timeline

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There are varying levels of tasks that must be considered in any timeline:

- Big task (analyse data, write reports...)
- Medium task (read article, edit referencing...)
- Small task (check emails, format table...)

How to make a timeline:

- 1) Make a list of tasks
- 2) Put tasks in chronological order
- 3) Categories level of tasks by colour
- 4) Choose a timeline design
- 5) Fill the timeline with the big tasks
- 6) Copy over timeline 1 and create timeline 2 with the medium tasks included

# Common timeline designs

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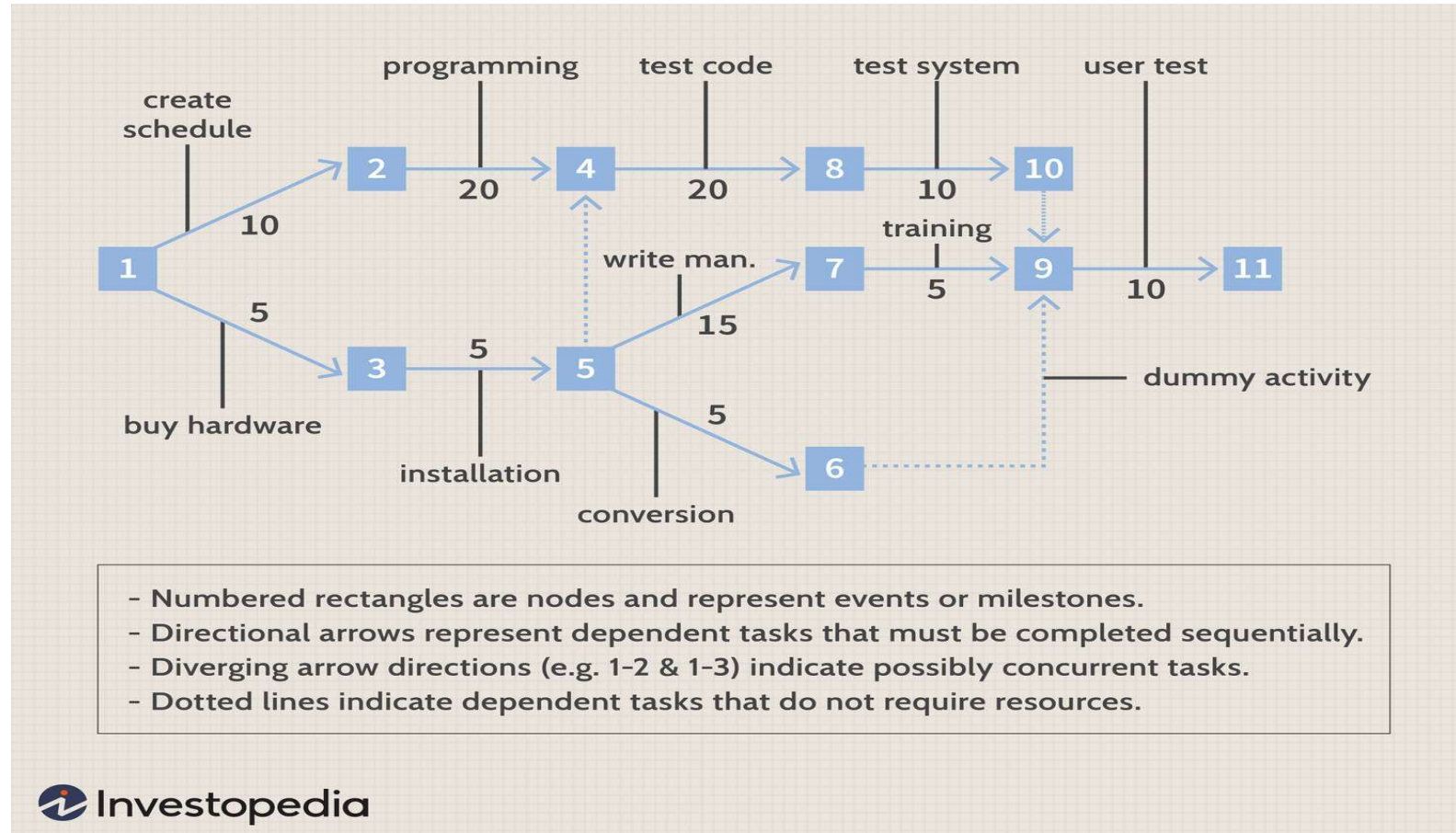
## Traditional Timeline:

A linear model showing the chronological order that a project will take place. This works well for milestone deadlines.



# PERT Chart :

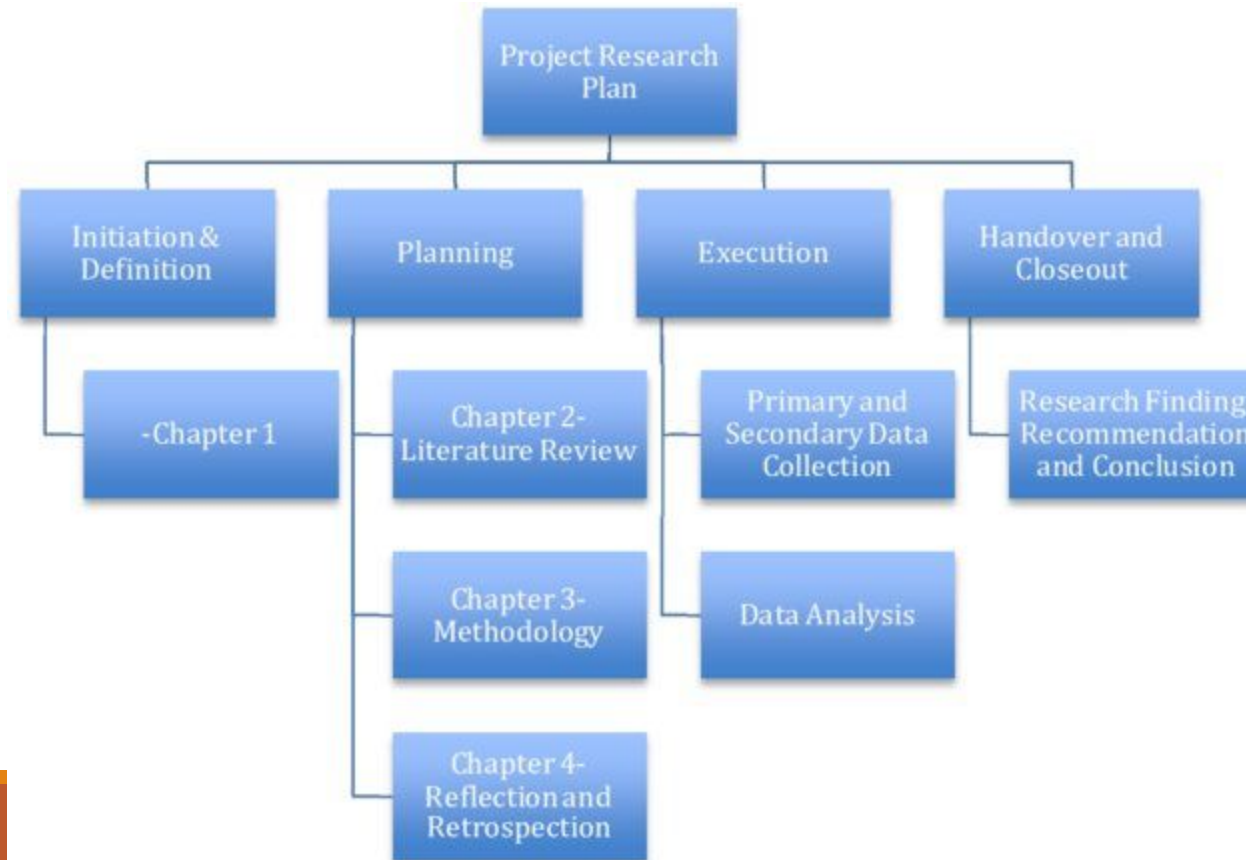
A good way of showing how one task must be completed before another is created. However, it can be harder to edit.



# Work Breakdown Structure (WBS)

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This is a diagram that flows down and shows how a particular task can be broken into smaller sections.



# The Critical Path Method (CPM)

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Examines the order and time required for various tasks that must be performed for the completion of the project.

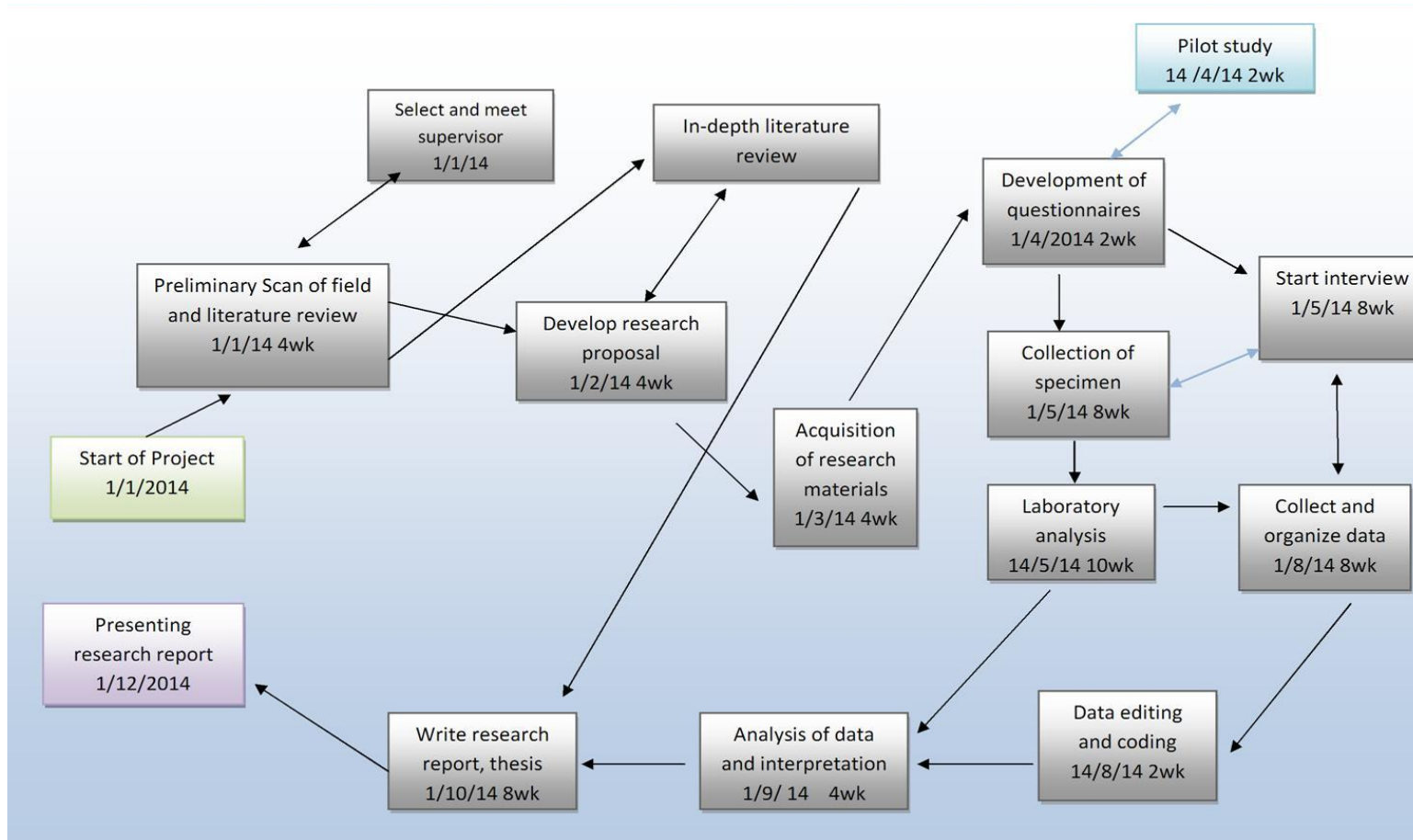
Each task has a starting and finishing date.

The closer together two dates are, the more critical the task.

- Activities (task) are represented by boxes and they are linked by arrows that interconnects them.
- The combination of task and arrows indicates the order in which events and activities are to occur.
- The time frame for each event is defined and possibly the start and the finish time.



# The Critical Path Method Diagram



# Gantt Chart

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A Gantt chart is a horizontal bar chart that graphically displays the time relationship between the different tasks in a project.

The bars reflecting the period of time it will take to complete each task listed.

The horizontal scale represents the **time** of a project

The bar on the vertical scale represents the **task** to be completed.

The top left horizontal bar represents the first task to start and next follows below drifting to the right with the last task found at the bottom right.



# Deliverables and milestones

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## **Deliverable**

- Distinct output of the action, meaningful in terms of the action's overall objectives and may be a report, a document, a technical diagram, a software, etc.
- Deliverable numbers should be ordered according to delivery dates.

## **Milestones**

- Control points in the action that help to chart progress.
- May correspond to the completion of a key deliverable, allowing the next phase of the work to begin.
- May also be needed at intermediary points so that, if problems have arisen, corrective measures can be taken.
- A milestone may be a critical decision point in the action – Eg decide which of several technologies to adopt for further development.

# Project Acronym: NORAMID SE

**Proposal title:** A Novel Rapid Nucleic Acid Isolation Microchip Intergrated in the FASTGENE PCR Microfluidics Device for Point of Care Diagnosis of Infectious Diseases

Score: **3.50** (Threshold: 0/5.00 , Weight: 20.00%)

WP	Title	Months	Year 1												Year 2											
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WP1	<b>Microfluidic Design and Fabrication</b> Attend COMSOL training course and use of AutoCAD		■	■																						
D1.1	Develop SOPs for designs and prototype				■	■																				
M1.1	Fabrication of device prototype			■	■	■	■				■															
D1.2	Submit report for prototype design with results																									
WP2	<b>Market Research/Marketing</b> Contact Labs for specifications to optimize prototype																									
D2.1	Perform market analysis for specifications of prototype Submit report of market analysis to the CEO																									
M2.1	Fabricate optimized prototype based on market specifications																									
	Entrepreneurship workshops																									
	Business Development training																									
	Meeting with investors and industries																									
D2.2	Marketing of device to early users Feedback Report of early users																									
WP3	<b>Microfluidic device testing and validation</b> Test device for functionality and efficiency																									
D3.1	Develop detailed protocol on the usage of device																									
M3.1	Performance analysis of sample with device and results of device with that of conventional PCR																									
D3.2	Present report of device performance to BforCure team																									
WP4	<b>Dissemination of project</b> Fill for patent of the prototype																									
M4.1	Fill for patent of the prototype																									
M4.2	Fill for patent of the new device																									
	Publish product on the BforCure website																									
D4.1	Create video tutorial on the use of device and upload on BforCure website																									
D4.2	Publication of results in Lab-on-A-Chip and H2020 journals																									
WP5	<b>Communication of project</b> Presentation at Conferences (microTAS, BMES etc )																									
	Attend start-up-fairs																									
	Advertise product on BforCure website, flyers																									
	Social media (Twitter, Facebook)																									
	Outreach: (Pint of Science 2021, meet with students, supervisors)																									
	Press release in H2020 Magazine																									
WP6	<b>Commercialisation of product</b> To hospitals, diagnostic centers, research institutes																									
M6.1	To hospitals, diagnostic centers, research institutes																									

## Weaknesses:

- Work plan and Gantt chart are not adequately planned. Activities are clearly unbalanced towards market analysis, commercial and promotion aspects of a product whose planned development/optimization time is underestimated (only 3 months out of 24 of research program) (WP3).
- Moreover, verification and validation phase before commercialization of the product is not allocated in the work plan.
- The milestones relating to the development of protocols are not adequately specified.

Project Acronym: **NORIM-ID:**

**Project title: A Novel Rapid Intergrated Microfluidics device that couples Nucleic Acid isolation and PCR Amplification**

Score: **4.00** (Threshold: 0/5.00 , Weight: 20.00%)

**Systems for Point of Care Diagnosis of Infectious Diseases**

WP	Title	Year 1												Year 2											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WP1	<b>Microfluidic Design and Fabrication</b> Attend COMSOL training course and use of AutoCAD	█	█																						
WP1	<b>Microfluidic Design and Fabrication</b> D1.1 Develop SOPs for designs and prototype				D																				
WP1	<b>Microfluidic Design and Fabrication</b> M1.1 Fabrication of device prototype D1.2 Submit report for prototype design with results										M	D													
WP2	<b>Business Plan</b> Contact Labs for specifications to optimize prototype	█	█	█	█																				
WP2	<b>Business Plan</b> D2.1 Perform market analysis for specifications of prototype Submit report of market analysis to the CEO											D													
WP2	<b>Business Plan</b> M2.1 Fabricate optimized prototype based on market specifications												M												
WP2	<b>Business Plan</b> D2.2 Meeting with investors and industries Marketing of device to early users Feedback Report of early users																								D
WP3	<b>Microfluidic device testing and validation</b> D3.1 Test device for functionality and efficiency Develop detailed protocol on the usage of device																								
WP3	<b>Microfluidic device testing and validation</b> M3.1 Collect samples from patients Performance analysis of sample with device																								
WP3	<b>Microfluidic device testing and validation</b> D3.2 M3.2 Compare results of device with that of conventional PCR Present report of device performance to Elvesys team																								
WP4	<b>Dissemination of project</b> M4.1 Fill for patent of our new project Publish product on the Elvesys website																								
D4.1	Create video tutorial on the use of device and upload on Elvesys website																								
D4.2	Publication of results of the project in peer-reviewed journals such as Lab-on-A-Chip and H2020 journal																								
WP5	<b>Communication of project</b> Presentation at Conferences (microTAS, BMES etc ) Attend start-up-fairs Advertise product on Elvesys website Social media (Twitter, Facebook) Outreach: (Fete de la science, meet with students, supervisors) Press release in H2020 Magazine																								
WP6	<b>Commercialisation of product</b> M6.1 To hospitals, diagnostic centers, research institutes																								

**STRENGTHS:**

- The work plan is overall well-structured and contains tasks for both research and training activities.
- The work plan is linked to the research objectives and the identified milestones and deliverables are appropriate for monitoring the implementation of the research activities. The Gantt chart properly reflects the planned activities and includes both deliverables and milestones.

**WEAKNESSES:**

- Some specific components of the work plan are unclear (e.g. communication of results is planned in parallel to the development and testing of the new device).
- Risk assessment is not comprehensive, and mitigation plans are not presented in sufficient detail.

# WORK PLAN IN TABLE

Work Packages and activities	Start	End	Responsible
<b>Work Package 1: Planning</b> i. Planning meeting with all co-investigators ii. Obtain permits from Provincial and district offices of the Department of Health iii. Develop standard operating procedures iv. Recruit and train field workers v. Confirm venues for recruitment and data collection vi. Acquisition of research material	July 2021	August 2021	v. Prof BN Nkeh-Chungag vi. Dr Charles Businge vii. Dr Zongezile Makrexeni viii. Dr Godwill Engwa
<b>Work Package 2: Recruitment of pregnant participant</b> i. Visits to antenatal clinics ii. Recruitment of volunteers iii. Signing of informed consent form	September 2021	April 2022	vi. Prof BN Nkeh-Chungag vii. Dr Charles Businge viii. Dr Godwill Engwa ix. Field worker x. MMed/MSc/Phd students
<b>Work Package 3: Assessment of CVD risk in 30 weeks pregnant participants</b> i. Administration of lifestyle and obstetric history questionnaire ii. Anthropometric measurements iii. Blood pressure measurement iv. Flow mediated dilation measurement v. Gestational ultrasound vi. Collection of fasting venous blood iii. Preparation and submission of annual report	November 2021	March 2022	vii. Prof BN Nkeh-Chungag viii. Prof N Goswami ix. Dr Charles Businge x. Dr Godwill Engwa xi. Field worker xii. MMed/MSc/Phd students
<b>Work Package 4: Assessment of CVD risk in the neonate</b> i. Collection of cord blood ii. Anthropometric measurements iii. Blood pressure measurement iv. Measurement of pulse wave velocity v. Recording of data on child at birth	April 2022	June 2023	vii. Prof BN Nkeh-Chungag viii. Dr Charles Businge ix. Dr Zongezile Makrexeni x. Dr Godwill Engwa xi. Field worker xii. MMed/MSc/Phd students
<b>Work Package 5: Assessment of CVD risk in 6 week old babies</b> i. Collection of urine ii. Anthropometric measurements iii. Blood pressure measurement iv. Measurement of pulse wave velocity	November 2021	November 2022	vii. Prof BN Nkeh-Chungag viii. Dr Charles Businge ix. Dr Zongezile Makrexeni x. Dr Godwill Engwa xi. Field worker xii. MMed/MSc/Phd students
<b>Work Package 6: Data consolidation and final reporting</b> i. Data collation ii. Final data analysis iii. Reporting	December 2022	April 2023	vii. Prof BN Nkeh-Chungag viii. Prof N Goswami ix. Dr Charles Businge x. Dr Godwill Engwa xi. Field worker xii. MMed/MSc/Phd students

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**NEVER BE AFRAID TO TRY,  
EVERY FAILURE IS A LEARNING PROCESS.**

**KEEP TRYING UNTIL YOU SUCCEED?**



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**THANK YOU FOR YOUR KIND  
ATTENTION**